The Art of Chinese Management?

- An Empirical Study of the Nature, Causes and Outcomes of Organizational Structure and Management Practices in Companies from Selected Cities in Mainland China -

中國管理藝術

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A thesis submitted by
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Abstract

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An empirical study was undertaken (a) to examine the characteristics, influencing factors, and effectiveness of a distinctive Chinese management model adopted by the newly founded private enterprises in mainland China, as well as (b) to test the "fit" notion in contingency theory. The study was based on a random sample of 124 standardized personal interviews with CEOs of Chinese industrial and service companies in Beijing and Shanghai. The standardized questionnaire mainly contained the Aston structure scales (Pugh and Hickson 1976) and Khandwalla's (1977) management schedules. Besides, three case examples were studied including one state-owned bank and two private enterprises. Using AMOS structural equation modeling, size, mass-technology and uncertainty, as well as CEO need for achievement, environmental constraints and selected Chinese characteristics, were specified as influencing factors of "bureaucracy" and managerial practices, which included strategic orientation, leadership style, decision-making, communication and subcontracting. Another model analyzed the influence of various key success factors on organizational effectiveness.

The findings provided support for the re-adoption of a distinctive Chinese management model in private companies, characterized by autocratic leadership, low formalization, "Chinese entrepreneurship" and network-based "webs". Private enterprises also tended to readopt and emphasize traditional Chinese family-related values. The distinctiveness of this model was, ceteris paribus, due to this emphasis on familism, which had a direct impact on organizational design and an indirect influence through its negative association with company size, which in turn significantly covaried with organizational design. This family-based ownership model was positively associated with organizational effectiveness. As regards contingency theory, the "traditional" fit hypotheses could not be rejected. In addition, less effective companies were not necessarily in "misfit". "Appropriate" structure, together with an optimizing planning style and firm age, were positively associated with performance. Managerial recommendations were codified in a CHINA strategy framework for high effectiveness.

Key Words

Chinese management - Chinese private family enterprises - contingency theory - Aston research - organizational structure - management practices - organizational effectiveness - comparative study - survey - excellent companies - mainland China - structural equation modeling - Amos.

Dedication

To the people of China

Quotations

"Can the strength of a hundred people be greater than that of one thousand people? It can and is, when the one hundred are organized."

V. I. Lenin

"Science is systematized knowledge ... Art is knowledge made efficient by skill."

J. F. Genung

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The Art of Chinese Management?

Part I: Introduction and Development of Theory

1. Introduction

The objective of this study is to analyze the nature, causes and outcomes of organizational structure and management practices in mainland Chinese companies. This chapter is organized around six sections: In the first section (1.1), we will provide some context for our study by presenting a brief historical and present-day background on organization in China. Afterwards, the general research questions (1.2), academic contributions (1.3) and usefulness for non-academic interest groups (1.4) will be briefly discussed, followed by an outline of the basic research model (1.5). The final part will provide an overview of the chapters to follow (1.6).

1.1. Historical and present-day background of organization in China

Before outlining the specific research questions, we will briefly discuss some historical and present-day themes related to organization in China. The aim is to stress the long-standing preoccupation of the Chinese with organizing, as well as to provide some context for the research in terms of recent economic reforms and the emergence of private enterprises, which make Chinese organizations an interesting research object.

1.1.1. Historical background

With this study, organizational theory arrives back at the place where the first concepts of organization and management were ever developed (Lui 1996 p. 390). China is amongst the oldest civilizations on the surface of the planet, dating back more than 4,000 years. The first Chinese emperor, *Qin Shi Huang*[1] (Cotterell 1981), was one of the earliest known organizer-managers and one of the greatest leaders of all time, achieving the unification of the Chinese nation. The ancient city of *Xi'An* - the capital established by him in 221 BC - was the starting point of the world-famous Silk Road, along which, in ancient times, together with people and goods, the extremely advanced knowledge and ideas of China traveled to the West (Fukuda 1989). Amongst those ideas, it was presumably possible to find concepts of organization. Subsequently, China became the first bureaucratic nation-state in the world. The term "mandarin" is still the very epithet of a bureaucrat, though with slightly negative connotations in our times.[2] Voltaire pointed out that the Chinese administrative system was the most perfect structural arrangement the world had ever known - the fact that China is the only ancient civilization which still survives is a powerful testimony to its historical effectiveness.

---

[1] For the Chinese reader, Appendix S includes a table of Chinese characters corresponding to the *Pinyin* transcriptions used in the main text.

[2] For the sake of completeness it should be pointed out, however, that the word "mandarin" was originally given to the native officials in Macao by the Portuguese and is of Portuguese origin (*mandar* means "to command").

The system was based on meritocracy sustained through rigorous testing in the Imperial Exams. Its flexibility and capacity for survival was demonstrated by the fact that it allowed for transitions from incompetent leaders to new dynasties. This meritocracy and flexibility was impressively evidenced by the example of a former beggar, *Zhu Yuan Zhang,* becoming emperor and founder of the splendid Ming Dynasty (1368-1644).

In modern times, China started a new "natural experiment" in organizational theory (Shenkar 1984). The Great Cultural Revolution in a sense wanted to prove the invalidity of contingency theory, by claiming that formalization and specialization are not necessary *in any circumstances* and are only inherited faces of hidden power. Therefore, the red guards abolished, for example, all rules relating to sterilization in hospitals and claimed that surgery could easily be performed by nurses. The ensuing disaster provided strong evidence for the rejection of this thesis.

1.1.2. Present economic reforms and development of private sector

More recently, China kicked off another organizational experiment, the creation of an allegedly new economic system called "Socialism with Chinese Characteristics", to be achieved through a transition from a planning system to a socialist market economy. After the quick removal of the non-governmental individual economy in the mid-1950s, an important pillar of the reforms, started by the late paramount leader Deng Xiao Ping in 1978, was the re-creation of a private economy, particularly through the development of special economic zones along the coastal areas of South China. After the official endorsement of the "open door policy" during the Party's historic Third Plenum in December 1978 (Lin 1988 p. 9), *Shekou*, established in January 1979, became the first "Special Industrial Zone". Liu Shaoqui's[1] prediction (Shangquan and Fulin 1996 p. 23) proved to be right: "If we eliminate it [the private economy] too early, later we'll have to invite it back".[2]

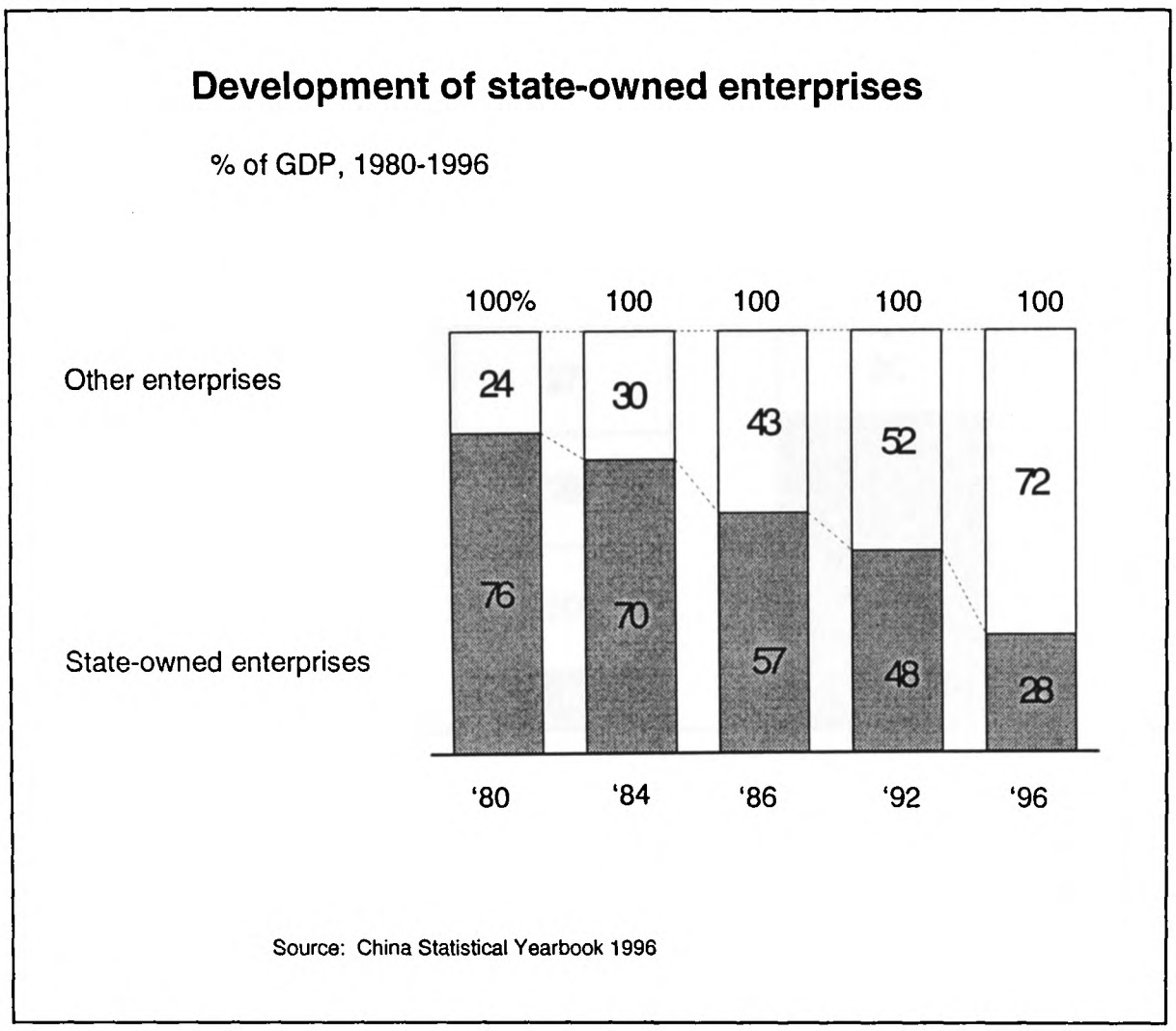
The steady decline of the state-owned sector since the re-establishment of the private economy is shown in Figure 1-1 on the next page. Although the share of SOEs in industrial production is still much larger than their share of the enterprise population (Hussain and Zhuang 1998 p. 21), the percentage has dropped sharply from 76% in 1980 to 28% in 1996 (State Statistical Bureau 1996).

---

[1] Liu Shaoqui was China's former nominal head of state (*guojia zhuxi*), removed during the Cultural Revolution.

[2] Apart from these ownership changes, at the enterprise level, a key element of Chinese economic reforms was the separation of government functions and officials from enterprise management through the introduction of the "Director Responsibility System" (Schermerhorn 1987 p. 346; Hunt and Yang 1990).

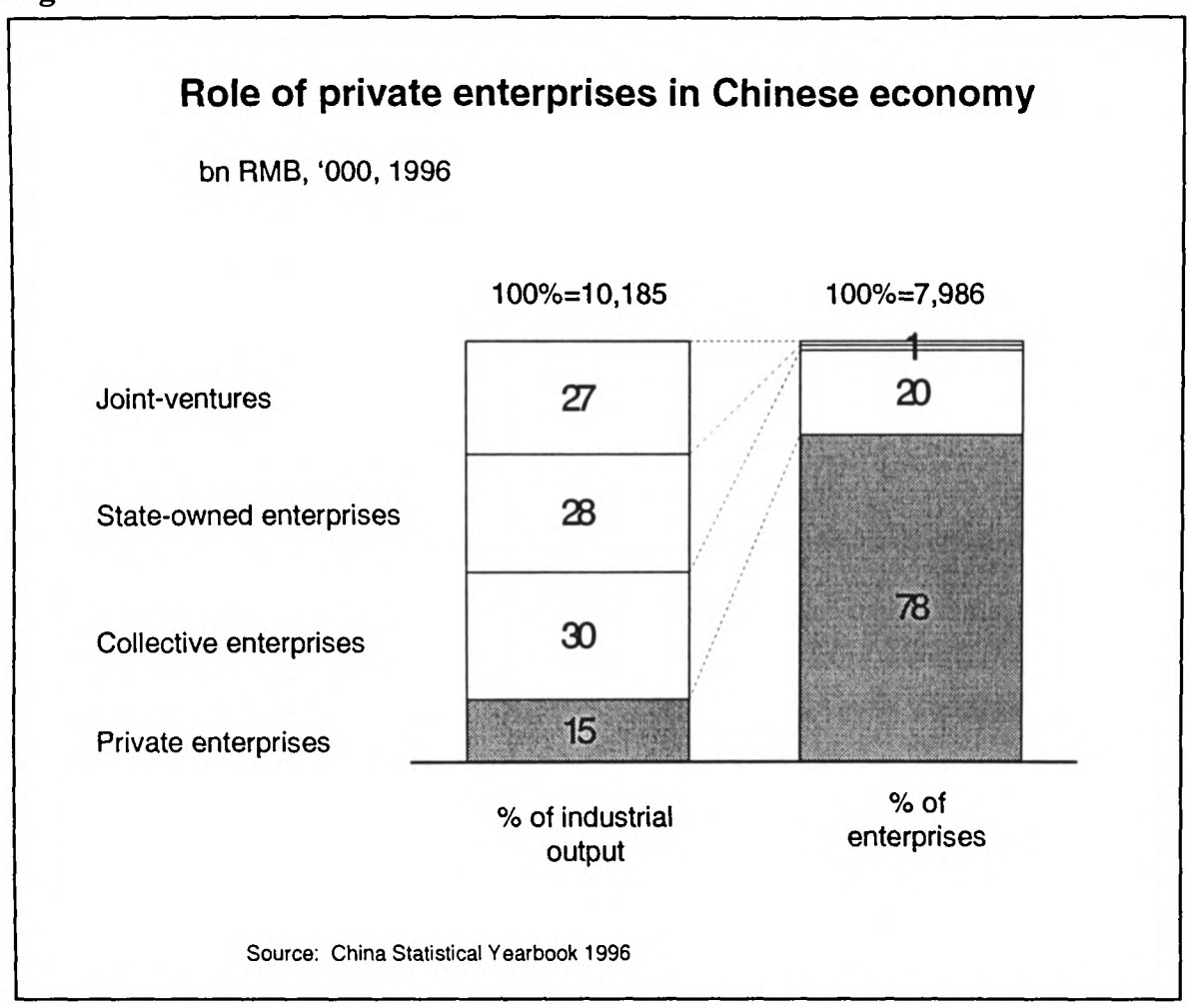
Figure 1-1



After growing quickly in the first decade until 1989, the non-state-owned economy stopped developing in the ensuing two years. Ever since Deng Xiaoping's speech during his epic inspection of South China in 1992, it recorded rapid growth figures once again, breaking the 50 percent mark of GDP for the first time in 1992. The most rapid development of private enterprise took place in Guangdong (Shangquan and Fulin 1996 p. 26), a province in the South of China, and other booming cities along the coast and in the South.[1] A relatively recent snapshot presented in Figure 1-2 on the next page shows that private companies' share of the enterprise population is still significantly larger than their share in industrial production. This is mainly due to the average smaller size and capitalization of private firms.

[1] In this context, the Director for China's Special Economic Zones and State Council Member Hu Ping explains that there are three "main engines of Chinese market economic growth", i.e. Beijing, Shanghai, and Hong Kong (Ou, Shi and Xu 1996 p. 3).

Figure 1-2



1.1.3. Importance of further research on China

Due to the success of Deng's reforms, the People's Republic of China (P.R.C.) has become strategically important both in political and economic terms. Politically, we witness the development of a new military powerhouse in the Pacific Rim. Economically, China has been boasting double digit growth rates for most of the last decade, making it the third largest economy in the world. In addition, given that over one-fifth of the human race lives in China, the increase in purchasing power makes it the largest, and potentially also one of the most profitable (Scalise 1993 p. 30), national markets in the world. As a consequence of its growing importance, China, as the "last true business frontier" (Johnson 1996 p. 39), attracts increasing interest both from businessmen and academics in diverse disciplines, including anthropology, political science, economics and management:

Academics: Given the objectives of many management scholars to develop new theories, test their universal validity, as well as guide managerial action, China represents a fertile ground for organizational research. In this context it is surprising that, although there have been quite a few cross-national studies examining the world-wide applicability of contingency theory, China had to be singled out as one of the only remaining major areas for which this theory has not yet been empirically tested (Hickson and McMillan 1981a p. 189).

Businessmen: Due to the increase in both trade and foreign direct investment, foreign companies will get increasingly more involved with their Chinese counterparts. Therefore, it is important for foreign businessmen to acquire a firm understanding of the workings of Chinese companies and the Chinese market in general.

1.2. General research questions

To address this interest of academics and businessmen in China, the study aims at analyzing more closely contingency theory in general and Chinese management in particular - this time using a non-intrusive sampling approach instead of a Cultural Revolution. Bearing in mind the existence of three "growth engines" and given that more work has been done on Hong Kong, in this study we will focus on research related to companies located in Beijing and Shanghai.[1] More specifically, this study has the following dual set of research questions, which can be divided into the main empirical problem statement and an overarching theoretical question:

Problem statement: "Is there a contextually determined distinctive Chinese management model in mainland private companies, which is positively associated with organizational effectiveness?"

First, as its main research question, the study intends to analyze the distinctiveness of the Chinese management model in private, mainly family-based enterprises. "Management model" here is defined as the structural and managerial choices of a company. We believe that the distinctive overseas Chinese management style and family-based cultural values have been readopted in the newly founded private enterprises in the P.R.C. To test for its distinctiveness, we will analyze its characteristics, influencing factors and effectiveness outcomes. This will enable us to draw conclusion as to whether private Chinese management is indeed an "art" in the sense of "the *skill* of doing something *well*".

Theoretical question: "In general, is the 'fit' notion in contingency theory valid?"

Second, an overarching theoretical question is related to the "fit" notion in contingency theory. In particular, we intend to analyze whether the fit-induced contingency relationship are valid in China as in the rest of the world. In this context, we will examine whether less effective companies are necessarily in "misfit" with their environment. Finally, following this theme, we intend to test whether "appropriate" structure together with other key success factors is positively associated with company performance.

The two themes are clearly interrelated and, in a certain sense, the first theme forms a subset or specific application of the more general contingency theory theme. This notion is graphically illustrated in Figure 1-3 on the following page. The detailed research questions are presented in Figure 1-4 on the subsequent page.

[1] These two cities also represent two very different cultural-geographical areas, the North and South of China (Fitzgerald 1986).

Figure 1-3

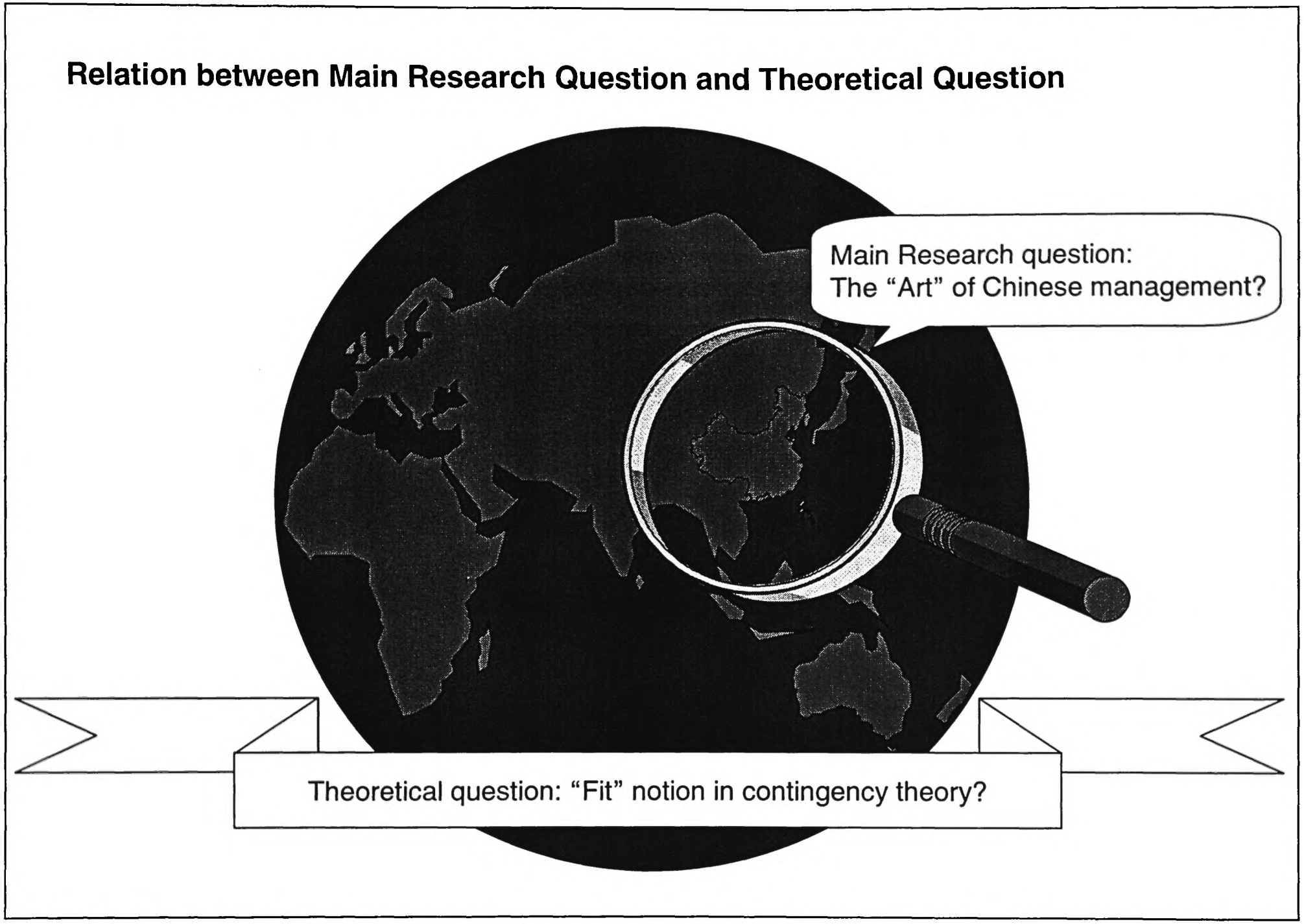
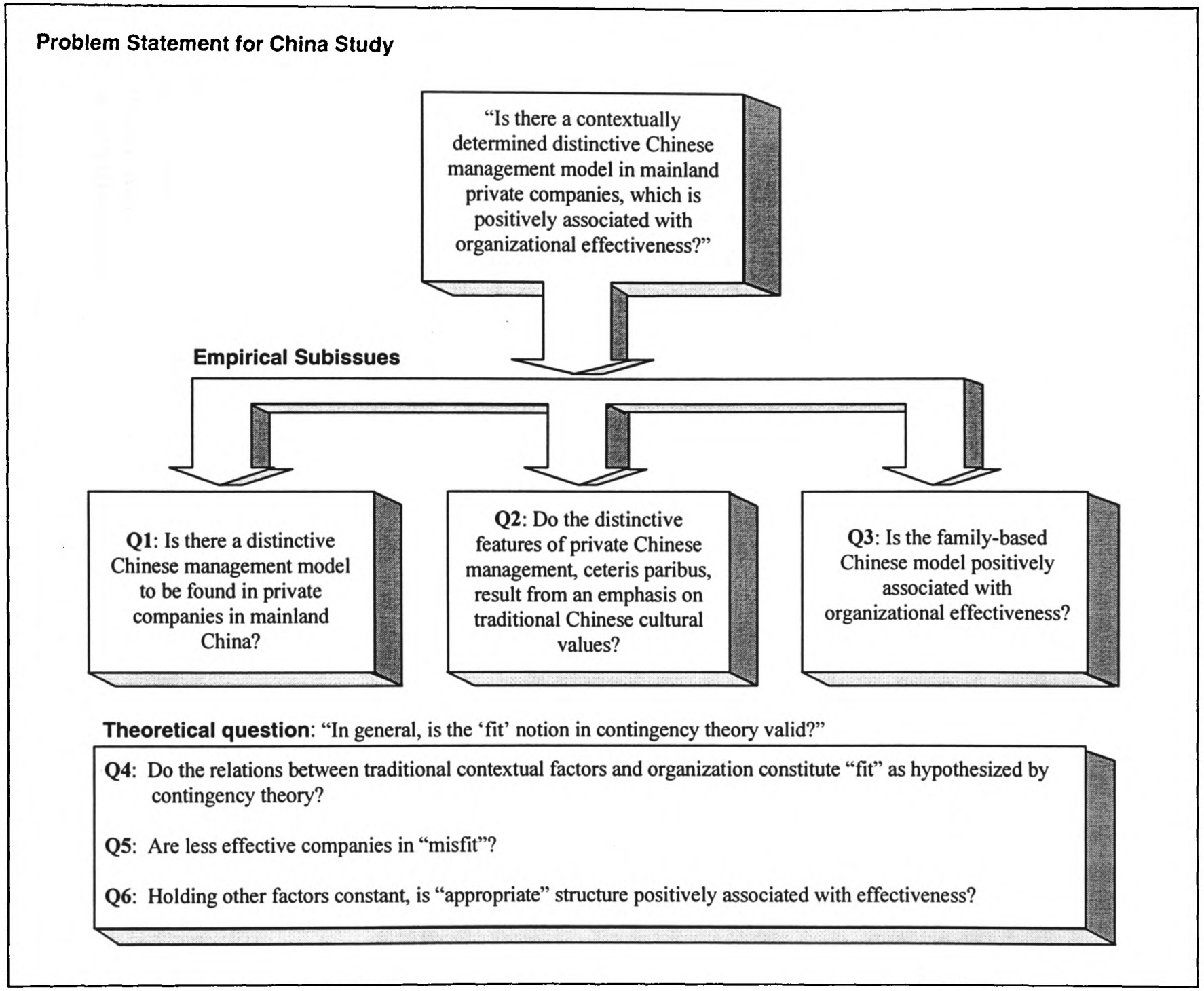

Relation between Main Research Question and Theoretical Question
Main Research question:
The “Art” of Chinese management?
Theoretical question: “Fit” notion in contingency theory?

Figure 1-4


Problem Statement for China Study
"Is there a contextually determined distinctive Chinese management model in mainland private companies, which is positively associated with organizational effectiveness?"
Empirical Subissues
Q1: Is there a distinctive Chinese management model to be found in private companies in mainland China?
Q2: Do the distinctive features of private Chinese management, ceteris paribus, result from an emphasis on traditional Chinese cultural values?
Q3: Is the family-based Chinese model positively associated with organizational effectiveness?
Theoretical question: "In general, is the 'fit' notion in contingency theory valid?"
Q4: Do the relations between traditional contextual factors and organization constitute "fit" as hypothesized by contingency theory?
Q5: Are less effective companies in "misfit"?
Q6: Holding other factors constant, is "appropriate" structure positively associated with effectiveness?

1.3. Academic research contributions

By answering the above stated research questions, this thesis aims to make three distinctive contributions to the area of organizational studies: [1]

First, by answering the main empirical research question, we will examine, through survey methodology and case examples, the nature of a distinctive Chinese management style to be found in predominantly small, private companies in mainland China. The distinctiveness of Chinese management has been occasionally mentioned in the theoretical literature, but there have been very few empirical studies testing the Chinese management model in terms of distinctive characteristics, influencing factors and effectiveness outcomes. In addition, the model had been assumed to be practiced in *Nanyang* Chinese communities,[2] but we will show that it has been readopted in mainland China as well.

Second, by answering the second theoretical research question, we will test the validity of contingency theory and expand our knowledge of its notion of "fit". Specifically, we will examine whether the relationships between a comprehensive set of contextual influencing factors and structural properties on the on hand, as well as context and management on the other hand, correspond to the "fit" hypotheses of contingency theory. We will thus examine whether the "culture-free" hypothesis can be supported in China as well, and whether a few selected characteristics of Chinese culture or CEO personality play an important role influencing the structuring and managing of organizations in China. The study also intends to advance contingency theory by examining whether less effective companies are necessarily in "misfit" and by actually operationalizing "appropriate structure", analyzing its relationship with organizational effectiveness, and suggesting other factors besides structural "fit" as determining performance. Most contingency theorists simply *assumed* the higher effectiveness associated with their notion of "fit", but did not actually empirically test it.

Third, in terms of organizational methodology, this study is one of the first representative and comprehensive studies of management in China. More specifically, the study represents one of the first attempts to combine research on most important elements of structure and management in *one* study. It is thus an *extension* of the research tradition initiated by the Aston program in its own right, as well as an attempt to *replicate* parts of its findings. Finally, it will also test and expand various standard and new research scales within the framework of structural equation models, which are still not in widespread use amongst organizational researchers.

---

[1] A more detailed discussion of research contributions and hypotheses will be presented in chapter 3, entitled "Development of research theory", which will incorporate insights from the literature review.

[2] *Nanyang* literally means overseas Chinese living outside the borders of the P.R.C. and includes people from Hong Kong as well (Hickson and Pugh 1995 p.170). It should be mentioned that this term is quite uncommon in the Mandarin practiced in mainland China. The term *Haiwai Huaqiao* would be much more appropriate. However, due to the usage in the literature we follow this terminology here. In future works, writers should start to use the more exact Mandarin term proposed above.

1.4. Usefulness of research for non-academic interest groups

Apart from academics, this research will also be useful for businessmen and policy-makers:

1.4.1. Usefulness for businessmen

By answering the first research question, the study results will be useful for businessmen in two respects:

Knowledge of structure and management: Foreign companies which are interested in trade or direct investment in China have to know the organizational structure and management practices of Chinese companies. Their Chinese counterparts might act as trading partners, customers, suppliers, competitors, institutional investors or partners in joint-ventures or strategic alliances. To effectively deal with them, Western companies are supposed to know, for example, how bureaucratic Chinese companies are, who makes decisions, what are the distinctive features of the decision-making process, which leadership style is practiced, how communication flows, and what the main characteristics of Chinese cultural values are. Given that, due to cultural differences, these practices might differ from those in the West, the research will also shed light on the transferability of Western management techniques in general. If there were indeed such differences, foreign companies in China might have to *adopt* at least parts of Chinese Management, such as its leadership style and human resource practices. Even those companies which do not intend to enter the Chinese market might learn from Chinese Management as exemplified by the most effective Chinese companies in the sample. This might help them to defend themselves against their Chinese competitors at home, or, in even more general terms, to gain a competitive advantage in other markets, no matter whether there are Chinese competitors or not. Given the fact that, in addition to several new scales, the research uses standardized measurement instruments which have been applied in research in other countries, cross-national comparisons of these contingency "fit" aspects of different forms of organization will be facilitated. Finally, as regards the personal career of managers themselves, they might even decide or have to work in *Chinese* companies expanding internationally or operating in China. They thus might want to learn more about their new organization and its management.

Knowledge of key success factors: In order to be successful when doing business in China, Western companies have to understand the key success factors in the Chinese market. By analyzing the effectiveness of Chinese management in the context of other influencing factors of success, the research thus also clarifies this important aspect of doing business in China.

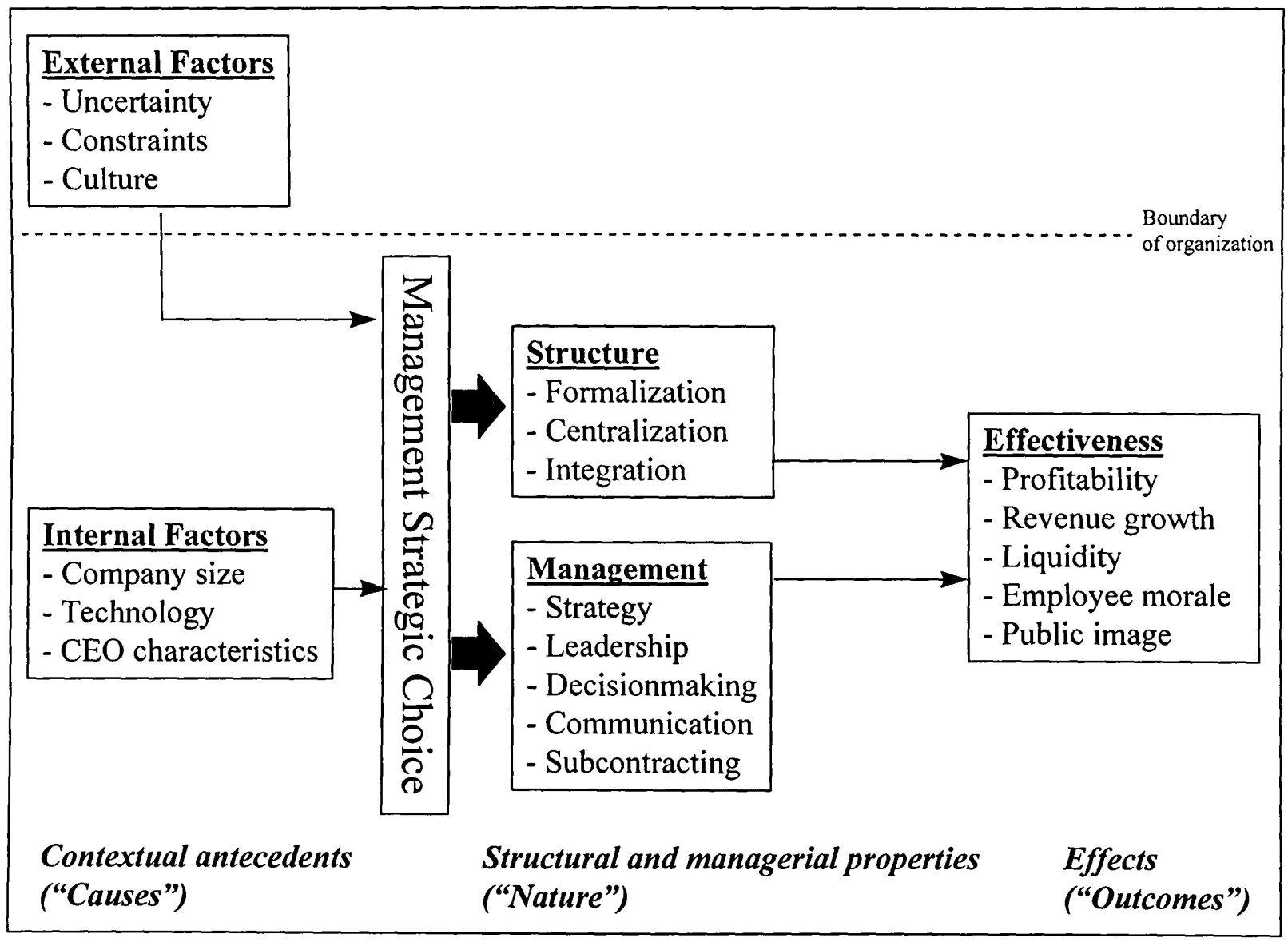
1.4.2. Usefulness for policy-makers

Further, as part of the first research question, the study will examine the differences in the organizational effectiveness of private and state enterprises in mainland China, which will shed some light on the success of the attempt to introduce capitalist business organizations into a communist society. Therefore, the findings might have important policy implications for Chinese economic reforms and thus also be of interest to policy makers in the areas of privatization and transition economies in general.

1.5. Basic underlying model

A graphical illustration of the detailed research model is presented in Figure 1-5 below. The basic idea is that there are various effectiveness-induced optimal structural and managerial responses to environmental contingency factors, which are moderated through the "strategic choice" (Child 1972b) of managers.[1] "Appropriate" structure, as well as certain management styles and other contextual factors are thought to influence organizational effectiveness, conceptualized as a broad set of financial and other criteria. A more detailed discussion of the individual research models will be presented in chapter 3, entitled "Development of research theory". For the sake of clarity, this model does not show any reciprocal relationships, feedback loops or interactive effects. However, we will analyze certain interaction effects such as the influence of emphasis on Chinese culture on company size.

Figure 1-5 General research model



[1] Given that "strategic choice" is difficult to model and might even be to some extent random, we assume that part of the unexplained variation in structure and management is due to certain aspects of "strategic choice". In contrast, the influence of the CEO's personality, motivation and objectives will be explicitly modeled in the form of his need for achievement.

1.6. Thesis outline

This thesis is divided into the following four parts:

Part I : Introduction and Development of Theory

After this introduction (chapter 1), the next chapter will present a review of the relevant research literature (chapter 2). Its objective is to analyze the accumulated body of theory and empirical research in terms of its relevance for the present study. It will also identify the need for further research which this study will address. The following chapter (chapter 3), will briefly discuss the overall theoretical and philosophical perspective, as well as fully develop the research theory in terms of the individual hypotheses to be tested.

Part II: Methodology and Exploratory Analysis

The first part of this section (Chapter 4) will discuss the overall research design in terms of sample, measures and procedures. The next chapter will present the findings of the exploratory data analysis (chapter 5), including a discussion of the data analytical approach, sample characteristics, scale validation and preliminary data screening.

Part III: General Research Findings

In this third part, the findings related to the characteristics of structure and management of private and state enterprises in China will be reported (chapter 6). Afterwards, the results with respect to the influencing factors of structure and management in China will be presented (chapter 7). Both chapters also include an international comparison of the research findings with other international studies. Finally, the results concerning key success factors of Chinese companies will be reported (chapter 8).

IV: Conclusions and Limitations

In this final part (chapter 9), the findings of the preceding three chapters will be discussed in the light of existing research. Afterwards, some practical recommendations will be given to Western and Chinese managers interested in increasing their level of organizational effectiveness in China. The final section will discuss limitations and future need for research in the subject area.

Appendix

The Appendix provides some more background material on research design and instruments, case records, statistical formulae and definitions, participating organizations, more details on the exploratory data analysis, industry and geography profiles, international mean comparisons, more details on specific structural models, Chinese transcriptions, a glossary of key terms, as well as a bibliography.

Summary of Chapter 1

In this introductory chapter, first some background on Chinese organizations was presented. China's historical connections with the development of organizations and its frequent "natural" social experiments were highlighted. We stressed its growing importance in economic and military terms which seemed to be mainly due to the recent reforms, including, amongst others, the large scale re-introduction of private property to China. This made it interesting as an object for further studies on organization. The next section briefly outlined the dual research question related to the distinctiveness of Chinese management and the "fit" notion of contingency theory in general. Afterwards, some targeted contributions to the world of academia, business and politics were highlighted. The basic research model hypothesized that effectiveness-induced constraints tend to narrow down managerial strategic choice which in turn will influence overall organizational effectiveness. The final part outlined the structure of the thesis which is organized around four major parts, including theory development, research design, findings, and conclusions. The next chapter will present a review of the relevant research literature.

2. Literature review

As outlined in the introduction, we have a dual set of objectives in this study: The main empirical objective of this study is to analyze the nature, causes[1] and outcomes of the organizational structure and management practices adopted in mainland Chinese companies, including both private and state-enterprises. An additional theoretical objective is to test the universal applicability of contingency theory and expand our knowledge as to its relationship with effectiveness. As a first step, it is necessary to analyze and critically evaluate the relevant theoretical and empirical literature in these two areas of Chinese management and contingency theory. This analysis will provide a basis for (a) identifying the need for further research, (b) deciding which variables to include in the research model, and (c) deducing detailed theoretical hypothesis to be tested. As a result, it will be demonstrated how this study will fill some of the gaps of organizational theory in general and in the Chinese context in particular. The literature review thus shows how it contributes to the further accumulation of positive and normative knowledge in the subject area. As a caveat, it should be noted that many concepts dealt with in this research are subject to various definitions and conceptual overlap. Therefore, all important terms are defined to clarify their use in this study. For easy reference, definitions are listed in a glossary of key terms (Appendix T). A final note should be made of the fact that there is a wide range of areas in organizational theory potentially relating to the subject matter. Therefore, only selected aspects which are particularly important to the development of hypotheses for this study will be critically discussed. The review does not claim to be a complete assessment of all aspects related to organizational theory in its entirety.

This chapter is organized around four sections which reflect the dual, empirical and theoretical objective of this study. The first section will critically review the status of current knowledge related to Chinese management (section 2.1). Afterwards, contingency theory will be analyzed (2.2). In the final part, we will identify some need for further research (2.3), followed by an outline of distinctive targeted research contributions (2.4).

2.1. Chinese management

In the previous chapter, the main empirical research question has been stated as follows: "Is there a contextually determined distinctive Chinese management model in mainland private companies which is positively associated with organizational performance?". We will therefore critically review the literature along three major themes, including the distinctiveness of the Chinese management style (2.1.1), its influencing factors (2.1.2) and relationship with organizational effectiveness (2.1.3). The objective of this review is to examine our current knowledge of Chinese management and critically scrutinize the need for further research in this area.

---

[1] It is important to note that, strictly speaking, cross-sectional studies like this cannot make definite conclusions on causality. Further longitudinal studies will be necessary to confirm the hypothesized causal relationships. In addition, social science models involve voluntaristic human beings (Burrell and Morgan 1979 p. 6) who are never completely *determined* by influencing factors which operate in a stable, predictable and mechanistic manner.

2.1.1. Distinctive characteristics of Chinese management

2.1.1.1. General criticism of Chinese management literature

Lack of unifying framework: In general, research on Chinese management is a relatively recent phenomenon and the literature is still sparse (Redding and Ng 1982 p. 201; Leung 1995 p. 6). In particular, most literature focuses on individual, fragmented aspects of Chinese management and there is no overarching framework which synthesizes these various ideas.

Lack of conceptual clarity: Another problem in the literature is the lack of conceptual clarity regarding the "distinctiveness" of the Chinese management style. In particular, writers often use words like "comparatively" low, but do not specify what they compare the style with. In this form, it is almost impossible to empirically test their assertions. In this context, it is important to mention, for example, that writers on "Nanyang" management in private firms have not compared this style with management in state enterprises to test its distinctiveness.

Neglect of mainland Chinese private firms: In most cases, discussions tended to describe "Nanyang" styles (cf. Redding (1990); Wang (1991); Montagu-Pollock (1991 p. 20); Hamilton (1991); Kao (1993); Wong (1993); Drucker (1994)). This situation can be explained as follows: These "Nanyang" authors think that, due to the presence of a communist regime in mainland China, which originally had abolished private property and led to entrepreneurs fleeing from the mainland, this particular style cannot be found in the P.R.C. anymore and is mainly practiced overseas (cf. Hickson and Pugh (1995 p. 170)). We will argue that private companies in mainland China have readopted the particular Chinese management style and emphasis on Chinese family-based values. Thus, the descriptions of writers on *Nanyang* management are thought to apply to private companies in mainland China as well.

Limited empirical evidence: In terms of methodology, most of the literature is theoretical in nature and does not employ empirical methods (Weihrich 1990 p. 3). This is despite the fact that the use of empirical studies has been strongly recommended to overcome guesswork related to organization in China (Shenkar 1989 p. 121). More specifically, no single study has used a survey which included a comprehensive set of Aston scales in mainland China.[1] Structural and managerial properties are not normally linked back to micro-management theories and literature. The few existing empirical studies frequently adopted a case study approach with a very limited number of organizations, often restricted to only one location. In many instances, they used convenience samples or "invited samples" for which the researcher is directed to officially targeted enterprises (Shenkar 1994 p. 20). Equally frequent are interviews with seminar participants which are often observed by party officials and have been shown to yield biased results (Adler, Campbell and Laurent 1989 p. 67). A more detailed methodological criticism of selected empirical studies will be presented later.

[1] In this context, it is important to mention that, in general, there are few cross-national organizational comparisons including China (Shenkar 1994 p. 26).

2.1.1.2. Synthesis of recurrent themes in private Chinese management literature

Studies analyzing the nature of private Chinese management are presented together with their relevant findings and methodology in Table 2-1 below: [1]

Table 2-1 Overview of literature on private Chinese management

Authors	Year	Relevant findings	Method
Cai, P. H.	(1997)	Overseas Chinese businesses characterized by lack of formalization, entrepreneurial flexibility (*linghuoyingbianxing*), and enterprise networks, all sharply contrasting with the professional, consistent and transparent management of US companies and well-established "management theory"	Theory only
W. K. K. Chan	(1982)	Adopting business historical perspective, finds that the organizational structure of the traditional private-owned Chinese firm is characterized by strong centralization and coercive leadership style	Business historical records
R. Heller	(1991)	Successful overseas Chinese management model characterized by emphasis on family ties and "rule by men" instead of rule of law or formalization, as well as strongly founder-dominated culture	Theory only
J. Lee	(1996)	Distinctive Chinese management model in Singpore, described by human-centeredness, family-centeredness, centralization of power and small size, conflicts with Western management model	Theory only
F. F. L. Leung	(1995)	Distinctive overseas Chinese management model characterized by lack of hierarchies, low formalization and dominance by owner	Theory only
J. A. C. Mackie	(1992)	Entrepreneurial versatility, as well as importance of personal relations and familism in Chinese overseas firms	Literature review
M. Montagu-Pollock	(1991)	Distinctive Chinese overseas management style, characterized by centralization, importance of relations and enterprise networks, often leads to high organizational flexibility but might set limits to growth	Theory only
G. Redding & Y. Y. Wong	(1986)	Typical overseas Chinese firm characterized by strong centralization, low specialization, standardization, few staff departments and strong reliance on personal relations	Case studies
S. G. Redding	(1990)	Importance of personal network for typical overseas Chinese owner-manager	Case study
D. Turpin	(1998)	Overseas Chinese businesses characterized by centralized, paternalistic decision-making dominated by the owner, simple business structures, flexibility, as well as "lean and mean" management. Family business represents the traditional form of Chinese capitalism. Due to reliance on internal private family capital, firms tend to be very cost-conscious and highly efficient.	Theory only
Weidenbaum, M.; Weidenbaum and Hughes, S.	(1996) (1996)	Centralized, authoritarian leadership, flexibility, lack of bureaucracy, and enterprise networks in overseas private Chinese businesses. Family businesses are the dominant form of corporate governance among the overseas Chinese.	Mainly theory (and anectodes)

Note: Studies listed in alphabetical order

[1] We focus here on management practices in mostly *Nanyang* private enterprises which are distinguished from the more westernized, "scientific management" oriented style allegedly found in state enterprises. Therefore, the selection does not include subsequently mentioned other literature on Chinese management focusing on state-owned enterprises, such as Child (1994), Xu (1992) and Weihrich (1990).

We can synthesize the following themes as regards the distinctive characteristics of mainly overseas Chinese management in private enterprises. We developed an overarching framework which is graphically illustrated in Figure 2-1 on page 2-11:

a) ***High centralization***. There is a high degree of centralization of power in the hands of one autocratic entrepreneur (Hickson and Pugh 1995 p. 171; Weidenbaum 1996 p. 141; Turpin 1998 p. 8), who is usually the founder and owner. This phenomenon can be termed "dictatorship by the owner-manager" (Montagu-Pollock 1991 p. 23). A good example for this structural characteristic is the hub-and-spoke management system of US computer tycoon Wang, who at times had 136 out of 2000 employees directly reporting to him (Cohen 1990 p. 24). Other Chinese organizations, instead of adopting a multidivisional form with relatively independent heads of business units, require all of the organization's various branches to report directly to the founding entrepreneur (Kao 1993). In contrast, state-owned enterprises were found to be relatively decentralized (Child 1994 pp. 94-95).

b) ***Low degree of bureaucracy***. Bureaucracy does not appear to be very strongly developed in Chinese private enterprises. More specifically, the degree of formalization specialization, standardization of control systems and integration is very low (Redding 1980; Redding and Wong 1986; Redding 1990; Hickson and Pugh 1995 p. 171; Weidenbaum 1996 pp. 149-150). In addition, there is a distinctive lack of a well designed organizational hierarchy (Leung 1995). Put in a nutshell, formal needs of control are less important, given that the CEO[1] exerts personal control. In contrast, studies on state-owned enterprises in mainland China emphasized the high degree of "structuredness" of these organizations. For example, based on selected interviews, Krone *et al.* (Krone, Garrett and Chen 1992) undertook a preliminary investigation of managerial communication practices in state-owned factories, concluding that Chinese factories resembled the bureaucratic model in their use of formal information centers and centralization of authority. Weihrich (1990) also found that state enterprises tend to use a strong degree of bureaucracy.

c) ***Entrepreneurship***. Chinese private enterprises tend to follow proactive and aggressive strategies, adopt a flexible leadership style and entrepreneurial decision making (Mackie 1992 p. 53; Hickson and Pugh 1995 p. 170), which are preferred over the extensive use of analysis to derive "optimal" decisions. In contrast, studies on state-owned enterprises highlighted the importance of planning for decision making (Weihrich 1990). In addition, Boisot and Liang (1992 p. 180) found that state enterprises inhibited the emergence of entrepreneurial managers.

[1] Following common usage (cf. Gupta (1988); Lewin and Stephens (1994 p. 208)), we use the term CEO throughout the thesis but include general managers, who might have other official job titles (eg. Factory Director).

d) ***Networks***. There is a predominance of small, entrepreneurial enterprises within extensive (often subcontracting) inter-organizational firm networks (Montagu-Pollock 1991 p. 21; Weidenbaum 1996 p. 148; Williamson 1997). This "enterprise city" is held together by family lineages, trust and "guanxi" (Fukuyama 1995). Whitley (1994 p. 29) calls these networks "centrifugal business systems" and states that highly personal connections with employees, customers and suppliers are likely to be distinctive characteristics of these networks. Many such lineage-based networks extent internationally (Watson 1975b) with *Nanyang* Chinese, who had emigrated, for example, from Fujian or Guangdong province, investing back into their home towns and representing the most important foreign investor group in China (Fukuyama 1995 p. 92). In this context, Vogel (1989) found that private Chinese enterprises are often part of the "Hong Kong Business System". Similarly, Cai (1997) pointed to the predominance in Asia of internationally spawning networks, consisting of companies usually owned by one (often undisclosed) overseas Chinese entrepreneur and all managed by overseas Chinese. As regards their purpose, firm networks are important protective mechanisms in the absence of property rights and political stability (Fukuyama 1995 p. 92). They also represent one form of dealing with market imperfections (Child 1994 p. 121). In addition, networks provide useful business intelligence and opportunities (Montagu-Pollock 1991 p. 22). Finally, by cross-holding based "proliferating" or "spawning" (Whyte 1995 p. 1003; Hickson and Pugh 1995 p. 170) instead of trying to grow in size, many Chinese enterprises facilitate close ties with family members, who often head the spin-offs and might otherwise join other large companies to find positions of responsibility. In contrast, state-owned enterprises are usually vertically integrated and form part of governmental "Industry Bureaus" (Child 1994 p. 151) or even Ministries (cf. Schermerhorn (1987 p. 346) and Xu (1992 p. 537)).

e) ***Emphasis on Chinese cultural elements***. Researchers highlighted the importance of selected elements of Chinese national culture as part of the distinctive Chinese management style.[1] The Chinese represent the world's largest racial, linguistic and cultural group, and are spread all over the world. Researchers stated that, more than in many other countries, "in China culture pervades" (Hall and Xu 1990 p. 574). Apart from other factors and to a greater extent than other religions such as Buddhism or Taoism, it was Confucianism (Chan 1996; Clegg, Higgins and Spybey 1990; Hofstede and Bond 1988; Yang 1961) with its underlying personal ethical principles which has been the most significant shaping factor of social relations within the Sinitic culture over the last two thousand five hundred years (Fukuyama 1995 p. 84). Its ethics were internalized by members of the community through socialization and often served as a surrogate for systems of laws. Despite the influence of communism, neotraditional values remain pervasive in the P.R.C. (Laaksonen 1984; Laaksonen 1988 p. 7; Walder 1986; Hall and Xu 1990 p. 574).

[1] Cai (1997), for example, states that "overseas Chinese enterprises put family capital, traditional customs and Confucianist culture together", facilitating very strong cohesiveness amongst family members. He concluded that Chinese overseas family businesses and Chinese traditional culture are *one* research topic.

However, despite the common emphasis on the importance of culture in China, there is some disagreement in the literature as to whether emphasis on cultural elements, especially the importance of personal relations, should be treated as an "independent variable" influencing the structure and management of Chinese enterprises (Hofstede and Bond 1988; Lockett 1988; Harrison 1994; Wong and Birnbaum-More 1994; Solt 1995; Xing 1995), or whether it is a "dependent variable", i.e. one additional dimension of the alleged distinctive Chinese management style (Alston 1989; Redding 1990; Montagu-Pollock 1991; Wall 1990). This distinction has not been discussed in the literature. One of the major reasons for this neglect might be the fact that most writers did not adopt a contingency perspective, but tended to treat Chinese management as "monolithic".

Therefore, we have to clearly state our position: Adopting a contingency perspective, an emphasis on selected Chinese cultural characteristics is considered to be a contextual influencing factor of structure and management. The *level* for this contextual factor is hypothesized to be stronger and thus distinctive in the case of Chinese private companies compared to state-owned enterprises.

We will now review in some more detail the importance and distinctiveness of certain elements of Chinese culture highlighted in the literature. A common underlying thread in most of these elements is the emphasis on family-related values in private enterprises. Management writers such as Lockett (1988), Xing (1995) and Child and Lu (1996 p. 4) emphasized the following basic characteristics of Chinese culture as being important influencing factors of organizational structure and management practices:

Respect for age and hierarchy: Scholars stressed the importance of a hierarchical orientation in China (Smith, Peterson and Wang 1996; Davis 1997 pp. 121-22), which seems to be a result of the influence of Confucianism (Kahn 1979 p. 121; Hicks 1989 p. 40). So far there is little empirical evidence testing its importance for organization (Lockett 1988 p. 486). In theoretical terms, Hamilton and Biggart (1988 p. 87) proposed that authority patterns and legitimization strategies tend to explain organizational structure. More specifically, a strong hierarchical orientation might have significant structural implications in terms of a relatively high degree of centralization (Hofstede 1980 p. 135). Similarly, Child argued that this cultural characteristic will reinforce the hierarchical and conformist attributes of a top-down command structure, since it leads to a high value being placed on social control, virtually as a end in itself (Child 1994 p. 31).

Group orientation: Confucian doctrines emphasize ties of kinship and group loyalty (Wilson 1970 p. 20). The individual exists for the benefit of the group. Often, members of a group find their identities through reference to other group members. They often adopt group objectives and opinions in exchange for reciprocal protection and care. Conflict is generally handled through intra-group mediation rather than the external legal system.

In terms of managerial consequences, the social needs of employees in the workplace might be perceived to be more important than autonomy and self-actualization needs (Xing 1995 p. 17). In addition, Cai (1997) emphasized that close ties among family members create strong cohesiveness (*ningjuli*) in private overseas Chinese enterprises.[1]

Face: Various authors have emphasized the importance in traditional Chinese culture of "keeping face" (Hu 1944; Wilson 1970; Stover 1974; Ho 1976; Lin 1977; Bond and Lee 1981; Redding and Ng 1982 p. 203; Hwang 1987; Lockett 1988). Group pressure is used to ensure conformity through eliciting shame ("loss of face"). Losing face is thought to be more important to a Chinese manager than a Western one. The importance of achieving a certain position may also be relatively more significant than in the West (Lockett 1988 p. 489). This could potentially have some structural implications with respect to the use of hierarchy and centralization, but we believe that the overall impact on structure is not very strong.

The importance of relationships: Personal long-term relations, a form of "social capital" (Jacobs 1965; Luhmann 1979; Tichy, Tushman and Fombrun 1979; Tajfel 1982; Bourdieu 1986 p. 249; Gambetta 1988; Coleman 1988; 1990; Baker 1990; Scott 1991; Burt 1992; Krackhardt 1992; D'Aveni and Kesner 1993; Putnam 1993; 1995; Wasserman and Faust 1994; Hakansson and Snehota 1995; Kramer, Brewer and Hanna 1996; Lewicki and Bunker 1996; Powell 1996; Mishira 1996; Misztal 1996),[2] are of paramount importance in China when dealing with internal or external stakeholders[3] (Gold 1985; Tai 1988 p. 8; Alston 1989 p. 28; Redding 1990 pp. 17-18; Wall 1990 p. 23; DeKeijzer 1992; Ambler 1994; Bian 1994; Ju 1995; Davies 1995b; Leung and Yeung 1995; Chen 1995; Bjoerkman and Kock 1995; Yeung and Tung 1996). They are also most often cited in the literature on Chinese management (Strange, Kamall and Tan 1998 p. 3). For example, Davies (1995a) states that personal connections are "all-pervasive in the description and analysis of Chinese business". As "social investments" (Butterfield 1982), these "guanxi" are often based on extending mutual favors on the basis of reciprocity (Pye 1992). Chinese tradition favors the implicit structuring rather than precise formalization of social relations (ECAM 1986). More specifically, trust-based personal relations among family members and friends might be a substitute for written contracts (Barton 1983; Montagu-Pollock 1991 p. 21; Roehrig 1994 p. 83) and, more generally, impersonal bureaucratic controls.

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[1] It should be emphasized that whereas at the *family* level, group orientation is very important, in contrast to countries such as Japan, there is less of a collective orientation or "public spiritedness" at the societal level (Pye 1985). The saying of Lin Yu-tang expresses this by stating that "Japanese society is like a piece of granite, while traditional Chinese society was like a loose tray of sand, each grain being an individual family" (Redding 1990 p. 36).

[2] The central argument of social capital theory is that "networks of relationships constitute a valuable resource for the conduct of social affairs" (Nahapiet and Ghoshal 1998 p. 243). We define social capital as a "set of resources rooted in relationships" (p. 243).

[3] Boisot and Child (1996) called this phenomenon "network capitalism".

In more general terms, it might be argued that relationships are important all over the world. Nevertheless, writers tend to agree on the special status of *guanxi* in the Chinese context (Strange, Kamall and Tan 1998), given that they are so ubiquitous and play a crucial role in everyday life (Tsang 1998 p. 65). Personal relationship based on trust often are more important than the legal system company policies or regular "Western" business practice. In addition, writers mentioned the importance of *guanxi* in state-owned enterprises, too (Child 1994). However, given the fact that most private Chinese firms are family-owned, one distinctive feature in these firms is the fact that the closest relationships are often based on *family* ties (Heller 1991; Chu and Ju 1993), which are less dominant in state enterprises. Whyte (1995 p. 1014), for example, states that in private firms "the dynamics of Chinese families are absolutely central".

Due to its significance, we will therefore elaborate on the importance of familism in China, which can be viewed as one special form of "guanxi". The concept of family, in Chinese "jia", due to the Confucianist principle of filial piety "xiao" (Chao 1979), is considered to be the most important focus of loyalty for the individual in China. Family loyalty is almost a divine act (Fukuyama 1995 p. 86) and even more important than loyalty to the state (Levy 1949b p. 1). The family also defines an individual's sense of identity. The concept of *jia* is generally wider than that in the West (Freedman 1979). Ideally, it encompasses a five generation household, but statistics show that the joint family, i.e. a three generation household, or even the nuclear family are much more common (Hareven 1987). This is often due to wealth constraints or breaking-up of families as a consequence of intra-family tensions (Lee 1953).

Other authors argue that the concept of family also includes lineage or clans. These *jia-zu* are defined as "a family of families" based on demonstrated descent from a common ancestor (Freedman 1971 pp. 43-67; Baker 1979 p. 67; Watson 1982 p. 394; Redding 1990 pp. 54-55). They often share the same surname and property, such as an ancestral hall. These clans sometimes consist of entire villages and are most common in Guangdong, Fujian and Hong Kong's New Territories. In an even wider interpretation, the notion of "family" might comprise very good friends, old boys from school days and other close people (Montagu-Pollock 1991 p. 21), i.e. people sharing an aspect of personal identification (Jacobs 1979). Given that there is a lack of universal, unitarian and egalitarian ethical principles, obligations are graded and not universal. They decline in intensity the further one moves from the inner family circle (cf. Tung (1994 p. 60)). There is thus a strong separation between members of the family, who can be trusted and are accountable for their deeds in front of other kin-members (Wolf 1968 p. 23), and non-members, who cannot be trusted.

As regards its purpose, in the absence of property rights and social protection, the family provided a protecting wall against the arbitrariness of rulers and political instability, including, in this century alone, wardlordism, foreign occupation, collectivization and the Cultural Revolution. Having many sons also lessened the economic hardship in old age (Jenner 1992 p. 4).

Despite the eroding forces of the modern world and the influence of communism, it is argued that the patrilineal Chinese family has emerged strongest amongst all other institutions (Tien and Lee 1988; Jenner 1992 p. 128; Buxbaum 1978; Shenkar and Ronen 1987a; Hareven 1987) and has, despite its changes over time (Freedman 1961-62), represented the only certainty in latest Chinese history.[1]

e) ***Small size***: Writers on Chinese management in overseas countries have frequently highlighted that many Chinese private enterprises are relatively small (Montagu-Pollock 1991 p. 21; Hickson and Pugh 1995 p. 170; Lee 1996). Once again, there is some confusion in the literature as to whether size is an influencing factor, as most contingency theorists would argue, or whether it is a dependent variable forming part of the Chinese management system. In this study, it will be treated as contextual variable influencing structure and management, but the choice of the level of this contextual variable, i.e. the decision to stay small might be a distinctive element of Chinese management. For example, in countries which allow the Chinese free economic activity, maybe due to the importance of family-based ties, with the exception of a few powerful conglomerates, Chinese companies are most often small scale (Hicks and Redding 1982 p. 212; Myers 1984; Myers 1986 p. 29; Tam 1990 p. 161).[2] Support for this link between familism and size is provided by the fact that in these countries, most firms from the private sector are family owned and family managed (Fukuyama 1995 p. 73; Redding 1990 p. 3; Wong 1985; Heller 1991).[3] Sometimes, control of publicly listed companies by one family is achieved by the fact that they are owned by banks controlled by the family (Whitley 1990).

Concluding the overall discussion, it is important to analyze the influence of Chinese culture on organizational structure and management. An emphasis on family-based personal relations, in particular, might not only have a direct impact on organizational properties, but also influence the choice of other contextual factors, i.e. the decision to stay small in private companies, in order to maintain personal relations with important stakeholders or avoid inclusion of outsiders who are not trusted. This aspect has not been tested in the literature and therefore has to be examined in this study. In addition, it will be argued that traditional culture in itself is not necessarily an influencing factor, but the *emphasis* placed on traditional Chinese values by CEOs within different forms of organizations is thought to be significant.

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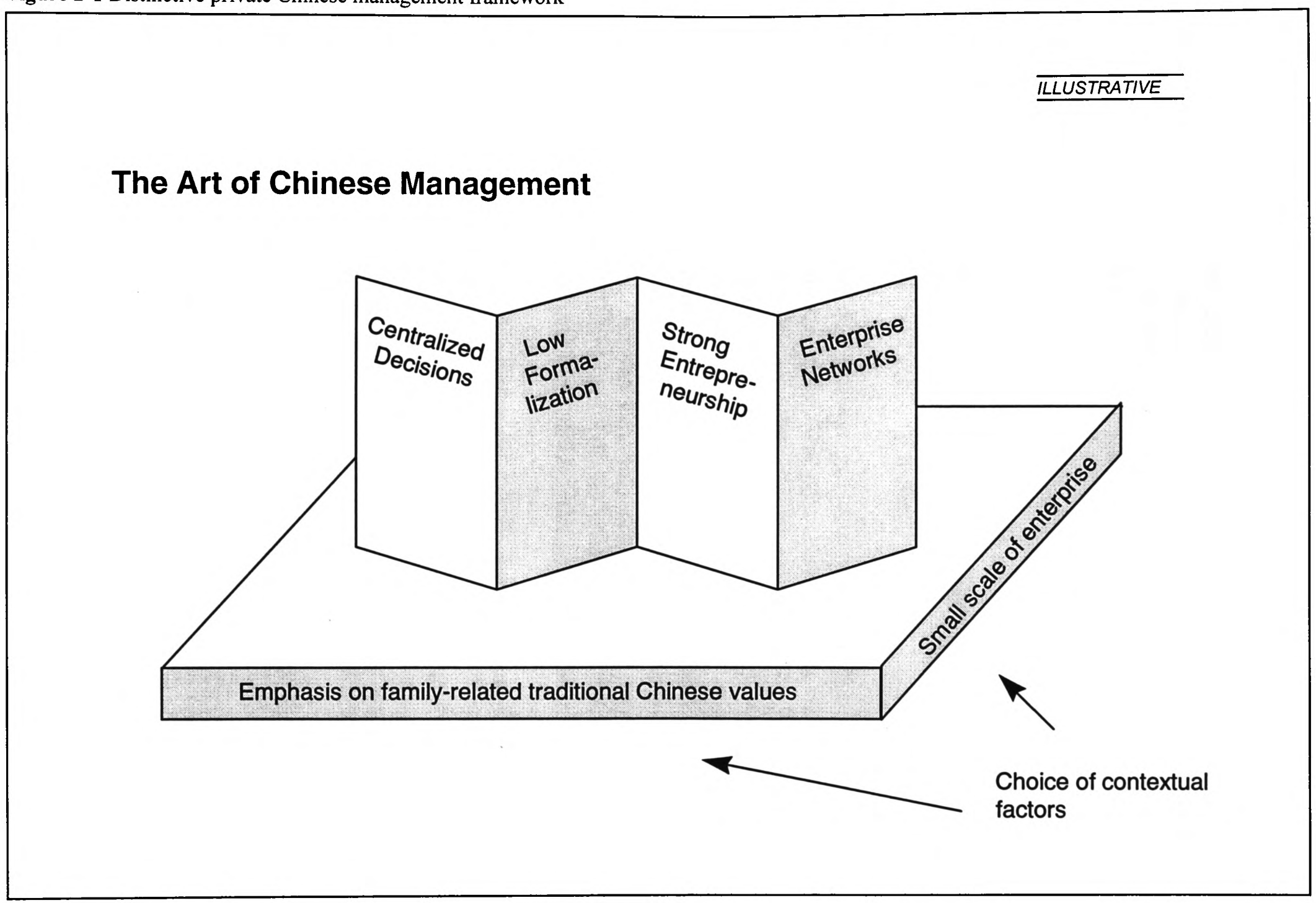
[1] This is even true for communist party officials for whom their families seem to be the most important social units, too (Jenner 1992 p. 13).

[2] Apart from Hong Kong, Taiwan and Singapore, these countries include ethnic enclaves such as Malaysia, Thailand, Indonesia and the Philippines, as well as overseas Chinese communities such as in the US.

[3] Weidenbaum (1996 p. 141), for example, states that in contrast to the prevailing situation in the West, "the family enterprise is the basic economic unit of the typical overseas Chinese community". Berger (1994 p. 72) notes that Chinese businesses are almost always family firms because, within traditional Chinese culture, you can only trust close relatives.

Although being both intentional "creations of social context in organizations" (Denison 1996 p. 646), as regards its content, the notion of "emphasis on traditional Chinese values" in the form of the importance of family (Freedman 1971 pp. 43-67; 1979; Redding 1990 p. 36) in private Chinese companies can be distinguished from American-style "corporate culture" (Peters and Waterman 1982; Deal and Kennedy 1982; Kanter 1983; Denison 1984; Morgan 1986; Handy 1987; Schein 1990; Denison 1990; Lessem 1990; Calori and Sarnin 1991; Hampden-Turner 1994), which is otherwise also termed "organizational culture" (Harrison 1972; Pettigrew 1979; Smircich 1983; Wilkins and Ouchi 1983; Allaire and Firsirotu 1984; Schein 1985; Van Maanen and Barley 1985; Amsa 1986; Reynolds 1986; Cooke and Rousseau 1988; Hofstede et al. 1990; Gordon and DiTomaso 1992; Denison and Mishra 1995; Denison 1996; Xenikou and Furnham 1996). More specifically, instead of emphasizing specific traditional and cultural elements, these advocates of "corporate culture" focus on general tools which, detached from any national background, are thought to increase efficiency (Kanter 1983 p. 19; Denison 1984 p. 20; Hansen and Wernerfelt 1989 p. 406; Calori and Sarnin 1991 p. 71; Gordon and DiTomaso 1992 p. 794; Denison and Mishra 1995 p. 220). In the case of private Chinese enterprises, the emphasis on cultural values, apart from being potentially driven by a desire to increase efficiency, might also result from the "traditionalism" (McMillan et al. 1973 p. 47) deeply rooted in Chinese families which under certain circumstances might be even be anti-functional (Hsu 1967 pp. 5-7; Baker 1979 p. 131).

Figure 2-1 Distinctive private Chinese management framework



2.1.2. Influencing factors of Chinese management

2.1.2.1. General criticism

The major theme of this section is the lack of studies adopting a contingency perspective to analyze Chinese management. It might well be true that the distinctive features of Chinese management in private enterprises are due to the fact that, compared to SOEs, their owners put a stronger emphasis on traditional family-related cultural values which might have a direct influence on structure and management, as well as an indirect impact by influencing the decision of many private firms to remain small and proliferate instead of growing the focal company itself. Despite these important points, most writers treat Chinese management as "monolithic" and do not explore its relationships with various contingency factors.

2.1.2.2. Empirical studies

There are two studies which to some extent analyzed influencing factors of management in China and thus can be regarded as exceptions to this general criticism. To highlight the further need for research, it is important to review in some more depth these empirical studies dealing with Chinese management and its influencing factors:

First, we will critically analyze one of the most recent books on Chinese management (Child 1994),[1] written by John Child, one of the most prominent Western scholars on Chinese management, and reflecting his decade-long study of Chinese enterprises. In four sections it deals with China's institutional context, management in Chinese enterprises, joint-venture issues, and generalizations to organizational theory. In his analysis of the influencing factors of Chinese management, Child's major thesis is the impact of government reforms on managerial practices. Except for certain places where he uses ideas from resource dependence theory (Pfeffer 1972; Salancik 1976; Pfeffer and Salancik 1978) and organizational economics (Jensen and Meckling 1976; Williamson 1985), he advocates "institutional theory" (DiMaggio and Powell 1983; Meyer, Scott and Deal 1983; DiMaggio 1991) as paradigmatic perspective for analyzing the influencing factors of management in Chinese state-owned enterprises. Examples relating to the influence of government include the increasing decentralization of management decisions in SOEs after the introduction of the "Director Responsibility System", as well as the strong government involvement in the decision-making process related to investment issues. Child maintains that there is a shift from low structuring, high centralization, a situation he describes as "mock bureaucracy" (Gouldner 1954), towards more decentralized and formalized structures. While this perspective is very valuable for analyzing state-owned enterprises, we believe that direct government interference in detailed decision-making is less important in the case of private companies. In addition, though his focus on the macro-environment viewed from a governance and transaction-costs perspective is very useful for illuminating the governmental context of state enterprises, Child himself found that, even for state enterprises, the *internal* decision-making process was not very much changed by the external reforms.

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[1] Shenkar (1996 pp. 569-571), in his recent review, points out that "it is the latest addition to the subject", having been preceded by Warner (1987), Laaksonen (1988), Shenkar (1991) and Jackson (1992), and represents "an important contribution to the field".

He pointed out, for example, that macro decentralization had not been matched by a corresponding net redistribution of decision making further down the management structure (Child 1994 p. 96). We therefore think that for macro-organizational issues, such as the division of decision-making power between state and companies, an institutional perspective is very valuable, but believe that for the internal operations of the firm, contingency theory is more appropriate. Such a contingency perspective of Chinese management is thought to complement, not substitute the institutional analysis. It would also shed light on the alleged high or low degree of structuring in state-owned enterprises, which might well vary according to size. Apart from explaining the influencing factors, the researcher has to look into more detail into the structural and managerial choices themselves as practiced within the companies. Such analysis would go beyond Child's macro-view and occasional descriptions of internal organizational properties. In this context it is interesting to note that Child did not even empirically test the degree of "structuredness", but only focused on high level management *processes*. To be able to make managerial recommendations, it is also important to measure organizational effectiveness and its differences associated with various organizational and managerial choices under different circumstances, an aspect which has been neglected in Child's work.

In terms of methodological criticism, the empirical basis is limited to only six case studies of state-owned enterprises in one single location. Given the six-digit number of state firms (Shenkar 1996 p. 570), this narrow sample will necessarily only provide a very partial picture of management in China. In this context, using an Aston scale to assess "autonomy" of decision-making will not yield the representative data which can be obtained from large samples for which these scales were originally designed and to which they are most commonly applied. In addition, Beijing can be considered an exception in comparison with the rest of China, given that the influence of central authorities is still very strong. Moreover, the study focuses only on state-owned enterprises. Given that the share of SOEs in total GDP is already lower than 50% and considering the fact that non-state companies are the most dynamic part of the Chinese economy, the major beneficiaries of recent reforms, and also managed in a radically different manner from their state-owned enterprise, this focus on state-owned enterprises appears to be too narrow and unfortunately missing one of the most striking features of Chinese economic reform. Furthermore, the case descriptions are seldom linked back to managerial theories. Finally, although the "longitudinal" nature of his analysis relating to the impact of reforms over time is valuable, the work does not adopt a unified framework or systematic research program. It is rather a piece-meal accumulation of different studies which the author had undertaken over time with different research methods.

Shifting to the second in-depth analysis of an empirical study, there seems to be one research project which, adopting a contingency approach and testing a fair amount of companies, analyzed the relationship between the context and structure of Chinese companies. Wong and Birnbaum (1994) used the Aston scales on centralization, formalization and specialization to analyze the "structuring of activities" of 39 multinational banks in Hong Kong. They found that size was positively correlated with Aston structural differentiation. In addition, the cultural variable of power distance was positively associated with centralization.

Viewed from a critical perspective, the generalizability of the findings is limited due to its application to the banking sector only, which was found to be exceptional in terms of its high competitiveness and growth (pp. 103-104). The researchers thus failed to demonstrate that this sector is particularly representative for the rest of the economy. In addition, it is not clear whether international banks would adopt distinctively Chinese management practices. Furthermore, a new study would have to analyze the notion of a distinctive *management* model in the private sector, which would complement Wong and Birnbaum's findings with respect to structure.

Moreover, the approach towards modeling culture is questionable. Specifically the company's *home* culture was thought to influence structure in Hong Kong. Culture was a dummy variable with values for each case dependent on how the country of origin scored on Hofstede's (1980) cultural dimensions. It is not obvious whether the aggregate country index would effect even the headquarters in the home country. The effects in Hong Kong are even less clear, given that most of the employees were Chinese and are supposedly the most important "carriers" of cultural values. In addition, other researchers such as Lincoln *et al.* (Lincoln, Olson and Hanada 1978) found that the *host* country's culture is more important in influencing organizational structure than a company's country of origin. Finally, given that all companies were located in Hong Kong, the influence of Chinese culture per se could not really be examined. A better approach would have been to see whether certain traditional values are *emphasized* in different forms of domestic companies, and to analyze the structural and managerial implications.

2.1.3. Chinese management and organizational effectiveness

2.1.3.1. General criticism

Another important theme related to the "distinctive" Chinese management style are the performance implications of Chinese management, which is based on family ownership. There is a moderate amount of descriptive, but rather fragmented discussions in the literature on overseas Chinese businesses, which only focus on partial aspects of Chinese management and related effectiveness aspects. Apart from this lack of a unifying framework, there were few *empirical* studies rigorously analyzing the influence of Chinese management and, in particular, family ownership, on organizational performance.

2.1.3.2. Synthesis of merits and demerits related to family-based Chinese management

We can partly synthesize the following merits and demerits of family-based Chinese management from the literature. The results of the following discussion are graphically illustrated in Figure 2-2 on page 2-18.

On the one hand, it might be argued that the Chinese management style practiced in small family-based enterprises has certain benefits and might lead to comparatively high performance (Cai 1997).

The central theme is that the unusually strong loyalties and close ties of Chinese families are a potent source of motivation and performance (Whyte 1995 p. 1003):

Valuable social capital: For the sake of the family, the Chinese study hard, work long hours, labor for less and make more sacrifices than non-family members would do (Whyte 1995 p. 1003). Since family members usually participate in the capital and are responsible for their own spin-offs, they have additional strong incentives to be entrepreneurial and work hard (Whyte 1995 p. 1003). At the same time, their belonging to a family-based network provides some diversification of risk at the aggregate level and a "group insurance against failure" for the individual member (Greenhalgh 1990 p. 90; Greenhalgh 1988; Harrel 1985; Omohundro 1981; Silin 1976; Niehoff 1987; Oxfeld 1993). There is also a strong company loyalty of family members, who are likely to stay with the firm even when better paying opportunities arise elsewhere (Whyte 1995 p. 1003) or at least support the family firms from overseas (Watson 1975b; Salaff 1981). Moreover, trust among family members will allow for a high degree of secrecy or *yinbixing* (Cai 1997) in information-sensitive areas. In addition, conflicts with the "boss" are reduced, given that there are culturally grounded authority structures in the company which often reflect positions in the family (Smart and Smart 1993).

Flexibility: The small size of family businesses and accordingly appropriate centralized leadership makes them flexible and fast in terms of decision-making (Montagu-Pollock 1991 p. 21). This sharply contrasts with the slow consensual decision-making style in more bureaucratic organizations, such as Chinese state-owned enterprises or large Japanese companies. In addition, family- or guanxi-based inter-organizational networks make Chinese private companies very responsive to the environment (Whyte 1995 p. 1004). This is because these enterprise networks provide additional access to scarce resources, business opportunities and intelligence (Leung 1995 p. 7), making it possible for Chinese firms to rapidly adapt to changing market conditions.

Cost-efficiency: Inter-organizational subcontracting-based networks have the advantage of low overhead costs and a small number of permanent staff (Montagu-Pollock 1991 p. 21). In addition, due to the reliance on internal private capital instead of outside sources of finance, firms tend to be very cost conscious and highly efficient (Turpin 1998 p. 8). Further, socialization and trust reduces the need for elaborate monitoring devices which are expensive in terms of transaction costs.

In conclusion, the almost neo-classical perfect competitive and atomistic characteristic of these companies makes them ideally suited for industries with rapid change in consumer tastes and high uncertainty. Due to the small size and consequently low start-up costs (Whyte 1995 p. 1004 p. 1004), the economy as a whole is characterized by many new entrants and exits, injecting a highly competitive spirit into it. Such an economic structure sharply contrasts with the small number of oligopolistically organized (and most often capital-intensive) giant firms sharing certain markets in the West (Fukuyama 1995 p. 79).

That is why overseas Chinese companies, in particular, tend to excel in labor-intensive industries and in sectors with fast-changing, highly segmented, and therefore small markets such as textiles and apparel, trading, timber and other commodities, small-scale metalworking, plastics, furniture, paper products, toys, PC components and "commodity" PCs (Fukuyama 1995 p. 80). Maybe as a consequence of the above mentioned advantages of Chinese management, the 40 million non-communist Chinese have managed to produce an unusually large population of billionaires relative to their collective GNP (Montagu-Pollock 1991 p. 20).[1] With $200bn, their aggregate GNP even approaches the total GNP for China ($300bn), which is produced by 1.2 billion people. They also dominate medium- and large-scale corporate capital in all Asian markets except for Japan and Korea (Turpin 1998 p. 8). Wong (1988 p. 146) thus concludes that "Chinese familism will fuel the motor of development".

On the other hand, there are certain disadvantages associated with the family-based management model practiced in Chinese private enterprises. The main theme is its limiting influence on company growth:

Limits to capital accumulation: Due to the partrilineal system of equal inheritance of sons, as opposed to primogeniture which was formerly practiced in Great Britain and France, there is a limit to capital accumulation and growth for Chinese companies. This is due to the fact that the family fortune will be split up equally after the death of the founder (Wong 1988 p. 139; Jenner 1992; Fukuyama 1995). In rural China, the equivalent of this phenomenon was found in the continuous partition of plots which finally were not sufficient anymore for the whole family (Feuerwerker 1969 p. 15).

Lack of integration of "outsiders": Due to the emphasis on familism, there is a lack of trust towards non-kin members and no mechanism for adopting outsiders (Watson 1975a; Berger 1994 p. 72). As a consequence, in very few cases professional managers can be brought in (Fukuyama 1995 p. 75; Chan 1982; Chan 1977; Whitley 1991; Redding 1990 p. 66). This might further limit growth. In addition, failure to adopt professional and rational "Western-style" structures as well as transparent forms of governance makes it difficult to attract outside non-family funding.[2] In addition, non-family members normally do not aspire to life-employment, but try to spin off their own company after a while (Wong 1988 p. 143; Whyte 1995 p. 1001). They are therefore often not good team players, which might adversely affect performance. In addition, the social distance between them and their Chinese superiors is believed greater than in other countries (Hamilton and Biggart Woolsey 1988), which might also negatively affect effectiveness.

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[1] Nine out of every ten billionaires in Southeast Asia are ethnic Chinese (Chen 1995 p. 69)

[2] The failure to move from family to professional management contrasts sharply with the development of American companies, which also often started as family firms but then moved to professional management (Chandler 1984; Fukuyama 1995 p. 74). The US-based argument, however, did not seem to be true for England. Chandler (1962) pointed out that familism in England was an explanation for the historically smaller size of British companies compared to American ones.

Nepotism: There is a danger of nepotism with all the negative consequences already described by Weber (1951 (originally published in 1916)) as the "sib fetters of the economy". They are illustrated by the decline of the family business "Wang Laboratories", Massachusetts (Kenney 1992; Brown 1989; Cohen 1990). These Chinese companies cannot institutionalize themselves and are thus dependent on the respective following generation leading them. The result is the so called "Buddenbrooks" phenomenon of rising and falling family enterprises due to differential skills and motivation to manage across generations (Hsu 1967 pp. 5-7; Baker 1979 p. 131). An example of complete disintegration only one generation after the founder's death is the dissipation of Sheng Hsuan-huai's wealth, who was one of imperial China's early successful entrepreneurs (Feuerwerker 1958 pp. 84-85).

As a consequence of all these factors, family-based companies seem do less well in industries which require the exploitation of economies of scale and scope, as well as large capital investment, such as aerospace, semiconductors, automobiles and petrochemicals. This also appears to be true for mass-marketed consumer brands (Redding 1990 p. 5). For Chinese companies to be successful in these industries, in many cases they need strong state sponsorship or ownership. For example, it is interesting to note that despite the highly competitive and atomistic industry in the rest of the private economy, the most successful manufacturing companies in China at the start of the modern age, such as the porcelain metropolis of *Jingdezhen*, were actually state-owned and state-operated (Jenner 1992 p. 81). Other possibilities for Chinese companies to enter these large-scale industries are attracting foreign investment or developing inter-organizational networks in these sectors (Fukuyama 1995 p. 81). In more general terms, due to the disadvantages pointed out above, in *earlier* studies, family enterprise were regarded as actually retarding the economic development of China (Weber 1930 (originally published in 1904-05); Weber 1951 (originally published in 1916); Levy 1949a; Feuerwerker 1958).

Figure 2-2

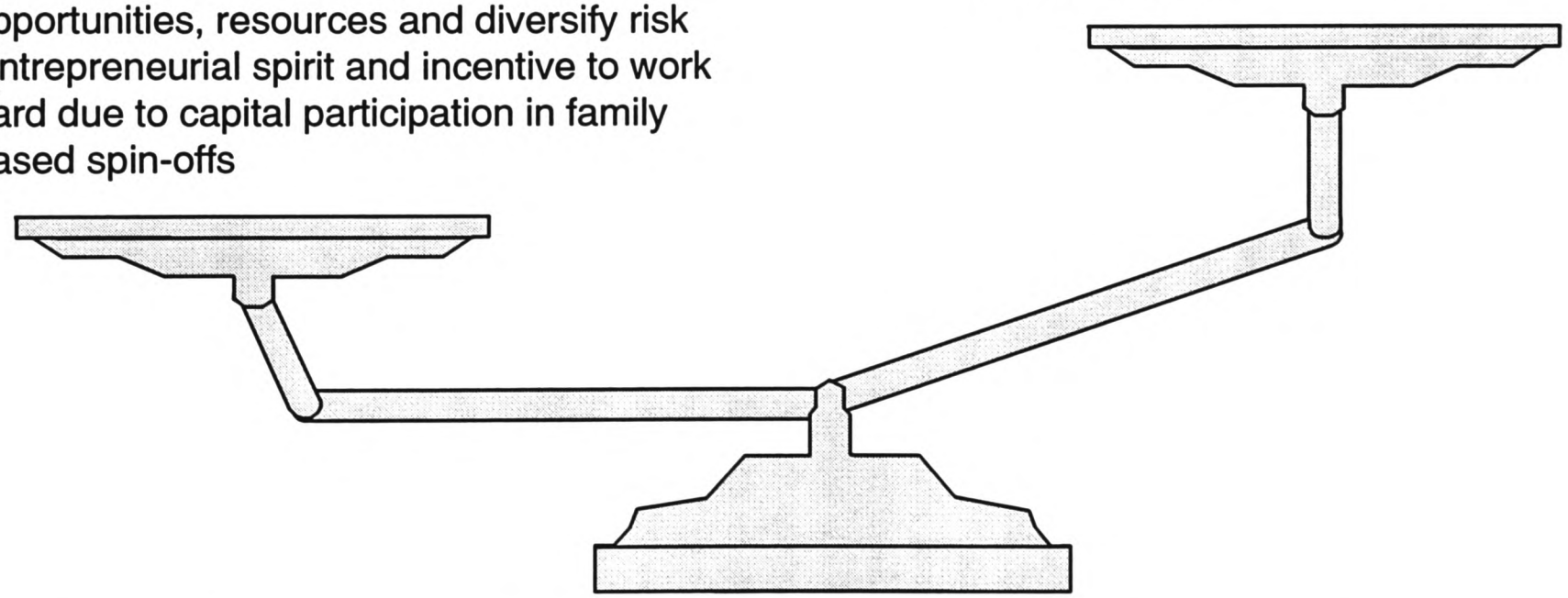
Advantages and disadvantages of Chinese family-based management model

Advantages

- Flexibility due to central control, lack of formality, entrepreneurial decisions and small size
- Socialization and trust reduce need for expensive monitoring devices
- Company loyalty of family members
- Potentially few conflicts, due to culturally grounded authority structure
- Guanxi-based networks provide access to opportunities, resources and diversify risk
- Entrepreneurial spirit and incentive to work hard due to capital participation in family based spin-offs

Disadvantages

- Firm longevity and capital accumulation limited due to heritage split up
- Difficult to integrate non-family professionals
- Danger of nepotism
- Lack of "rational" structure makes it difficult to attract outside capital



2.1.3.3. Empirical studies

As regards empirical studies of the relationship between Chinese management practices and effectiveness, the evidence is very sparse. One of the only examples is Tan and Litschert's (1994) survey of 180 top managers of state- and collective enterprises in the Chinese electronics industry which was undertaken to test hypotheses regarding the relation between scales measuring environmental contextual factors (Khandwalla 1977; Jauch, Osborn and Glueck 1980), strategic orientation (Venkatraman 1989) and effectiveness (Khandwalla 1976). They found that despite a long tradition of central planning, which might have led to a situation where variations in strategies would have been neither necessary, feasible or effective (Smith and Grimm 1987), firms in this industry adopted either of three distinctive strategic postures. More specifically, they identified proactive ("prospector"), defensive ("defender") and analytical ("analyzer") strategy constructs (Miles and Snow 1978; Venkatraman 1989). However, public enterprises in the electronics industry were found to lack an entrepreneurial orientation. As regards the "causes" of variation, the strategies were significantly related to manager's perceived environmental uncertainty. In particular, uncertainty was found to be negatively associated with proactive strategies and positively related to defensive strategies. Finally, size and defensive strategy were significantly positively related to performance. Further, analytical strategy was also (though non-significantly) positively related to effectiveness.

In terms of methodological criticism it has to be mentioned that the authors did not publicize the sampling frame they used, which makes it impossible to judge to what degree the study can be considered representative. In addition, despite the fact that especially with respect to management practices, private companies seem to be very distinctive, the sample focuses on public enterprises only.[1] Moreover, it only covers one industry, which was perceived as particularly distinctive.[2] For these reasons, the findings cannot be generalized to the whole economy. Moreover, in its fragmented focus on strategy only, the researchers do not analyze or at least hold constant other contextual, structural or managerial influencing factors of organizational effectiveness. The only exception is the inclusion of size as a control factor. In addition, only one subjective index of relative performance is used as scale to measure effectiveness. Moreover, the researcher failed to cross-validate its reliability with other "objective" measures, when available. Given the difficulties of measuring effectiveness in general and in China in particular, a triangulation approach seems to be necessary in a new study. In terms of statistical analysis, the researchers used ordinary regression which does not allow for the *simultaneous* empirical testing of the validity and reliability of research scales in a measurement model in conjunction with a structural model. Researcher have pointed out that such a joint estimation of theoretical and measurement submodels is desirable from a philosophy of science standpoint which posits that measurement cannot be strictly separated from theory given that it is not possible to interpret an observation independently of any consideration of theory or without theoretical framework (Hanson 1958; Passmore 1967; Blalock 1969; Horan 1989).

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[1] For example, Tan and Litschert pointed out that the reforms have impacted different ownership sectors in varying degrees (p. 5) and explained that the defensive nature of strategy as a reaction to uncertainty might be due to the fact that innovation is not rewarded in the state sector (Child 1990). This might be very different for private companies.

[2] For example, the authors highlighted the very constraining and regulated environment in the electronics industry which made defensive strategies more effective (p. 4).

In other words, measurement properties do not have a status independent of a supporting network of relations. Instead, observation (measurement) has to be *interpreted* (Achinstein 1968). "Theory A" might well produce different measurement properties (e.g., loadings) than "Theory B" (Fornell and Yi 1992 p. 297). One of the major distinctive advantages of structural equation modeling (SEM) over older approaches is the fact that it acknowledges the theory-data interdependence and deals with it by applying proper methodology. Given the large sample size, SEM therefore would have been preferable to the data analytical approach Tan and Litschert chose.

2.1.4. Conclusions on Chinese management

First, we identified some common distinctive characteristics of private Chinese management which surfaced in the theoretical and empirical literature. As regards *theory development*, there is no unifying framework integrating the elements of Chinese management. In addition, there is a lack of conceptual clarity as regards the question of what the style is compared to and which dimensions are dependent or independent variables. In addition, most researchers believe that the distinctive Chinese management style could only be found in non-communist countries outside mainland China. One of the distinctive contribution of this study is therefore to show that in fact we witness a re-adoption of the distinctive Chinese management model, known from the "Nanyang" Chinese, as well as a re-emphasis on traditional family-based cultural values in the newly founded private Chinese enterprises in mainland China. As regards *empirical evidence*, most of the literature is descriptive and empirically untested. In particular, no study has used a comprehensive set of Aston scales in the P.R.C and there are few cross-national comparisons related to Chinese management. The few empirical studies frequently used a case study approach with a very limited number of organizations and locations. Furthermore, these studies most often focused on state enterprises only and tended to bypass the rapidly growing private sector. The critical, more detailed examination of some selected studies further highlighted the need for a comprehensive empirical survey which can test the various characteristics of Chinese management. Such a survey would include a comparison with other Western companies (excluding overseas Chinese businesses) to test the alleged distinctiveness of the "Nanyang" management style.

Second, most of the literature treats "Chinese management" as monolithic. It is not common to model factors which might influence the degree to which the distinctive characteristics are present. More specifically, there are few studies using a contingency approach which would clarify whether the management model is really distinctive and due, for example, to the emphasis placed on traditional family-based values, or whether it can be explained by the fact that Chinese private firm are on average relatively small. In addition, studies usually did not link their findings back to other micromanagement concepts. Our study will test the influence of emphasis on familism and other hypotheses through a survey-based empirical study, enriched by brief case illustrations. It will be firmly grounded in contingency and other micromanagement theories, such as leadership and decision-making theories.

Third, the effectiveness implications of Chinese family-based management were reviewed. We concluded that although there are some fragmented descriptive discussions related to this issue, there is no unifying framework, and few empirical studies were undertaken to actually quantitatively assess its performance implications. In this study, it therefore is important to model private-family ownership as an influencing factor of organizational effectiveness, holding constant other factors which were mentioned in the literature as influencing the differential effectiveness of Chinese management, such as company size and age.

2.2. Contingency theory

The second, theoretical, research question of this study has been stated as follows: "In general, is the 'fit' notion in contingency theory valid?". It is the theoretical objective of this study to test the world-wide applicability of contingency theory and expand our knowledge as to its relationship with effectiveness. Contingency theory is also the theoretical perspective adopted for the purpose of this research. As will be shown below, it is a theory for which there is much empirical evidence, which easily lends itself to practical applications and seems to be best suited for our ideas. However, various researchers criticized it from different angles. Therefore, in this study, we intend to advance our knowledge in this field by addressing some of the criticism. As an introductory background we will briefly review the roots of contingency theory in Functional Organizational Theory (2.2.1), as well as outline its main ideas and empirical support (2.2.2). Afterwards, we will critically analyze it to identify the need for further research (2.2.3).

2.2.1. Development of contingency theory within Functional Organizational Theory

The contingency approach towards studying organizations forms part of Functional Organizational Theory, a term used to delineate it from other newer paradigms. There are mainly three important strands of thought in Functional Organizational Theory: (a) Sociology of Organization, (b) the Classical School, and (c) Organizational Behavior, which focuses on the study of individuals in organizations and builds on the Human Relations tradition (Burrell and Morgan 1979 p. 118).[1] Adopting a rational system perspective, organizations in this study are defined as "collectivities oriented to the pursuit of relatively specific goals and exhibiting relatively highly formalized social structures" (Scott 1992 p. 23).

Sociology of Organizations: The 20th Century marks the beginning of organizational theory as such. More specifically, the German sociologist Max Weber developed three ideal types of organizations based on either legal, traditional or charismatic authority (Weber 1947 (originally published in 1924)). He pointed to the ever increasing role of bureaucracy which is based on legal authority. He considered it to be more efficient in technical terms than other ways of organizing. His work was the starting point for the "Sociology of Organizations" and subsequent studies of bureaucracy (Jaques 1976; Thompson 1967; Pugh 1973; Burns 1963; Lawrence and Lorsch 1967; Chandler 1980; Miles and Snow 1984).

Classical School: "Classical" management writers (Gulick 1937; Barnard 1938; Mooney and Reiley 1939; Urwick 1943; Fayol 1949) focused on theoretically derived general principles of organizing, which except for the authors' own experience as managers, were empirically untested. Their approach was mainly based on the assumption that managers make rational decisions about organizational principles. The "one best way" to structure was very hierarchical, formalized and ruled by centrally specified detailed plans and systems (Brech 1957).

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[1] The criticism of such simple and linear typologies (Burrell and Morgan 1979 p. 120) are recognized: They include (a) over-simplification, (b) the problem of treating individual authors' work as monolithic and thus not appreciating overlap in the sense that parts of their work might belong to more than one school, as well as (c) highlighting certain aspects of an author's work and ignoring other parts.

Organizational Behavior: In the 1930s, as a result of the Hawthorne experiments which demonstrated the importance of group interaction on performance, the "Human Relations" school (Mayo 1933) emerged and researchers focused more on the human aspects involved in management. They suggested that humans are motivated not only by monetary incentives, but also by the satisfaction of social needs. The Human Relations approach was both theoretical and empirical.

After the theoretical coexistence of Weber's Theory of Bureaucracy, the Classical School and Human Relations, researchers in the early 1960s adopted an *open* system perspective (Emery and Trist 1965) and developed contingency theory. By the end of the 1960s and the beginning of the 1970s, structural contingency theory became the leading paradigm. Afterwards, a host of new separate theories developed which attempted to substitute contingency theory and constituted distinctive new "paradigms" (Kuhn 1970). These new paradigms included "Population Ecology" (Hannan and Freeman 1977; Aldrich 1979; Hannan and Freeman 1989), "Resource Dependence Theory" (Pfeffer 1972; Salancik 1976; Pfeffer and Salancik 1978), "Institutional Theory" (Meyer and Rowan 1977; Meyer 1977; Meyer et al. 1978; DiMaggio and Powell 1983; Meyer, Scott and Deal 1983; Meyer and Scott 1983; Meyer, Scott and Strang 1987; Meyer et al. 1988; Scott and Meyer 1988; DiMaggio 1991) and "Organizational Economics" (Jensen and Meckling 1976; Williamson 1985). As a result of this "paradigm proliferation" (Donaldson 1995 p. 9), the field of organizational studies since then became fragmented.

2.2.2. Main ideas and empirical evidence for structural contingency theory

Although much of the early work on contingency theory was done in Britain (Woodward 1958; 1965; Burns and Stalker 1961; Pugh et al. 1963; Pugh et al. 1968; Pugh, Hickson and Hinings 1969; Pugh et al. 1969; Emery and Trist 1965), Americans made important contributions as well (Chandler 1962; Hage 1965; Hage and Aiken 1967; 1969; Lawrence and Lorsch 1967; Perrow 1967; Thompson 1967; Blau 1970b).[1] Its most important idea is the proposition that there is one specific organizational form which best fits a given environmental contingency, and which is subsequently associated with higher organizational effectiveness. This is due to the assumption that the environment poses requirements for efficiency to which the organization must respond in order to survive and be successful (Hage and Aiken 1970). The thesis of "one best way" of structuring and managing which fits *all situations*, implied in the writings of the "classical" management theorists, is therefore rejected. When the level of a certain contingency factors changes, an organization is thought to be in "misfit" with its task environment (Channon 1973; Rumelt 1974; Dyas and Thanheiser 1976; Suzuki 1980), which results in lower organizational effectiveness. As a consequence, structural change takes place, i.e. managers alter the organizational structure to once again achieve "fit" with their environment.[2] This then leads to higher organizational effectiveness (Donaldson 1987; Hamilton and Shergill 1992; Hill, Hitt and Hoskisson 1992). The process of "structural-adjustment-to-regain-fit" is known as SARFIT.

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[1] Its name is actually believed to have originated from the work of the American researchers Lawrence and Lorsch (1967).

[2] "Fit" is defined as a match between contextual and structural factors which leads to an increase in performance.

We will briefly discuss some empirical evidence related to contingency theory. Here, we do not intended to present a complete review of *all* research undertaken in the area of contingency theory. Rather, we will present findings of studies which are most relevant and important in the context of our argument. In general, several studies (Bagozzi and Phillips 1982; Burns and Stalker 1961; Chandler 1962; 1977; Lawrence and Lorsch 1967; Blau and Schoenherr 1971) showed that organizations typically are influenced by their environment. Two contingency-structure relationships central to the structural contingency theory literature are well supported by empirical evidence and can be considered "core paradigms". They include (a) product diversity and the shape of organizational hierarchy (Chandler 1962; Donaldson 1987; Hamilton and Shergill 1992; Hill, Hitt and Hoskisson 1992), as well as (b) size and bureaucracy. Given that the focus of our study includes considerations of bureaucracy, we will review in more detail the second relationship:

Weber's (1968) theory of bureaucracy states that as organizational size - the number of people working in an organization - increases, there is a tendency towards more role specialization, formalization and standardization, in order to exploit the economies of scale of recorded routines for recurrent tasks through the division of labor and repetition (Blau 1970b; Astley 1985). Some more recent literature (Lawrence and Lorsch 1967; Galbraith 1973; Mintzberg 1979; Miller and Friesen 1984; Miller and Droege 1986 p. 543) pointed to the existence of a fourth dimension of bureaucracy, i.e. integration through the use of liaison devices. The theory of bureaucracy was supported by several empirical studies. One of the earliest and major works was the Aston research program which analyzed large samples of companies (Pugh et al. 1963; Pugh et al. 1968; Pugh, Hickson and Hinings 1969; Pugh et al. 1969; Inkson, Pugh and Hickson 1970; Hinings and Lee 1971; Pugh and Hickson 1976). It represented an important basis for further quantitative research on bureaucracy and contingency theory in general.

a) It found that with an increase in size, bureaucracy, defined as functional specialization, formalization and standardization, increased as well. In subsequent studies the strong positive correlation between size and all of these Aston scales has been consistently confirmed (Pugh and Hickson 1976). Two meta-analyses have also shown the positive association of size with formalization, specialization and standardization (Donaldson 1986; Miller 1987).

b) Researcher argued that this structural adaptation is functional in the sense of an improvement of organizational effectiveness through increased efficiency, speed and predictability as a results of recorded routines - at the expense of flexibility. For example, Child (1984) theorized that, given some internal repetition and routine, a certain degree of bureaucracy is beneficial for most organizations. Two studies (Khandwalla 1973; Child 1975) empirically confirmed the "fit" between size and bureaucracy: Those organizations that increased in size and adopted a higher degree of bureaucratization in their organizational structures showed higher performance than equally large companies which did not adapt and thus were not in "fit" as regards the relation between size and bureaucracy.

2.2.3. Critical assessment of contingency theory

Although most researchers agree that there is *some* empirical support for contingency theory, it might be asked whether this limited evidence is enough for the theory to be useful as theoretical framework and for practical applications. In other words, many observers will agree that some correlations are not in doubt, but might question the theoretical significance of them. In more broader terms, they might claim that in its focus on only a very limited number of variables, it still lacks real world richness. We will criticize contingency theory from three different angles, including the linkages between contingencies and organizational properties (2.2.3.1), the relationship between organizational properties and effectiveness (2.2.3.2), and several methodological problems (2.2.3.3). This criticism implies that there is need for further research which will be addressed in this study.

2.2.3.1. Linkages between contingencies and organizational properties

Whereas there is some theoretical agreement and empirical support related to the importance for companies to adjust their structure according to the two internal contextual factors of diversity of product range and organizational size, the impact of other contextual factors is less clear. As regards the linkage between contingencies and organizational properties,[1] there are three themes we will discuss in more detail in the subsequent critical assessment of these additional contingency factors (sections 2.2.3.1.1-2.2.3.1.3). They therefore will be briefly mentioned here:

Empirically disputed linkages: There is a lack of agreement regarding the impact of certain contingency factors. The fact that this unresolved state persists despite many empirical studies undertaken, challenges the validity of contingency theory with respect to these factors. Specifically, the influence of technology and uncertainty is disputed.

Limited empirical evidence related to linkages: Another potential deficiency of contingency theory is the fact that although there are well-developed theories arguing for the influence of certain factors, there have been few empirical studies actually testing these hypotheses. This criticism applies to the influence of environmental constraints.

Non-traditional factors distorting linkages: A potentially more serious challenge to contingency theory is the fact that there are other factors which might attenuate or even reverse "traditional" (Miller and Droege 1986) contingencies. Given that these "non-traditional" factors might influence other contextual variables, omitting them from regression analysis would result in misleading estimates such as too large or reversed coefficients. This aspect has to be analyzed for the influence of CEO personality, and, in a broader sense, national culture.

Below, we will discuss the above mentioned five factors in more detail:

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[1] Organizational properties here are defined as the organizational structure and management practices of companies.

2.2.3.1.1. Empirically disputed linkages

The impact of technology: The role of technology has been disputed for a long time. Contingency pioneers emphasized its impact on structure (Woodward 1965; Thompson 1967; Perrow 1970). Somewhat more recently, these arguments were supported by the findings of Marsh and Mannari (1981). In their study of 50 Japanese factories, they found that technology was a more important predictor of structural differentiation (complexity) and formalization than size. Other studies concluded that the effect of technology on structure was not very important and might at best influence those parts of the organization which constitute the technological core (Hickson et al. 1974a p. 16; Singh 1986; Miller and Droege 1986). Singh (1986), for example, in his re-examination of the Marsh and Manari data found that technology was able to predict only structural differentiation. The relationship between technology and structure has thus received much attention in the literature and it is important to see whether the findings of one Asian country (Japan) will be paralleled by the results from the China study.

The impact of environmental uncertainty: Apart from the criticism related to the internal factor technology, there is also some contradictory empirical evidence related to the influence of the *environmental* factor uncertainty. According to the theory of Burns and Stalker (1961), an increase in task uncertainty in terms of rapid technical and market change, leads to a move towards a more organic structure, characterized by increased decentralization and less role specialization. This move is motivated by the imperative to innovate. A very organic structure is distinguished from a more mechanic organizational design, resembling Weber's ideal type of bureaucracy. This structural arrangement is thought to be effective in a more stable and certain environment. In contrast to organic structures, it minimizes costs rather than maximizing innovation. There is some empirical evidence which showed that an increase in task uncertainty is often positively correlated with a more organic structure and a corresponding higher rate of innovation in organizational outputs (Hage and Aiken 1967; Harvey 1968). Evidence also demonstrated that innovation, one measure of organizational performance, is actually a *result* of this refit between uncertainty and decentralization. This causal ordering was supported by the fact that the increase in innovation appeared in a subsequent period to the adoption of a more organic structure (Hage and Dewar 1973). These findings led Donaldson, in his "apology" of contingency theory (Donaldson 1995), to include the link between uncertainty and structure as a third "core paradigm" of linkages which are well supported by empirical evidence. However, we do not fully agree with this assessment. Specifically, evidence from another study (Miller and Droege 1986), which used a structural equation approach not employed in previous research, showed that in nested model comparisons, uncertainty was not statistically significant at any conventional level as an influencing factor of structure. The observed small effects were therefore likely to have arisen by pure chance. This confirms earlier comments from Mintzberg (1979), who stated that, although uncertainty-related theories received a good deal of attention, they did not enjoy much consistent empirical support. Given that this linkage thus is weak and bearing in mind the attention paid to this core contingency relationship, it therefore is important to investigate its significance in another context. Should we fail to detect a significant impact on structure and management, the findings would cast some doubt on the empirical validity of contingency theory with respect to this core factor.

2.2.3.1.2. Limited empirical evidence related to linkages

The impact of environmental constraints: "Resource dependence" theorists (Pfeffer 1972; Salancik 1976; Pfeffer and Salancik 1978) and other researchers (cf. Khandwalla (1972); Ranson *et al.* (Ranson, Hinings and Greenwood 1980)) emphasized the importance of constraints in the "task environment" (Dill 1958) as influencing factors of structure and management. "Hostile environments" contain many environmental constraints,[1] including:

a) *Economic aspects* of the environment (Ranson, Hinings and Greenwood 1980), such as, for example, the unavailability of financial resources (Pennings 1982), high inflation rates and a lack of growth opportunities (Khandwalla 1977).

b) *Physical conditions*, such as insufficiently developed infrastructure (Khandwalla 1977).

c) *Labor characteristics*, including the lack of technical manpower and managerial talent, internal change resistance and labor troubles (Pfeffer 1983; Khandwalla 1977).

d) *Government policy* (Brown and Schneck 1979; Freeman 1979; DiMaggio and Powell 1983).

e) *Political conditions* (Carroll and Delacroix 1982; Delacroix and Carroll 1983).

Despite its theoretical importance, even giving rise to the new Resource Dependence paradigm in organizational theory, except for Khandwalla's (1977) study, there seem to be no empirical studies testing in a systematic and comprehensive manner the simultaneous relationship of *all* these factors with structure.[2] In addition, even in the one exceptional case in which empirical methods were used, Khandwalla, based on the results of his Canadian study, concluded that the evidence he obtained only partially supported the constraints-related theories (p. 336).[3] The lack of empirical studies is particularly acute with respect to the relationship between constraints and *management* practices. It therefore is important to include a composite scale for environmental constraints, which encompasses the above mentioned dimensions, in this study.

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[1] Environmental constraints are defined as factors in an organization's task environment which limit its access to resources.

[2] Studies which tested individual dimensions of this constraint "construct" will be referred to in more detail in the theory development chapter.

[3] For example, as regards the hypothesized positive relation between hostility and centralization, Khandwalla found that centralization actually *decreases* as the degree of hostility increases from a moderate to a high level (p. 336).

2.2.3.1.3. Non-traditional factors distorting linkages

The impact of CEO achievement need: After having discussed disputed and lacking empirical evidence related to contextual factors which form part of "traditional" contingency theory and can be easily integrated in its theoretical framework, we now move on to discuss two other factors which might pose greater challenges to the theory itself. In general, collectivity-level functional structualist explanations tend to ignore changes in organizational structure caused by individual actions of motivated actors (Silverman 1970; Hambrick and Mason 1984; Hambrick and Brandon 1988; Mintzberg 1989; Meyer and Starbuck 1992; Donaldson 1995 p. 170). Specifically, structures are the result of choices made by people under constraints (Hrebiniak and Joyce 1985; Donaldson 1985; Romanelli and Tushman 1988), making the link between contingencies and structural forms somewhat weaker. In this context, Child (1972b p. 2) pointed to the importance of the "strategic choice" of top management when designing the structure of their organization. Christensen (1978) points out that managerial choices are made on the basis of "organizational objectives" (Blau 1955; Thompson and McEwen 1958; Perrow 1961; Simon 1964; Hage and Aiken 1969; Kochan, Cummings and Huber 1976; Quinn 1977; Donaldson and Lorsch 1983 p. 6; Shenkar and Ronen 1987b),[1] which are heavily dependent on the CEO's personality.[2] The last point is supported by Perrow (1961 p. 856) who, based on Blau's (1955) empirical findings, suggested that there is a strong influence of CEO personality on organizational goals. The popular management literature provides anecdotal evidence for this importance of CEO personality in influencing organizational structure and processes (Miller and Droege 1986 p. 540). Fragmented aspects of this important relationship, especially in small organizations,[3] were also highlighted by the theoretical work of various authors (Collins and Moore 1970; Mitroff and Kilmann 1975; Henderson and Nutt 1980; Miller, Kets de Vries and Toulouse 1982; Kets de Vries and Miller 1984; Baligh, Burton and Obel 1990; Lewin and Stephens 1994) and early empirical studies (Miller, Kets de Vries and Toulouse 1982; Miller, Toulouse and Belanger 1985; Miller and Toulouse 1986; Miller and Droege 1986; Eisenhardt and Bourgeois III 1988; Eisenhardt and Schoohoven 1990; Stopford 1990). However, overall there are still very few and integrated studies which have addressed this issue of choice or impact of CEO personality on design and context.

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[1] Organizational goals can be divided into "official goals" and "operative goals" (Perrow 1961 p. 855). This division is empirically supported by the earlier findings of Blau (1955). "Official goals" are defined as "the general purpose of the organization as put forth in the charter, annual reports, public statements by key executives and other authoritative announcements" (Perrow 1961 p. 855). "Operative goals" or "real goals" (Dawson 1992 p. 47) are understood to be ends sought through the actual operating policies of the organization. They reveal what the organization actually is attempting to do, regardless of what the official goals state as aims (adapted from Perrow (1961 p. 855)).

[2] As a caveat it should mentioned that this might be a simplifying assumption. Since decisions in organizations are considered to be highly political (Pfeffer 1978) and due to the presence of multiple and conflicting goals (Kochan, Cummings and Huber 1976; Hall 1991 p. 282), the final decision on organizational goals might be the results of power struggles within the organization and represent the interests of the "dominant coalition" (Cyert and March 1963; Thompson 1967).

[3] It should be noted that apart from company size, there are other factors which influence managerial discretion or "latitude" which have been discussed in the literature and will not be repeated here (cf. Zucker (1977); Hrebiniak and Joyce (1985); Hambrick and Finkelstein (1987); D'Aveni (1990); Lewin and Stephens Lewin (1994)).

While there is not yet a firm consensus on which aspect of CEO personality is most important, some researcher focused on *motivation* in the form of "need for achievement" (McClelland et al. 1953; McClelland 1961; 1963). McClelland (1961) states that need for achievement is the single characteristic that best captures the motivations and personalities of business executives.[1] This is also the motive which has received most attention in the psychology literature (Gilmer and Deci 1977 p. 209). The importance attached to achievement need is primarily due to its alleged immediate action implications on firm's goals and the subsequent structural means adopted. For example, high achievers strongly prefer to take immediate responsibility for doing things. They are thus likely to centralize authority to maintain control (Miller and Droege 1986 p. 541).

The presence of such personality factors might mean that the CEO could potentially select a particular structure or strategy (Collins and Moore 1970; Miller, Kets de Vries and Toulouse 1982; Kets de Vries and Miller 1984; Miller, Toulouse and Belanger 1985; Miller and Toulouse 1986). Thus, structural choices might be adopted which are different from the design options recommended by contingency theory. Given that such choices would deviate from the functional notion of "fit", it would challenge the validity of contingency theory.

Other researchers, such as Miller, who is the most active researcher in the area of CEO achievement need, do not regard the existence of such personality factors as a threat to contingency theory. For example, Miller and Droege (1986) studied a random sample of 93 firms in two Canadian cities, i.e. Montreal and Quebec City, and modeled CEO personality as one of several influencing factors of structure. They found that size and need for achievement were the only significant influencing factors of "Aston" structure. Instead of interpreting this finding as a challenge to contingency theory, they concluded that "traditional" and "psychological" factors are not incompatible but represent "complementary" ways of understanding the functioning and structuring of organizations (p. 554).

Although their approach is interesting given that there are very few empirical studies testing the influence of CEO personality, their conclusions seem to be somewhat superficial and need therefore be addressed in this study. Specifically, it would have been important for Miller and Droege to discuss the core theme of contingency theory, i.e. the idea of effectiveness-enhancing "fit" resulting from a match between context and appropriate structural responses. If the CEO can *break* this linkage, the validity of contingency theory is threatened. Unfortunately, they neither mentioned nor modeled the notion of "fit". In this context, we believe the potential challenge to contingency theory cannot be brushed aside by simply stating that psychological factors are complimentary and "vary in importance" (p. 554).

It is important to briefly state our view regarding this critical issue relating to the CEO potentially influencing other linkages, and afterwards briefly comment on the general validity of "fit" in this context. Dependent on the degree to which the "non-traditional" factor actually interferes with other factors and thus impacts on the prescribed contingency relationships, we can distinguish the following three possibilities:

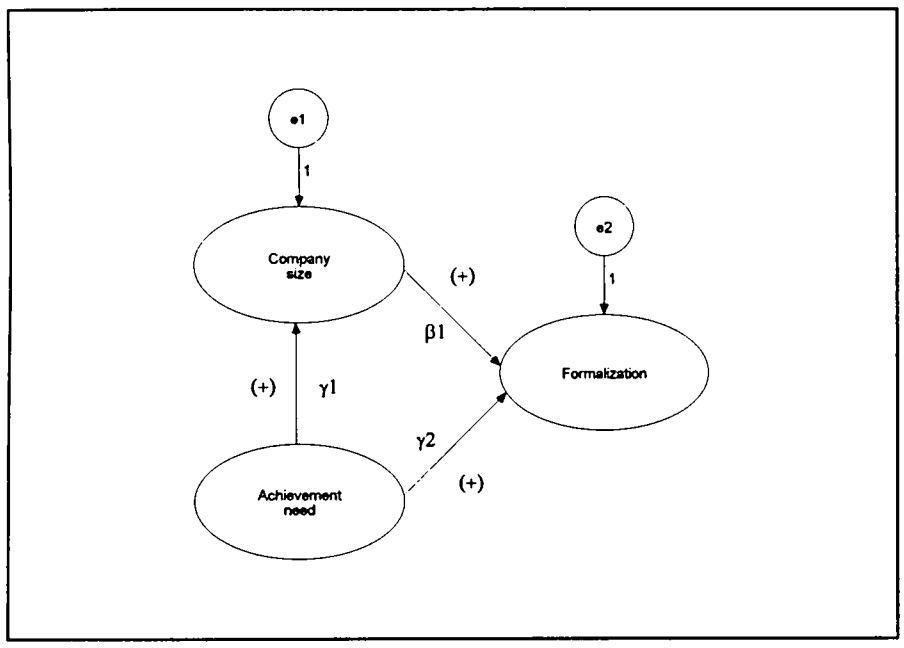
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[1] It should be mentioned that CEO personality can be conceptualized as consisting of more attitudes which might have a potential impact on organizational design choices, such as Machiavellianism, Egalitarianism etc. (Lewin and Stephens 1994 p. 185). We focus on one of the most salient attitudes.

Simple presence of additional, non-interacting factor (possibility 1): First, we think the fact that other factors, besides the traditional contingencies, influence organizational structure and contribute to the explanatory power of structural models, but do not interfere with other contextual factors, does not pose a problem to contingency theory in itself. After all, in models that included size, technology and uncertainty, there was always some unexplained structural variation (R^2<1.0) which, if there is some part of total variation which is capable of being explained, but has not been explained before, might well be due to omitted factors. In addition, one of the strength of contingency theory is its openness to include new factors.

Simple interaction (possibility 2): Secondly, the interaction between non-traditional and traditional factors is also not considered to be a challenge per se as long as it does not change the direction of signs of the traditional factors in their relations with organizational properties. This view can be justified by the fact that the traditional fit relationships postulated by contingency theory are still valid. Under this scenario, it would still be true that, for example, larger companies would be more formalized and be better performing than larger but less formalized firms, independently of CEO personality. A theoretical example, in which this situation would arise, is depicted in Figure 2-3 below:

Figure 2-3 Hypothetical influence of "traditional" factor



In this case, need for achievement leads to higher size which in turn requires higher formalization. Given this causal pattern, we would expect the estimate of β_1 to be smaller in magnitude or even negative, if need for achievement is excluded.[1] If β_1 actually becomes negative, we face the situation described in possibility 3 below:

"Distorting" interaction (possibility 3): Third, if the non-traditional factors actually changed the sign of the association between traditional context and structure, the prescriptions of contingency theory would be contradicted, given that companies would be in "misfit".

[1] We believe that this theoretical case does not apply in practice, since we hypothesize that the interaction effect is reversed. We think that the influence of need for achievement is stronger in smaller companies. However, the theoretical case has to be tested to see whether contingency theory is challenged.

In a more general sense, as regards the overall notion and validity of "fit" per se, some researcher argue that contingency theory makes the implicit assumption that all managers want to achieve the same thing, or the notion of "fit" becomes meaningless. If CEOs vary in their motivation and can influence the size of their companies, this assumption would not be met. We do not agree with this view. We previously defined "fit" as a match between contextual and structural factors which leads to an increase in performance. This definition does not state *what* affects the choice of contextual factors. The crucial point is that *given* a certain level for the contextual factor, whether exogenous or endogenously determined, there is one particular structural response that is associated with higher performance. Contingency theorists such as Hickson *et al.* (Hickson et al. 1974a p. 5) support this point by stating that the level of contextual factor might be subject to choice, but the "traditional" relationship can still apply.[1] For example, if CEO need for achievement led to higher organizational size and the CEO, for example due to purely irrational reasons, *decided* to use less formalization, that would still lead to "misfit", which in a Darwinian, highly competitive environment, will not be likely to be sustainable for a long time. Thus, even under this scenario, the notion of "fit" per se is still a meaningful concept. In addition, to achieve "fit" and high performance, contingency theory and Weberian Bureaucracy in general require leaders to be to some extent "rational" rather than having necessarily the same goals. In this context, it has to be mentioned that particularly CEOs with high need for achievement, in contrast to CEOs with other psychological attitudes such as simple desire for power (Zaleznik and Kets de Vries 1975), due to their desire to achieve goals are less likely to maneuver their organizations into "misfit" (Lewin and Stephens 1994 p. 191).

In conclusion, if we disaggregate contingency theory into two building blocks, i.e. (a) the general theoretical "fit"-framework ("form") and (b) the detailed prescribed relationships ("content"), we can deduce from the above discussion, that the "fit"-framework is relatively robust and flexible, but that the detailed prescriptions might be empirically challenged in the presence of distorting non-traditional factors.

Due to the relatively superficial treatment of these crucial issues in the existing theoretical literature, which did not make the distinctions discussed above, as well as the very limited amount and tentative character of previous empirical work in this area, it is important in the present study to analyze the influence of non-traditional factors on structure. In addition, researcher have pointed out that CEOs might have more influence on management decisions than on structural choices, given that the later might depend on an "industrial logic" (Kerr et al. 1964). It will therefore be important to extend the analysis to model the influence of need for achievement on management practices as well. It is crucial to conduct such a study in a comprehensive way, simultaneously studying a wide range of influencing factors and organizational properties, instead of only analyzing the influence of a small set of contextual factors on a small amount of structural and managerial characteristics one after another, while not holding constant aspects of research design, such as sample characteristics and data collection methods.

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[1] They state that "culture-free" does not mean that context is a "sort of geological deposit from nowhere ... Context is chosen ... but the consequences of choice constrain the next choice" (Hickson and McMillan 1981a p. 194).

The impact of national culture: In an even broader sense, the influence of national culture[1] presents another potential challenge to contingency theory. There is an ongoing debate between proponents of the "culture-free" hypothesis and "culture-bound" school of thought. Proponents of the "culture-free" hypothesis of organizational structure, such as Hickson *et al.* (Hickson et al. 1974a p. 8; Hickson et al. 1979; Hickson and McMillan 1981b), Tracy and Azumi (1976 p. 91), Marsh and Mannari (1980), and Birnbaum and Wong (1985), maintain that, perhaps due to the above mentioned "industrial logic" (Kerr et al. 1964), the "relationships between the structural characteristics of work organizations [particularly formalization and centralization] and variables of organization context [especially size and dependency] will be stable across societies" (Hickson et al. 1974a p. 8). These relationships are like general laws or "etics" (Segall 1986).

In contrast, advocates of the "culture-bound" school of thought argue that organizations are affected by the cultural environment they are located in, as well as by other factors interacting with national culture (Hall 1991 p. 99). More specifically, Lincoln *et al.* (Lincoln, Hanada and McBride 1986) proposed that national culture is not only *additive* to the explained variation of structure, but sometimes can even override the influence of other factors such as technology. Various studies emphasized the significance of national culture, either in the host country (Lincoln, Olson and Hanada 1978) or country of origin (Ouchi and Jaeger 1978; Ouchi and Johnson 1978; Wong and Birnbaum-More 1994), in influencing structure. Laaksonen (1988 p. 7) pointed out that society "creates" managers. He thus emphasized the importance of national culture on management decisions. These might translate into differential structural and managerial arrangements across different nations. Schreyoegg (1980) and Schneider (1989) also suggested that national culture influences the organizational design strategies by managers. Likewise, Maurice *et al.* (Maurice, Sorge and Warner 1980) pointed to the importance of different national "logic" in influencing organizational processes. Clegg (1990) maintains that there is a variety of equally economically viable and socially acceptable forms of organization in different parts of the world. Their rationale can only be explained by reference to the people who found and maintain organizations, rather than more "technical" contingencies. Moreover, Meyer and Rowan (1977) and other institutional theorists[2] (DiMaggio and Powell 1983; Meyer, Scott and Deal 1983 p. 14; DiMaggio 1991) propose that organizations adapt their structure to the prevailing norms of society. The Industrial Democracy in Europe (IDE) International Research group (1981 p. 8) also found evidence for the impact of the institutional environment on organizational properties. Similarly, Child (1981) discussed the cultural differences between Great Britain and West Germany, and the implication of these contrasts for the types of organizational structures adopted. In a later work (Child 1994 p. 307), he stressed that diverse forms of companies in China are largely determined by different national and regional preferences, which are assumed to be embedded in cultural features and thus represent a counter hypothesis to the culture-free or modernist point of view. Similarly, Whitley (1992) in his study of East Asian business systems, pointed to the importance of institutional factors in influencing business outcomes, which he thinks are due to the fact that there is no single "rational" or "efficient" managerial logic available.

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[1] National Culture is defined as a set of values and beliefs held amongst the members of a nation.

[2] Institutional environments are defined as "the rules and belief systems as well as the relational networks that arise in the broader societal context" (Meyer, Scott and Deal 1983 p. 14).

The only successfully transferable organizational and managerial practices will be those which are easy to fit into the existing institutional fabric of the receiving society. Finally, Hofstede (1980 p. 372), based on his study, concluded that "the main finding is that organizations are culture-bound".

If the culture-bound theory were indeed true, the validity of contingency theory might be threatened. Similar to the view adopted in the discussion of CEO personality influences, we believe that the presence of national culture as an explanatory factor for variations in organizational properties in itself does not threaten contingency theory. This is also true for potential interaction effects[1] which do not change the sign of the traditional "culture-free" contingency relationships. Only if such an interaction changed the direction of influence of these correlation coefficients, would we conclude that the *predictions* of contingency theory are undermined. This would be due to the fact that potentially cultural factors lead to structural choices which overrule the impact of traditional factors.

Due to the critical importance of examining this cultural influence, combined with the fact that empirical findings are still limited and somewhat contradictory, there is some need for further research which clarifies the influence of an emphasis on national culture and its potential threat to contingency theory. In particular, there is even less research done on its influence on *management* practices. Likewise, the influence of emphasis on traditional *Chinese* culture on structure and management has not been intensively studied.

2.2.3.2. Linkages between organizational properties and effectiveness

After having discussed general and detailed criticisms related to the linkages between context and structure, we will now more closely examine the notion of "fit", i.e. the relationship between organizational choices and effectiveness. First, we will explain the reasons for why, in the context of contingency theory, we are interested in effectiveness. Afterwards, we will focus on some theoretical and practical criticism of the contingency treatment of effectiveness. Finally, the lack of empirical evidence related to the notion of "fit" in contingency studies will be discussed.

2.2.3.2.1. Importance of contingency-related research on organizational effectiveness

For the purpose of this study, effectiveness is understood to be the degree to which an organization achieves its stated purposes.[2] Lewin and Minton (1986 p. 514) pointed out that there has been an interest in organizational effectiveness ever since Adam Smith's treatise related to the organizational efficiency of division of labor in a pin factory, expressed in his book "The Wealth of Nations" (Smith 1937 (originally published in 1776)). There is much agreement in the literature that the conceptualization and measurement of organizational performance are of great importance for both practitioners and researchers. It might even be considered the "summum bonum of organizational design" (Khandwalla 1977 p. 572).

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[1] An example would be a positive impact of "emphasis on traditional values" on "organizational size".

[2] In the literature, the term "effectiveness" is often used synonymously with "performance". This usage will be followed here.

A manager who has to make structural and managerial design choices, will probably want to know which option has the highest effectiveness. Besides, he will only be able to make right decisions on resource allocations in his company if the results of these actions can be assessed. Moreover, investors and policy-makers in the field of industrial economics will also need a yardstick for performance to make asset allocation decisions. Finally, contingency theorists can only reach sensible conclusions on which structure is best for a given contingency if they can measure the effectiveness results associated with different organizational forms.

2.2.3.2.2. Reductionist view of effectiveness determinants in contingency theory

Contingency theorists mainly focus on structural "fit" with the task environment as the only influencing factor of organizational effectiveness. We argue that although structure is important, there are several other "*key (or critical) success factors*"[1] (Daniel 1961; Rockart 1979; Rockart and Treacy 1982; Rockart and Bullen 1986; Rockart and DeLong 1988) influencing performance.

2.2.3.2.3. Conceptual problems of "fit" in contingency theory

Researchers have pointed out that there is a lack of precision in how "fit" is defined (Schoonhoven 1981). A collection of different vocabulary used to describe "fit" is presented in Table 2-2 below:

Table 2-2 Descriptions for "fit" in the literature

Study	Description for "fit" between context and organization
Thompson (1967)	Structure should be "appropriate" for a given environment
Woodward (1965 pp. 69-71)	Structure should "conform" to the technologies of a company
Lawrence and Lorsch (1967)	Processes should be "consistent" with external demands
Perrow (1970 p. 80)	Firms should maximize "congruence" between technology and structure
Khandwalla (1974 p. 97)	Technology and structure need to be properly "aligned"
Lawrence (1975)	A "coalignment" should exist between environment and structure
Tushman (1978)	Communication structures should "match" the nature of the task

Source: Adapted from Schoonhoven (1981 pp. 350-351).

This vague language fails to define the exact nature of "fit", such as the specific functional form of the interaction between environment, structure and effectiveness, the analytical model used (normally linear regression), as well as assumptions about symmetrical effects. It therefore is important in this study to exactly define the notion of "fit".[2]

[1] The term "key success factors" was first introduced by Hofer and Schendel (1978 p. 77).

[2] A further criticism, which however is not addressed in this study, is the fact that the contingency thesis is not a real "theory" given that it does not describe an internal mechanism for how contingencies are transmitted into organizational and managerial choices. For example, it ignores internal politics and power considerations (Katz and Kahn 1978 p. 249). In other words, it fails to account for why or how a best way to organize develops (Tosi and Slocum 1984) and "fit" comes about (Dawson 1992).

In addition, at any given moment of time, different contingencies might require different responses to achieve "fit", making it imperative to identify the most important contingency in determining structure (Dawson 1992). This emphasizes the importance of rigorous structural equation modeling as well as the use of nested model comparisons to test for the strongest influencing factor while holding other factors constant. Unfortunately, structural equation models including a wide range of factors are still rare in the organizational literature. Miller and Droege (1986) as well as Wong and Birnbaum (1994) are exceptions and will be discussed below. Moreover, it might well be true that the strength of effectiveness-induced constraints varies for different organizational decisions. For example, whereas in terms of structure, companies might be relatively constrained due to an "industrial logic" (Kerr et al. 1964), there might be more flexibility in terms of *management* style (Khandwalla 1977). To compare these differences, it therefore is important to model structure and management in one study which holds constant sample and other methodological aspects. Moreover, there might be some equally effective ("equifinal") variation of structural choices at the level of individual structural dimensions or item-level elements of structural dimensions themselves. For example, even if higher size demands more bureaucracy, the decision of whether to use more specialization or formalization, could still vary due to the different strategic choices of individuals, different industry practices or, in even wider terms, due to cultural influencing factors, but the different choices might still be equally effective. Even if these dimensions were "fixed" for certain levels of the contingency factor, the decisions of which *aspects* to centralize or formalize might still vary at the item-level.[1] It therefore is important, in selected cases, to analyze the structural dimensions at different levels, which is very rarely done.

Finally, there are a few examples of companies that "create" (Galbraith 1967) or "(re)-shape" (Galbraith 1973) their environments. Organizations in misfit could thus regain fit by adjusting the contingency factor (Child 1972b). However, we believe that these represent exceptions involving very powerful or very well-connected organizations. Research has shown that misfit, resulting in lowered performance, leads to structural change (instead of change in contingency factors) with the objective of regaining performance by achieving re-fit (Donaldson 1987 p. 14).

2.2.3.2.4. Lack of effectiveness-related normative recommendation

In addition, contingency researchers often fail to translate their findings into useful normative recommendation. Researchers who do not issue pragmatic guidelines were criticized for operating in a "policy vacuum" (Corwin and Louis 1982). In this context, Drucker (1955) pointed to the fact that managers often do not understand organizational scientists and their language, and vice versa.

[1] Even if higher size demanded more overall formalization, there might still be a choice as to which formal documents are to be designed, such as job descriptions, organizational charts and work procedures. It is possible to achieve an overall high aggregate formalization score, which is adequate for the contextual factor, without necessarily formalizing *everything*.

2.2.3.2.5. Lack of empirical evidence of "fit" in contingency theory

Traditionally, most empirical work on contingency theory, including the Aston studies (Pugh et al. 1963; Pugh et al. 1968; Pugh, Hickson and Hinings 1969; Pugh et al. 1969; Inkson, Pugh and Hickson 1970; Hinings and Lee 1971; Pugh and Hickson 1976) has been positivistic. It limited itself to *explaining* variations in organizational structure. Researchers normally used factor analysis to reduce the number of scale items and then employed these factors in ordinary regression analysis with structure as dependent and the various contextual factors as independent variables. We will briefly analyze one of the most recent studies following the Aston research tradition. In his study of 47 companies in the Canadian textile industry, Clark (1990) hypothesized that variations in Aston structure scales, including formalization, standardization, specialization and centralization, would be partly explained by various contextual factors, including, amongst others, size, technology and uncertainty. As a result of factor and regression analysis, Clark replicated the contingency relationships of previous studies. He interpreted individual contingency relations as "patterns of rules" and concluded that it is "the task of management to discover those rule-bound relationships which affect performance" (Clark 1990 p. 71). However, the results of such an analysis do not allow for any conclusions as to whether the derived relationships automatically represent "fit", i.e. whether they are the recommended structural responses or "rules" for given contingencies. The patterns might actually arise in the *absence* of "fit". To draw such a fit-related conclusion, which is very important for giving practical advice to managers, organizational effectiveness has to be explicitly taken into account. Hiding behind a positivistic methodology or simply *assuming* "fit" without actually defining or measuring effectiveness, does not offset the failure to address this crucial issue. It thus is important to explicitly address the differential effectiveness of various structural responses to given contingencies.

However, potentially due to the difficulties in modeling performance,[1] such research is still spare. More specifically, there is still relatively little empirical work done on the correlates of organizational effectiveness (Judge 1994 p. 1), including the crucial relationship between organizational design and effectiveness (Lewin and Minton 1986 p. 524). The few researchers who paid attention to the above mentioned considerations of differential effectiveness, argued that certain *combinations*, or "pattern variables", of situational and structural variables are more effective in raising organizational performance than any one of these sets of variables acting alone (Khandwalla 1977 p. 587). The only examples of such analyses are Lawrence and Lorsch's (1967) study of uncertainty, differentiation and effectiveness combinations, Child's (1974; 1975) study of uncertainty, structure, and effectiveness associations, and Khandwalla's (1973) analysis of uncertainty, differentiation, integration and performance combinations.

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[1] For example, despite the importance of the subject and the immense preoccupation with it, there is still little agreement about what definition and measurement of organizational effectiveness should be used. Miles (1980 p. 355) calls this situation "organizational effectiveness jungle". Some authors got so frustrated about the intricacies of organizational effectiveness that they advocated abandoning the term from scientific investigation altogether (Hannan and Freeman 1977; Goodman, Atkin and Schoorman 1983). They questioned whether in organizations, which they viewed as "organized anarchies" (Cohen, March and Olson 1972), management actually can make a difference with regard to organizational effectiveness. Further, these scholars claimed that organizational effectiveness is a "socially constructed, abstract notion carried about in the in the heads of organizational theorists and researchers" (Quinn and Rohrbaugh 1983 p. 374).

Clearly, such focus on partial relationships does not hold constant other influencing factors of performance and strictly speaking does not prove any "fit" relationship.[1] Therefore, due to the lack of empirical research, it is important to analyze this aspect in this study.

2.2.3.3. Methodological criticism related to contingency theory

2.2.3.3.1. General criticism

Separation of measurement and theory: Most previous analyses used ordinary regression which, by adopting a "two-stage" approach (factor analysis and subsequent regression), did not allow for the simultaneous empirical testing of measurement and theory, which, as has been pointed out, is desirable from a philosophy of science stand-point. Apart from sample differences, this might be one reason for why the use of structural equation modeling yielded different results with respect to the statistical significance of "uncertainty".

Fragmented modeling: In the past, models were usually very particularistic, i.e. they focused on individual influencing factors without holding other exogenous factors constant. The range of endogenous variables was also very small. In this context, it is important to mention that there are many fewer contingency-based empirical studies on core management practices than is the case for structural relationships. As mentioned before, the fragmented treatment of organizational properties makes it difficult to judge whether managers have different degrees of freedom to chose certain organizational design aspects. An example might be more freedom of choice as regards management styles compared to organizational structure, for which the effectiveness-induced constraints might be more stringent. Moreover, in order to identify additional variation patterns, different contingency relationships would be ideally assessed for various subgroups such as different forms of ownership.

2.2.3.3.2. Detailed criticism of individual studies

To see whether there is a need for methodological improvement in a new study, it is important to criticize in some more detail the two studies (Miller and Droege 1986; Wong and Birnbaum-More 1994) which, given that they used a structural equation approach to model a set of influencing factors on structure, are exceptions as regards some of the above mentioned criticism. This criticism will then be addressed in the present study. We have already referred to Miller and Droege's (1986) work in the discussion related to the substantive criticism of contingency theory and will therefore now focus exclusively on critical methodological issues. In a structural equation model, they specified four exogenous variables including size, mass-production technology, uncertainty and CEO need for achievement. These factors were hypothesized to influence the endogenous constructs of centralization, formalization and integration. Despite the laudable and rare attempt to use structural equation modeling to analyze a comprehensive set of contingency factors, this study has to be criticized from several methodological angles:

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[1] This is probably one of the reason why this approach seems to have been abandoned in the research literature.

Lack of empirical model: First of all, in essence the set of structural equations did not specify a measurement model. The researchers made the highly unrealistic assumption that achievement, size, technology, uncertainty and centralization all would be completely free of measurement error which is very rare for social studies, especially when psychological variables such as need for achievement are concerned. More specifically, given that all these constructs were measured by one indicator only, we cannot draw any conclusions on the unidimensionality, validity or reliability of their scales.[1] It is interesting that nowhere in the study report have measurement properties been discussed. Therefore, as regards the substantive part of the model, i.e. the path coefficients between the latent constructs, we do not know which part of total variation in the latent constructs is trait variance as contrasted to measurement error (systematic method and random error) variance. If all the variation were due to measurement error, the results from the substantive model would be meaningless. Alternatively, if not all, but still a significant portion of variation were a result of measurement error, the structural relations might be attenuated, unless the error is properly modeled. The question is why a relatively complicated procedure such as structural equation modeling was necessary at all, when its main advantage over ordinary regression, i.e. the modeling, simultaneous assessment and correction for measurement error,[2] was not exploited.

Fragmented modeling: As far as the substantive model is concerned, it is to some degree fragmented. It would have been important to include "environmental constraints" and "emphasis on culture", since these aspects received much attention in the literature. In addition, it would have been interesting to analyze management practices in the same sample to assess, for example, the differential impact of CEO personality on management as compared to structure. Moreover, the researchers did not model effectiveness or at least mention any effectiveness implications of their model.

Apart from these two comments which illustrate the points mentioned in the general criticism, there are two more problematic issues specific to this study:

Problems with model specification: The model specified correlated error terms between all latent constructs, which Brown (1984) calls "waste basket" parameters. There was no single theoretical justification for this procedure mentioned in the text. These parameters thus represent atheoretical post-hoc modifications of the research model. The only potential reason for its use is the fact that introduction of correlated error terms increases model fit - at the expense of potentially "capitalizing on pure chance" and capturing spurious relations (MacCallum, Roznowski and Necowitz 1992).

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[1] Only when the items (or sub-scales) used to define each scale are included in the structural equation model will the conceptualization of measurement error in SEM be like that of classical measurement theory (Marsh and Hocevar 1988 p. 108).

[2] For example, in classical regression analysis one assumes that the independent variables are measured without error (Cote and Buckley 1987 p. 317), which based on Cote and Buckley's results is a very questionable assumption. They therefore recommended SEM to model measurement error and control for its confounding effects (p. 318)

Only cross-validation with a new sample would clarify whether the specific modifications and substantive relationships can be replicated and thus be generalized. Results from other studies led to skepticism about the generalizability of models resulting from data-driven modifications of an initial model (MacCallum, Roznowski and Necowitz 1992 p. 490). Apart from this, we used two judges to try to replicate the findings using the published correlation matrix. However, the attempt failed and ended in error messages indicating serious model specification problems. The impossibility of replicating the model with the published data implies that either model specification information has not been published or that the model indeed is misspecified. Replicating the model with our China data resulted in an unacceptable model fit. Further, several other standard structural reporting practices (Hoyle and Panter 1995 pp. 158-176) were not followed. For example, the potential presence of "improper" solutions, such as negative error variances, were not discussed. If there were any improper solutions, the models could not be said to "fit" the data, but would be misspecified.

Lack of sample representativeness: The sample was not very representative since it consisted mostly of francophone executives, who might represent a fairly distinctive cultural subsegment of the Canadian population. In addition, to analyze the importance of geographical differences, it would have been better to sample respondents from at least two different geographic areas. These sample characteristics make it difficult to generalize their substantive findings.

Wong and Birnbaum's (1994) study of a sample of 39 multinational banks in Hong Kong has been mentioned before in a discussion of its substantive findings. As in the foregoing discussion on Miller and Droege's work, in this section, we will therefore focus on methodology. Wong and Birnbaum's study is one of the only analyses in Asia using structural equation modeling to test a relatively wide range of organizational properties. The initial structural equation model specified size, technology, culture, dependency, the percentage of expatriates and the time the bank had been based in Hong Kong as exogenous influencing factors of structural differentiation and centralization. Each construct was measured by several indicators. As diagnosed by various fit indices, the initial model failed and showed a distinctive lack of construct validity. Afterwards, some post hoc modifications were made. First, technology and time in Hong Kong were aggregated with other constructs. Second, the measurement model was removed and replaced by single indicators. The modified model represented a better fit for the data. The following critical points have to be mentioned:

Modeling-related problems: While it is laudable that at least the modification procedure was discussed, there were no theoretical reasons reported for merging constructs and assuming no measurement error - an assumption which was shown to be incorrect in the original model. As a consequence of the above described procedures, if, for example, all variance in latent constructs were due to measurement error, the results of the structural model would be at worst meaningless.[1]

[1] Given that the model was not justified on theoretical and methodological grounds, it cannot even be cross-validated in a new sample to test for this potential danger. A *new* model based on substantive theory and specifying a complete measurement model would have to be used instead.

Limited generalizability: Finally, with its focus on banks only, study results do not easily lend themselves to generalizations.

2.3. Critical appraisal of literature

The preceding literature review focused on two major substantive (empirical and theoretical) issues, as well as one methodological area in which there is some need for further research. The present status relating to gaps in the literature is summarized in the left-hand column of Figure 2-4 on page 2-44:

First, as regards Chinese management, although the literature is relatively sparse and lacks a unifying framework, a distinctive Chinese management model can be developed from the fragmented discussions. However, writers believe that this management model is limited to *Nanyang* communities. In addition, the literature is mainly descriptive and treats Chinese management in a "monolithic" fashion. Finally, the differential effectiveness implications of the Chinese management style, particularly family-based private ownership, though occasionally and partially discussed in the literature, were not empirically tested. Therefore, it is important to determine through a survey-based approach whether the distinctive Chinese management style is also applied in the newly founded private companies in the P.R.C., as well as to analyze whether this management model is dependent on contingency factors and positively associated with performance.

Second, with respect to contingency theory, there is some broad empirical support for the application of certain "culture-free" and effectiveness-induced contingency relationships in many countries across the globe. However, the contingency relationships have not yet been tested in the most populous state in the world. Therefore, it is important to test these hypotheses in China as well. Moreover, such a study has to include some of the less well tested influencing factors in the research model, including environmental constraints, CEO need for achievement and emphasis on Chinese traditional family-based values. In addition, there are few studies which analyzed differences in the degree of managerial discretion between structural and managerial responses. Therefore, there is a need for further research which analyzes whether executives have more freedom of choice when deciding on their management style as compared to structural responses which might have to follow an "industrial logic". In addition, it is important to test whether there are different structural choices at the item-level. Apart from this, most contingency scholars *assumed* that the contingency relations they derived from regression analysis constituted "fit". The few existing studies which considered effectiveness only focused on one influencing factor at a time without other factors being held constant. Therefore, in order to more thoroughly explore the notion of "fit" in contingency theory, there is a need for further research which ascertains whether the regression-derived contingency relationships do differ between effective and less effective companies, and examines the performance implications of different structural responses to contextual factors. In this context it is particularly important to test whether a rigorously defined and comprehensive "appropriate structure" construct is positively related to performance. In addition, other key success factors should be measured and held constant in the analysis. Such a study has to embrace a broad conceptualization of effectiveness as a multidimensional construct, as well as rigorously assess its measurement properties. Finally, there is a distinctive need for effectiveness-related findings from contingency analysis to be translated into practical recommendations for managers.

Third, as regards methodology, most contingency analysis is fragmented, focusing only on individual aspects of structure or management, and severely limiting the number of influencing factors. To test, for example, whether there are different degrees of choice in structural and managerial responses, it therefore is important to include both aspects in *one* study which holds constant sample structure and other methodological factors. The same applies for the need of a wider range of influencing factors. As regards measurement, there are yet no scales available which measure "appropriate structure" or "emphasis on selected Chinese cultural characteristics". In addition, most empirical analysis uses ordinary regression which does not include a simultaneous measurement model. The few structural equation-based approaches had major methodological flaws. As a consequence, there is a need for further research which uses rigorous structural equation models with measurement models to model a comprehensive set of contextual and organizational variables.

2.4. Distinctive research contributions

In the critical appraisal of the reviewed literature, we identified some need for further research. It is the objective of this study to address these open issues. Specifically, this thesis aims to make empirical, theoretical and methodological contributions in three distinctive areas mirroring the outline of the foregoing discussion. The detailed targeted contributions are presented in the right hand column of Figure 2-4 on the next page:

a) ***Analyzing the distinctiveness of private "Chinese management" in the P.R.C***: The first contribution is to examine, through survey methodology and case illustrations, the nature of a distinctive Chinese management style to be found in private companies in the P.R.C. As pointed out before, a distinctive Chinese management style has been particularistically described in the theoretical literature, but was thought to be confined to overseas Chinese communities only. This study intends to move one step further by developing a Chinese management framework and testing its re-adoption in mainland China, including the hypothesized re-emphasis on traditional, family-based Chinese values. The study will also examine whether this style is, amongst other factors, due to this emphasis on familism. Finally, it will shed some light on whether this family-based management model is positively associated with effectiveness.

b) ***Testing and expanding the "fit" notion in contingency theory***: This study will test whether the relationships between a comprehensive set of contextual influencing factors and structural properties, as well as context and management, correspond to the "fit" hypotheses of contingency theory. In this context, it will also analyze structural variation at the item-level. Moreover, by analyzing the differential impact of CEO need for achievement on structure and management, it will analyze whether there are differences in the degree of discretion executive have with regards to structural and managerial responses. In addition, the study will advance contingency theory by actually operationalizing "appropriate structure", analyzing its relationship with organizational effectiveness, and suggest other "key success factors" besides structural "fit" as determining performance. It thus takes traditional contingency studies one step further by actually modeling effectiveness and analyzing its influencing factors in China, whereas most previous research just *assumed* that fit would be associated with higher performance. Finally, by developing an actionable framework, it will translate the empirical findings into practical recommendations for managers.

c) ***Further developing methodology for organizational research***: Apart from operationalizing and measuring "appropriate structure", we will develop a scale which determines the emphasis placed in different forms of organization on traditional Chinese cultural values, as well as the degree of subcontracting used. In addition, the study will integrate the analysis of structural and managerial dimensions in one study. Finally, we attempt to "promote" the application of structural equation modeling (including stacked model subgroup analyses) in organizational studies, a technique which allows for the rigorous simultaneous assessment of the measurement properties of constructs employed in contingency-related substantive models.

Figure 2-4

Given that there is a need for further research in certain areas of the literature, the present study intends to make new distinctive contributions as related to Chinese management, contingency theory, and organizational methodology.

Targeted Contributions of China Study

Aspect	Present status	Targeted new contributions
Chinese management	• Fragmented discussions related to elements of Chinese management • Distinctive *overseas* Chinese management model • Model is invariable and "monolithic"; no item-level analysis • Effectiveness of family-based management model not tested • Literature mainly descriptive, not international	• Integrating findings on Chinese private management • Testing whether Chinese management model also used in private companies located in the P.R.C. • Testing whether model dependent on contingency factors; analyzing item-level structural differences • Test for effectiveness of private family ownership • Rigorous *empirical* study with ownership and international comparisons
Contingency theory	• "Fit" hypotheses supported in international studies • Little empirical evidence concerning differential discretion in structural and managerial responses • Effectiveness of companies in fit and ineffectiveness of companies in misfit assumed • Other key success factors not modeled in contingency theory • Little practically useful advice	• Testing traditional "fit" contingency hypotheses in mainland China • Testing differential structural and managerial discretion • Testing whether fit implies effectiveness and misfit, by symmetry, means less effectiveness • Analyzing other significant key success factors • Developing actionable managerial recommendations
Organizational methodology	• No scales measuring culture and subcontracting in China • "Appropriate" structure not modeled • Fragmented analysis of individual aspects of context, structure and management • Mainly use of ordinary regression without simultaneous measurement model and subgroups analysis	• Developing scale for "emphasis on selected Chinese values" and subcontracting • Operationalizing "appropriate" structure • Integrating analysis of context, structure and management • Applying rigorous structural equation modeling with simultaneous measurement models and subgroup analyses

Summary of Chapter 2

In this chapter, the literature was critically reviewed for two distinctive research areas, including contingency theory in general and Chinese management in particular. Based on this review, further need for research was identified and the targeted contributions of this study outlined. In the next chapter, we will develop the research theory and detailed hypotheses tested in this study.

3. Development of research theory

3.1. Philosophical and theoretical perspective

The overall theoretical perspective and methodology is based on a philosophy which can be termed "sociological positivism" (Burrell and Morgan 1979 p. 7).[1] "Positivism" (Comte 1864) refers to the application of scientific theory, models and methods from the natural sciences to social research in human affairs, recognizing only facts and observable phenomena. "Sociological" positivism embraces the positivistic search for truth as an *ideal*. It is critical in nature, since it recognizes the difficulties of applying a positivist methodology to research in the real world and thus is cautious about exaggerated claims purely based on quantitative research. It is important to note that by adopting this methodology the research follows common usage in the research community. More specifically, most researchers in the social sciences still use some form of positivistic methodology, either adopting a purely positivistic theoretical perspective, or in the context of another theory (Sarantakos 1993 p. 34). Schrag (1992 p. 6) concludes that "despite the attacks leveled against it, the positivistic paradigm is hard to avoid".

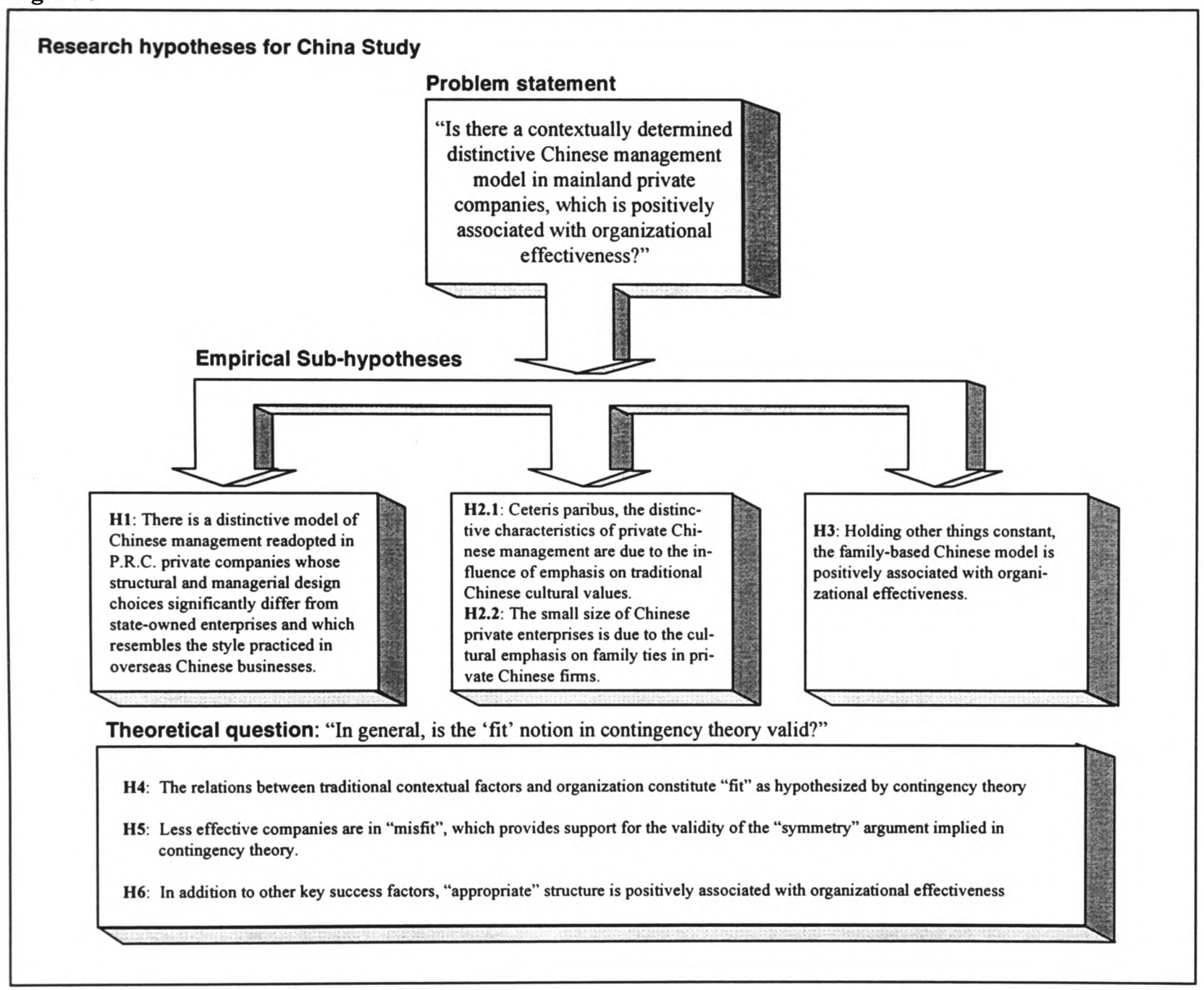
3.2. Research theory and model

On the basis of the critically reviewed literature and bearing in mind the specific contributions this study intends to make, we will now formulate appropriate research questions and develop theoretical models which specify the hypotheses to be tested. The individual hypotheses were mainly derived from the accumulated body of prior literature and other theoretical considerations. In the first section, we will discuss the hypotheses related to the main empirical problem statement, i.e. the nature, causes and outcomes of Chinese management (3.2.1). This is followed by an outline of the research models for the broader theoretical question of this study, i.e. testing and expanding the "fit" notion in contingency theory (3.2.2). To facilitate easy cross-reference between literature and hypotheses, the heading outline of this theory development chapter approximately mirrors the structure of the literature review chapter. The hypotheses also mirror the research questions in the problem statement presented in the introduction chapter and are summarized in Figure 3-1 on the next page.

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[1] The choice of philosophical perspective, in the final analysis, is a question of personal belief systems. The beliefs transmuting this study are not thought to be superior to other newer philosophical traditions, including Post-positivism (Kuhn 1970; Popper 1963; Lakatos 1972; Feyerabend 1970; Laudan 1977; Newton-Smith 1981; Cook 1985; Phillips 1990), Critical Theory (Derrida 1982; Foucault 1980; Lyotard 1984; Bernstein 1983; Rorty 1979) and Constructivism (Berger and Luckman 1975; Guba and Lincoln 1989; Guba 1990b; Lincoln and Guba 1985; Lincoln 1990). Otherwise, they would not be any doubt as to which inquiry is best (Guba 1990a p. 18).

Figure 3-1


Research hypotheses for China Study
Problem statement
"Is there a contextually determined distinctive Chinese management model in mainland private companies, which is positively associated with organizational effectiveness?"
Empirical Sub-hypotheses
H1: There is a distinctive model of Chinese management readopted in P.R.C. private companies whose structural and managerial design choices significantly differ from state-owned enterprises and which resembles the style practiced in overseas Chinese businesses.
H2.1: Ceteris paribus, the distinctive characteristics of private Chinese management are due to the influence of emphasis on traditional Chinese cultural values.
H2.2: The small size of Chinese private enterprises is due to the cultural emphasis on family ties in private Chinese firms.
H3: Holding other things constant, the family-based Chinese model is positively associated with organizational effectiveness.
Theoretical question: "In general, is the 'fit' notion in contingency theory valid?"
H4: The relations between traditional contextual factors and organization constitute "fit" as hypothesized by contingency theory
H5: Less effective companies are in "misfit", which provides support for the validity of the "symmetry" argument implied in contingency theory.
H6: In addition to other key success factors, "appropriate" structure is positively associated with organizational effectiveness

3.2.1. The "Art" of Chinese management

Problem statement: "Is there a contextually determined distinctive Chinese management model in mainland private companies, which is positively associated with organizational effectiveness?"

3.2.1.1. Distinctiveness of Chinese management

Research question 1: Is there a distinctive Chinese management model used in private companies in mainland China?

In chapter 6, entitled "Distinctive characteristics of Chinese management", we will analyze the following research hypothesis:

Hypothesis 1: There is a distinctive model of Chinese management readopted in P.R.C. private companies whose structural and managerial design choices significantly differ from state-owned enterprises and which resembles the style practiced in overseas Chinese businesses.

The term "management model" describes the structural and managerial choices of a company.[1] The four distinctive characteristics of Chinese private management outlined in the literature review can be broken down into two structure-related characteristics and two management-based aspects. Distinctiveness here implies that the structural and managerial choices of private enterprises significantly differ from SOEs. In this section we will primarily focus on the distinctiveness of the Chinese style *per se* without referring extensively to the underlying reasons for its particularity. The next section will exclusively focus on this issue and propose that, ceteris paribus, the distinctive structural and managerial characteristics are due the emphasis placed in private enterprises on traditional, family-based values.

Let us now discuss the first sub-hypothesis:

Hypothesis 1.1 The structural choices of private Chines companies are significantly different from SOEs.

Based on the work of researchers describing the characteristics of *Nanyang* enterprises outlined in the literature review (Redding and Wong 1986; Redding 1990; Mackie 1992; Leung 1995), the private Chinese management model shows the following two structural characteristics:

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[1] The term is synonymous to "organizational design" which denotes macro-level organizational properties. Daft and Lewin (1990 p. 3), for example, defined organizational design as the organization's formal architecture, culture, decision-making norms, ethics, structure of employment relationships and strategy.

Strong centralization: There is a high degree of centralization of power in the hands of one autocratic entrepreneur (Redding and Wong 1986; Cohen 1990 p. 24; Montagu-Pollock 1991 p. 23; Kao 1993; Hickson and Pugh 1995 p. 171; Turpin 1998 p. 8; Weidenbaum 1996 p. 141). Therefore, it is hypothesized that private companies score higher on the centralization score than their state-owned counterparts which tend to be more decentralized (Sung and Chan 1987 p. 13; Child and Lu 1990 p. 334; Child 1994).

Low formalization: Due to the importance of personal controls, there is less need to resort to formal means of bureaucratic structuring for control or integration purposes. Therefore, it is hypothesized that private companies, on average, have lower scores on the formalization (Redding 1980; Redding and Wong 1986; Redding 1990; Hickson and Pugh 1995 p. 171; Weidenbaum 1996 pp. 149-150), control and integration scores than the more bureaucratic (Weihrich 1990; Krone, Garrett and Chen 1992) state-owned enterprises. Given that written instructions, procedures, reports and the like are minimal, there is also no great need for staff departments that generate them (Hickson and Pugh 1995 p. 171). This will lead to a lower specialization score for private Chinese companies as compared to their state-owned counterparts.

The detailed proposed differences with respect to structure are presented in Table 3-1 below:

Table 3-1 Hypotheses for structural difference between private and state-owned enterprises

Aspect	Private enterprise	State-owned enterprise
Centralization	Higher	Lower
Formalization	Lower	Higher
Specialization	Lower	Higher
Control	Lower	Higher
Integration	Lower	Higher

The suggested differences between SOEs and private companies with respect to management practices are summarized in the following sub-hypothesis:

Hypothesis 1.2 The managerial choices of private Chinese companies significantly differ from SOEs.

As regards management practices, private Chinese enterprises are thought to show the following two differences in comparison with SOEs:

Entrepreneurship: Chinese firms show a stronger "entrepreneurial style" (Mintzberg 1973) than their state-owned counterparts. "Chinese Entrepreneurship" can be disaggregated into distinctive styles of strategies, leadership and decision-making. More specifically, as regards strategic orientation[1] (Venkatraman 1989), the strategies of private enterprises are more aggressive, proactive, risk-taking (Mackie 1992; Fukuyama 1995 p. 80) and long-term than those of their state-owned counterparts. In contrast, Tan and Litschert (1994 p. 15) showed that SOEs tend to adopt a more "analytical" (Venkatraman 1989) strategic posture (Weihrich 1990) than their private counterparts. Strategies are also less innovative, proactive and risk-taking, as well as more short-term and "defensive".[2] This defensive orientation also becomes evident from the fact that the top management of many SOEs which in recent years have faced economic difficulties almost exclusively talks about cutting labor costs by mass layoffs instead of actively searching for new markets.[3] Moreover, the leadership style of private Chinese enterprises, due to the autocratic nature of their owner-manager (Redding and Wong 1986; Hickson and Pugh 1995 p. 170), is thought to be more coercive (Chan 1982), less participative than that of SOEs and more flexible. Private enterprises also make strong use of vertical communication, characterized by highly restricted access to important financial and operating information. In addition, they adopt a more entrepreneurial decision-making style (Mackie 1992 p. 53; Hickson and Pugh 1995 p. 170) which is preferred over extensive use of analysis. State enterprises, on the other hand, avoid these "bold" decisions and adopt a more incremental, "adaptive" style which makes extensive use of planning (Weihrich 1990).

Enterprise networks: In the case of private companies, there is an emphasis on inter-organizational, often subcontracting-based firm networks (Montagu-Pollock 1991 p. 21; Whitley 1994 p. 29; Whyte 1995 p. 1003; Weidenbaum 1996 p. 148; Williamson 1997; Cai 1997). We introduce the notion of a "web" to emphasize the idea that these networks can vary in their degree of formality and are to a high degree interdependent. These webs are held together by family lineages, trust and *guanxi* (Fukuyama 1995) and provide useful business intelligence (Redding 1990 pp. 17-18; Montagu-Pollock 1991 p. 22). In contrast, state-owned enterprises are usually vertically integrated and form part of large, government-based "Industry Bureaus" (Child 1994). Thus, the degree of subcontracting is higher in private companies than in SOEs.

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[1] Strategic orientation is a multi-dimensional construct, which Venkatraman (1989) developed on the basis of his comprehensive review of the strategy literature. It operationalizes *corporate* strategy and is therefore distinguished from mere CEO motivations, which are thought to influence it. The constituting dimensions of Venkatraman's construct are subsequently outlined.

[2] "Defensiveness" describes a strategic posture that emphasizes cost-cutting instead of proactive search for growth opportunities (Venkatraman 1989).

[3] It should be noted that this defensive behavior is not a result of government constraints. In contrast, the government would rather prefer state enterprises *not* to lay-off people.

The detailed hypothesized differences with respect to management practices are presented in Table 3-2 below:

Table 3-2 Hypotheses for managerial difference between private and state-owned enterprises

Aspect	Private enterprise	State-owned enterprise
Aggressive strategy	Higher	Lower
Analytic strategy	Lower	Higher
Defensive strategy	Lower	Higher
Long-term strategy[1]	Higher	Lower
Proactive strategy	Higher	Lower
Risk strategy	Higher	Lower
Participative leadership	Lower	Higher
Flexible leadership	Higher	Lower
Coercive leadership	Higher	Lower
Vertical communication[2]	Higher	Lower
Adaptive decision-making	Lower	Higher
Entrepreneurial decision-making	Higher	Lower
Planning decision-making	Lower	Higher
Subcontracting	Higher	Lower

In addition, we hypothesize that Chinese private companies place greater emphasis on traditional Chinese values. This is thought to be demonstrated by the importance of *family*-based relationships[3] (Wong 1985; Heller 1991; Whyte 1995 p. 1014), as reflected in the fact that the majority of overseas Chinese private enterprises are family-owned (Wong 1985; Redding 1990 p. 3; Heller 1991; Fukuyama 1995 p. 73). Further, within this family context, there is a stronger emphasis on respect for seniority as well as belonging to the lineage-based group, here termed "collective orientation" (Lockett 1988). This contrasts with the more "technocratic", "scientifically managed" state-owned enterprises (Weihrich 1990). This argument is summarized in the following hypothesis:

Hypothesis 1.3: In private Chinese enterprises, there is a greater emphasis on family-based relations, respect for seniority and collective orientation than in state-owned enterprises.

Finally, most private Chinese enterprises are relatively small (Hicks and Redding 1982 p. 212; Myers 1984; Myers 1986 p. 29; Tam 1990 p. 161; Montagu-Pollock 1991 p. 21; Hickson and Pugh 1995 p. 170; Lee 1996), which is expressed in the following hypothesis:

Hypothesis 1.4: Private Chinese enterprises on average are significantly smaller than SOEs.

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[1] Venkatraman (1989) calls this dimension "futurity orientation".

[2] "Vertical communication" is defined as information flows up and down the hierarchy.

[3] It has been mentioned in the literature that *non-family*-related "guanxi", such as personal connections to government or party officials, might be important in state enterprises as well, for example, for career advancement (Myers 1987 p. 28).

3.2.1.2. Influencing factors of Chinese management

Most previous research treated Chinese management as monolithic without considering whether it varies according to various contingencies. To clarify this issue, we will analyze the following research question:

Research question 2: Do the distinctive features of private Chinese management, ceteris paribus, result from an emphasis on traditional Chinese cultural values?

Based on the importance of familism in private firms discussed in the literature review, we formulate the following hypothesis which will be analyzed in Chapter 7, entitled "Influencing factors of structure and management in China":

Hypothesis 2.1: Ceteris paribus, the distinctive characteristics of private Chinese management are due to the influence of emphasis on traditional Chinese cultural values.

The research model used to test the structural characteristics is displayed in Figure 3-2 on page 3-10, the model for management-related aspects in Figure 3-3 on page 3-15.[1] Most importantly, holding the other factors in the model constant, emphasis on traditional family-based values, has a double impact on structure and management, which is not found in state enterprises:

Direct impact: It directly affects structural and managerial choices. The detailed influencing relationships are discussed in the broader discussion of the research models in section 3.2.2.

Indirect impact: In addition, the *choice* of mean level for the contextual factor "size" is also a result of the emphasis placed in private companies on family relations. In order to keep strong family ties, there is a preference to "spawn" or proliferate instead of growing the company's size (Whyte 1995 p. 1003; Hickson and Pugh 1995 p. 170). Support for this link between familism and size is provided by the fact that in countries which allow the Chinese free economic activity, most firms from the private sector are at the same time family-owned (Fukuyama 1995 p. 73; Redding 1990 p. 3; Wong 1985; Heller 1991) and very small (Hicks and Redding 1982 p. 212; Myers 1984; Myers 1986 p. 29; Tam 1990 p. 161).[2] It is well-established that size, in turn, is strongly related to bureaucracy and other organizational properties. These relationships will be discussed in greater detail in section 3.2.2.

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[1] These two general models will also be used to test the more general contingency theory-related hypotheses discussed later (section 3.2.2).

[2] It should be mentioned as a caveat that many firms in the private sector in other countries, at the beginning, are also small, family-owned enterprises, which will eventually grow. However, in the Chinese case, due to the importance of traditional cultural values, as shown in overseas Chinese companies, most small companies are less likely to grow considerably in subsequent periods and prefer to proliferate and spawn in networks instead (Hickson and Pugh 1995 pp. 170-171). In Hong Kong, the size of private firms has actually tended to *decrease* at times (Hickson and Pugh 1995 p. 170). Given the cross-sectional nature of this research and the fact that private firms have only recently come into existence, the final proof of this situation for the *P.R.C.* will have to be analyzed in a later longitudinal study.

Thus, emphasis on familism also contributes indirectly to the low degree of formalization, as well as the other distinctive structural and managerial characteristics of Chinese private firms. The existence of this hypothesized indirect path is summarized in the following proposition:

Hypothesis 2.2: The small size of Chinese private enterprises is due to the cultural emphasis on family ties in private Chinese firms.

3.2.1.3. Effectiveness of Chinese management

After having hypothesized that Chinese management is distinctive as a result of the emphasis on familism, the remaining question is whether it is an "art" in the sense of "the *skill* of doing something *well*" (cf. Simpson (1989 p. 657)). If this were indeed the case, this would imply that this distinctive family-based model is positively associated with organizational performance. This notion is expressed in the following research question:

Research question 3: Is the family-based Chinese model positively associated with organizational effectiveness?

As discussed in the literature review, when other factors are held constant, private family-based ownership, as contrasted to collective state ownership, was thought to be positively related to organizational effectiveness. The reasons include, first of all, the valuable social capital provided by Chinese family structures (Smart and Smart 1993; Whyte 1995 p. 1004; Cai 1997). Secondly, this positive impact on performance is also due to the flexibility associated with small firm size and national (Montagu-Pollock 1991 p. 21; Whyte 1995 p. 1004), as well as international (Watson 1975b; Salaff 1981; Fukuyama 1995 p. 92) lineage-based networks. A third reason is the cost-efficiency (Montagu-Pollock 1991 p. 21; Turpin 1998 p. 8) associated, amongst other things, with these family-based networks. One of the major drawbacks was its alleged limits to growth in company size (Wong 1988 p. 139; Jenner 1992; Fukuyama 1995). Thus, we hypothesize that when other factors such as size are held constant, the Chinese management model which adopts family-based private ownership is positively associated with performance. The detailed research model is displayed in Figure 3-4 on page 3-21 and will be discussed in more detail in the more general, contingency theory-related section (3.2.2). The above developed argument is expressed in the following research hypothesis, which will be analyzed in chapter 8, entitled "Organizational effectiveness of Chinese companies":

Hypothesis 3: Holding other things constant, the family-based private Chinese model is positively associated with organizational effectiveness.

3.2.2. "Fit" notion in contingency theory

Apart from the main empirical focus on Chinese management, the study affords an opportunity to test and expand our theoretical understanding related to contingency theory. Therefore, the second, theoretical objective is to answer the following question, which relates to the whole sample of Chinese companies:

Theoretical question: "In general, is the 'fit' notion in contingency theory valid?"

In this section, we will introduce and discuss the detailed research models which will be used to test all contingency-related hypotheses including, as mentioned before, those from the previous section on Chinese management. As shown in the problem statement presented in the introduction chapter, the contingency theoretical question can be broken down into three sub-issues:

Research question 4: Do the relations between traditional contextual factors and organization constitute "fit" as hypothesized by contingency theory?

The following research hypotheses relating to the "fit" relationship between context and structure, as well as context and management will be tested. The detailed sub-hypotheses are summarized in Table 3-3 on page 3-14 and Table 3-4 on page 3-18.

Hypothesis 4: The relations between traditional contextual factors and organization constitute "fit" as hypothesized by contingency theory.

It should be mentioned as a caveat that certain aspects of management, such as strategy,[1] might influence structure, but due to the desire to focus on key contextual contingencies, these aspects were not measured or analyzed. It might be interesting to study these aspects in a subsequent survey.

In general, with respect to both structure and management, it is hypothesized that the relationships postulated in contingency theory hold in China as well. We can distinguish between "traditional" and "non-traditional" (or psychological) contingency factors:

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[1] There is some support for a relationship between product diversification strategy and the adoption of a multidivisional structure (Chandler 1962; Channon 1973; Rumelt 1974; Dyas and Thanheiser 1976; Suzuki 1980; Donaldson 1987). However, as regards strategy, we are more interested in "strategic" postures along the Miles and Snow framework (1978), which, in contrast to product diversification, have not been often empirically tested. Therefore, the operationalization of strategy we use (Venkatraman 1989) does not include "product diversification" as a distinctive dimension. In addition, as regards structure, we focus on Aston "structuring of activities" instead of measures of internal governance structure in multi-divisional companies. We thus follow the tradition of previous research on structure adopting the Aston measures (cf., most recently, Miller and Droege (1986), Clark (1990), Wong and Birnbaum (1994)).

Traditional factors: At the aggregate level, company size, uncertainty and environmental constraints are important factors adding to the explained variation in structure and management. The role of technology has been disputed in the past and has to be clarified in this study.

Non-traditional factors: Both CEO need for achievement and emphasis on Chinese culture are thought to contribute to the explanatory power of the model. The influence of the CEO's personality, though interacting with size,[1] is not thought to challenge contingency theory, since it does not change the signs of the other traditional relationships.[2] Likewise, an emphasis on selected Chinese cultural characteristics, though interacting with organizational size in the case of private enterprises, does not change the direction of association of the traditional "culture-free" contingency relationships. This hypothesis is supported by the evidence of Wong and Birnbaum's (1994) study, showing that "national culture" added to the explanatory power of their model, but did not change the sign of other contingency relationships. The presence of this influencing factor is therefore not thought to challenge contingency theory either. We thus adopt a "modified" or "modernized" version of Hickson *et al.'s* (1974a p. 8) so called "bold" culture-free hypothesis. More specifically, we acknowledge the presence and influence of other non-traditional factors not previously included in the culture-free hypothesis, but hypothesize that the traditional "fit"-related contingency relations are still stable across societies.

Hypothesis 4 can be broken down into two sub-issues, which will be discussed in turn:

Hypothesis 4.1: The relationships between traditional contextual factors and *structure* correspond to the hypotheses derived from contingency theory.

Hypothesis 4.2: The relationships between traditional contextual factors and *management* practices correspond to the hypotheses derived from contingency theory.

3.2.2.1. Context and structure

An overview of the direction of hypothesized relationships between context and *structure* (hypothesis 4.1) is provided in Figure 3-2 on the next page. Following the approach adopted by previous studies (cf. Miller and Droege (1986 p. 551)) to ensure comparability, interaction effects between size and need for achievement will be analyzed through subgroup analyses[3] for both the structure and management model, and are therefore not displayed in the two models. As mentioned in the discussion on Chinese management, the influence of "emphasis on traditional Chinese culture" on "size" is hypothesized to exist only in private firms.

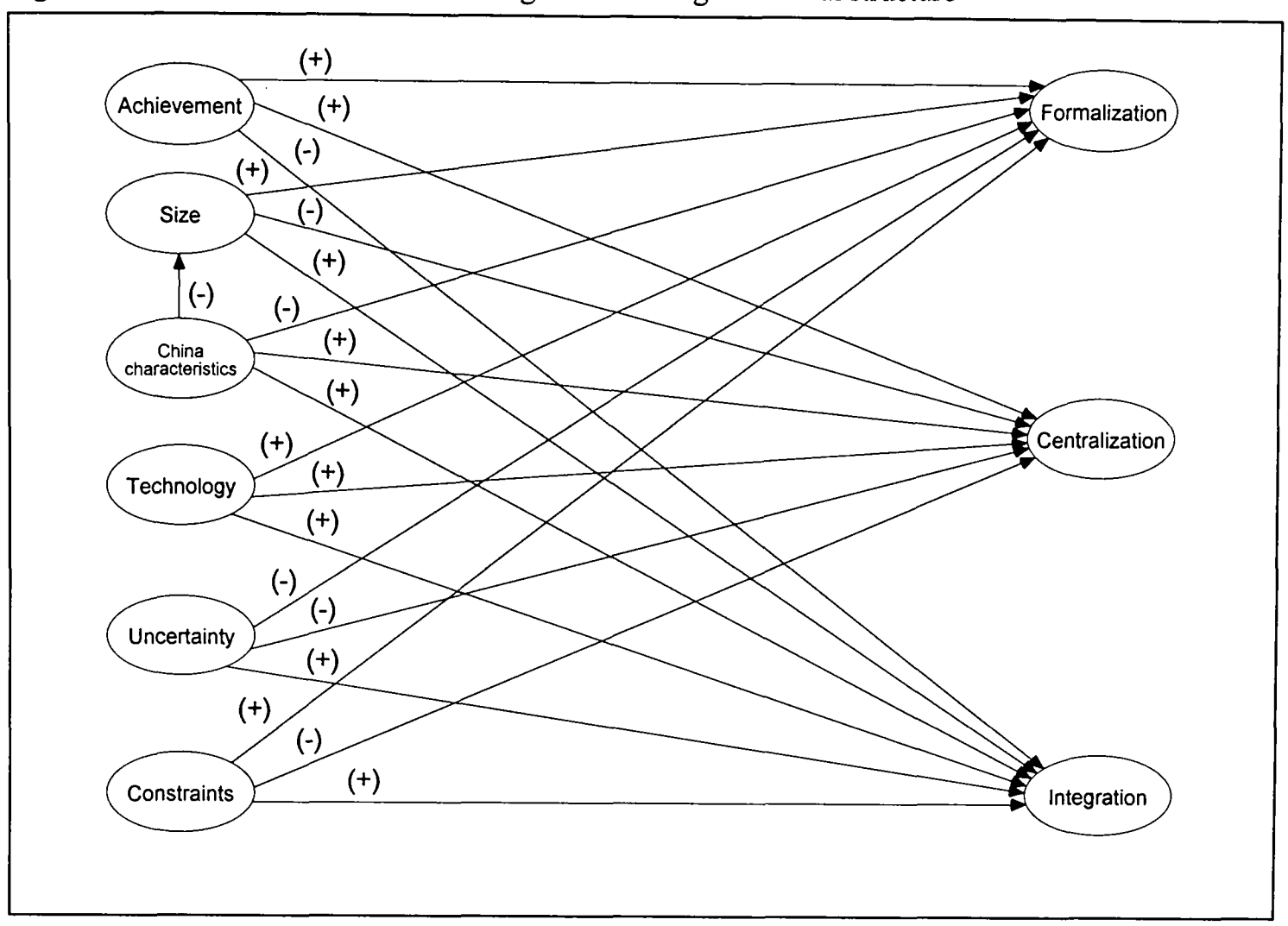
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[1] Several researchers have argued that the influence of the CEO's personality might be stronger in small (Collins and Moore 1970; Miller, Kets de Vries and Toulouse 1982; Miller and Droege 1986) and relatively young companies (Kimberly 1979; Miller and Droege 1986).

[2] This case was called "simple interaction" (possibility 2), discussed in the literature review in the context of the potentially distorting influence of non-traditional contingencies.

[3] Comparing subgroups consisting of larger and smaller companies, we will be able to test whether the influence of need for achievement is stronger in smaller companies.

Figure 3-2 Research model for influencing factors of organizational structure



Former reviews (Champion 1975; Van de Ven 1976 p. 70; Jackson and Morgan 1982; Fredrickson 1984) reported that "formalization", consisting of specialization, control, and written procedures, as well as "centralization" and "complexity", were often treated as constituting dimensions of organizational structure. However, in a subsequent empirical study, Miller and Droege (1986 p. 548), using factor analysis, failed to detect the complexity dimension and therefore excluded it from further analysis. Therefore, on the basis of this most recent empirical results, it was not included in our model either.[1] In addition, some more recent literature (Lawrence and Lorsch 1967; Galbraith 1973; Mintzberg 1979; Miller and Friesen 1984; Miller and Droege 1986 p. 543) pointed to the existence of a fourth factor, i.e. "integration" through the use of liaison devices. We thus conceptualized organizational structure as consisting of formalization, centralization and integration. The reasons for including the various influencing factors were discussed in the literature review. We will now explain the detailed hypothesized relationships. These detailed hypotheses were derived from contingency theory (Woodward 1958; 1965; Pugh et al. 1963; Hage 1965; Hage and Aiken 1967; Pugh et al. 1968; Pugh, Hickson and Hinings 1969; 1969; Lawrence and Lorsch 1967; Perrow 1967; Thompson 1967; Blau 1970b) and other theoretical considerations. As before, in the following discussion related to the structure and management models, we make a distinction between "traditional" and "non-traditional" factors. The influence of traditional factors describes relationships which are considered optimum, i.e. they are hypothesized as leading to "fit". In contrast, the other set of non-traditional factors reflect the influence of the individual CEO's personality and preferences, as expressed by his motivation and traditionalism:

[1] It should be noted that in a preliminary factor analysis of our data, the complexity dimension did not materialize either, confirming this decision.

Traditional factors

Size: The significant influence of size[1] on organization has been well researched (Blau, Heydebrand and Stauffer 1966; Blau 1968; 1970a; 1972; 1973; Blau and Schoenherr 1971; Meyer 1968a; 1968b; 1971; Klatzky 1970). In particular, it has been shown to be positively associated with "bureaucracy" (Weber 1968; Blau 1970b; Astley 1985; Donaldson 1986; Miller 1987). More specifically, larger companies need more specialist roles, control systems and rules (Pugh et al. 1963; Pugh et al. 1968; Pugh et al. 1969; Hickson, Pugh and Pheysey 1969; Inkson, Pugh and Hickson 1970; Child 1972a; Child and Mansfield 1972; Hinings and Lee 1971; Blau and Schoenherr 1971; Khandwalla 1974; Donaldson and Warner 1974; Hickson et al. 1974b; Dewar and Hage 1978; Calder and Schurr 1981; Donaldson 1995). Greater scale increases the frequency of recurrent events, which then can be standardized (Haas and Collen 1963). In addition, due to, for example, the problem of information overload in combination with "bounded rationality"[2] (Simon 1957), large organizations have to decentralize certain decisions to lower levels in the hierarchy (Blau and Schoenherr 1971; Blau 1973; Mansfield 1973; Jennergren 1981 p. 54). Large companies also tend to make more use of liaison devices to integrate and coordinate their diversified activities (Mintzberg 1993 p. 124; Miller and Droege 1986).

Technology: Companies that make intensive use of mass-production technology[3] (Khandwalla 1974) are hypothesized to be more formalized, specialized, centralized and integrated (Woodward 1958; 1965; Thompson 1967; Perrow 1970). For example, Mintzberg (1993 p. 169) argued for a positive relationship between mass-technology and the degree of bureaucracy and centralization - as illustrated in his "machine bureaucracy". In other words, mass technology is considered to have a large *routine* component, which Hage and Aiken (1969 p. 371) found was related to increased formalization. This positive relationship was also replicated using the Aston measure of technology, i.e. work flow integration, and "structuring of activities" (Pugh et al. 1969 p. 103). It was equally confirmed by Dornbusch and Scott (1975). Finally, other international studies demonstrated that companies which made more intensive use of mass-production technologies showed a higher degree of "structuredness" (Child and Kieser 1979 p. 57-62; Ayoubi 1981 p. 104; Badran and Hinings 1980 p. 129; Wong and Birnbaum-More 1994).

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[1] Size is typically conceptualized as the number of employees in a company (Kimberly 1976).

[2] Bounded rationality is defined as the "limitations on human mental abilities that prevent people from foreseeing all possible contingencies and calculating their optimal behavior".

[3] "Mass production technology" is defined as the extent to which the firm uses custom, small-batch, large-batch, production-line, and continuous process technology (Woodward 1965). The scale we use (Khandwalla 1977 pp. 650-51) is defined broadly enough to apply to most service organizations (Miller and Droege 1986 p. 547) and was shown by Singh (1986) to be the best predictor of structure. An example of this broad definition would be "teaching large 'batches' of students in a university". It has been effectively used in other studies which included samples of service companies (cf. Miller and Droege (1986)).

Uncertainty: With higher perceived environmental uncertainty (Burns and Stalker 1961; Lawrence and Lorsch 1967; Thompson 1967; Galbraith 1973), ceteris paribus, more flexibility will be required, making it less feasible to formulate complete sets of rules and standardize all procedures (Burns and Stalker 1961). In addition, due to strong uncertainty in the environment, decisions have to be made locally, so that quick adaptation is possible through the use of local knowledge. This requires power to be delegated to lower-level mangers who specialize in certain complex tasks (Burns and Stalker 1961). Moreover, it becomes more important to use integrative devices to coordinate the rapidly changing activities of organizational members, including, amongst other things, intensive face-to-face liaison structures and processes to promote collaboration and resolve differences (Galbraith 1973).

Constraints: With a more demanding and constrained environment, the organization must get the help of technically trained personnel, such as lawyers, economists and statisticians, to cope with the constraints (Khandwalla 1977). This increases the degree of specialization. An example is the strong specialization in highly regulated industries, which need lawyers, accountants and other specialist to deal with the constraining environment. A point in case is the high demand for lawyers in the US automobile industry to advise companies on the highly regulated legal merger and acquisition framework in this industry. As regards empirical studies, government policy[1] was found to have a direct impact on organizational structure (Brown and Schneck 1979; Freeman 1979). Moreover, in order to comply, for example, with such government regulations, it might be important to produce more written documents, including, for example, safety regulations and work manuals. In addition, decisions will be more decentralized to better adapt to the various constraints by transferring decision-making power to the specialists. Further, more integrative devices will be used to coordinate the activities of the various experts (Mintzberg 1993 p. 141).[2]

Non-traditional factors

Need for achievement: As discussed in the literature review, the CEO's personality, as manifest in different preferences, goals, and interpersonal styles, might induce him to create a particular kind of organization (Collins and Moore 1970; Miller, Kets de Vries and Toulouse 1982; Kets de Vries and Miller 1984; Miller, Toulouse and Belanger 1985; Miller and Toulouse 1986; Miller and Droege 1986). More specifically, CEOs with high achievement need (McClelland et al. 1953; McClelland 1961; 1963; Steers and Braunstein 1976) prefer to take immediate responsibility for doing things, want frequent and concrete feedback and like to be in control. To keep tight control over the organization, they thus might make strong use of rules and control systems, as well as centralize decisions in their hands (Miller and Droege 1986 p. 541). They probably make less use of committees and other liaison devices which function on the basis of consensus and might slow down the speed of their decision-making.

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[1] Using the jargon of Institutional Theory, policies are forms of "coercive isomorphism" by the state (DiMaggio and Powell 1983).

[2] As a caveat it should be mentioned that the degree of, for example, specialization might vary between organizational sub-units, such as professionals and shop-floor workers. Following the Aston tradition, we focus on the aggregate organizational level.

Emphasis on traditional culture: When there is a strong emphasis on selected characteristics of Chinese culture, such as (family-based) personal relations, collective orientation and respect (Lockett 1988), there is less need to specify rules, since informal social controls will tend to substitute them in many circumstances (Redding and Wong 1986). Furthermore, due to the hierarchical nature of seniority, decisions will be more centralized (Redding and Wong 1986; Hickson and Pugh 1995 p. 171). The decision-making process, though not participative, might be oriented towards consensus among the collective. This requires more use of interpersonal integrative processes (Redding 1990). The detailed hypotheses of associations between context and structure are summarized in Table 3-3 below:

Table 3-3 Hypotheses of structural relationships for companies "in fit"

	Formalization	**Centralization**	**Integration**
Size	(+)	(-)	(+)
Technology	(+)	(+)	(+)
Uncertainty	(-)	(-)	(+)
Constraints	(+)	(-)	(+)
Achievement need	(+)	(+)	(+)
Chinese culture	(-)	(+)	(+)

3.2.2.2. Context and management

The hypothesized relationships between contextual factors and *management* practices in China (hypothesis 4.2) are depicted in Figure 3-3 on the next page.[1] We will analyze these research hypotheses in the second part of Chapter 7.

As regards the choice of managerial variables, given our main focus on Chinese management, we focused on constructs and particular aspects of these constructs which, as explained in the previous chapter, were frequently mentioned in the literature as constituting distinctive elements of Chinese management. They primarily include strategy, leadership, decision-making and subcontracting.

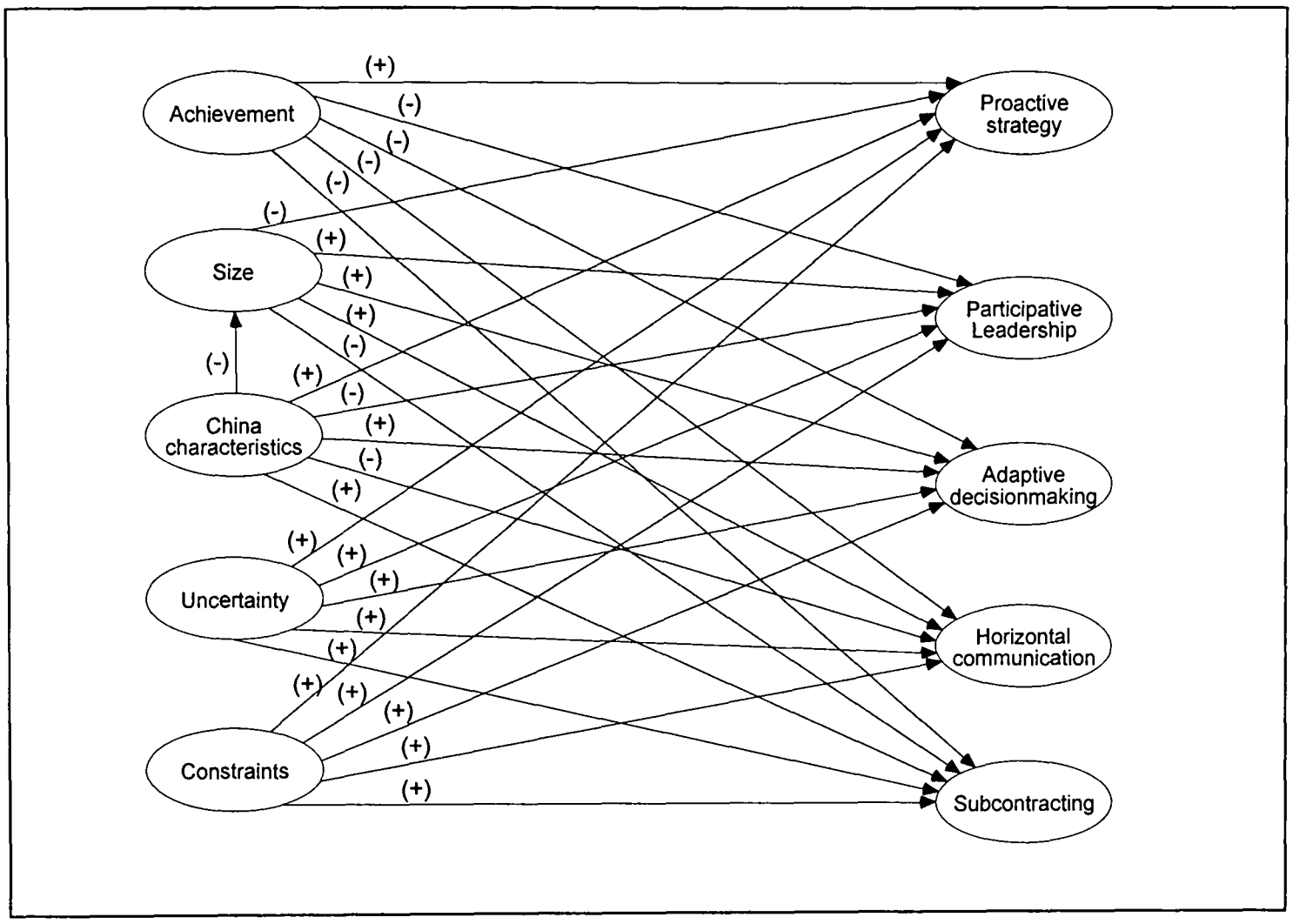
Besides, communication, especially horizontal information flows, has been somewhat neglected in the literature (Hage, Aiken and Marrett 1980 p. 302; Bacharach and Aiken 1980 p. 316; Katz 1980 p. 547; Price and Mueller 1986 p. 163; Hall 1991 p. 163).[2]

[1] As mentioned before, the interaction effect between achievement need and size will be dealt with by means of subgroup analysis and is therefore not graphically displayed in the model.

[2] Horizontal communication might have been neglected in the literature due to the initial focus of classical management writers (cf. Barnard (1938 p. 91)) on vertical communication (Simpson 1969).

Given the general importance of communication in organizations (Davis 1961; Beach 1970; Kar 1972; Kanter 1977; Katz and Kahn 1978 p. 428; Klauss and Bass 1982), in particular horizontal communication,[1] we therefore added it to our model. Horizontal communication here is defined as information exchange at the *same* hierarchical level within the same department.

Figure 3-3 Research model for influencing factors of management practices



Finally, as regards the choice of contextual factors, the influence of technology on management styles seems to be difficult to estimate and has only rarely been discussed in the literature. Therefore, as regards management practices, technology is not modeled as a contextual factor. The importance for selecting the other above displayed influencing factors has been explained before and will not be repeated here. We will now discuss the detailed hypotheses related to the management practices research model:

[1] As regards the importance of horizontal communication, Hall points to the positive effect of interaction between peers which tends to sort out errors. In addition, it provides socio-emotional support for members of peer groups (Katz and Kahn 1978 p. 445) and creates solidarity. This might lead to common understandings, collective perceptions and meanings, which might reduce conflicts (Hall 1991 p. 173). Thus, within-unit communication is crucial for system functioning (Katz and Kahn 1978 p. 444). Its importance is also shown by the fact that the greater part of communication in an organization is horizontal (Hall 1991 p. 174).

Traditional Factors

Size: We hypothesize that, although there are certain industry-specific variations, on average, larger companies, adopt somewhat less proactive strategies.[1] Their sheer size and complexity might make it more difficult to react quickly to new openings. That is why many management writers argue for "lean" company size and a focus on "core competencies" (Prahalad and Hamel 1994).[2] In contrast, researchers emphasized the comparative proactiveness of small enterprises, such as private Chinese firms (Montagu-Pollock 1991 p. 21), which, depending on the opportunities, move quickly in and out of new markets (Fukuyama 1995 pp. 79-80), making them successful in industries which favor small size. Larger companies will also be more "professional" (Khandwalla 1977 pp. 579-580), which means that they make more use of participative leadership[3] (Mahoney et al. 1972), and adaptive decision-making[4] combined with strong horizontal communication integrating their diverse activities. Finally, larger companies, proportionally to their size, will make less use of subcontracting, since they tend to perform more activities of the value-chain in-house.

Uncertainty: Companies operating in an uncertain environment have to constantly look for changes and new opportunities. Miles and Snow (1978) studied the competitive US electronics industry and found that increased environmental uncertainty prompted firms to adopt more innovative strategies. Miller and Friesen (1983) replicated these results.[5] Furthermore, when there is more uncertainty in the task environment, it is very difficult to program all activities in advance, for example, by the use of rules or plans. Leadership will be therefore more participative to make best use of the rapidly changing local knowledge (Burns and Stalker 1961). In addition, decision-making is hypothesized to be more adaptive. Moreover, the volume of horizontal communication needs to increase so that solutions for the new problems can be worked out. As regards empirical evidence, Hage *et al.* (Hage, Aiken and Marrett 1980 p. 313), showed that complexity leads to a stronger reliance on a system of mutual adjustment and reciprocal information flows for coordination, instead of programmed interaction.

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[1] Strategy is defined as a company's overall resource deployment pattern to achieve its stated objectives. Proactive strategies are characterized, amongst other things, by a constant search for new opportunities.

[2] As a caveat, it should be mentioned that this advice is mostly prescriptive and there are few empirical studies testing it. There also seems to be contrary evidence, such as the fact that in some industries most innovations come from large firms. In industries such as pharmaceuticals, the capacity to pursue proactive and innovative strategies might well be dependent on the size of the R&D budget. Given these somewhat equivocal results, it seems to be important to test the above stated hypothesis in this empirical study. Some unexplained variation in the latent constructs might well be due to the above discussed factors.

[3] Leadership is defined as the approach used by a leader to stimulate patterning of behavior in some group and elicit the followers' voluntary compliance in a broad range of matters (Khandwalla 1977).

[4] Decision-making style is defined as the procedure which is employed by an organization to define organizational goals and programs of action to realize them.

[5] As always, in cross-sectional surveys we cannot prove causality. Other researchers might argue that innovation creates more uncertainty. Due to the strong theoretical basis proposed by the quoted scholars, we decided to follow their reasoning. Only longitudinal studies will finally prove causality.

Horizontal communication thus acts as an integrating and coordinating device through the transmission of new information (p. 303), resembling March and Simon's (1958 pp. 158-169) use of "feedback" (instead of "plans") for coordination. Finally, a high degree of environmental uncertainty leads to more interconnectedness of elements in the population (Emery and Trist 1965; Terreberry 1968), potentially resulting in a greater quantity of subcontracting-based inter-organizational relationships (Hall 1991 p. 224). Another reason for the hypothesized higher degree of subcontracting associated with uncertainty is the fact that it allows for more flexibility in the face of a rapidly changing environment (Montagu-Pollock 1991 p. 21).

Constraints: In an environment with many economic, legal or social constraints, it will be important to actively look for new opportunities and select particular niches (Starbuck 1976 p. 1078) which offer better prospects. In addition, leadership will also be more participative. This is because the specialists will have an important voice, since they might know best how to deal with certain constraints (Khandwalla 1977). Further, Levitt and Nuss (1989) emphasized the importance of constraints in the institutional environment on decision-making styles. More specifically, to satisfy all the constraining demands, decision-making has to be characterized by an incremental approach. In addition, to make more use of the specialist power and local expert knowledge across the organization, more use of horizontal communication will be made. Moreover, a constraining environment might make it also necessary to contract out certain services, since legislation, for example, might not allow for a strong degree of vertical integration. This seems to be supported by Hall *et al.*'s (Hall et al. 1977) study, showing that legal aspects, being one form of environmental constraints, are positively related to the degree of inter-organizational interaction.

Non-traditional factors

Need for achievement: As discussed in the literature chapter, the CEO's personality might influence organizational objectives (Perrow 1961 p. 856) and thus also at least partly determine the particular style of management chosen (Christensen, Andrews and Bower 1978; Miller and Droege 1986 p. 540). More specifically, based on previous research on need for achievement (McClelland et al. 1953; McClelland 1961; 1963), one would expect that managers defined as high achievers should be willing to engage in innovative strategies (Tung 1982 p. 14). They will thus be very active in pursuing new opportunities through proactive strategies. Moreover, their leadership style will be less participative due to the desire to keep control (Cohen 1990 p. 24; Kao 1993). Decision-making is characterized by bold, entrepreneurial moves rather than by an incremental approach. High achievement oriented CEOs will also want to have less horizontal communication in their enterprises, which, if it acts as a substitute for vertical communication, might cut them off from vital information flows. This will prevent them from getting frequent, concrete feedback (cf. McClelland (1961)) and keeping control (cf. Miller and Droege (1986 p. 541)). Finally, there is a negative relationship between CEO achievement need and subcontracting due to the above mentioned need for control and independence. The feasibility of this approach is confirmed by Aldrich (1979), who, basing his analysis on Blau's (1964) findings, notes that organizations can reduce dependence by building their own resource base, i.e. by refraining from subcontracting.

Emphasis on traditional culture: When the CEO strongly emphasizes personal networks, there might be less need to engage in proactive strategies, given that personal connections will "automatically" create new business opportunities. He might thus make "securing more friends" his most important and effective strategy (Redding 1990). In addition, decision-making will be pragmatic and adaptive (Redding and Wong 1986). Further, when great importance is attached to seniority, holding other factors such as size constant, leadership will be less participative (Redding and Wong 1986). Due to the strong "power-distance" (Hofstede 1980), managers probably prefer to have less horizontal communication in the company, which might "subvert" their decision-making authority. Finally, the emphasis on networking might lead to a stronger emphasis on subcontracting.

The above described hypotheses are summarized in Table 3-4 below:

Table 3-4 Hypotheses of managerial relationships for companies "in fit"

	Proactive strategy	**Participative leadership**	**Adaptive decisionmaking**	**Horizontal communication**	**Subcontracting**
Size	(-)	(+)	(+)	(+)	(-)
Uncertainty	(+)	(+)	(+)	(+)	(+)
Constraints	(+)	(+)	(+)	(+)	(+)
Achievement need	(+)	(-)	(-)	(-)	(-)
Chinese culture	(-)	(-)	(+)	(-)	(+)

3.2.2.3. Organizational properties and effectiveness

We can now move on to the next question which examines the contingency theoretical assumption of "fit" which is often simply *assumed*, but not empirically tested:

Research question 5: Are less effective companies in "misfit"?

The notion of "fit" in contingency theory implies that companies whose structural choices are coaligned with contextual factors are more effective than companies in "misfit". That is because the environment poses requirements for efficiency to which the organization must adapt in order to survive and be successful (Hage and Aiken 1970).[1] Authors usually *assume* the validity of a symmetrical argument stating that less effective companies are in "misfit". Schoonhoven (1981 p. 353) criticizes the fact that this "symmetry" assumption is hidden in the language of contingency theory. As mentioned in the literature review, there is a very limited number of empirical studies (Lawrence and Lorsch 1967; Child 1974; 1975; Khandwalla 1973) which focused on the effectiveness implications of context-structure combinations, testing only one contingency factor. The results suggested that companies in "fit" achieve higher performance. However, there seem to be no studies analyzing these effectiveness implications for more than one contingency factors. To empirically test this proposition and the "symmetry" assumption, we formulate the following hypothesis:

[1] It is acknowledged that management has "strategic choice" (Child 1972b p. 2) over its structure and management practices, but we believe that in the long-run, contingencies place effectiveness-induced constraints on these choices, if survival is considered important.

Hypothesis 5: Less effective companies are in "misfit", which provides support for the validity of the "symmetry" argument implied in contingency theory.

As pointed out in the literature review, when analyzing the relationship between "fit" and organizational effectiveness, contingency theorists rarely consider or hold constant other "key success factors" (Daniel 1961; Hofer and Schendel 1978 p. 77; Rockart 1979; Rockart and Treacy 1982; Rockart and Bullen 1986; Rockart and DeLong 1988). However, it might well be that companies are less effective not because they are in "misfit", but because they score low on other factors which are important for performance. Therefore, it is important to analyze the following research question:

Research question 6: Holding other factors constant, is "appropriate" structure positively associated with organizational effectiveness.

"Appropriate" structure describes a set of context-structure combinations which constitute "fit" according to contingency theory. A more detailed discussion of this construct will be provided in the context of the effectiveness model in chapter 8. Based on the foregoing discussion we can formulate the following hypothesis:

Hypothesis 6: In addition to other key success factors, "appropriate" structure is positively associated with organizational effectiveness

The underlying effectiveness model hypothesizes various key success factors for companies operating in China. The analysis related to this research question is presented in chapter 8, entitled "Organizational effectiveness of Chinese companies". The sub-hypotheses for this model are illustrated in Figure 3-4 on the next page. For the sake of clarity, this figure shows the basic model without any covariances between certain key success factors which will be later explored in an extended model.[1]

Appropriate structure: Starting from the center on the top of the diagram, as mentioned above, "appropriate" structure is thought to be one of the single most important factors of intra-industry, comparative long-term effectiveness. In addition, there seem to be several other important factors, which influence effectiveness and have to be held constant to isolate the effect of "appropriate" structure. Moving in anti-clockwise direction, we can see the next sub-hypothesis:

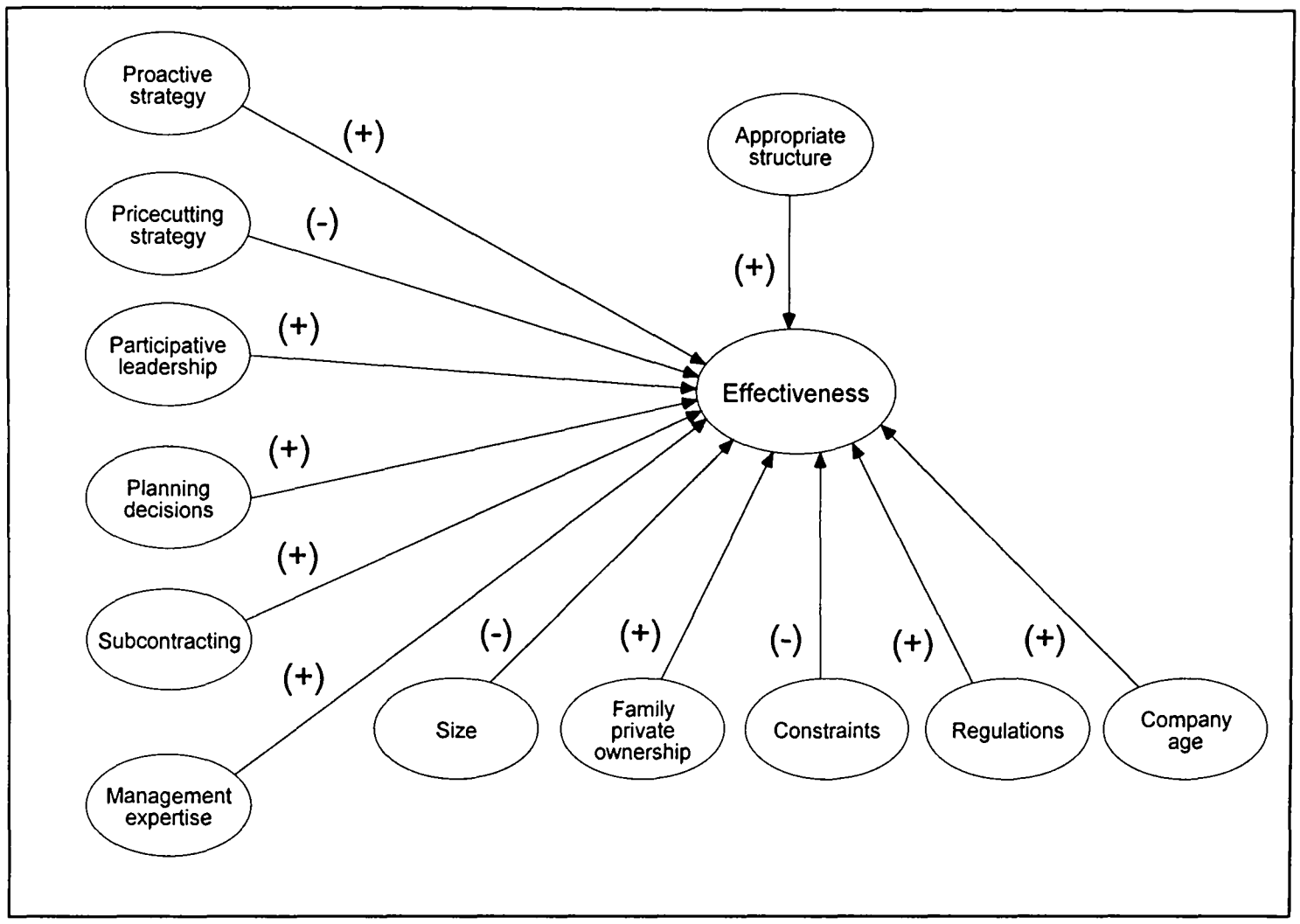
Proactive and defensive strategy: Various researchers found that strategy is, ceteris paribus, an important determinant of performance (cf. Schendel and Patton (1978) and Swamidass and Newell (1987 p. 521)). More specifically, companies which actively try to differentiate themselves from other companies through proactive or "prospector" (Miles and Snow 1978) strategies are hypothesized to be more successful than other companies. This hypothesis is based on the accumulated body of strategy literature which stresses the need for sustainable competitive advantage (Porter 1985), "rent-seeking" strategies, and a "bias for action" (Peters and Waterman 1982).

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[1] It should be mentioned that industry is not modeled as influencing factor, since it is held constant through the choice of the effectiveness construct, which measures *intra*-industry performance.

In contrast, price cutting strategies are negatively related to success. The strategy literature emphasizes time and again that avoiding price wars is the sole basis for a successful long-term strategy.

Figure 3-4 Influencing factors of organizational effectiveness research model



Management style: The next two sub-hypotheses relate to top management operating style. Management style is thought to be important for performance (Khandwalla 1977 p. 431). It provides a focus and coherence to the actions of organizational members, and is the visible manifestation of an organization's values, beliefs and norms. Even though situational variables limit the choice of management style, they do not eliminate choice. This implies some degree of freedom in the design of organizations. Khandwalla (1977) stressed that the "professional" style, which he believes becomes more and more widespread, is a combination of participative leadership and planning decision-making. A participative leadership style (Likert 1961) can also be thought of as representing the human relations school (Mayo 1933) and planning decision-making can be viewed as the degree of "scientific management" (Taylor 1911) in the organization.[1] Their effectiveness varies to some extent with respect to the environment, but researchers have stressed that these two styles are relatively consistently associated with higher performance, especially in the long-run. For example, Hinterhuber (1996 p. 301), using different terminology, stressed that the *combination* of cognitive and emotional leadership leads to highest effectiveness.

[1] As a caveat, it should be mentioned that we do not analyze diverging styles of management in different *parts* of the organizations which, particularly in the case of sizable companies, sometimes exhibit a certain degree of variation in their choices of style (Lawrence and Lorsch 1967; Hall 1962; Khandwalla 1977 p. 411).

As regards the empirical evidence, Khandwalla's (1977 pp. 578-579) data clearly demonstrated that "professionalism" significantly improved corporate performance in relative (intra-industry) as well as in absolute terms. Based on the results of his and previous studies, he concluded that "organizations whose management is oriented to optimization, planning and participation, a style (...) termed the 'professional style of management' - possess a significant comparative advantage over those of their rivals whose management are non-participative and oriented to seat-of-the-pants methods (...) the professional style (...) is, *in general*, the more desirable style, unless special circumstances (such as a noncomplex environment) warrant otherwise" (pp. 579-580). Let us now analyze both aspects in turn:

Leadership: A participative leadership style, ceteris paribus, is hypothesized to be associated with higher effectiveness. The key idea, expressed in the theories of human relations (Mayo 1933) and human resources (Argyris 1953; 1956; 1964; McGregor 1960), implies that it is efficient for the individual members of an organization to participate in decisions[1] on those events that affect them vitally, since it increases their motivation to work for the organization (Likert 1961). Organizational effectiveness also results from the fact that it is likely that there will be less conflicts in a cooperative environment. Likewise, the fact that this notion of leadership emphasizes the primacy of the group in the operations of the organization (Khandwalla 1977 p. 417), seems to be very suitable to accommodate the collective orientation of many Chinese.[2]

Planning: Planning here is conceptualized as an "optimizing" style. Lindblom (1959) distinguished this analytical, rational-comprehensive, planning-oriented mode from "seat of the pants" judgment. The planner considers management a science, and, in reaching a solution, insists that the assumption have to be made explicit, all the major alternatives considered, and optimal, not only "satisficing" (Cyert and March 1963), solutions be picked. He believes in thinking ahead, anticipating problems, and systematically investigating problems. The planner also distrusts common sense (Khandwalla 1977). Several empirical studies have found that a planning oriented style, ceteris paribus, is associated with high levels of effectiveness. This is especially true for long-run effectiveness. Specifically, Thune and House (1970) found that in matched pairs of planning and non-planning companies, "planners" significantly outperformed the non-planners over a 7-years horizons, even surpassing their own performance before adopting planning. Performance was measured in terms of financial criteria such as growth in earnings per share. Over another 4 more years, the planners once again outperformed the non-planners (Herold, Thune and House 1972). In another study, Ansoff *et al.* (1970) found support for the findings of Thune *et al.* They showed that planners outperformed non-planners with respect to the success of acquisitions. Performance was measured in terms of objective criteria like stock price and sales growth.

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[1] These might include decisions relating to their professional objectives, work content and performance evaluation (Khandwalla 1977 p 417).

[2] It should be emphasized that given that it aims at reaching consensus instead of satisfying the majority, participative leadership is clearly distinguished from democracy (Khandwalla 1977 p. 417). It is collective in nature and its other extreme can be thought of as being individualistic decision-making rather than necessarily authoritarian leadership.

Finally, Khandwalla (1977 pp. 578-579) also found that his "subjective index of performance", which compares the focal companies to its rivals in the same industry, was fairly strongly positively correlated with planning, although the objective index showed no such correlation.

Subcontracting: Hall (1991 p. 223) stressed that there is only a relative small number of theoretical and empirical studies analyzing inter-organizational networks (including subcontracting relationships), particularly in private organizations.[1] The existing studies mainly concentrate on public social service organizations dealing with the delivery of human services. Likewise, Galaskiewicz (1985 p. 281) concluded that the body of accumulated knowledge is very fragmented. Indeed, the topic of subcontracting so far seems to be mainly a domain of the prescriptive corporate strategy literature (Hax and Majluf 1991; Mintzberg and Quinn 1992; De Wit and Meyer 1994; Kay 1995). Nevertheless, from the scarce literature we can suggest that the use of subcontracting through networks with other companies is another determinant of performance. This is due to the fact that subcontracting allows a company to focus on its core competencies (Prahalad and Hamel 1994) and outsource other activities of the value chain (Porter 1980; 1985; 1994) to specialists. More specifically, Faulkner (1995 p. 5) explained that, by sub-contracting, the focal organization in a network can draw on the specialized competencies of other members without incurring the overhead costs arising from in-house development of these special skills by the focal organization itself. Organizations can thus achieve "best-in-world" status when this is impossible internally (Quinn, Doorley and Paquette 1994 p. 336). In particular, the importance of networks in China (Boisot and Child 1996) has been highlighted in the literature review.[2]

Management expertise: Management expertise is thought to be another positive influencing factor of success in China. In this study, expertise is measured by the CEO's educational level, his international experience, time with the company and age. During visits to foreign countries, the CEO is likely to have absorbed sophisticated, modern management techniques as well as built up important business contacts (Steward and Him 1990 p. 65), which might be important, for example, to increase overall export volumes. Higher education might also have exposed the CEO to analytical techniques which will help him to manage more effectively. As regards the empirical evidence, many researchers have demonstrated the importance of knowledge to management and performance (Fiol and Lyles 1985; Winter 1987; Huber 1991; Kogut and Zander 1992; Nonaka 1994; Helleloid and Simonin 1994; Nonaka and Takeuchi 1995; Simonin 1997 p. 1150).

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[1] The work of Schmidt (1977), Reve (1979) and Stearn (1987) are exceptions in this case.

[2] As in the case of style, the effectiveness of subcontracting might be somewhat influenced by contextual factors, but researchers such as Prahlad and Hamel believe that it is relatively consistently associated with higher performance. Despite this prescriptive advice, we adopt a somewhat more cautious and conservative approach, which is guided by contingency theory, in that we hold constant the supposedly most important contextual factors, including size, environmental constraints and other contingencies discussed below, to isolate the effect of styles and subcontracting.

As regards China, Warner found that organizational effectiveness in the P.R.C. has been considerably constrained by the lack of managerial skills (Warner 1986 p. 353; Warner 1987). In addition, Tan and Litschert's (1994 p. 13) argued that the relatively low educational level and lack of managerial experience of Chinese managers in dealing with increased uncertainty might hinder their ability to handle complex multi-dimensional situations. Finally, Okechuku (1994 p. 79), though not directly assessing organizational performance, showed that executive intellectual ability was the most important predictor of *managerial* effectiveness ratings in mainland China. Similarly, P. R. C. managers cited "training" to increase their competence making them able to deal with changes as their most important reason for success (Steward and Him 1990 pp. 62-63)

Size: Company size is hypothesized to be negatively related to success, but it should be mentioned as a caveat that the influence of size per se is debated in the literature. On the one hand, in support of our argument, size might make it more difficult for the company to concentrate on its core competencies (Prahalad and Hamel 1994) and make the company more inflexible. On the other hand, other authors could argue that size is important to gain market power which might lead to higher long-term performance. Therefore, given that the effect of size might average out across industries at the aggregate level, maybe the most important aspect of including size in the analysis is to use it as a control factor.

Family ownership: As discussed in the previous section, when other factors such as size are held constant, the Chinese management model with its family-based private ownership structure is hypothesized to be leading to higher performance.

Age: We suggest that company age, due to substantial learning curve effects and the fact that managers had ample time to build long-term networks (Stichcombe 1965), is positively associated with performance.

Constraints: Various researchers found that in regulated or constraining environments, environmental conditions play an important role in determining organizational performance (Fruhan 1972; Verbrugge, Shick and Thygerson 1975; Verbrugge and Goldstein 1978; Smith and Grimm 1987). More specifically, based on the insights from resource dependence theory (Pfeffer and Salancik 1978), a more constrained environment is hypothesized to depress performance.

Government support: Tan and Litschert (1994) emphasized the importance of government regulations in China. We thus can hypothesize that "supportive" government regulations in terms of subsidies and special incentives are, ceteris paribus, conducive to higher organizational performance.

Summary of chapter 3

In the first section of this chapter, we outlined the general philosophical and theoretical perspective of this study. We pointed out that this study adopts positivism as an ideal, but are well aware of the problems in practice of achieving this high benchmark. In the second section, the various research questions and hypotheses relating to the "fit" notion in contingency theory in general, and the distinctiveness of Chinese private management in particular, were outlined and discussed. In the next chapter, we will elaborate on various important issues regarding the research design of this study.

Part II: Methodology and Exploratory Analysis

4. Research Design

The purpose of this chapter is to describe the research methods used in this study. We utilized a cross-sectional survey design to assess the nature, causes and outcomes of structure and management in a sample of state-owned and private enterprises located in Beijing and Shanghai. The chapter is organized along four headings, i.e. sampling (section 4.1), measures (4.2), procedures (4.3) and methodological limitations (4.4).

4.1. Sample

The following subsections explain the various aspects of the sample:

4.1.1. Sample design

As regards sample design, the cross-sectional survey method was combined with a few brief case "illustrations".[1] Some aspects of the findings were then subjected to a brief international comparison. This section is divided into three parts: In the first part, we will discuss in more detail important issues related to the design mix chosen, starting with the survey approach (section 4.1.1.1) and followed by the case illustrations (4.1.1.2). Afterwards, we will elaborate on some critical issues related to cross-national comparison (4.1.1.3.). More details on the various survey design options available to the researcher and their relative advantages can be found in Appendix A.

4.1.1.1. Field survey method

Researchers such as Khandwalla (1977 p. 27) recommend more quantitative design choices for well-known research settings and more qualitative ones for *terra incognita* situations. The present study features both aspects and therefore combines the two approaches. The survey method is chosen to collect quantitative data with well validated research instruments to rigorously test hypotheses derived from the established body of organizational theory, which has been accumulated over more than thirty years. Some qualitative case illustrations will enrich these findings. As regards the overall methodological perspective, due to its frequent application and replication in cross-national research, the Aston methodology is the obvious choice for the particular measurement and survey approach selected for this study (Pugh et al. 1963; Pugh et al. 1968; Pugh, Hickson and Hinings 1969; Pugh et al. 1969; Inkson, Pugh and Hickson 1970; Hinings and Lee 1971; Pugh and Hickson 1976). Despite some criticism (cf. Roberts (1970); McKelvey (1975 p. 523); Starbuck (1981)), the Aston schedules seem to be the best instrument currently available for measuring organizational structure.

[1] The term "case illustration" is used to distinguish this approach from the more rigorous case study method.

In addition, its widespread use and acceptance allows meaningful comparisons across studies and the accumulation of findings (cf. Anderton, Conaty, and Miller (1983); Donaldson (1986); Lincoln, Olson, and Hanada (1978); Marsh and Mannari (1981); Miller (1987); Pugh (1981a; 1981b); Lincoln, Hanada, and McBride (1986); Singh (1986); Wong and Birnbaum (1994)).

Given the choice of the Aston methodology, we will briefly discuss its origins, development and criticism:

Origin: To complement the use of case studies most frequently employed in the pre-Aston days, the Aston project aimed at using large, representative samples with rigorously tested instruments to generate findings with can be more easily generalized and replicated. It follows the tradition of comparative structural analysis (Udy 1959; Woodward 1965; Pugh et al. 1969; Blau 1970b) which collects systematic and quantitative data on large samples of organizations rather than on individual participants or organizational sub-units. The methodological perspective of the "Aston Manifesto" is summarized in Table 4-1 below:

Table 4-1 The Aston Manifesto

Method aspect	Issue	Existing problem	Proposed solution
1. Sample design	Sample size	Case study	Large sample
	Scope	Single variable	Multi-variable
	Perspective on sample	Single discipline	Multi-discipline
	Phenomena studied	Exceptional (eg. crisis)	Everyday, enduring
2. Measurement	Concept definition	Vague	Specific
	Concept operationalization	Simplistic	Specific
	Publicness of methodology	Private	Public
	Interpretation of data	Private	Public
3. Analysis	Statistical analysis	Rare	Central
	Basis for comparison	Crude	Measurement
	Means of comparison	Typology	Taxonomy
	Ease of replication	Very difficult	Simpler
	Extent of replication	Low	Extensisve
	Availability of data	Private	Public

Source: Adapted from Clark (1990 p. 20)

Development: Starting with the study of companies and public service organizations in the English Midlands (Pugh and Hickson 1976), the Aston method was later extended to different samples and a wider range of organizations, such as schools and trade unions (Pugh and Hinings 1976). It was afterwards applied to the intra-company level to study roles and groups in relation to organization (Pugh and Payne 1977), and finally tested in 14 different national settings (cf. Hickson *et al.* (1974a); Inkson *et al.* (1970); McMillan *et al.* (1973); Child *et al.* (1979); Kuc *et al.* (1980); Ayoubi *et al.* (1981); Azumi *et al.* (1981), Clark (1990) and Wong *et al.* (1994)).

Criticism: Especially in the early stages, the Aston program was criticized by some researchers, mainly with respect to its international extension. In general, there was no single coordinated research effort for the various international studies. Further, these research projects did not follow an explicit framework or theory about the societies of which the organizations studied were the instruments (Hickson and McMillan 1981a p. 188). In addition, in certain instances, international researchers modified the scales (e.g. Shenoy (1981)), making it difficult to compare findings from these studies. Thus, different concepts, samples and methods in different places at different times were criticized. In more figurative terms, Roberts' (1970) despaired of looking at an "elephant". However, Child (1981) pointed out that due to subsequent improvements, in the 1980s, there was no "elephant" problem any more.

4.1.1.2. Case illustrations

In addition to the above mentioned survey approach, some case illustrations were used from a small number of companies. Due to the varying amount of evidence, the term "illustration" is used to distinguish these descriptive examples from the usual extensive, qualitative field work done for single, theory-building and theory-testing case studies.[1] In quantitative research, cases constitute supplements to the other research methods and are not autonomous research projects (Sarantakos 1993 p. 260). Its advantages are its openness and flexibility, interactive communicativity, naturalism and interpretativity (Sarantakos 1993 p. 261).The objective of our case illustrations is to illustrate, explain and offer more detail on specific findings of the quantitative study (Lamnek 1988 pp. 10-14). Specifically, the main goal is to illustrate and enrich some of the findings relating to the structure and management of Chinese companies and explore in more depth some more qualitative aspects including the emphasis placed on traditional values and the importance of personal networks. This particular usage follows Hickson *et al.*'s (Hickson and McMillan 1981a p. 196) advice suggesting a combination of cases with the Aston schedules to enrich the quantitative data.

4.1.1.2.1. Overview of case illustration research design

In our study, three companies were included as case illustrations. The individual companies were chosen because they were judged to be "typical" examples of other enterprises as regards ownership mode and geographic location (Sarantakos 1993 p. 262). The detailed reasons for the selection of each company are included in the case records, located in Appendix B. The selection was not based on random sampling and was thus not statistical representative. Huajia Qihua Limited was chosen to illustrate selected aspects of structure and management in a small private company based in Beijing. The Industrial and Commercial Bank of China (ICBC) is one example of a state-owned enterprise in Beijing. It should be emphasized once again that due to the enormous difference in company size, no conclusions can be drawn which could be statistically generalized. The third company, Progress Education Group serves as an illustration of selected findings relating to private companies from another city, i.e. Shanghai.

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[1] These case studies are defined as "empirical inquiries that investigate a contemporary phenomenon within its real-life context especially when the boundaries between phenomenon and context are not clearly evident" (Yin 1994 p. 13).

As pointed out above, the quantity of empirical evidence varied across the three case illustrations. Specifically, while it was possible to be an observer in Huajia for one month and collecting data from a wide variety of sources, the other two studies did not allow for such detailed evidence and focused mainly on interviews with two or three top executives as well as archival data. This was due to the fact that the Industrial and Commercial Bank of China (ICBC), due to its sensitive government connections, was a very secretive organization and even the interviews had to be solicited in written form and be approved through an interdepartmental meeting. In addition, Shanghainese companies are very practical and normally do not perceive research as particularly "useful". Therefore, the Progress Education Group would not agree to a long, observation-based study either. Therefore, whereas as regards Huajia the data collected would be normally judged sufficient for case study conclusions, in the other two cases it might be less than sufficient. In addition, both ICBC and Progress were included in the survey sample as well. Therefore, as pointed out above, the findings from at least two cases, from a strict methodological point of view, cannot be thought of as "replicating" the quantitative results in a statistically rigorous sense. The case examples thus are not thought to allow for any "analytical generalizability" or "replication logic" (Yin 1994 p. 36) whatsoever.

4.1.1.2.2. Validation

Although we used these three companies as mere illustrations and enrichments, we nevertheless followed the methodological guidelines recommended for case study research (Yin 1994):

a) Multiple sources of evidence were used to overcome the limitations of any individual source.
b) A case data book was created and employed which included notes, documents, tabular material and narratives. It can be used by subsequent researchers for further reference. Individual sources of the data book are attached in Appendix B.
c) A chain of evidence was maintained which establishes high reliability of the data. The reader can follow each argument and see the supporting evidence in a systematic way along an audit trail. In our study, conclusion made in the case illustration report can be traced back to case records in Appendix B.

4.1.1.2.3. Field procedures

In this section, we will briefly outline the data collection method and procedures for documentation chosen.

Data collection: The case records in Appendix B detail the individual choices of data collection methods for each company. In the following, we will mention the sources of evidence for the case illustrations and briefly discuss their strengths and weaknesses:

Interviews: Focused in-depth interviews (Yin 1994 p. 84) were conducted with the company's CEO and other top managers, who all acted as key informants. The case records in Appendix B detail the names and position of the respective informants. All informants were visited in their offices.

In the case of ICBC, due to the CEO's high political position and correspondingly busy time schedule, the interview had to be conducted in self-administered written form. In addition, all other CEOs also filled in the standardized questionnaire. The interviews were not tape recorded, since the respondents were thought to feel uncomfortable in the presence of recording devices (Yin 1994 p. 87). As regards their strengths, interviews are targeted, focusing directly on the case illustration topic and are potentially insightful. There might however be some bias due to poorly constructed questions, response bias, and inaccuracies due to poor recall.

Written sources: Documentation was collected in the form of newspaper clips. Furthermore, archival records were analyzed including company brochures, annual reports, promotional material and organizational charts. It is interesting to note, that as illustration of their low degree of formalization, the private companies often lacked these written documents. Documentation has the advantage of being stable, unobtrusive and broad in coverage. Potential disadvantages are biased selectivity, potential low retrievability and potential reporting bias. Archival records, in addition to having all the advantages of documentation, are often very precise and sometimes quantitative as well. A potential weakness might be restrained accessibility due to privacy reasons.

Observation: In one case (Huajia), direct observation through a one month stay at the field visit site was possible. It was used to identify behavioral cues as to the realities of structure and management (Yin 1994 p. 87), as well as emphasis on family-based traditional values. In terms of its strength, direct observation conveys a strong sense of realism and can also provide some more information regarding the context of an event. It is however time consuming, potentially selective, costly and obtrusive, and might influence the cause of events (Yin 1994 p. 80).

Artifacts: Physical artifacts were also examined in the last case. These artifacts included corporate identity design templates displayed in a small exhibition organized by the CEO. Attending this exhibition made it possible to assess the quality of the company's products. As regards the advantages of this method, physical artifacts reveal cultural features and technical operations. However, they are selective and their availability may be limited.

Documentation procedures: Following Yin's recommendations, the field findings were documented in a case study database, which helps the reader to follow the chain of evidence. It consists of the following two parts: (a) the data or evidentiary base and (b) the final report (Yin 1994 p. 94). The evidentiary base included both documentary evidence and case records (case notes) presented in electronic tabular matrix form (Yin 1994 p. 96). Yin (1994 p. 96) stressed that it is important for the notes to be organized, categorized, complete and available for later access. This could be achieved through the use of "table shells".[1] This approach ensured that the needed data was found and that it was possible to compare parallel information across case illustrations for particular arrays of data (Yin 1994 p. 73). Their outline in terms of the exact column and row headings indicated the data categories to be covered.

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[1] Table shells are outlines of a table, arraying a specific set of data.

More specifically, the findings were organized around the three main row sections of "major findings and conclusions", "supporting evidence" and "other important findings/significant events". The column headings represented the major areas of interest. They were later analyzed to illustrate the quantitative research findings and used as basis for composing the final case reports. All three case records can be found in Appendix B.

4.1.1.2.4. Case-illustration questions

In the in-depth interviews, the structure and standardized questions from the survey questionnaire attached in Appendix G and H were used as an interview guide and departing point for the discussion. For each major contextual, structural or managerial property, probing questions were subsequently used to collect evidence as to the various sections of the questionnaire. The answers were later recorded in the empty table shells of the case records mentioned above (Miles and Huberman 1984).

4.1.1.2.5. Reporting

Yin emphasized the importance of clarifying reporting considerations at the *design* stage (Yin 1994 p. 135). The three case illustrations will be presented in two parts, i.e. (a) single case illustration narrative, which focuses on the major themes to be analyzed, and (b) cross-case synthesis of major findings. Individual pictures, diagrams and tables are inserted where the written text can be enhanced (Dabbs 1982). The names of respondents are revealed, since, in case research, anonymity generally is not considered a desirable outcome (Yin 1994 p. 144), given that it limits tracing back the evidence to its ultimate source.

4.1.1.3. Cross-cultural comparison method

It is important to discuss in some more depth several crucial issues relating to both cross-cultural and comparative research methodology for two reason: First, the field study was conducted in a different cultural-linguistic setting. Second, in order to identify similarities and differences in structure and management, the findings were compared to studies undertaken in other countries. Adapting from Brislin *et al.* (1973 p. 5), cross-cultural research here is defined as the "empirical study of members of various culture groups". They usually speak different languages, are governed by different political units, and have had different experiences that will lead to predictable and significant differences in behavior. We will first outline the advantages of utilizing a cross-cultural research design, analyze the conditions for successful cross-cultural and comparative research and finally discuss how these conditions are thought to be met in the context of this study.

4.1.1.3.1. Advantages of cross-cultural research

Researchers pointed to the following advantages of employing a cross-cultural research design. First, culture or certain distinctive outcomes of culture can be considered to be an experimental treatment variable, unavailable in the home country, and impossible to be achieved even in a laboratory setting.

Second, different incidences and wider ranges of traits, conceptualized both as dependent and independent variables, can be documented to aid theory building, as well as enhance the predictive range and generalizability of the findings (Brislin, Lonner and Thorndike 1973 p. 7). The best method for theory building, employed, for example, by Durkheim's work on suicide, is to find cultures that are high, medium and low on a trait and then to discover the reasons for the difference. Third, novel patterns or theories might be identified in their own right.

4.1.1.3.2. Requirements for successful cross-cultural research

Investigators have highlighted several measurement and design issues related to effective cross-cultural research (Graves 1973; Brislin, Lonner and Thorndike 1973; Lonner and Berry 1986; Øyen 1990a; Malhotra, Agarwal and Peterson 1996).

4.1.1.3.2.1. Measurement

Validity: Functional, conceptual and metric equivalence support the notion of dimensional identity (Berry and Dasen 1972), the very precondition for comparisons to be valid. First, concepts tested and compared should carry the same meaning from culture to culture, i.e. they have to be "conceptually equivalent" to insure the comparability of universes.[1] An important prerequisite of conceptual equivalence is that item meanings be accurately reflected in translations. Translation inadequacies constitute instrumentation error. Second, "functional equivalence" means that the phenomenon or behavior in two or more cultures is related to the same functional problem (Malhotra, Agarwal and Peterson 1996 p. 9). Third, "metric equivalence" exist when the psychometric properties of data sets from different cultures show the same coherence or structure. When using scales, it has to be shown that the transformation function between the hypothetical construct scale and observed score is the same in the cultures which are compared. Otherwise, bias or lack of equivalence arises (Lonner and Berry 1986 p. 29).

Reliability: Reliability is defined as lack of measurement error, in particular, the absence of response bias. More specifically, there should be no differences in item familiarity, response repertoire and measurement situation in terms of motivation, respondent "maturation" (Campbell 1969; Winch and Campbell 1969) or social interaction effects (Orne 1962; Rosenthal 1966; Brislin, Lonner and Thorndike 1973 p. 79-80). Response bias might occur due to different reactions of respondents to interviewers in different cultures and unfamiliarity with paper and pencil surveys (or surveys in general). This point seems to be particularly true for China which has only recently been opened to research leading to the fact that respondents are consequently not yet accustomed to surveys. The study is thus pioneering in a methodological sense.

[1] A universe is defined as a measurement item or a set of conditions for observation (Lonner and Berry 1986 p. 22).

4.1.1.3.2.2. Design

Appropriate topic: Topics chosen have to be suitable for cross-cultural analysis, i.e. it should be demonstrated that concepts can be objectively measured and verified. Otherwise the researcher faces a multitude of unknown variables interacting in an unknown context and influencing the research in question in unknown ways leading to high unexplained variation.

Control variables: The researcher has to make sure that there are no omitted societal variables affecting the dependent variables.

Sampling: Proper random sampling methods should be employed and convenience sampling avoided (Shenkar 1994). The researcher must ensure equivalent qualities of samples and sample selection methods. This sometimes poses great problems in the light of inadequate research infrastructure, such as the unavailability of reliable sampling frames in developing countries. In addition, Brislin *et al.* (1973 p. 19) emphasized the importance of a relatively large sample size. They pointed out that having many data points is a good method for insuring that alternate hypotheses are ruled out.

Objectivity: Finally, interpretation of the collected data has to avoid any ethnocentric bias and ensure detachment from one's own frames of reference. Ideally, the findings should have high inter-interpreter reliability. However, reasons which might not be within one's culture are different to detect and understand.

4.1.1.3.3. Solutions to cross-cultural requirements

Although claimed to be distinctive by some researchers, many of the above mentioned issues related to cross-cultural research appear to be general methodological problems which can surface in any research. There are scholars who therefore ignore special methodological discussions related to cross-cultural research and claim that they can solve all potentially problematic issues by rigorously applying classic methodological principles. Our position is somewhere in between this later "purist" (Øyen 1990b p. 5) and the former "comparativist" approach. We believe that most methodological issues mentioned above are generally important for research "at home", but they might become even more significant when doing research abroad. However, several issues, such as problems with translations, are specific only to cross-cultural research. Apart from the methodological choices made in other places, it therefore is important to highlight several measures taken to address the potential problems associated with cross-cultural research outlined in the foregoing discussion:

4.1.1.3.3.1. Measurement

This research mainly adopts the general methodological approach and measurement scales from the Aston research program. It is important to justify this choice in the context of the above discussed requirements for cross-national research:

Validity: As mentioned above, with respect to measurement, the ideal must be standard measures that are also internationally conceptually equivalent, as nearly as possible. In this context, it should be mentioned that ideally one would want to modify the scales for particular national settings. However, an attempt to gain meaning within a country sacrifices a larger meaning beyond it, and was therefore rejected. The ready acceptance of the Aston scales of structure with virtually no language translation problems[1] suggest that they come close to this ideal. Weber's (1947 (originally published in 1924)) insight were worldwide in implication, and as Hickson *et al.* (Hickson and McMillan 1981a p. 190) point out, "the Weberian flavor of the Aston concept which the scales represent allows them to travel well around a bureaucratizing planet." The scales were therefore occasionally called "world measures" (Hickson et al. 1979). Given that all hypotheses were firmly grounded in the research literature and frequently replicated, findings diverging from these hypothesis are therefore more likely to be due to real differences between the various cultures rather than due to method factors. Besides showing high degrees of equivalence, given that they are standardized and well validated, the Aston scales were also found to be quiet robust when applied cross-nationally. They have been successfully used in previous cross-cultural studies, including Hong Kong (cf. Hickson *et al.* (1974a); Inkson *et al.* (1970); McMillan *et al.* (1973); Child *et al.* (1979); Kuc *et al.* (1980); Ayoubi *et al.* (1981); Azumi *et al.* (1981), Clark (1990) and Wong *et al.* (1994)). During these international studies their functional and metric equivalence was demonstrated.

Reliability: Response bias, for example, due to lack of familiarity with pen and pencil survey methods, was intended to be minimized a priori through the use of personal interviews during which difficult concepts could be explained to the respondent. Post hoc, structural equation analysis was used to rigorously assess the measurement properties of the scales within the context of the individual empirical models.

4.1.1.3.3.2. Design

Moreover, methodological precautions were applied with respect to important aspects of the research design, including:

Appropriate topic: As pointed out above, previous research has shown that aspects of structure and management can be measured relatively objectively across cultures. The topic therefore seems to be suitable for cross-cultural analysis, since it has been demonstrated that organizational properties can be objectively measured and verified in different countries.

Control variables: In addition to the etic (universal) aspects of the Aston measures, emic (culture-specific) factors were specifically addressed by surveying and modeling the emphasis on selected Chinese cultural characteristics as an important influencing factor of structure and management practices.

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[1] To ensure that there were indeed no translation problems, a thorough pretest was used to pilot the questionnaire and research design. Judges were asked for their opinion on questionnaire design and wording, as well as the overall research design. The questionnaire was subsequently retranslated into English to detect any linguistic problems.

Emphasis on culture was used as a control or treatment (Strodtbeck 1964) and considered as independent variable determining parameter values instead of codetermining the *definition* of parameters themselves (Lonner and Berry 1986 p. 45).

Sampling: The probability sampling method was chosen which to a large extent rules out systematic bias in the selection of respondents, as well as insures a relative high degree of generalizability and representativeness. Further, the sample was drawn from organizations which were functionally equivalent to their counterparts in the West (Brislin, Lonner and Thorndike 1973 p. 30) and sufficiently large to allow for adequate degrees of statistical power. A more detailed discussion on sample size will follow later, but we can state here that in our case there is an approximately 80% probability of identifying medium effect sizes.

"Objectivity": To avoid the potential ethnocentric bias mentioned above, Irvine (1968 p. 3) argues that first hand contact of the researcher with the society is important for valid data collection. It enhances the effectiveness of the research and limits potential bias. This is especially true for people who have been living in both places. This avoids an attitude which assumes that the original (Western) culture provides "an Olympian vantage from which to view objectively any other culture" (Segall, Campbell and Herskovits 1966 p. 17). Likewise, researchers also argued that those people who lived in both cultures can suggest identical indicators and questions specific to each culture (Wesley and Karr 1966). This can also be achieved through close relations between researchers from both countries (Berrien 1970). I studied management and research issues at Beijing University (UIBE), as well as worked in China and therefore seem to fulfill this criterion. In addition, the "plausible rival hypothesis approach" was used during all stages of the research. This approach forces the researcher to continuously list potential reasons that could explain his data in addition to the preferred hypothesis he is actually testing. These alternative considerations are discussed either in the findings or limitations sections.

4.1.2. Sample size

For the cross-sectional survey of enterprise structure and management in China, a sample size of N=124 was chosen.[1] The sample consisted of roughly equal subsets containing state and private companies located in both Beijing and Shanghai. It is important to briefly discuss the reasons for choosing this particular sample size:

Appropriate sample size is a very complex issue and no exact guidelines are available to determine the "right" size. A larger sample decreases, ceteris paribus, the standard error of the estimates, but increases the cost and time of the research project. In theory, the optimal sample size would be found where the marginal costs of increasing the sample would equal the marginal benefits of decreasing the sample error. Some rough "back-on-the-envelope" techniques are available to determine sample sizes which might be termed "acceptable" with regards to different standards. We will first discuss sample size for simple *t*-tests and then discuss requirements for more complex analysis:

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[1] The convention is followed here that N is used to denote the total sample size; n refers to the sample size of a subgroup.

Some researchers recommend a "power analysis" to determine the minimum sample size necessary to identify effects (cf. Sawyer (1981 p. 276)). Power is defined as the probability of avoiding a Type II error, i.e. accepting the false null hypothesis of no effect, i.e. not detecting an effect though it existed. In other words, with a lower sample size it is possible that the research hypothesis would be rejected even if it were true. The power test thus establishes how many subjects are necessary in order to detect any effects of an independent variables, given effect size,[1] desired confidence level and nature of statistical test used (Rudestam and Newton 1992 p. 64). It shows that the smaller the difference between groups, the more data need to be collected. A possible power test for this study is presented in Table 4-2 below:[2]

Table 4-2 Power Analysis for a *t* test of mean difference*

Effect Size (d)	Effect size values[3]	Proportion of explained variance to effect size values	N Per Group	Total N
Small	.20	.01	393	786
Medium	.50	.059	64	128
Large	.80	.138	26	52

*To achieve a power level of .8, while setting the level of significance (alpha) at .05
Source: Adopted from Sawyer (1981 p. 276) and Rudestam and Newton (1992 p. 65)

The analysis shows that for a *t*-test of mean difference between two groups with a type I error rate of 5% and medium effect size (i.e. the mean difference), in order to obtain statistical power of .80 (a standard level, generally considered acceptable, cf. Cohen (1962); Brewer (1972)), under ideal circumstances, a total sample size of N=128 or, respectively, two sub-samples of n=64 each would be desirable. Due to non-response and the impracticality in terms of costs and time of prolonging the field study, the actual sample size fell slightly short of this ideal number by four respondents. It still significantly exceeded the sample sizes used in comparable studies (cf. Miller and Droege (1986); Wong and Birnbaum (1994)).

Another approach is to determine a sample size with "acceptable" levels of standard (sampling) error. Random error arises due to the fact that when a statistic is calculated from a sample, the researcher is *estimating* the underlying parameter for the whole population (Kerlinger 1986).The formula for the standard error (S.E.) is given by:

$$S.E. = \frac{s}{\sqrt{N}} \qquad (4\text{-}1)$$

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[1] Cohen (1977) and Friedman (1968) argued that effect size can be expressed in terms of proportion of explained variance. A point biserial correlation can measure the proportion of variance explained for *t*-tests of the difference between two means (Hays 1963).

[2] In the absence of results from similar research, Sawyer (1981 p. 277) recommends this "dummy table" analysis to calculate the smallest effect that would still be considered large enough to have practical value. In this context, Cohen (1977) points out that effects in social science accounting for as small a proportion of explained variance as 1% are often considered theoretically important.

[3] Values are suggested by Cohen (1977) for standardized mean differences (mean difference divided by standard deviation).

In this formula, *N* refers to the sample size and *s* stands for the standard deviation of the variable under study in the population. If we assume a standard deviation of 1 for standardized z-scores, the above mentioned sample size of N=124 will lead to a sampling error of approximately .017, which is considered "acceptable" by conventional standards. One expects that 95 per cent of normally distributed estimates lie in a +/- 2.0 standard error "band" above and below the estimated parameter, e.g. the mean (Nunnally and Bernstein 1994 p. 229). A final approach is to use a *t*-test for the significance of single sample *correlation* coefficients (*see* Appendix D for formula). For a sample size of 124, a correlation of +/-.18 is significant at the 5% level (both tails), and +/-.24 is significant at the 1% level. These "cut-off points" are comparable to other studies (e.g. Khandwalla (1977)).

Bearing in mind that the optimal sample size also depends on the mode of analysis chosen and particular model to be estimated, it has to be pointed out that multivariate approaches such as structural equation modeling place somewhat higher demands on the overall sample size. More specifically, with a large number of parameters to be estimated, in particular as a result of employing measurement models with multiple observed indicators (Schumacker and Lomax 1996 p. 20), a greater sample size is often required to maintain the accuracy of estimates and to ensure a high degree of representativeness of the findings. Various researchers have recommended a minimum sample size for causal modeling of 100 to 150 subjects (Ding, Velicer and Harlow 1995). Other researchers recommended even higher levels ranging from 400 (Boomsma 1982; 1983) to 5,000 (Hu, Bentler and Kano 1992). The sample size of this study is thus at the lower bound of what is recommended for analyses of covariance. This is particular true for the subgroup analyses in which the original sample size was cut in half and whose findings have to be evaluated with this caveat in mind. However, given time and cost constraints as well as the desire to obtain very high quality data through personal face-to-face interviews, this choice was thought to represent an acceptable trade-off between statistical quantity and data quality (Martin 1987 p. 35). This assessment is also supported by the fact that other studies in the field which used structural equation subgroup analyses with comparable models had significantly lower sample sizes (cf. Miller and Droege (1986), as well as Wong and Birnbaum (1994)).

Finally, in the context of individual models, there are several other rules-of-thumbs for determining sample size in structural equation modeling, such as using sample sizes which have at least 5 subjects per variable for normal and elliptical distributions, when the latent variables have multiple indicators, and 10 variables per subject for other distributions (Bentler and Chou 1987).

4.1.3. Sampling frame

The official "Directory of Chinese Companies" (Ji 1993) was used as sampling frame for companies belonging to the state sector. The unit of analysis were independent companies. The directory listed the entries according to major products, following the internationally accepted "Standard Industrial Classification" (SIC) system. At the time, it was the most complete record of companies in China.

More specifically, compared to any other directory in the P.R.C., it had the greatest number of entries, most comprehensive industry and service coverage[1] and was the most updated sampling frame (Ji 1993 p. v). Including both state enterprises and governmental institutions (which were eliminated for the purpose of sampling), it had over 160,000 entries which compares with a population of 104,700 state enterprises in 1993 (EIU 1995 p. 26). Its completeness is due to the fact that the directory made use of the official company registration records. Given that state-owned enterprises are part of the official administrative bureaucracy, the respective ministries and subordinated committees (*buwei*) in all provinces were officially requested by the central authorities to submit their records to the editors (Ji 1993 p. v), comprising all registered state companies of all sizes, including small ones. This situation which is characterized by strong official direction and support by central authorities in the editing process, is thus quite special in China, compared to other countries in which company directories are often incomplete or tend to underrepresent small firms. As regards the quality of the sampling frame (Kalleberg et al. 1990), the accuracy of the published data, in terms of company names and addresses, was also very high.

Since private companies are a relatively recent phenomenon in China, in contrast to more established Western countries, at the time when the study was conducted, there were still no complete directories of private firms. For our quota sampling, we obtained company names and addresses from local Statistical Bureaus in Beijing and Shanghai.[2] These Bureaus retrieved records from their complete databases of registered private enterprises, which they keep for statistical purposes. For confidentiality reasons, we were not allowed to access these databases directly.

4.1.4. Sampling procedure

Ackoff's (1953) proposed that as ultimate criterion for sampling method selection, an "acceptable" trade-off between the costs of getting the sample and the expected costs of errors which may result from using the method, should be found. In our case, simple random sampling with stratification for different geographic areas (Beijing and Shanghai) was used as sampling method for state enterprises. In this study, different sets of random numbers were generated in the software program *Excel* to locate companies in the directory. For each draw, the first random number specified the page in the directory, the second the column and the last one determined the respective row. The simple random approach was chosen, because, using this approach, every unit of the population has an equal, calculable, and non-zero probability to be selected in the sample, and thus offers a high degree of representativeness (Sarantakos 1993 p. 126). It also allows the most comprehensive characterization of the sample in terms of bias and variability (Ackoff 1953 p. 123).

As regards private companies, quota sampling (by industry) was applied given that there was no sampling frame. Quota sampling is a version of stratified sampling, i.e. a non-random proportional stratified sampling procedure (Sarantakos 1993 p. 138).

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[1] More quantitative evidence for this high degree of representativeness will be presented in the next chapter.

[2] Statistical bureaus are part of the National Planning Committee and are located in every major city.

Dimensional sampling was chosen which considers all significant dimensions of the population and ensures that each dimension will be adequately represented in the sample, i.e. ascertains that at least one case from the universe is included. The dimensions in our case were the major industrial categories existing in China. The quotas were intended to achieve a mix of different industry and service sectors with no sector exceeding 5% of the total sample.

It is acknowledged that there are drawbacks to the quota sampling method used for private companies in terms of the representativeness of the selected sample.[1] However, given the above mentioned absence of sampling frames for private companies, it was impossible to draw simple random samples. Furthermore, so far very few researchers seem to have undertaken a study in China which used a representative sampling frame and random sampling, or even used a sampling frame at all, to analyze private enterprises in China. This is even true for state enterprises. Most common are "convenient" or "invited samples" (Shenkar 1994), i.e. "studies" where questionnaires were distributed to participants of seminars. These seminar groups, however, represented heavily biased samples, since in the past the Communist Party played an important role in selecting the participants, directing researchers to their "invitees" and biasing results through its participation and observation of the seminars. In addition it should be noted that even many studies in the West use quota sampling or incomplete sampling frames (Kalleberg et al. 1990). In more general terms, Sarantakos (1993 p. 139) states that quota sampling is quite common in the social sciences because it is less costly than other techniques, does not require sampling frames, is relatively effective and can be completed in a relatively short period of time. A comparison of the various sampling approaches can be found in Appendix C.

4.1.5. Sample structure

Two samples were selected, one for Beijing, situated in the North and one for Shanghai, located in the South. As mentioned in the introduction, these cities, apart from Hong Kong, were considered to be China's major "growth engines" (Ou, Shi and Xu 1996 p. 3). The following table provides an overview of the overall sample structure. More detailed analyses relating to the representativeness of the sample and the potential influence of non-response bias will be presented in the next chapter, entitled "Exploratory data analysis".

Table 4-3 Geographical location of sample subjects

Location	Frequency	Percent
Beijing (North)	60	48.4
Shanghai (South)	64	51.6
Total	124	100.0

[1] It should be mentioned that *t*-tests depend on the assumption of a representative sample which does not overweight certain elements. Given that we used quota sampling not with the objective of overweighting certain elements, but, on the contrary, in the absence of complete directories, used this approach to ensure a balanced and representative sample in an informal sense which covers a wide variety of industrial sectors, we still will use an unadjusted *t*-test. Adjustments for different weights would even be no possible, given that we could not find any data of city level industry composition of private firms with could have been used as a weighting system.

For each city, half of the sample were state-owned and the other half were private enterprises:

Table 4-4 Ownership mode of sample subjects

Ownership	Frequency	Percent
State-owned	63	50.8
Private	61	49.2
Total	124	100.0

Given the criticism of focusing on only one type of organization (Argyris 1972 p. 11; Kimberly 1976 p. 577; Dewar and Hage 1978 p. 132; Gillespie and Mileti 1981 p. 376), a heterogeneous sample, comprising a variety of industries and services was selected, which followed the approach of well-respected studies in the field (Hall, Haas and Johnson 1967; Pugh et al. 1968; Pugh et al. 1969; Child 1972a; Payne and Pugh 1977 p. 1132; Mileti and Gillespie 1977; Beyer and Trice 1979). Research findings showed that organizational theories and causal models of organizational structure are applicable for samples of very different organization (Miller and Conaty 1980; Miller and Conaty 1982; Conaty, Mahmoudi and Miller 1983; Miller, Anderton and Conaty 1985), whereas restricting samples to one "type" (cf. Maurice *et al.* (1980); Hofstede (1980); Industrial Democracy in Europe (IDE) International Research Group (1981); Meyer and Scott (1983)), may not allow for the degree of freedom necessary for testing rival hypotheses (Argyris 1972 p. 11). In this context, Miller (1987 p. 310) pointed out that only a few cross-national studies to date have achieved the sample diversity attained in the original Aston project.

4.2. Measures

4.2.1. Rationale for inclusion of variables

The theoretical rational for the choice of *variables* to be included in this research was grounded in the literature review and synthesized in the theory development chapter. Put in a nutshell, the selection is thought to capture some of the important contextual factors and properties of both organizational structure and management practices for which there is further research need and which are strongly connected with Chinese management in particular. Apart from other constructs, Miller and Droege's (1986) variable set was included to facilitate the later international comparisons.

4.2.2. Operationalization and measurement of variables

As regards the actual operationalization and measurement of variables, wherever possible, we selected well-validated scales which had strong theoretical grounding and which, through frequent application and replication, were shown to have desirable psychometric properties. In addition, only by using standardized scales, the findings could be compared with other international studies. This approach follows common usage in the research literature. As noted by Churchill (1979), when at all possible, the researcher should use or adapt existing measurement scales for his research purposes. The unnecessary use of new scales makes it difficult to compare and accumulate findings, thereby inhibiting synthesis of what is known (Segars 1997 p. 112).

Given that, so far, no previous study seems to have adopted exactly the same research theory as we have and tested all the identified aspects of organizational structure and management practices *at the same time*, the approach adopted here is eclectic, selecting well-validated scales from different studies. As mentioned before, with respect to the operationalization of the structural contingency theory constructs, the research largely follows the tradition founded by the Aston researchers and adopts their schedules (Inkson, Pugh and Hickson 1970; Pugh and Hickson 1976).

For management practices and effectiveness, most scales were derived from Khandwalla's survey of Canadian companies (Khandwalla 1974; 1977). The reason for this choice were two-fold: First, Khandwalla and other scholars developed a wealth of theoretical thinking on the relationships of these scales to various antecedents. Second, as will be demonstrated below, the psychometric properties of the various scales are very favorable (Khandwalla 1977). Although the complete list of items for leadership and decision-making was included in the questionnaire for later more detailed analysis, the hypotheses, as explained in the theory development chapter, focused on items for participative leadership, as well as adaptive and planning decision-making. The corresponding section numbers from the questionnaire will be reported in the context of the individual models.

Since strategy was not covered in Khandwalla's original study, Venkatraman's (1989) scale was chosen which was based on an extensive review and synthesis of the theoretical strategy literature (cf. Venkatraman and Grant (1986)) and well-validated in a structural equation context. Due to the theoretical importance outlined in the literature review, the study concentrated on two aspects of strategic orientation, i.e. proactiveness and (price-cutting) aggressiveness. Items for other strategic dimensions (as well as other constructs) were included for more detailed subsequent analysis.

The contextual scales for "CEO need for achievement" (Steers and Braunstein 1976; Miller 1983; Miller and Droege 1986) and "uncertainty" (Miller and Droege 1986)[1] were additional measures which had neither been included in the original Aston study nor been incorporated in Khandwalla's survey. In addition to its sound theoretical grounding and empirical validation, CEO need for achievement, a scale originally developed and well-validated in the psychology literature (Steers and Braunstein 1976), showed relatively high predictive and nomological validity in a structural equation model which approached the type of model used in this study (Miller and Droege 1986). "Uncertainty" has also been well validated in previous studies, but, despite its theorized importance, failed to show significant effects in a nomological network (Miller and Droege 1986) - a fact which has to be reexamined in this study.

As regards corporate culture, Handy's (1987) scales were chosen due to the real world richness and comprehensiveness of the underlying narrative, as well as the potential for interesting, normative recommendations. However, it did not seem to be heavily grounded in theory and appeared to have never been used in a structural equation-based empirical model. Therefore, its validity and reliability could not be assessed.

[1] Miller's scale in itself is a synthesis of the scales used in previous studies (Khandwalla 1974; Khandwalla 1977; Miller 1983).

In particular, the original scales appeared to have been used primarily as diagnostics tools, forcing the respondent to make choices on an ordinal scale each of whose items represented one underlying corporate culture dimension. The scoring thus automatically yielded the four desired underlying dimensions. For the purpose of this study, we adopted a more conservative approach and used seven point Likert scales to avoid forcing the respondents to make trade-offs which guarantee that the "theory" is supported. It might well be possible that the four postulated dimensions of corporate culture do not materialize, in which case the scale might have to be dropped.

Finally, due to the lack of previously established scales in the literature, two new schedules, including scales for "emphasis on selected Chinese cultural characteristics" and "subcontracting", were developed and tested. The detailed development and testing of these scales will be discussed in the next chapter.

An overview of the constructs, operationalizations and scales used in this research project is presented in Table 4-5, Table 4-6 and Table 4-7 starting on page 4-19. These tables also include detailed information on the procedures used to develop composite scores for the scales. In most cases, items belonging to one scale which had been shown to be unidimensional and reliable, were summed up to arrive at the total scale score. This means that items with high factor loadings were added. It should be mentioned that the additive mechanism is a relatively simple method for constructing scales and their respective scores. When the standard deviation of the individual items are not equal across a scale, items with greater standard deviations have a greater impact on the overall scale score. This problem is alleviated if variable scores are standardized first or if the variables have roughly equal standard deviations from the outset. More sophisticated alternative approaches include, for examples, the regression approach to estimating factor scores. But even for these other approaches, factors scores are not perfectly correlated with the factors, given that there is an infinite number of possible factor scores that all have the same mathematical characteristics (Tabachnick and Fidell 1989 p. 641). In conclusion, the additive scoring approach was chosen here because it (a) follows the tradition developed by the Aston researchers (Pugh et al. 1963; Pugh et al. 1968; Pugh et al. 1969; Inkson, Pugh and Hickson 1970; Pugh and Hickson 1976) and is entirely adequate for most research purposes (Tabachnick and Fidell 1989 p. 641), (b) is the only way to make international Aston comparisons possible and (c) makes the factor scores more meaningful and easier to interpret.

For profile comparisons of structural and managerial properties, the scales were standardized to 100%, i.e. a case which scored highest on every item of a given scale obtained a factor score of 100. This makes it possible to compare score means between different scales from different subgroups. This procedure was preferred over calculating *z*-scores which indicate the *relative* position of each value within its distribution, but do not show the absolute degree of the organizational property.

4.2.3. Psychometric properties of scales

In general, for scales to be appropriate in the context of a study, it has to be demonstrated that they possess desirable psychometric properties. More specifically, they should ideally display high reliability (Peter 1979 p. 6; Churchill and Peter 1984 p. 369), validity (Peter 1981 p. 133) and unidimensionality (Segars 1997 p. 108). Definitions of the various tests for psychometric properties are outlined in Appendix E.

Results of previous studies relating to the reliability of scales used, including Cronbach Alpha, inter-rater reliability, and composite reliability, are reported in Table 4-5, Table 4-6 and Table 4-7 starting on page 4-19. These scales showed relatively high degrees of reliability, which, among other things, was the basis for their use in this study. However, the assessment of its psychometric properties was not always rigorous. In particular, very few studies demonstrated high degrees of validity and unidimensionality in any quantitative sense. One of the advantages of structural equation modeling is to measure very accurately the reliability and validity of the scales used. This is achieved by estimating the various parameters related to sets of indicators in the measurement model, which is done simultaneously to the estimation of the structural (substantive) model. The results of the "replicated" validation as pertains to our study, as well as an outline of the scale development procedures and testing for the two new scales, i.e. "emphasis on selected characteristics of Chinese culture" and "subcontracting", will be presented in chapter 5.

Finally, it should be noted that the multiple choice questions on CEO demographics and company background were not formally mentioned in the scale development and testing sections, since they are standardized items which usually are not treated in this category (Sarantakos 1993). Apart from this, additional variables created for the organizational effectiveness model will be discussed in the context of this model in chapter 8.

Table 4-5 Research Scales for exogenous contextual variables

Construct	Operationalization	Scales	Type of scale	Items (#)	Scoring procedure	Scale reliability* (Application)
Environmental Uncertainty	Degree of change and unpredictability of markets and technology (Miller and Droege 1986 p. 547)	Miller's scale (Miller and Droege 1986 p. 557) based on Khandwalla (1974; 1977) and Miller (1983)	7-point Likert	5	Unweighted sum	.74* (Miller and Droege 1986 p. 560)
Chinese Culture	Degree to which family loyalty, respect for seniority, collective orientation and relationships are emphasized in the company	Schlevogt (new scale)	7-point Likert	16	Unweighted sum for selected items	*To be determined*
Government support	The positive influence of government regulations on business	Khandwalla Scale (Khandwalla 1977)	7-point Likert	9	Unweighted sum	*Not given*
External Constraints	Factors in an organization's task environment which limit its access to resources	Khandwalla Scale (Khandwalla 1977)	7-point Likert	11	Unweighted sum	*Not given*
Size	Natural logarithm to the basis of 10 of the number of full-time employees (Blau and Schoenherr 1971)	Blau (1971)	Open-ended	1	Natural logorithm of number of employees	.98‡ (Khandwalla 1977 p. 659)
Technology	Mass-production orientation (Khandwalla 1974)	Khandwalla's mass-orientation scale (Khandwalla 1977)	7-point Likert	1	Simple score	*N/A (single-item scale)*
CEO Need for Achievement	A person's degree of striving to meet standards of excellence, accomplish difficult tasks, and achieve success	Manifest Need Questionnaire (Steers and Braunstein 1976)	7-point Likert	5	Unweighted sum after re-coding	.66*, .72† (Steers and Braunstein 1976 p. 258)

*Cronbach α (recommended to be greater than .70), no α given for single-item scales or if scale not constructed on the basis of the domain sampling model.
†Test-retest reliability (stability coefficient)
‡Interrater reliability

Table 4-6 Research scales for endogenous structural variables

Construct	Operationalization	Scales	Type of scale	Items (#)	Scoring procedure	Scale reliability (Application)
Centralization	Centralization of decision-making	Aston Centralization Scale (Inkson, Pugh and Hickson 1970; Pugh and Hickson 1976)	5-point scale	11	Unweighted sum	.82* (Miller and Droege 1986)
Formalization	Degree to which rules and procedures are *written*	Aston Formalization Scale(Inkson, Pugh and Hickson 1970; Pugh and Hickson 1976)	4-point scale 5-point scale Binary scale	2 1 9	Unweighted sum	.65* (Miller and Droege 1986)
Specialization	The degree to which an organization's activities are divided into specialist roles	Aston Specialization Scale (Inkson, Pugh and Hickson 1970; Pugh and Hickson 1976)	Binary scale	16	Unweighted sum	.80* (Miller and Droege 1986)
Control	Planning, co-ordinating, monitoring and providing feedback about progress in achieving the task of the organization	Khandwalla's Sophistication of Control and Information systems (C.I.S.) Scale (Khandwalla 1977)	7-point Likert	10	Unweighted sum	.80*, .64‡ (Khandwalla 1977 p. 662)
Integration	Integration through the use of liason devices	Miller's Structural and Process Liasion Scales (Miller 1983)	7-point Likert	6	Unweighted sum for each subscale	.74* Process .85* Structure (Miller and Droege 1986)
Corporate culture	A set of shared beliefs and values within an organization.	Handy Scale (Handy 1987)	7-point Likert	24	Unweighted sum for each of the four dimensions	*Has not been tested*

*Cronbach α (recommended to be greater than .70), no α given for single-item scales or if scale not constructed on the basis of the domain sampling model
† Composite measurement reliability, i.e. the ratio of trait variance to the sum of trait and error variance (should be greater than .50)
‡Interrater reliability

Table 4-7 Research scales for endogenous managerial variables

Construct	Operationalization	Scales	Type of scale	Items (#)	Scoring procedure	Scale reliability (Application)
Strategic orientation	A composite measure describing the elements of a company's overall resource deployment pattern to achieve its stated objectives	Venkatraman Strategic Orientation of Business Enterprises Scale (Venkatraman 1989 p. 959-960)	7-point Likert	12	Unweighted sum for each of six subscales	Ranging from .53† to .68† for dimensions (Venkatraman 1989)
Leadership style	The approach used by a leader to stimulate patterning of behavior in some group and elicit the followers' voluntary compliance in a broad range of matters	Khandwall Scale (Khandwalla 1977)	7-point Likert	7	Unweighted sum for each of three subscales	Participation: N/A*, .57‡ Flexibility: N/A*, .52‡ Coercion: N/A*, .49‡ (Khandwalla 1977 pp. 660-661)
Decision-making style	The procedure which is employed by an organization to define organizational goals and programs of action to realize them	Khandwall Scale (Khandwalla 1977)	7-point Likert	3	Simple score on each subscale	*N/A**
Communication style	The sending of information (a message) and its receipt, flowing in vertical or horizontal direction with an organization	Khandwall Scale (Khandwalla 1977)	7-point Likert	2	Simple score on each subscale	*N/A**
Subcontracting	A particular form of interorganizational relationships which is characterized by the outsouring of certain activities of the company's value chain to other organizations	Schlevogt's scale (new)	7-point Likert	11	Unweighted sum	*To be determined*
Organizational Effecti-veness	The degree to which an organization achieves its stated purpose and objectives.	Khandwall's index of objective performance and index of subjectively rated relative performance (Khandwalla 1977 p. 662)	Subjective: 7-point Likert Objective: Open	5 3	Unweighted sum Sum of trichotomized scores on three subscales	Subjective: .84*, .59‡ Objective: N/A*, 93‡ (Khandwalla 1977 p. 662-663)

*Cronbach α (recommended to be greater than .70), no α given for single-item scales or if scale not constructed on the basis of the domain sampling model
† Composite measurement reliability, i.e. the ratio of trait variance to the sum of trait and error variance (should be greater than .50)
‡Interrater reliability

4.3. Procedures

This part is organized around four sections. In the first section, the questionnaire design will be described (section 4.3.1), followed by an outline of the data collection approach (4.3.2). After discussing questionnaire administration (4.3.3), the design and major findings from the pilot test will be presented (4.3.4).

4.3.1. Questionnaire design

The questionnaire consists of 13 sections covering 222 questions relating to the informant's socio-demographic background, contextual factors, organizational structure, management and effectiveness. In most cases, closed questions are used, consisting of either 7-point Likert scales or multiple-choice items. In addition, there are several open questions. The detailed statistics are as follows:

a) Multiple-item scales: 33
b) Multiple choice questions: 9
c) Open questions: 16
d) Average response time per questionnaire: 1½ hours

The questionnaire was translated into Chinese and re-translated to ensure the accuracy of the original translation (Brislin, Lonner and Thorndike 1973). The validity of this procedure has been established in previous management studies using cross-national setting, including Chinese data (Adler, Campbell and Laurent 1989; Baird, Lyles and Wharton 1990; Adler, Brahm and Graham 1992; Tan and Litschert 1994). Adjustments were made to some translations as a result of the pilot test (*see* section 4.3.4). An overview of the questionnaire sections, as well as the English and Chinese versions of the survey instrument can be found in Appendix G and H.

4.3.2. Data collection method

As regards the quantitative analysis, this study applies an "institutional", inter-organizational approach which combines two different data collection methods:[1]

a) ***The key informant method*** (Zelditch 1962; Seidler 1974; McGranahan 1976; Phillips 1981; Kumar and Dillon 1990; 1993), using usually one interviewee per company (CEO, otherwise most senior vice-president).[2] The informant reports on organizational characteristics by responding to the questions of the standardized questionnaire. Whenever the CEO lacks knowledge in a particular field, another respondent is asked to fill these gaps.

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[1] Data collection for the qualitative research has been described in the case illustration methodology section.

[2] Seidler (1974) recommended two to five informants, but mentioned that fewer informants are needed when informants are known to be objective and questions are not bias-producing. Focus on usually one informant (cf. Tan and Litschert (1994 p. 8); Simonin (1997 p. 1169)) allowed for high quality personal interviews at the expense of greater number of informants per organization.

b) ***The use of archival records*** (organizational charts, company descriptions, annual reports etc.) to verify oral information when deemed necessary. This method is particularly effective if the company is highly formalized, which means that it makes use of a great amount of written documents.

First used in ethnographic and later in participant observer studies (Boas 1897; Malinowski 1922; Osgood 1940; Merton 1947; Kendall and Lazarsfeld 1950; Paul 1953; Mead 1953; Lofland 1971), the key informant method entails selecting a certain number of knowledgeable informants in an organization and ask them to report on aggregate organizational properties which they have observed. It is assumed that the informant's role or status provides him with more complete and specialized knowledge or that he is in any other respect representative for the unit. The term informant should be distinguished from the concept of a respondent who reports on his personal and individual attitudes, rather than on aggregate properties (Seidler 1974). It is possible, however, that within one study the interviewee acts at certain occasions as informant and on others as respondent. The key informant method was selected due to certain advantages which were considered important for the purpose of this study:

Aggregation: Key informants can report on the organizational unit of analysis as a whole by communicating aggregate properties rather than personal attitudes and behaviors (Seidler 1974). Data is usually quantitative and can be subjected to rigorous statistical testing. Seidler further elaborates on this feature by making a rather subtle distinction. Because knowledgeable and articulate informants do calculations and summaries for the researcher, they are considered to be representative of all members of the organization, but, in terms of sampling, do not have to represent all members.

Generalizability: Since the researcher usually only interviews a very limited number of informants per organization, a large and, above all, representative sample of different organizations can be surveyed at comparably low costs, making it possible to generalize the findings thereafter. Viewed from the Aston methodological perspective, the key heterogeneity in organizational comparisons is thought to be found *between* different organizations. A method which maximizes the number of organizations sampled by making it possible to interview more respondents from *different* organizations, rather than many respondents from one organization, is therefore desirable. For other research objectives, it might be less suitable.

High response rate: As a "one contact solution", it increases the likelihood of a good overall response rate by reducing the commitment and cooperation required to be given by any single organizational unit. This characteristic is especially valuable in over-researched organizations.

Successful past application: Apart from other countries such as the US (cf. Phillips (1982 p. 531)) and Canada (cf. Miller and Droege (1986 p. 546)), it has been successfully used in China (cf. Tan and Litschert (1994 p. 8)). In the P.R.C., Tan and Litschert (p. 8) found that the responses from two executives were equally reliable and showed high inter-rater stability (between .7-.9). As a consequence, they only used one informant per organization.

It should be mentioned that the key informant method has been occasionally criticized (cf. Phillips (1981)). The governing thought is the question of whether one informant can accurately reflect organizational reality. More specifically, there are the following potential problems:

Random error: There is a possibility of random error influencing the reporting process, since informants might be unable to make complex social judgments about organizational properties.

Systematic error: Systematic error might arise in the informant report process due to bias or ignorance in the judgment of informants. These biases would surface as method factors in structural equation models. For instance, an informant might give a selective commentary based on his partial aggregation. Further, different informants might attach different weights to information in their judgment and use different information for their analysis. Their comments might also be influenced by their position, job satisfaction, age, lack of interest in the survey or other informant characteristics which could lead, for example, to social desirability bias (Arnold and Feldman 1981; Podsakoff and Organ 1986). Finally, factors which are connected to the difficulty of observation might influence the degree of correspondence between informant report and organizational property to be measured. Such factors include, for example, the breadth of information sources available to the informant, the size of the organization, the length of time the informant has been working in the unit of analysis, absenteeism during the period of observation and his participation in decision-making (Seidler 1974; Phillips 1981).

These critical views are appreciated, but at the same time there is an established body of methodological literature which laid a sound scientific foundation for the key informant method (Zelditch 1962; Seidler 1974; Kumar, Stern and Anderson 1993). Furthermore, many previous organizational studies used some form of this approach (Pugh et al. 1963; Pugh et al. 1968; Hickson, Pugh and Pheysey 1969; Inkson, Pugh and Hickson 1970; Miller and Droege 1986). In order to safeguard against potential measurement error caused by the use of informants, we followed certain guidelines proposed in the literature (cf. Phillips (1981); Mitchell (1994)):

Appropriate research topic: Most questions relate to facts which can be more or less objectively reported by the key informant. In this context, it is important to mention that Ballweg (1969) found high inter-informant reliability for concrete items (92%) and low reliability for soft items (below 60%).

Simple questions: Hyman *et al.* (Hyman, Levine and Wright 1967) discovered that agreement between multiple informants was lower when response categories were numerous. In our case, relative simple questions with a limited number of response categories did not seem to require complex social judgments and were concrete, observable study phenomena.

This was especially true for the Aston schedules, which related, for example, to the number of written documents in the organization, and other standardized scales, but applied to the open-ended questions as well.[1] The only scale which might not test readily observable phenomena could be the "corporate culture" scale. Answering the specific culture questions might involve some subjective judgment. Several informants, though asked to report on aggregate properties, might potentially differ in their opinions. Therefore, especially in the case of this scale, it seemed to be important to rigorously assess scale reliability and validity to decide whether the scale was relatively free from measurement and method error, and was therefore useable in the subsequent analysis.

Multiple methods: To avoid the drawbacks of relying on one method only, whenever available, reported information was verified by the use of archival records. In addition, written documents, i.e. annual reports, company brochures and organizational charts, were always requested as back-up. Specifically, the information provided on Khandwalla's index of objective performance, including "average growth rates" and "profitability", were double-checked with information from annual reports, company brochures or otherwise published information. A detailed example of such a cross check is provided in the assessment of the Industrial and Commercial Bank of China's economic profit, reported in chapter 8, entitled "Key success factors in China". Further, "annual revenues", "number of employees" and "operating sites" were double-checked with information provided in annual reports whenever available. In addition, when possible, the number of hierarchical levels was compared with organizational charts. Besides, the company's age was checked with information in company brochures, whenever available. In addition, in cases where the informant had a knowledge gap, another informant in the organization was asked. In more general terms, whenever possible, a second informant was invited to participate in the interview. There was some evidence from the pilot tests that in the very few cases where two separate informants were interviewed, the findings from the two sources were very comparable. Moreover, as mentioned above, to capture more qualitative aspects and reflect the real world richness of organizational life, the study also used a selected number of short case illustrations.

Knowledgeable, "unbiased" informants: First, a crucial methodological imperative for this study was for each informant to be highly familiar with overall corporate activities and performance across divisional boundaries. With respect to this issue, the study was regarded satisfactory, given that all respondents were top executives in their respective companies (cf. Simonin (1997 p. 1169)), with 85% being CEOs and the rest most senior vice-president. Given the singular expertise and "bird-eye" perspective associated with the position of these informants, as in several previous studies, a single-informant approach was considered adequate (cf. Simonin (1997 p. 1169)). In this context, it is worth mentioning that high ranking informants were found to be more reliable sources of information (Mitchell 1994).

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[1] In our study, these open questions did not ask for complex, subjective judgment, but rather collected objective information, such as the time the company was existing. They were only open-ended because it would have been too tedious to specify the complete response set, which nevertheless was clearly defined by the nature of the questions.

Second, social desirability bias was not perceived to be a major concern for this study. Given that previous studies showed that anonymity reduces social desirability bias in studies of sensitive topics (cf. Konrad and Linnehan (1995)), the survey was designed and implemented to guarantee the respondents' anonymity. Further, we did not think that the topic of investigation, though sometimes dealing with issues of strategic importance, would be so highly sensitive (cf. Konrad and Linnehan (1995); Simonin (1997 p. 1169) for illustrations), as to prompt responses that would present the respondent or his company in a favorable light. The original candor and eagerness of the CEO who participated in the pretest appeared to support this view. However, the occurrence of social desirability bias can never be completely ruled out.

Standardization: To further limit potential bias, the research aimed at standardized interview situations and used standardized questionnaires (Phillips 1981). Further standardization and higher representativeness was achieved by holding respondent position constant.

Personal interview: The personal face-to-face interviews produced very high quality data, since explanations could be given and the research process was interactive. Many other studies used mailed questionnaires with low response rates.

Pretest: To assess the overall effectiveness of the key informant method, as mentioned above, a pilot test was used which overall yielded positive results (*see* section 4.3.4).

Post-hoc analysis of data reliability: Apart from this, even if bias could not be completely excluded by these "preventive" design choices, structural equation modeling made it possible to model and quantify "correctable" bias in the form of method factors and measurement error (cf. John and Reve (1982 p. 517), Anderson (1985 p. 86; 1987a p. 525), and Kumar and Dillon (1990 p. 102)). These sources of errors can be screened out by treating them as a control variables in the analysis. In this context, the use of multiple items to measure the same concept made it possible to test for convergent validity and isolate sources of errors at a mono-method level of analysis (Phillips 1981 p. 411).

4.3.3. Questionnaire administration

4.3.3.1. Choice of questionnaire administration

There are three major modes of questionnaire administration, i.e. personal interview, phone and mail. Depending on the situation in which it is used, each has its strengths and weaknesses. These pros and cons of different methods of questionnaire administration are outlined in Table 4-8 on the following page.

For the purpose of this study, we decided to use personal interviews. Phone interviews were considered impractical due to the complex nature of the questionnaire. The choice between mail and personal interviews was made based on the results of a pilot study. The more detailed reasoning is outlined in section 4.3.4. Suffice to say here that personal interviews offered the best quality control over the interview process and made it possible for the interviewer to explain difficult sections in the questionnaire.

In addition, the response rate for personal interviews was significantly higher than for mailed questionnaires. Besides, personal interviews also facilitated rapport with the respondent which helped to obtain a cooperative attitude from the CEO who had to spend on average 1- 1 ½ hours to answer the questionnaire.

Table 4-8 Comparison of different methods of questionnaire administration

	Personal	Phone	Mail
Response rate/ avoidance of refusal bias	+	+	-
Flexibility	+	=	-
Supplementary information	+	=	-
Control of interview situation	+	=	-
Long questions	+	=	=
Complex questions	+	-	=
Item non-response	+	+	=
Open-ended questions	+	+	=
Considered answers and consultations	=	-	+
Avoidance of interviewer bias	-	=	+
Speed	-	+	-
Cost	-	=	+
Unavailability of mailing lists	+	+	-
Unavailability of current phone directories	+	-	-
Lack of efficient postal system	+	+	-
Face-to-face communication culture	+	-	-
Accessibility	=	=	+
Anonymity	-	=	+

Note: + denotes good; = denotes satisfactory, - denotes poor
Source: Adapted from Malhotra (1996 p. 17), Frankfort-Nachmias (1992 p. 234), de Vaus (1996 p. 113) and Dillman (1978)

4.3.3.2. Practical field procedures

The field research was conducted in two stages. The first stage (Spring 1996) consisted of a field visit to Beijing. In the second stage (Spring to Summer 1997), a field visit to Shanghai was undertaken. Respondents were first contacted by means of a covering letter asking for participation in the study (Appendix F includes the covering letter for the mailed part of the pilot test). It was printed on high quality paper, which was deemed very important in China. In case of non-response, the target was called after approximately 10-14 days. In the event of refusal, the company was normally visited to convince the CEO to participate. The interview was usually conducted in the CEO's office or other meeting rooms at the field site. In many cases the executive brought in staff assistants to answer specific questions in their field of expertise. Interviews lasted from one to two hours and were exclusively conducted in Mandarin Chinese. The interviewee himself normally filled in his answers on the questionnaire, but got help from the interviewer every time a question was not fully understood.

4.3.4. Pilot Study

A pilot study is defined as a "small-scale replica and rehearsal of the main study". It is distinguished from a pretest which only examines isolated mechanical problems of an instrument (Sarantakos 1993 p. 277).

4.3.4.1. Purpose and objectives

The purpose of a pilot study is "to discover possible weaknesses, inadequacies, ambiguities and problems in all aspects of the research" (Sarantakos 1993 p. 278), so that they can be corrected before the actual data collection takes place. More generally, it helps the investigator to get more familiar with the research environment and practice research in real situations before the main study begins. The detailed objectives of the pilot undertaken in our study included exploring the following aspects (cf. Moser and Kalton (1971); Sproull (1988)):

(a) ***Effectiveness of research methods***: The first objective was to test the effectiveness and suitability of the data collection method. This included testing the responses of subjects in relation to the method of data collection, i.e. comparing mailed questionnaires to personal interviews, as well as obtaining an approximate assessment of the correspondence between the answers of two key informants.

(b) ***Scale effectiveness***: Another objective was to qualitatively test the validity, reliability and overall effectiveness of the research instruments, especially as regards the newly developed scales intended to measure "emphasis on selected aspects of traditional Chinese culture" and "subcontracting".

(c) ***Sampling frame effectiveness***: The third objective was to assess the adequacy of the sampling frame.

4.3.4.2. Procedures

The questionnaire and administrative procedures were pilot tested with an effective sample size of n=10. This sample size approximated the recommended 1%-level of respondents with respect to the final sample size (Sarantakos 1993). Appendix I includes a list of companies which participated in the pilot test. The sample consisted of (a) seven personal interviews conducted in Beijing and (b) three responses to mailed questionnaires. The personal interviews also included a qualitative discussion on all scales to test face and content validity. Respondents were also asked which sections they thought were interesting or difficult. Particularly helpful were the methodological comments and advice regarding translation of technical terms by Mr. Li Dan, Deputy Director of China Radio International, who holds a research degree from Stanford University. According to Sarantakos' advice (1993 p. 278), to ensure accurate and valid sampling, the companies included in the mailed pilot survey were randomly selected from the "Directory of Chinese Companies" (Ji 1993) and located in various parts of China. Since pilot studies are not usually employed in the context of qualitative studies (Sarantakos 1993 p. 278), no pilot was undertaken for the case illustrations.

4.3.4.3. Evaluation of results

Results of the pilot should be evaluated in terms of the original objectives (Sarantakos 1993 p. 278):

4.3.4.3.1. Effectiveness of research methods

Using mailed questionnaires as data collection method did not appear to be feasible in China. Supposedly because of the low efficiency of the postal system, the response rate was extremely low. In addition, the quality of the returned questionnaires was very bad, i.e. they featured many missing values and "don't know answers". As will be reported in more detail in the next chapter, the response rate from CEOs in the case of personal interviews was relatively high, partly due to the fact that respondents thought that they could learn from the interaction with a researcher from the West. Some respondents actually asked to get a blank copy of the questionnaire to use as a diagnostic tool for their subsidiaries. For example, the CEO of the Rainbow Hotel in Beijing pledged that he would measure "progress" related to the increasing management sophistication in his company on a monthly basis using the company questionnaire. The interactive nature of the face-to-face interviews also ensured that difficult sections of the questionnaire with slightly unfamiliar concepts for the Chinese managers could be explained. None of the respondents had ever participated in a survey and used a pen-and-pencil company questionnaire. Thus, even the notion of a scale had to be explained. This interactive nature therefore significantly reduced the number of "don't know" answers. There were also very few refusals to answer particular questions. The number of missing values was also greatly reduced, since the interviewer could make sure that every questions was answered.

In addition, the respondents were capable of *distinguishing* the various contextual and managerial categories, confirming Tan and Litschert's (1994 p. 7) findings in China. Overall the questionnaire was considered to be a little bit lengthy with an average completion time of 1½ hours, but the respondents willingly cooperated. Finally, as mentioned before, when two respondents were used, the correspondence of their answers was very high.

In conclusion, personal interviews were chosen as mode of data collection. Due to time and budget constraints, the survey had to focus on two geographic locations, Shanghai and Beijing, and could not obtain the high geographical coverage of mailed questionnaires. Since the correspondence of answers from two informants, such as the CEO and his vice-president, was very high (although, of course, the number of respondents was by far too small to draw any statistically significant conclusion), as well as given that other studies (including research conducted in China) had used only one informant per company, in the light of time and budget constraints, only one key informant per organization was interviewed. This choice made it possible to concentrate on high data quality for this one informant and also maximized the overall number of respondents from *different* organizations, at the expense of a broader coverage of other subunits within the focal company. Finally, due to theoretical considerations, the original length of the questionnaire was kept.

4.3.4.3.2. Scale effectiveness

In general, as regards the qualitative assessment of the scales, they were overall highly effective and easily understood. Some of the more qualitative aspects in the management practice sections had to be explained and were partly reworded using Chinese technical terms to facilitate understanding. An example is the term "return on net assets" which according to technical dictionaries can be literally translated. However, this translation was frequently not understood, because the term does not exist in China. However, the accounting law specifies the notion of return on net assets and the Chinese technical term used in this legal application exactly reflected the intended meaning. In other cases, idiomatic expressions were inserted. Further, response categories on legal status had to be adjusted to accommodate the different ownership models existing at the time. In addition, the categories for educational background had to be expanded to correspond to the current situation in terms of educational institutions.

Besides, the "emphasis on selected Chinese cultural characteristics" scale showed relatively high face validity. In terms of content validity, respondents pointed to some aspects of the domain not covered. They included "trust when dealing with friends". As a consequence, three items were added to the final scale. More details will be presented in the next chapter. The new "subcontracting" schedule appeared to be very easily understood and effectively measured the degree of subcontracted activities. The only addition was a special function for "workers' welfare", which is less common in Western companies.

4.3.4.3.3. Effectiveness of sampling frame

The sampling frame was overall very reliable with respect, for example, to the accuracy of the published data, i.e. the names and addresses of the companies quoted were correct. A more detailed analysis related to the representativeness of the sample obtained from the sampling frame will be presented in the next chapter.

4.4. Research limitations

First, as regards the sample, although the response rate was overall very high as will be reported in the next chapter and although no particular bias was evident from the inspection of non-response cases, sample non-response always potentially threatens the representativeness of research findings.

Secondly, as mentioned above, given that the quantity of empirical evidence varied across the three case examples and bearing in mind that the determination of the number of examples and selection of subjects, though guided by strong theoretical considerations, is always to some extent arbitrary, the findings cannot be thought of as testing the hypotheses or "replicating" the quantitative results in any statistically rigorous sense. Their sole purpose is to *illustrate* and enrich some of the findings.

Thirdly, researchers have debated whether "Chinese culture" can be conceptualized as a uniform construct and measured in any meaningful sense. This study therefore does not claim to capture all the intricacies of Chinese culture, but focuses on a very limited number of selected characteristics of Chinese culture which were thought to have an impact on organizational properties. In addition, it does not measure Chinese culture per se, since otherwise no difference should be found in a study which in itself only analyzes companies located in China. Instead, it focuses on the *emphasis* or importance attached to selected cultural values within individual organizations.

Summary of Chapter 4

In this chapter, the major research design choices of the study were discussed in terms of sample, measures and procedures. In the next chapter, we will present the results of the exploratory data analysis.

5. Exploratory data analysis

This chapter is organized around five major headings. In the first section, some important aspects of the analytical techniques used in this study will be discussed (section 5.1). Then, sample characteristics will be reported (5.2), followed by scale development and validation (5.3). Afterwards, the result of the preliminary data screening will be presented (5.4). Finally, we will comment on the limitations of the analysis (5.5).

5.1. Discussion of analytical techniques

The purpose of this section is to discuss the methods chosen for the subsequent data analysis, i.e. parametric mean difference tests and structural equation modeling.

5.1.1. Parametric tests

Parametric *t*-test of mean difference were used to compare individual "contrasts" in structural and managerial profiles of different forms of companies. Although strong in descriptive richness, the disadvantage of the simple mean comparisons is the fact that the many influencing factors which might lead to the observed mean differences are neither analyzed nor held constant. Therefore, the influence of contextual factors was subsequently modeled with the more powerful technique of structural equation modeling (SEM).

5.1.2. Structural equation modeling

The following section briefly introduces SEM, weighs its relative merits and demerits, and explains the reasons for its final adoption as major analytical technique in this study. The choice of computer program (AMOS) is explained in Appendix K.

5.1.2.1. Short introduction

Structural equation modeling is a very general, chiefly linear statistical modeling technique based on Lawley's theory of factor analysis (Lawley 1940; 1958). Factor analysis, path analysis and regression all represent special cases of SEM. A structural equation model consists of two parts: A *structural* model specifies a "causal" path relationship between a set of exogenous, unobserved traits and equally unobserved, endogenous constructs. The latent constructs are abstract, hypothetical variables, such as "need for achievement" or "formalization". The *measurement* model, also called empirical or psychometric model, links a set of observed, "manifest", variables to these unobserved traits. Parameters are then estimated for the various relationships in the model. Subsequently, the resulting *implied* covariance structure of the measures is compared to the observed, data-based covariance structure of the sample. If the difference is statistically insignificant, the model is considered to be a good "fit" for the data, i.e. can be considered to be one plausible explanation for the relations between the measures. In other words, SEM allows the researcher to specify relations between observed variables and latent constructs and then tests whether this set of relations is statistically probable given the observed correlations among the measures (Connell 1987 p. 170).

SEM is most frequently used as a confirmatory technique - another name for it is "confirmatory factor analysis" - testing theoretically deduced relationships. It is a relatively recent phenomenon, with papers related to its computer implementation (Joereskog 1967; 1970) only appearing in the late 1960s. Therefore, even some fundamental concepts are subject to challenge and revision.

5.1.2.2. Advantages of SEM

It is important to explain why a rather complex and advanced statistical technique was chosen for the purpose of this study instead of more traditional multiple regression or path analysis. This choice only is justified, if the sophisticated technique has certain distinctive characteristics important for the analysis which other more simpler technique do not possess (cf. Schmitt *et al.* (Schmitt et al. 1995 p. 167)). In particular, SEM is thought to have the following comparative merits:

Modeling measurement error: Especially in the social sciences, measurement is prone with error (Fiske 1982; Bagozzi, Yi and Phillips 1991 p. 421), because in many cases researchers attempt to analyze unobserved traits (Bagozzi, Yi and Phillips 1991 p. 426). Particularly in an unknown context such as China, there might be even more sources of random and systematic error. The data collection method itself, i.e. key informants, has been occasionally criticized for potential errors due to method factors. By explicitly modeling and correcting for measurement error in the manifest variables (cf. Cote and Buckley (1988 p. 315)), SEM seeks to derive unbiased estimates for the relations between latent constructs in the structural model. To model error, SEM allows multiple measures to be associated with a single latent trait. Given that it avoids the confounding of measurement and structural parameters with errors, it is thus very suitable for the analysis of non-experimental data (Blalock 1971; Costner 1971; Alwin and Tessler 1974; Bagozzi 1977; 1980; Kiiveri and Speed 1982). In more general terms, the great advantage of SEM is the fact that it encourages researchers to specify clearly and in detail their theoretical and substantive beliefs (Schmitt et al. 1995 p. 172) and subsequently allows to explicitly assess the extent of error in the model.

Efficient scale validation: Assessment of the measurement model represents one of the most efficient and comprehensive statistical methods for the confirmatory validation of scales in terms of validity, item and composite reliability, and unidimensionality[1] (cf. Steenkamp and Van Trijp (1991 p. 283)). Apart from the assessment of the scales' psychometric properties in the context of the measurement model, their relationships in the structural network provides further evidence for their nomological validity (Peter 1981).

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[1] In this context, it is important to mention that separate confirmatory factor analysis of each scale and ordinary regression cannot be used to assess the external consistency criterion of unidimensionality (Gerbing and Anderson 1988 p. 189).

Linking measurement with theory: Philosophers of science have argued that it is impossible to separate observations (measurement) from ideas (Zinnes 1969; Anderson 1970; Cliff 1972; Fornell 1989; Guttman 1971; Luce 1972; Duncan 1984). In other words, theory construction is a product of the interaction between data and models (Parameswaran et al. 1979 p. 18). Measurement without theory is analogous to an interpreter without language (Fornell and Yi 1992 p. 297). This idea can be traced back to Cronbach and Meehl (1955) who stressed the importance of making substantive theory relevant to the process of test construction, as well as Bentler's (1978) seminal article who recommended to estimate measurement and structure within a single context. One very important features of SEM is therefore its ability to estimate both a structural (econometric) and measurement (psychometric) model (Fornell and Larcker 1981 p. 39; Anderson and Gerbing 1988 p. 411). It thus allows for the *simultaneous* assessment of theory and measurement within a "holistic construal" (Bagozzi and Phillips 1982; Bagozzi 1984 p. 26).

Facilitating complex modeling: SEM can simultaneously explain more than one endogenous variable in what philosophers of science call a "complex spatial network" (Hempel 1952 p. 9; Feigl 1970 p. 4). Ordinary regression, in contrast, can only deal with one explained variable at a time (Biddle and Marlin 1987 p. 8). Within the structural model, SEM allows for modeling of interaction effects or covariances between exogenous variables, which is important, for example, to analyze a potential effect of "emphasis on Chinese culture" on company size.

Model comparisons: SEM is a very good instrument for model testing and nested model comparisons for the same data set (Harris and Schaubroeck 1990 p. 339; Medsker, Williams and Holahan 1994 p. 447). This aspect will be very important, for example, when testing the significance of parameters. An illustration would be a comparison between a baseline model which allows "emphasis on Chinese culture" to be related to structural outcomes with another model which fixes the path to zero.

Subgroup analyses: A very important additional feature is its capacity for subgroup comparisons in the context of "multiple-population models" (Joereskog 1971a; Soerbom 1974; 1978; 1982; Lee and Tsui 1982; Bentler, Lee and Weng 1987). This will be very important, for example, when comparing state-owned with private enterprises in a contingency theory based structural model. An illustration of a test for subgroup differences in this example would be constraining the path coefficients between the two subgroups to equality and use chi-square difference tests to see whether such a model fits the data significantly better than the unconstrained one. Apart from this, a subtle technical point is the fact that subgroup analysis can be used to arrive at more efficient parameter estimates. If equality constraints fit in two subgroups, parameter estimates become more efficient, given that there is a smaller standard error due to more degrees of freedom in the more constrained, stacked model.

Suitability for bootstrapping: In conjunction with bootstrapping (Normal-theory Monte-Carlo simulation), SEM can yield more efficient estimates and allows for the test of the estimation method itself (Austin and Calderon 1996 p. 109; Arbuckle 1997 p. 537).

5.1.2.3. Criticism

It should be mentioned that SEM has been criticized for various reasons. The following critical points are often problems with the application of the method, rather than the method itself:

Atheoretical modeling: Given that frequently the first model does not fit the data, researchers often perform "specification searches" (MacCallum 1986 p. 108), i.e. they modify their models by either constraining or relaxing certain parameters to improve model fit. Such a data-driven theory construction process can be criticized from a philosophy of science standpoint (Popper 1963; 1979). In more practical terms, such specification searches sometimes happen to "capitalize on chance" (MacCallum, Roznowski and Necowitz 1992 p. 490). This problem has been mentioned before in the context of Wong and Birnbaum's (1994) model. Therefore, to avoid any such criticism, all re-specifications should be firmly grounded in theory and respecified models be cross- validated with a new sample (Kelloway 1995 p. 220).

Reductionism: Structural models can be regarded as reductionist and mechanical oversimplifications of the real world (cf. Hayduk (1996 p. 3)). It is therefore important to supplement data from this "hard" statistical technique with more qualitative data from our case illustrations.

Pitfalls in model testing: Various fit indices, especially the chi-square statistic, have been criticized for their sensitivity, for example, to sample size (Marsh, Balla and McDonald 1988 p. 406). It therefore is important to use different "Goodness-of-fit Indices" (Mulaik et al. 1989 p. 430) and other methods to alleviate the problem of exclusive reliance on one measure. In addition, global tests of model fit provide limited information about the validity of structural equation models, since they do not tell researchers about the significance of the parameters included in their models, which, in the extreme case, might be all non-significant (Brannick 1995 p. 227). It is therefore important to always report the significance of individual parameters (Williams 1995 p. 227). Uncritical interpretation of analytical findings can have "disastrous" consequences for theory development (Schaubroeck 1990 p. 17). That is why we dedicate much space to discuss all steps in the SEM analysis.

Misleading language: SEM, sometimes called "causal" analysis, often is presented as proving causal relationships. This is not the case since technically SEM is just a remodeling of sample covariance structures and yields "associational evidence" (Biddle and Marlin 1987 p. 9). Therefore, researchers should be very careful not to use such causal terminology (Breckler 1990 p. 262; Brannick 1995 p. 203; Stone-Romero, Weaver and Glenar 1995 p. 155). Similarly, evidence can never "validate" or "confirm" a theory (Popper 1959; 1963; 1979). The use of the term "confirmatory factor analysis" can therefore be misleading, too. Given that causal inference based on non-experimental designs must rely more heavily on *a priory* theory and weak inference (Magidson 1982 p. 461), the use of "confirmatory" terminology should therefore be avoided, too.

5.2. Sample characteristics

Brislin *et al.* (Brislin, Lonner and Thorndike 1973 p. 22) emphasized the importance of presenting detailed information on sample descriptive statistics in cross-cultural research. All characteristics which could potentially influence the results or their interpretation should be shown, including response rate (5.2.1), informant characteristics (5.2.2), as well as certain features of the companies included in the sample (5.2.3).

5.2.1. Response rate

Out of 157 contacted companies, 124 enterprises agreed to participate in the survey (*see* Appendix J for list of participating companies). With 33 non-respondents, the response rate for the whole sample was 79%. The overall response rate compares very favorably with the extremely low response from the mailed pilot test. This underlines the effectiveness of using personal interviews, at least in China. Higher response rates were also obtained by systematically following up on non-response, first by calling the prospective respondent, and, in case of further non-response, by visiting the company. An important factor for the readiness to participate in the survey was the fact that in many cases CEOs were curious about the research, since they had never participated in such a survey before. Furthermore, they hoped to learn from a scholar coming from Oxford. As mentioned before, some CEOs even requested an empty questionnaire for use as diagnostics tool in their companies. Finally, many CEOs also hoped to establish a new important contact with the Western world. The research thus profited from its pioneering nature. Response rates in the West, especially given the extensive nature of the questionnaire, would have almost certainly been significantly lower.

To test for potential non-response bias, we analyzed whether sampled companies which refused to participate in the survey were different from the included companies. To assess potential differences we tested five variables, including "company size", "geographic location", "ownership mode", "industry category" and "reason for refusal". Appendix L includes a list of all companies which did not participate and includes more detailed information on the five variables for each case.

Size: The mean size (number of employees) of non-respondent state and private enterprises are reported in Figure 5-1 together with findings for the respondent companies:

Table 5-1 Comparison of respondent and non-respondent company size

	Respondents			**Non-respondents**			**Mean comparison**		
Enterprise	$\bar{x}$	s	N	$\bar{x}$	s	N	$\Delta\bar{x}$	*t*	*df*
State	12,796	76,054	63	7,279	22,909	15	5,517*	.48	76
Private	59	96	61	95	66	18	36*	1.80	77

•$p < .05$; ••$p < .01$ (two tailed); * Levene's test significant, therefore inequal variance *t*-test used.

Where:

$\bar{x}$ [1]	=	Mean company size (employees)	$\Delta\bar{x}$	=	Mean difference
s	=	Standard deviation	*df*	=	Degrees of freedom
N	=	Sample size			

[1] The convention is followed that $\bar{x}$ and s denote sample *statistics*, whereas μ and σ denote population *parameters* (cf. Sarantakos (1993 p. 358); Gujarati (1995 p. 778)).

The results show that the size of non-respondent state enterprises ($\Delta \bar{x}$=5,517, *df*=76, *p*>.05) and private firms ($\Delta \bar{x}$=36, *df*= 77, *p*>.05) was not significantly different from the mean size of participating state and private companies respectively.

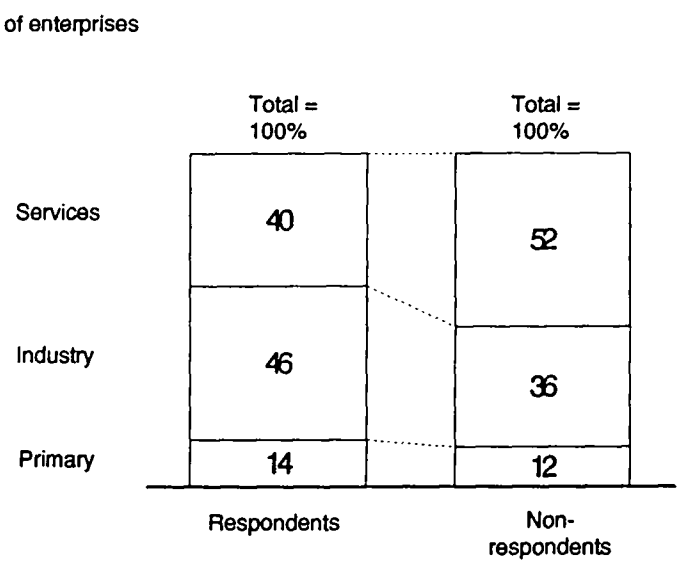
Location: Overall, there were 19 non-respondent companies in Shanghai and 14 non-respondents in Beijing. Given that there are no great differences, there does not seem to be a bias in terms of geographic location either. The slightly higher response rate in Shanghai might reflect the more "commercial" orientation of Shanghainese companies, which sometimes do not perceive research to be valuable for them.

Ownership mode: There were 15 non-respondent state enterprises and 18 non-respondent private firms. Once again, there is no great difference between the two subgroups. We therefore conclude that there is no non-response bias in terms of ownership mode.

Industry: An industry comparison of all non-respondent with respondent companies showed that both groups were relatively similar. The only slight difference was the fact that there were somewhat more service companies in the non-respondent group. However, an analysis of the individual businesses within the broad industry categories reported in Appendix L did not reveal any systematic response bias. For each non-respondent company, there was at least one company from the same business which agreed to participate. This showed that no business type was excluded for systematic reasons.

Figure 5-1

Comparison between respondent and non-respondent industry structure



Source: China study

Reason for refusal: The reasons for not participating did not suggest any particular bias either. Many CEOs simply were not interested in the research or had "no time", a fact which appears to be similar for many non-response companies in the West.

In conclusion, it should be mentioned as a caveat that while no systematic differences between sample members and non-respondents could be detected with respect to the five variables tested, it can never, with absolute certainty, be stated that there are no internal differences of any importance at all.

5.2.2. Informant characteristics

Important informant characteristics are reported in the following tables and figures:

Experience: Table 5-2 presents the average age, time with the company and time in current position for all interviewees. All figures are rounded to the nearest decimal point.

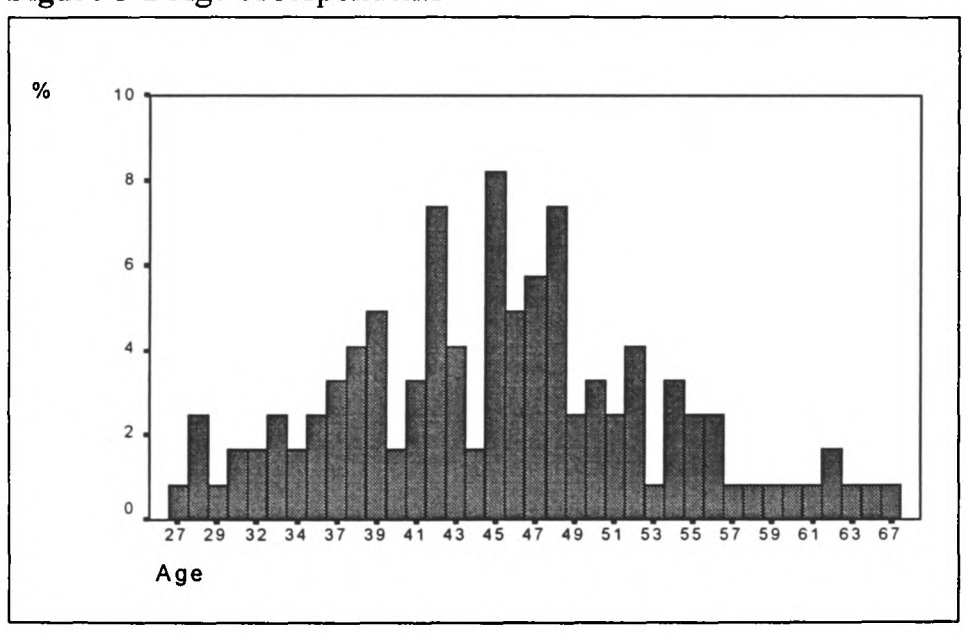
Table 5-2 Descriptive statistics for selected informant characteristics

Characteristic	$\bar{x}$	s	Valid cases
Age (years)	45	8	122
Time with company (months)	124	131	123
Time in current position (months)	54	44	123

Where: $\bar{x}$ = Mean; s = Standard deviation

In addition, as illustrated in Figure 5-2, informant age ranges from 27 to 67 years:

Figure 5-2 Age of respondents



Further, Table 5-3 shows that most key informants are CEOs of their respective companies. Finally, the greater part of the respondents has some international (Western) experience.

Table 5-3 Frequency distributions for selected informant characteristics

	Frequency	Valid percent
Position		
CEO	105	85%
Most senior vice president	19	15%
International experience		
Having been to "West"	79	64%
Not having been to "West"	45	36%

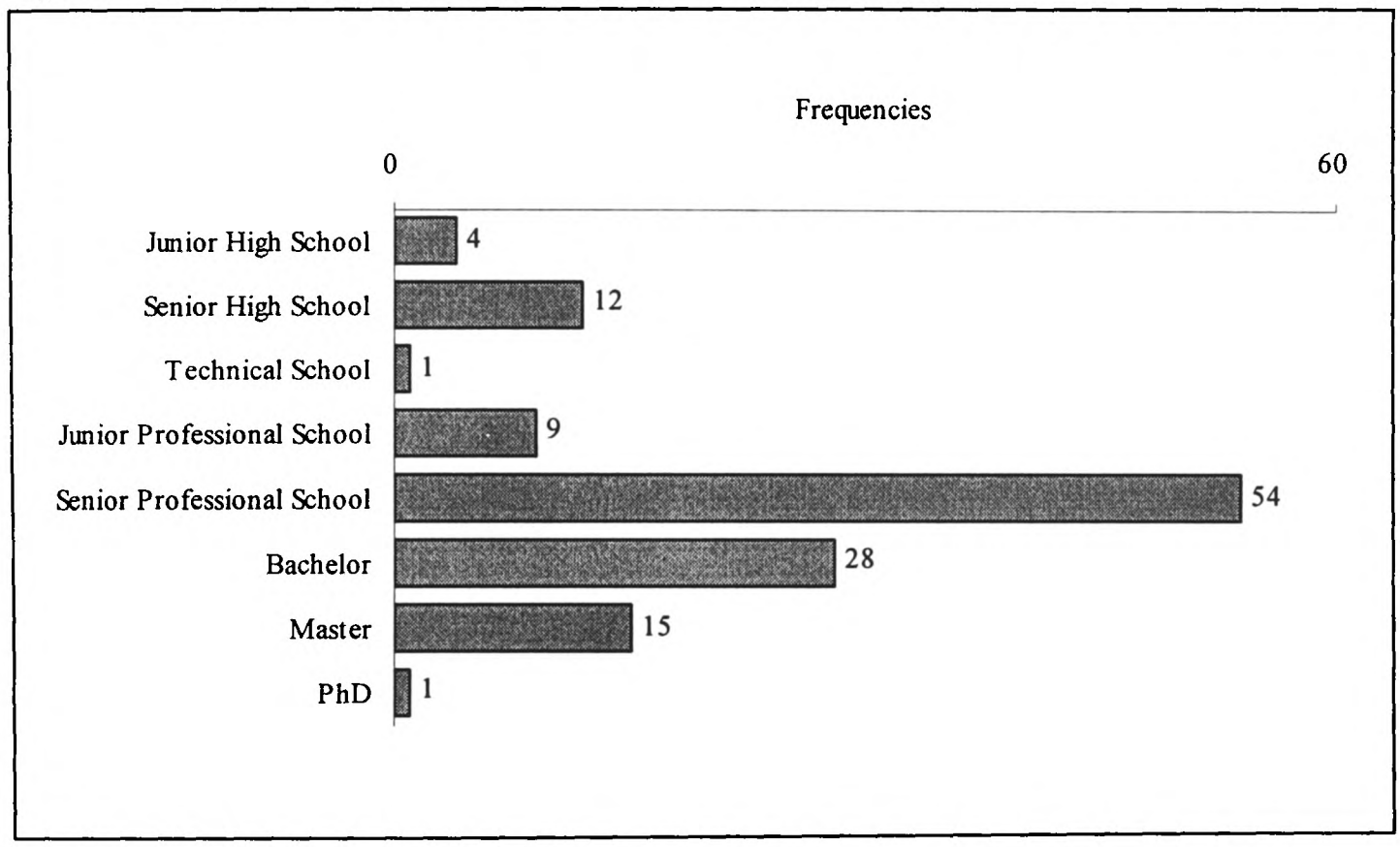
Gender: Informants are predominantly male, which accurately reflects the reality of corporate business in China.

Table 5-4 Frequency distribution for informant gender

	Frequency	Valid percent
Sex		
Male	108	87%
Female	16	13%

Education: Figure 5-3 presents a histogram of informant educational level. Most interviewees have either degrees from technical schools, comparable to polytechnics, or hold bachelor degrees from universities.

Figure 5-3 Frequency distribution for informant education (N=124)



5.2.3. Company characteristics

The following tables and figures describe the structure of the overall sample in terms of company characteristics.

Size: Descriptive statistics relating to company size are displayed in Table 5-5 below:

Table 5-5 Size of sampled companies

	Sales ('000 ¥)	Employees
Mean	168,000	5,637
Median	15,000	100
Standard deviation	559,000	50,322
Minimum	50	5
Maximum	5,000,050	560,000*
Total valid	117	124

*Industrial and Commercial Bank of China

The frequency distribution of sales can be seen in Table 5-6 on the next page. It should be noted that, as will be shown later, the private companies are on average smaller than the state-owned enterprises.

Table 5-6 Frequency distribution of sales

Sales (million ¥)	Frequency	Valid %	Cum
0-5	41	35.0%	35.0%
5-15	19	16.3%	51.3%
15-50	18	15.4%	66.7%
50-100	15	12.8%	79.5%
>100	24	20.5%	100.0%
Total valid	117		

Age: Company age varied from 1 to 100 years with a mean value of 21 years and standard deviation of 26 years (121 valid cases).

Industry composition: A wide variety of industries and services was represented in the sample. These included, amongst others, cotton mills, electronics, publishing, home appliances, pharmaceuticals, timber, food and beverages, industrial equipment, handicrafts, chemicals, financial services, construction, real estate, retailing and trading. About 46% of the firms were in the secondary (industry) sector. No single business segment accounted for more than 5% of the total sample. The industry mix of this sample is reported in Table 5-7 below:

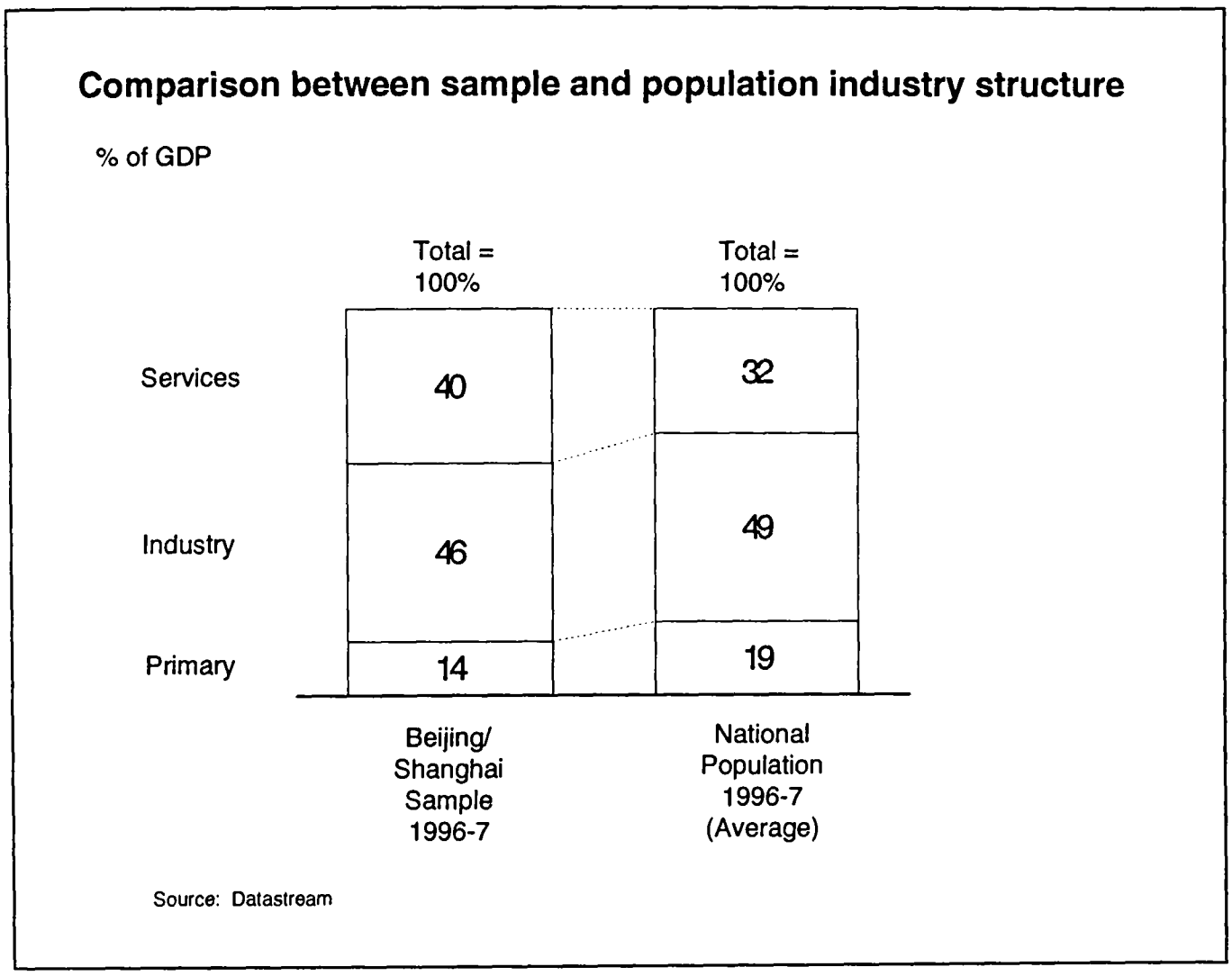
Table 5-7 Type of industries in sample

Type of industry/service	Frequency	Valid Percent
Basic Materials	17	13.7
Consumer Goods	21	21.8
Miscellaneous Assembly & Manufacturing	30	24.2
Diversified Financial Services	11	8.9
Media & Entertainment	14	11.3
Miscellaneous services	25	20.2
Total	124	100.0

To further assess the representativeness of the sample, it was important to get a rough idea of the correspondence between sampled companies and the underlying population. Therefore, the proportion of industrial sectors represented in the sample were compared to the national average (% of GDP). The findings, which are illustrated on the next page, show that overall the sample roughly mirrors the underlying population. The only small exception seems to be the fact that the service sector is slightly overweighed. This might be explained by the fact that the sample structure, which contains data for two cities, is compared to the *national* population. We would expect that the city GDP structure for some of the most advanced cities does somewhat differ from the national average and show a higher proportion of more advanced service sector companies. Unfortunately, there was no data available relating to the city composition of GDP which might have further clarified this issue.

In more general terms, the positive aspect of the relatively equal distribution of respondents in industry and service avoids the over-sampling of manufacturing firms in most former Aston studies. It has to be mentioned as a caveat that although the sample is to a relative high degree representative for the two locations, it cannot be claimed that it exactly mirrors the company population of the whole of China, since budget constraints limited the study to Beijing and Shanghai, and did not include the rural economy either.

Figure 5-4



5.3. Scale development and validation

5.3.1. Development of new scales

Given that two new scales, i.e. "emphasis on selected characteristics of traditional Chinese culture" and "subcontracting", were particularly constructed for this study, it is important to discuss in some more detail the stages of scale development (cf. Churchill (1979)). Validation of the scales was particularly important both to ensure its usefulness in the present context and also for future use in subsequent studies. Details on scale validation for the Corporate Culture scale, which proved to be an unacceptable measure, are given in Appendix N.

5.3.1.1. Emphasis on traditional Chinese culture

5.3.1.1.1. Item generation

Chinese culture is a very abstract term and there is some controversy as to whether it can be "measured" at all (Tayeb 1994 p. 443), especially with a single scale and relatively few items. The scale therefore does not reflect the desire to cover all aspects of Chinese culture, but rather attempts to measure the emphasis on a very limited number of characteristics of Chinese culture, which is conceptualized as a multidimensional construct. In addition, the scale represents only a first exploratory attempt and subsequent studies have to replicate the findings. In particular, its distinctiveness in capturing elements of Chinese culture will only finally be proven, when it has been used in cross-cultural research which shows that other countries consistently yield low scores on the characteristics of Chinese culture dimensions.

To generate useful items, especially for such a difficult concept as culture, sound theoretical backing is very important to guide the researcher in the myriad of potential options related to selecting and describing characteristics of Chinese culture. In the fashion of deductive scale development (Schwab 1980; Hinkin 1995 p. 969), in the literature review we synthesized mainly four characteristics as being particular representative and unique for Chinese culture. In the theory development section, we showed why these aspects are hypothesized to be important in explaining part of the variation in structure and management in China. The analysis of the previously cited works on anthropology and culture, Chinese history and management, as well as some Chinese classics, especially the work of Confucius, was the basis for generating a first list of items covering particular, traditional Chinese values (Alston 1989; Baker 1979; Chan 1996; Chao 1979; Freedman 1979; Fukuyama 1995; Hall and Xu 1990; Hofstede and Bond 1988; Lee 1953; Lockett 1988; Nathan 1993; Redding and Ng 1982; Watson 1982; Wolf 1968; Wong 1988; Tung 1994; Rarick 1996). Based on theoretical considerations, the items thus seemed to have relatively high face validity. Two items were included which were considered uncharacteristic of Chinese values, i.e. "using strategies from Western textbooks to succeed" (8.1.g) and "solving problems in teams, not alone" (8.1.h). Writers on Chinese culture have time and again emphasized that the Chinese, generally speaking, are not good team players (Hamilton and Biggart Woolsey 1988). These "uncharacteristic items" were intended to be used as contrasts or "controls" and were expected to constitute different factors.

5.3.1.1.2. Item testing

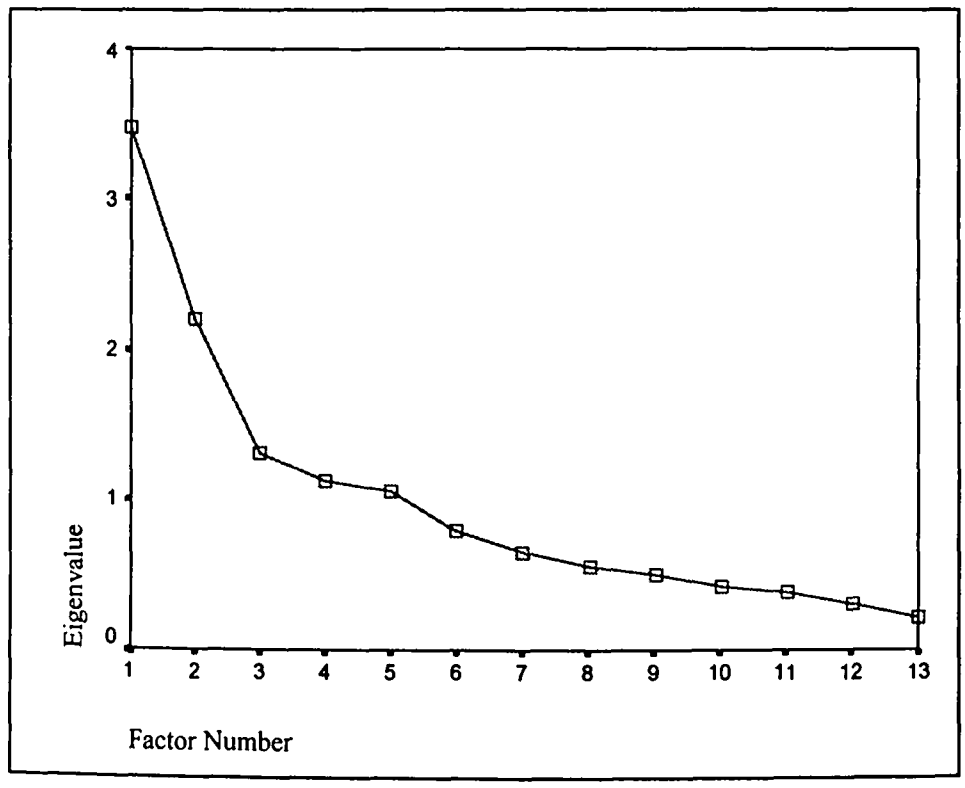
The preliminary list of items was presented to two judges in Beijing for a review. The judges included the vice-president of Huajia Group, who had studied traditional Chinese philosophy, as well as the vice-president of China Radio, who has had a Western training in research methodology at Stanford University. They suggested to expand items on "trust", and thus three more items were added (8.2 a-c). Overall, the judges endorsed the item list and thought that important characteristics of Chinese values had been captured. Thus, while bearing in mind the above mentioned caveats related to the conceptualization of "culture", we can conclude that the items had relatively high content validity. The expanded scale was then administered to a sample of ten pilot respondents (*see* section on pilot testing). The objective was to test whether the item wording was appropriate and easy to understand, as well as to assess whether the choice of scale, i.e. 7-point Likert, was effective. Minor changes to the wording of certain items were made as a result.

5.3.1.1.3. Scale construction and validation

Following the recommendations of Gerbing and Anderson (1988), in the first step of scale validation the dimensionality of the measure was tested. Factor analysis is the most commonly used analytic technique for data reduction in scale construction (Ford, MacCallum and Tait 1986). In this context, Marsh (1983) pointed out that scale scores are based on an a priori factor structure, and he proposed the use of exploratory factor analyses to test this structure. All items under the heading of "Chinese values" in section 8.1 of the questionnaire (*see* Appendix G) were subjected to an exploratory factor analysis using the Maximum Likelihood (ML) method with subsequent Varimax rotation. The number of factors was determined by the criterion that Eigenvalues should be greater than one, as well as visual inspection for leveling of the scree test. The statistical choices made are explained in more detail in Appendix M.

The scree plot is shown in Figure 5-5 below:

Figure 5-5 Scree test for "emphasis on characteristics of Chinese culture" scale



As regards the issue of missing values, due to the use of personal interviews, overall there were only four items with one missing value each. They included "strategies from Western textbooks" (8.1.1.g), "using common sense" (8.1.1.i), "trust in people" (8.1.1.k) and "trust friends" (8.1.2c). Therefore, the choice of dealing with missing values could not really influence the results. As a consequence, in this case, missing values were replaced by means. Using a conservative criterion which seemed to be important given the exploratory nature of this analysis, only factor loadings higher than .7 were judged to be acceptable and are displayed together with their item wordings in Table 5-8. Overall five factors were extracted. The resulting factors were described using their strongest loadings. As expected, "emphasis on selected characteristics of Chinese culture" is a multidimensional construct. Three distinctive dimensions were labeled (a) respect, loading high on respect for seniority and loyalty to the family, (b) collectiveness, and (c) importance of personal relationships ("guanxi"). Together they explain more than 53% of the variance in all the items. As discussed in the literature review, these three dimensions appear to be distinctive characteristics repeatedly mentioned in theoretical discussion of Chinese culture (Baker 1979; Chao 1979; Alston 1989; Lockett 1988). "Face" did not materialize as an independent factor. The "control" factors or contrasts, i.e. "Western strategies" and "teamwork" indeed formed separate dimensions, giving some support for the notion of distinctive cultural traits and discriminant validity. However, it seems to be important to test this distinctiveness in another study, preferably in a cross-cultural context.

It should be mentioned that some criticism has been levied against data-driven exploratory factor analysis in which investigators empirically label factors. Labeling in itself often seems to involve judgment. But in our case, the "labeling" process was guided by substantive theory which had hypothesized a multi-dimensional culture construct, approximately along the lines of the extracted dimensions.

Table 5-8 Varimax rotated factor loadings for "emphasis on characteristics of Chinese culture"*

Loading†	Scale item	Commu-nality	EV	Var %	Cum %
Factor 1:	**Respect**	n/a	3.5	27%	27%
.91	"Having respect for seniority"	.84			
.82	"Loyalty to one's family"	.73			
Factor 2:	**Collective orientation**	n/a	2.2	17%	44%
.73	"Collective orientation, i.e. belonging to a group, such as a family, company, organizations"	.61			
Factor 3:	Western strategies	n/a	1.3	10%	54%
.71	"Using strategies from Western management textbooks to succeed"	.62			
Factor 4:	**Relations**	n/a	1.1	9%	62%
.96	"Personal relations ('guanxi')"	.99			
Factor 5:	Teamwork	n/a	1.1	8%	70%
.75	"Solving problems in teams, not alone"	.60			

*Maximum Likelihood with Kaiser Normalization
†Rounding for decimal places greater than five; factors in bold have been retained for further analysis
Where:
EV = Eigenvalue; Cum %= Cummulative percent; Var % = Percent of variance explained

It was hypothesized that the three China specific factors, i.e. emphasis on respect, collective orientation and relationships, are unidimensional themselves, but constitute subdimension loading on an underlying construct which might be called "emphasis on selected characteristics of Chinese culture", with the importance of family being one overarching theme. To test this hypothesis, when there were more than one item, the individual items for each dimensions were summed up and the three resulting scores used as indicators of the underlying construct in the full structural equation model testing the contingency theory relationships. The findings relating to their reliability and validity will be described in the context of the later models in a subsequent chapter. A tentative assessment of reliability and internal consistency using a Cronbach Alpha on all items of the three dimensions together showed a value of .65 which exceeds the suggested .5-.6 cut-off point acceptable for basic, exploratory research (Nunnally 1967).[1] It should be emphasized, however, that this reliability coefficient is only meaningful when the unidimensionality of the second-order construct has been established in the structural equation model.

5.3.1.2. Subcontracting

5.3.1.2.1. Item generation

The subcontracting scale was intended to measure the extent to which certain core functions of the company are contracted to the market instead of performed in-house. Item generation was straightforward. Based on a review of the literature, especially the work of the Aston researchers (cf. Inkson, Pugh and Hickson (1970)), who identified key activities for their specialization scale, some key functions of the company were identified. The resulting list appeared to have face validity.

5.3.1.2.2. Item testing

The initial item list was then presented to the above mentioned judges. The most important question was whether all the important functions normally performed by a Chinese company were captured by a list which had been grounded on Western literature. Accordingly, the judges suggested to add one crucial item for China, i.e. "workers' welfare". The resulting list was judged to cover the most important functions and thus had relatively high content validity. The extended list was included in the pilot study and some adjustments to the wordings of different items were made as a result of the pilot.

5.3.1.2.3. Scale validation

All items for the subcontracting scale from section 18.4a)-k) of the questionnaire (*see* Appendix G) were used as input for an exploratory factor analysis (Gerbing and Hamilton 1996). Due to the strong hypothesis that there was one general factor loading high on all items, the principal component method was used as a method of data reduction. It concentrates item loadings on the first few factors. To further justify this choice, the merits and demerits of this form of analysis are discussed in Appendix M.

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[1] Nunally's recommendations are the most widely referenced (Peterson 1994 p. 381) and are therefore followed here.

The results of the component analysis are shown in Figure 5-6 below:

Figure 5-6 Component matrix for subcontracting scale*

	Component			
	1	2	3	4
Production	**.34**	.75		
Assembly	**.37**	.67	.36	
Logistics/transport	**.34**	.48	-.61	.37
R & D	**.47**		.40	-.37
Marketing/sales	**.59**		-.46	
Worker welfare	**.70**		-.36	
Human resources	**.80**			-.34
Security	**.74**			-.36
Accounting	**.69**	-.41		.33
Information processing	**.57**	-.31		.42
Administration	**.76**	-.31		.32

*Factor loadings greater than .30 are shown; factor in bold is general factor

The findings show that one general factor could be identified with consistently unidirectional loadings of various magnitudes on all items. Since the items were used as part of the domain sampling method (Ley 1972) which attempts to use a multitude of measures for a given scale, a lower cut-off point of .30 was deemed acceptable for including items in the resulting scale (cf. Snell and Dean (1992 p. 480)). It should be remembered that as a rule of thumb when interpreting canonical loadings, variables with loadings of .30 and above are considered interpretable (Thompson 1984). This step seems also justified on theoretical grounds, since the items chosen represent a "census" of all functions which are contracted out in China and there was no theoretical reason for eliminating certain activities.

The items were then subjected to a reliability analysis which allows the researcher to study the properties of measurement scales and the items that make them up. More specifically, we used Cronbach Alpha to get an overall index of the repeatability or internal consistency of the scale as a whole. The standardized Coefficient Alpha was a high .81 showing very good reliability. In addition, there were consistently high item-total correlations for all items. Further, to identify potential problem items that should be excluded from the scale, "Alpha-if-deleted" analysis was performed. It showed that deleting any item in the scale would actually decrease Alpha, which showed the importance of including all the items as concluded on the basis of the factor analysis. Finally, the scale was also overall very robust. Deleting any single item would decrease the overall scale mean by only less than 2%.

5.3.2. Validation of standard scales

Scale validation for the standardized scales which had been used before in other studies proceeded in two steps: In the exploratory stage, the reliability for each scale was calculated. Researchers pointed to the usefulness of this "traditional" form of preliminary screening of items (Steenkamp and Van Trijp 1991 p. 296). Given that the scales were well validated in previous research projects, it was not necessary to subject them to the same exploratory procedures as the new scales. This approach follows the standard procedures used in other studies. In the second, confirmatory stage, the validity and reliability of the individual scales were tested by examining the respective measurement models specified in the structural equation analysis. The results will be reported in later chapters within the context of the respective models.

Cronbach Alpha reliability coefficients for each aggregated scale are outlined in Table 5-9 below:

Table 5-9 Reliability measures for scales

Scale	Name	Alpha (standardized)
Uncertainty	UNCERT	.84
Achievement Need	NACH	.56
Log Size	LNSIZE	n/a*
Constraints	CONSTR	.85
Respect	RESPECT	n/a*
Collective orientation	COLLECT	n/a*
Importance of relations	GUANXI	n/a*
Government support	REGULAT	.83
Specialization	SPEC	.90
Formalization	FORMAL	.85
Control	CONTROL	.80
Centralization	CENT	.86
Liaison - Structural	LIASTRUC	.86
Liaison - Processual	LIASDMG	.69
Proactive strategy	PROSTR	n/a*
Participative leadership	PARTLEA	n/a*
Planning decisionmaking	PLANDM	n/a*
Vertical communication	VERTCOM	n/a*
Subcontracting	SUBCONTR	.81
Subjective Index of perormance	SUBEFF	.82
Objective index of performance	OBEFF	n/a*

* Single item measure or number of items too small for reliability analysis

As mentioned above, Coefficient Alpha is a model of internal consistency, based on the average inter-item correlation. All coefficients displayed relative high internal consistency. Except for CEO Need for Achievement and Process Liaison, all scales had Cronbach Alphas higher than the recommended .7 in applied research (Nunnally 1978). No items were deleted to ensure the comparability in international comparisons.

Due to the relatively high reliability coefficients, the scales which were not hypothesized to converge on second-order factor were randomly split in half and both halves were then used as indicators in the structural equation models (Bagozzi and Heatherton 1994 p. p. 41). The use of multiple indicators is routinely recommended to facilitate a confirmatory assessment of the psychometric properties of observed variables in the context of the measurement model in structural equations.

Due to its importance for this study, some more detail will be presented on the scoring and validation of the organizational effectiveness scale. Organizational effectiveness is a very broad concept and researchers have been disagreeing on how to define and best measure it (Steers 1975; Van de Ven and Ferry 1980; Miles 1980; Cameron and Whetten 1981 p. 541; Quinn and Cameron 1981; Cameron and Whetten 1983a p. 19; Cameron and Whetten 1983b p. 262; Zammuto 1984; Lewin and Minton 1986 p. 528). To address this problem, we will first suggest a brief conceptualization of effectiveness and then discuss the appropriate measure to capture the elements of this theory.

For the purpose of this study, organizational effectiveness was conceptualized as a multi-dimensional construct (Judge 1994 p. 8), including both inter- and intra-industry performance defined in terms of financial results, employee satisfaction and public image. It was measured using two methods which were thought to capture the multi-facet nature of the construct relatively well. As part of the first method, called "Index of Subjective Performance", respondents were asked to compare their company on five dimensions of effectiveness, including long-run profitability, revenue growth, employee morale, financial strength and public image. The items can be found in questionnaire section 11.1-5 (*see* Appendix G). The interesting feature of this scale is that it is multi-faceted and compares the firm to other competitors, holding industry constant. This index had a strong reliability coefficients of .84 in a previous Canadian study, indicating the strong reproducibility of this multi-item scale (Khandwalla 1977 p. 662). In this study, an equally high Coefficient Alpha of .82 mirrored the findings on its overall high reliability. Further, there was a fair correlation of $r = .59$ (Khandwalla 1977 p. 662) between responses of two senior executives, who completed the questionnaire independently. This demonstrates that the scale measured performance relatively objectively and had high inter-judge reliability. To the extent that senior executives are experts on their firms, the degree of agreement on the information they provide is perhaps one measure also of the validity of the variables (Khandwalla 1977 p. 658). That means that in the absence of ambiguities in the way items were phrased, agreement between two experts seems to demonstrate that the scale actually measures what it purports to measure. Apart from this, in several cases, the findings in the Canadian study were consistent with previously established findings of researchers who employed different data-gathering procedures and had done research on different samples of organizations, which also demonstrated construct validity (Khandwalla 1977 p. 658). Besides, a high degree of predictive validity was also confirmed, i.e. the relationships between variables and organizational effectiveness were similar to what one would normally predict them to be (Khandwalla 1977 p. 658). Finally, the subjective index of performance has been used in China before and was found to be a reliable and valid instrument (Tan and Litschert 1994).

The second method used an "objective" approach, called "Index of Objective Performance", which measured three components, i.e. the firm's profitability, the stability of its profitability, and the growth rate of its revenues. The individual items can be found in questionnaire section 11, subsections 6.-7 (*see* Appendix G). The three components were derived as follows: The highest and the lowest rates of return on net worth (before taxes) during the preceding five years reported by the informant were averaged to determine the *average profitability* of the firm. The difference between the two rates was taken to be a measure of the *instability* (riskiness) of its profits. The questionnaire also asked for the average annual rate of *growth of revenues* of the firm during the preceding five years. In our case, all three indicators were in very good agreement with published information, such as information provided in annual reports, where the later was available. It is important to explain the scoring mechanism in detail (Khandwalla 1977 pp. 657-658), so that the nature of the scale is readily understood. In the first step, each of the three distributions were trichotomized. It was assumed that their underlying distribution was normal. The firms in the top third of the scores for instability of profits received a value of 1, those in the middle third a value of 2, and those with the least instability a value of 3. This scoring mechanism was based on the assumption that, ceteris paribus, the stock market generally values companies higher which have more stable profits (Khandwalla 1977). As regards profitability, firms in the top third of the distribution of profitability received a score of 3 each; those in the middle third a value of 2, and those in lowest third a score of 1. The same procedure was followed for growth rates. Finally, the firm's three scores on profitability, stability, and growth rates were aggregated to secure an objective index of corporate performance, ranging from a score of 3 (very low performance) to a score of 9 (very high performance).

The resulting scale showed very strong correlations between responses of two executives in the Canadian study (Khandwalla 1977 p. 663). This and the fact that information provided by the informants were in agreement with published information where the later was available, provides evidence for its reliability and construct validity.

The Canadian study showed that the scales on objective and subjective performance were significantly correlated (r=.33, two-tailed p<.01). In our case the subjective and objective correlation coefficient was r=.32 which was also significant at the .01 level (two-tailed). This correlation provides some more support for the reliability and construct validity of the scale. The absolute amount of the correlation corresponds approximately to what would be expected. We would anticipate significant correlation, because both scales measure performance, but we would not expect perfect correlation, since one scale measures intra-industry performance and another one absolute performance.

5.4. Data screening prior to model estimation and testing

In their review of structural equation modeling practices, Baumgartner *et al.* (Baumgartner and Homburg 1996 p. 147) stressed the importance of exploratory data screening before model estimation and testing. They criticized that one of the most common mistakes is to pay too little attention to raw data and directly rush into modeling. The correlation matrix might cover up the multitude of issues that may make the applicability of the given statistical method doubtful. Baumgartner *et al.* (p. 148) therefore suggested several guidelines for data screening. More specifically, we will here focus on a brief analysis of coding errors and missing values. Results from the analysis of normality and outliers will be presented in the context of the individual research models, starting in the next chapter.

Kaplan (1990) argues that it is important to screen data for coding errors, ensure recoding of variables where necessary and to make sure that missing values are treated appropriately.

Coding errors: After compilation of a codebook and naming of variables, SPSS for Windows, Release 7.5, was used to input the raw data and statistically analyze it. Using checks for outliers and visual inspection, no coding errors were detected.

Recoding: In the questionnaire, some reversed items were used as different "methods" and had to be treated. Specifically, the following variables were recoded as intended by their various authors: (a) Vertical communication (Khandwalla 1977), (b) the "short-term" and "riskiness" items of Venkatraman's strategy scale (Venkatraman 1989) and (c) four items out of the five need for achievement items (Steers and Braunstein 1976).

Missing values: Due to the personal interview technique chosen and the openness of the respondents, there were very few missing values. In general, there were no more than three missing cases per variable, the only exception being some financial figures on the objective performance scale. Therefore, the missing values were either replaced by means when the variable served as raw data for Amos, or pairwise deletion was used for other transformations.

5.5. Limitations

Some limitations of the above described analytical process should be mentioned:

First, the identification of factors in factor analysis is to a considerable extent arbitrary in that completely different results may be produced by analyzing the covariance matrix rather than the correlation matrix. This suggests that it could be misleading to try to attach too much meaning to components in many situations, and perhaps a more important objective with this type of analysis is to reduce the dimensionality of the data as a prelude to further investigation. With this objective, the problems associated with trying to interpret the components en route becomes less important. In this context, it should be mentioned that factor rotation is often regarded as controversial since it apparently allows the investigator to impose on the data whatever type of solution is required. But this is clearly not the case since, although the axes may be rotated about their origin, or may be allowed to become oblique, the *distribution* of the points will remain invariant. Rotation is simply a procedure which allows new axes to be chosen so that the positions of the points can be described as simply as possible.

Second, "cut-off" points in factors analysis are to some extent arbitrary and should be interpreted within the overall theoretical framework used.

Third, as mentioned above the "emphasis on selected characteristics of Chinese culture" items should be further tested in a cross-cultural context to demonstrate their discriminant validity.

Summary of Chapter 5

In this chapter, we first outlined the specific analytical techniques used in this study. In particular, the advantages and criticism of structural equation modeling were highlighted. Moreover, scale development for "emphasis on Chinese culture" and "subcontracting" was outlined and the results of the scale testing procedures reported. The four hypothesized dimensions of corporate culture did not materialize. As a consequence corporate culture was dropped from the quantitative analysis. The other new scales, as well as all standardized measures showed acceptable levels of reliability. Moreover, preliminary data screening was discussed. Finally, limitations included some general precautions on the use of factor analysis, as well as the need for further cross-cultural validation of the "emphasis on selected characteristics of Chinese culture" scale. In the next chapter, we will start to present the research findings relating to the characteristics of structure and management in China.

Part III: General Research Findings

6. Distinctive characteristics of Chinese management

The objective of the following three chapters, apart from testing the more general hypotheses related to the "fit" notion in contingency theory, is to answer the following main empirical question:

Problem statement: "Is there a contextually determined distinctive Chinese management model in mainland private companies, which is positively associated with organizational effectiveness?"

Before presenting the research findings, it seems to be important to explain the focus of the three findings chapters. These chapters mainly concentrate on reporting the important evidence and facts related to the research hypotheses. A broader discussion of the findings in the light of the existing research literature will be presented in chapter 9, entitled "Conclusions and recommendations".

6.1. Overview

The general objective of this chapter is to test hypotheses related to the distinctive nature of organizational structure and management practices in Chinese private companies by comparing structural and managerial profiles of private firms with state-owned enterprises. The next chapters will then proceed to explain variations in organizational properties using organizational dynamics models. These models introduce contextual factors in the company's task environment which intend to clarify why different forms of structure and management were adopted. More specifically, we believe that the distinctive private Chinese management model is, ceteris paribus, due to the emphasis private firms place on family-based traditional Chinese values, which have a direct impact on structural and managerial choices, as well as an indirect influence on their small company size which in turn impacts on organizational properties. The specific objective of this chapter is to answer the first research question and test the first hypothesis:

Research question 1: Is there a distinctive Chinese management model used in private companies in mainland China?

Hypothesis 1: There is a distinctive model of Chinese management readopted in P.R.C. private companies whose structural and managerial design choices significantly differ from state-owned enterprises and which resembles the style practiced in overseas Chinese businesses.

This chapter reports research findings in three major sections. In order to determine whether there is a distinctive management model found in private companies, the structure and management of state-owned enterprises will be compared to their private counterparts (6.2). Afterwards, these findings will be enriched by selected examples from the three case illustrations (6.3).

The Appendix includes profile comparisons for different industries and geographical areas (Appendix O), as well as an international comparison of mean structural scores between the China sample and other countries (Appendix P). Given that size could not be held constant, the international comparison is highly exploratory in nature and does not allow for strong conclusions.

6.2. Structural and managerial profiles for private and state enterprises

6.2.1. Comparison of structural profiles for private and state enterprises

The objective of this section is to test the following hypothesis. The detailed sub-hypothesis relating to structure and management will be re-stated below:

Hypothesis 1.1 The structural choices of private Chines companies are significantly different from SOEs.

In order to test this hypothesis, mean scores on the various structural scales were compared between private and state-owned enterprises (*see* questionnaire section 2.7 in Appendix G). For all profile comparisons between structural and managerial properties, scales were standardized to 100 percent to allow for subgroup comparisons. For example, a company which obtained a maximum score for formalization, would have scored a value of 100 percent on this scale.[1] As regards the graphical display, value ranges on most scales have been limited to a minimum of 40 and a maximum of 80 (or other ranges for subsequent graphs) to graphically highlight the differences and avoid unnecessary empty space.

To test whether the observed differences were statistically significant and unlikely to have appeared by chance, mean difference tests were computed using the *t*-statistic. This *t*-statistics tests the null hypothesis of no mean differences of population parameters. Significant *t* values ($p<.05$) imply rejection of H_0. Levene's test for equality of variances was performed to decide whether to use the equal or unequal variance formula for the subsequent *t*-test. A significant *F* statistic would indicate rejection of the null hypothesis relating to the equality of variances. Both formulae are included in Appendix D. Moreover, 95% confidence intervals (CI) were constructed. If zero were included in these intervals and H_0 were true, the mean differences could have arisen by chance with a probability equal to the chosen confidence level.

[1] This procedure was preferred to calculating *z*-scores, which indicate the *relative* position of each value within its distribution, but do not show the absolute degree of the respective organizational property.

The results of this analysis are shown in Table 6-1 below:

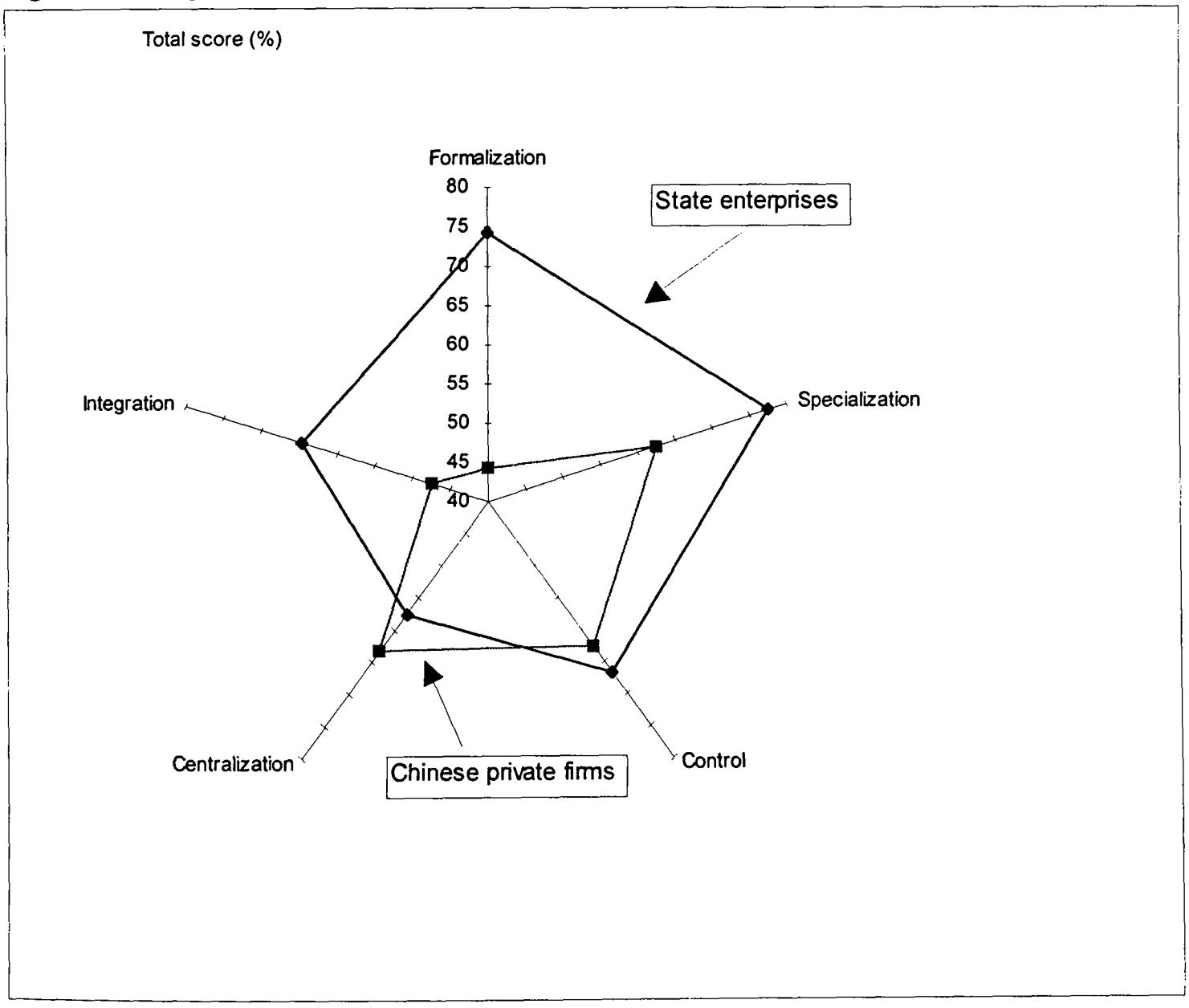
Table 6-1 Mean difference tests for structural variables between private and state-owned companies

Aspect	Hypothesis	Findings from mean comparison							
	Private enterprise	$\bar{x}$ Private (%)	$\bar{x}$ State (%)	$\Delta\bar{x}$	*t*-value	df	Lower CI	Upper CI	Result
Formalization	Lower	44.2	74.2	-30.0*	-6.4•••	81	-39.4	-20.7	√
Specialization	Lower	62.5	77.7	-15.2	-2.8••	99	-25.8	-4.5	√
Control	Lower	62.6	66.7	-4.1*	-1.3	96	-10.4	2.1	√?
Integration	Lower	47.5	64.7	-17.2	-5.1•••	99	-23.8	-10.5	√
Centralization	Higher	63.2	57.6	5.6	2.2•	99	0.5	10.7	√

•$p < .05$; ••$p < .01$; •••$p < .001$ (two tailed).
* Levene's test significant, therefore inequal variance *t*-test used
Where: $\bar{x}$ = Mean; $\Delta\bar{x}$ = Mean difference; CI = 95% Confidence interval; √ = Hypothesis supported; "?" = Indicates that although differences are as hypothesized, they are not statistically significant.

The different profiles for private Chinese and state-owned enterprises are illustrated in Figure 6-1 below:

Figure 6-1 Comparison of structural profiles between state-owned and private enterprises



We had hypothesized two distinctive structural characteristics of Chinese private businesses, i.e. comparatively low degree of bureaucracy and relatively strong centralization. Except for "control", all other mean differences were statistically significant. Given that their differences were as hypothesized, this implies that at least four out of the five hypotheses are supported by the evidence. Thus, the particular structural choices of Chinese private businesses, described in the *Nanyang* literature (Redding and Wong 1986; Redding 1990; Mackie 1992; Leung 1995), have been re-adopted in Chinese private businesses:

Bureaucracy: The greatest difference was found with respect to the comparatively low formalization score of private enterprises ($\bar{x}$=44.2 percent, $\Delta\bar{x}$=-30.0, *df*=81, $p<.001$). This corresponds to the writings on overseas Chinese businesses in which it was emphasized that these firms often have relatively low formalization scores (Redding 1980; Redding and Wong 1986; Redding 1990; Hickson and Pugh 1995 p. 171). The findings also support the comparatively low degree of specialization ($\bar{x}$=62.5, $\Delta\bar{x}$=-15.2, *df*=99, $p<.01$) as a distinctive trait of Chinese enterprises (Hickson and Pugh 1995 p. 171). Given that written instructions are limited in number, there is no great need for staff departments that generate them. This might have led to a lower specialization score for private Chinese companies as compared to their state-owned counterparts. This overall lower degree of "structuring of activities" also is reflected in the fact that private companies use less integrative devices ($\bar{x}$=47.5, $\Delta\bar{x}$=-17.2, *df*=99, $p<.001$), such as liaison personnel, inter-departmental bargaining and committees. State-owned enterprises, on the other hand, seem to be more bureaucratic, which confirms findings from previous studies (Weihrich 1990; Krone, Garrett and Chen 1992). As regards the lower use of control devices in private enterprises ($\bar{x}$=62.6, $\Delta\bar{x}$=-4.1, *df*=96, $p>.05$), although the difference is as hypothesized, it is not statistically significant and might have been due to pure chance.

Centralization: In addition, as hypothesized, private Chinese companies are comparatively more centralized ($\bar{x}$=63.2, $\Delta\bar{x}$=5.6, *df*=99, $p<.05$) than their state-owned counterparts. This provides empirical evidence for much of the theoretical work on overseas Chinese businesses which highlighted the concentration of power in the hands of one autocratic entrepreneur (Redding and Wong 1986; Cohen 1990 p. 24; Montagu-Pollock 1991 p. 23; Kao 1993; Hickson and Pugh 1995 p. 171). Likewise, findings from other researchers (Sung and Chan 1987 p. 13; Child and Lu 1990 p. 334; Child 1994) who argued for the comparatively higher degree of decentralization in SOEs were also supported. Once again, it should be emphasized that we believe that these differences are due to the emphasis on family-related traditional values in Chinese private firms, which has a direct effect on structure as well as an indirect effect through influencing the choice of smaller company size, which in turn is also strongly related to structural characteristics.

6.2.2. Comparison of managerial profiles for private and state enterprises

In the next step, different management practices were compared between private firms and SOEs, in order to test the second part of the first research hypothesis:

Hypothesis 1.2 The managerial choices of private Chinese companies significantly differ from SOEs.

A comparison between the empirical findings with the research hypotheses is reported in Figure 6-2 below. The findings are graphically illustrated in Figure 6-2 on page 6-6:

Table 6-2 Managerial difference between private and state-owned enterprises

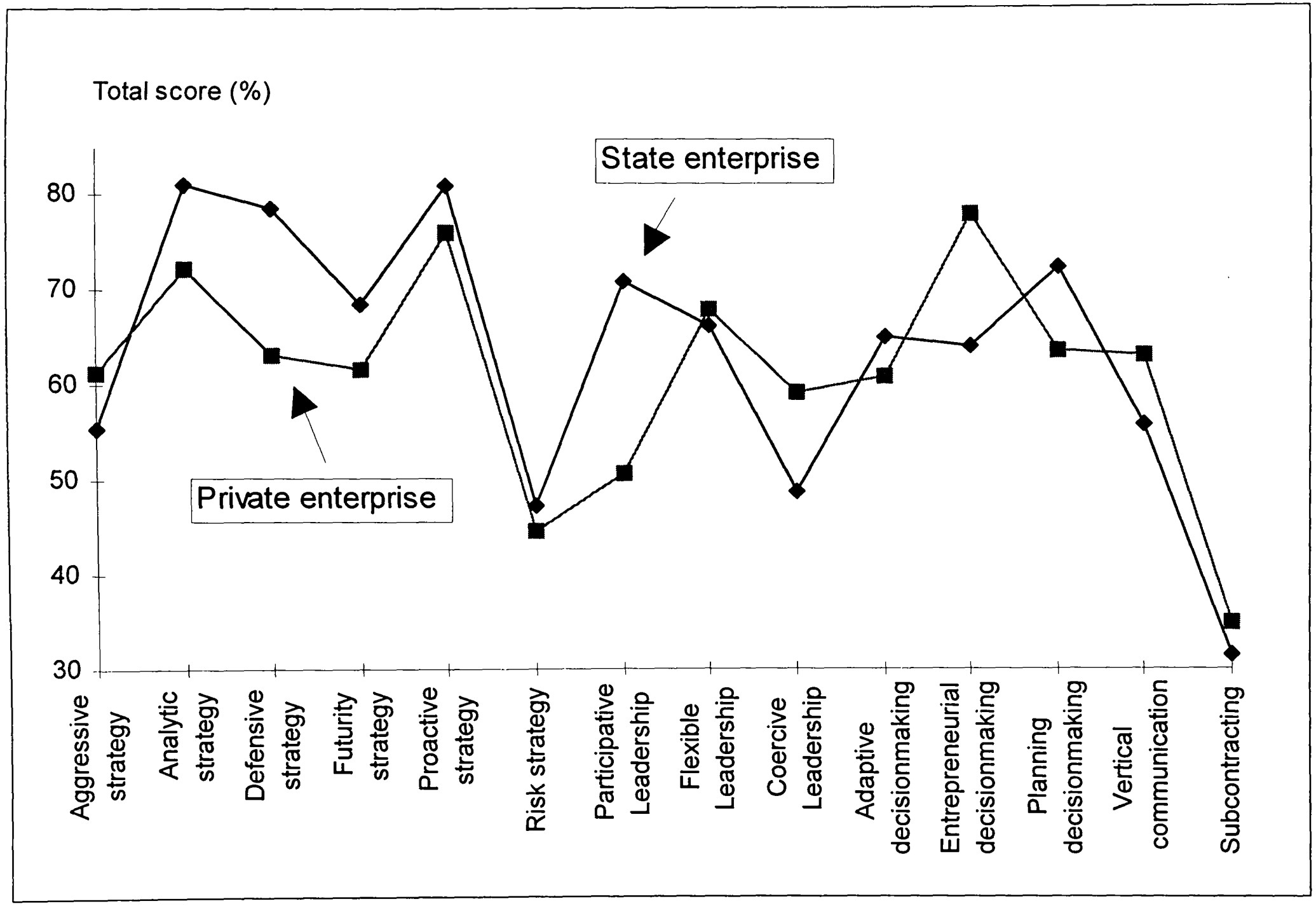
Aspect	**Hypothesis**	**Findings from mean comparison**					
	Private enterprise	$\bar{x}$ Private (%)	$\bar{x}$ State (%)	$\Delta\bar{x}$	*t*-value	*df*	Result
Aggressive strategy	Higher	61.2	55.4	5.8	1.3	99	√?
Analytic strategy	Lower	72.2	81.1	-8.9*	-2.1•	83	√
Defensive strategy	Lower	63.2	78.7	-15.5	-3.6•••	99	√
Futurity strategy	Higher	61.8	68.5	-6.7*	-2.4•	95	***X***
Proactive strategy	Higher	76.1	81.0	-4.9	-1.3	99	*X*
Risk strategy	Higher	44.7	47.5	-2.8	-1.0	99	*X*
Participative leadership	Lower	50.8	71.1	-20.3*	-4.0•••	89	√
Flexible leadership	Higher	68.2	66.5	1.7*	0.4	78	√?
Coercive leadership	Higher	59.3	48.8	10.5	2.7••	99	√
Vertical communication	Higher	63.2	55.8	7.4*	1.4	85	√?
Adaptive decisionmaking	Lower	61.1	65.1	-4.0	-0.7	99	√?
Entrepreneurial decisionmaking	Higher	78.1	64.3	13.8	13.8••	99	√
Planning decisionmaking	Lower	63.8	72.5	-8.7*	-1.7	87	√?
Subcontracting	Higher	34.8	31.3	3.5	1.2	99	√?

•$p < .05$; ••$p < .01$; •••$p < .001$ (two tailed).
* Levene's test significant, therefore inequal variance *t*-test used
Where:
$\bar{x}$ = Mean; $\Delta\bar{x}$ = Mean difference; CI = 95% Confidence interval; √ = Hypothesis supported; X = Hypothesis rejected (bold indicates significant differences); "?" = Indicates that although differences are as hypothesized, they are not statistically significant

We had hypothesized two distinctive managerial characteristics of Chinese private businesses, i.e. a comparatively high degree of "entrepreneurship" and the importance of inter-organizational, subcontracting-based networks.

Chinese Entrepreneurship: We had defined "Chinese Entrepreneurship" as consisting of three distinctive styles of strategies, leadership and decision making. We will discuss the findings related to these three areas in turn:

Figure 6-2 Comparison of managerial practices between private and state-owned enterprises



Strategic orientation: There is some evidence that private companies adopt less analytic ($\bar{x}$=72.2, $\Delta\bar{x}$=-8.9, *df*=83, p<.05) and defensive ($\bar{x}$=63.2, $\Delta\bar{x}$=-15.5, *df*=99, p<.001) strategies than their state-owned counterparts. This evidence combined with the fact that the "defensor" (Miles and Snow 1978) mean difference is the second largest amongst all managerial comparisons, supports Tan and Litschert's (1994 p. 15) findings that SOEs tend to adopt strategies oriented towards cost-cutting to survive. It also supports Weihrich's (1990) results stating that SOEs make comparatively strong use of analytical strategies. When confronted with a major decision they usually try to develop thorough analysis that is supported by information systems. Besides, as suggested in the literature (Mackie 1992; Fukuyama 1995 p. 80), the level of aggressiveness in terms of price cutting and sacrificing profitability to gain market share, is somewhat higher in the case of private enterprises, but, due to the fact that the mean difference test is not significant at conventional levels, this difference might as well be due to pure chance. Contrary to our hypothesis, compared to their state-owned counterparts, private enterprises showed significantly less "futurity" strategic orientation ($\bar{x}$=61.8, $\Delta\bar{x}$=-6.7, *df*=95, p<.05), in terms of resource allocations being made on the basis of long-term considerations and forecasting. This appears to contradict the proposition that, due to the fact that the CEO is also often owner of the company, private companies have a more long-term orientation (Montagu-Pollock 1991 p. 23). It also is contrary to previous findings which emphasized that managers of state enterprises, due to incentive misalignments and "the non-owner feeling" (Mun 1990), favor short-term benefits over long-term profitability (Tan and Litschert 1994 p. 14), a syndrome common among mature U.S. organizations as well (Schollhammer 1982). This finding suggests that aggressive strategic orientation is correlated with a more short-term focus. Quick gains might be obtained at the expense of long-term performance. This finding also leads to the logical conclusion that Venkatraman's (1989) approach of treating aggressiveness and futurity as distinctive strategic dimensions might not be very effective. With the benefit of hindsight, it is relatively difficult to imagine an aggressive strategy which is defined, amongst others, by sacrificing profitability to gain market share, being combined with a more long-term orientation. Apart from these findings, hypotheses related to two other strategic dimensions failed to be supported by the empirical evidence, i.e. the strategies of Chinese private companies were found to be less proactive ($\bar{x}$=76.1, $\Delta\bar{x}$=-4.9, *df*=99, p>.05) and risky ($\bar{x}$=44.7, $\Delta\bar{x}$=-2.8, *df*=99, p>.05) than those of their state-owned counterparts. However, the mean difference was not significant and the 95% confidence interval included both positive and negative differences for proactiveness (Lower CI=-2.2; Upper CI=2.3) and riskiness (Lower CI=-8.3; Upper CI=2.7). It will be interesting use the case examples to illustrate a potential reason for this fact.

Leadership: Chinese private enterprises, compared to SOEs, were found to be significantly less participative ($\bar{x}$=50.8, $\Delta\bar{x}$=-20.3, *df*=89, p<.001) in terms of group or democratic decision-making related to product issues, capital budgeting and long-term strategy. The mean difference was actually the largest contrast of all managerial comparisons. Private enterprises were also found to be significantly more coercive ($\bar{x}$=59.3, $\Delta\bar{x}$=10.5, *df*=99, p<.01), using force as a mode of resolving disagreement, and issuing orders and warnings to institute organizational changes and secure the employees' required commitment.

This supports previous discussions in the literature which emphasized the autocratic nature of private owner-managers (Redding and Wong 1986; Hickson and Pugh 1995 p. 170) and their coercive style (Chan 1982). As regards flexibility in terms of a strong emphasis on adapting freely to changing circumstances without too much concern for past practices and use of informal decision-making, although the absolute level is relatively high for private firms and the difference as expected, it is very tiny indeed and statistically not significant ($\bar{x}$=68.2, $\Delta\bar{x}$=1.7, *df*=78, *p*>.05). Finally, Chinese private enterprises seem to make more use of vertical communication, characterized by highly restricted access to important financial and operating information, but once again the mean difference is not statistically significant ($\bar{x}$=63.2, $\Delta\bar{x}$=7.4, *df*=85, *p*>.05).

Decision-making: Chinese private enterprises, as hypothesized, used a much more entrepreneurial decision-making style ($\bar{x}$=78.1, $\Delta\bar{x}$=13.8, *df*=99, *p*<.01), characterized by an active search for big new opportunities, large, bold decisions despite the uncertainty of their outcomes, with a charismatic decision-maker at the top wielding great power. Entrepreneurial decision-making might also be considered one of the dominant and most frequently used managerial traits, given that on this dimension, private companies obtained the highest overall percentage of the total score. Compared to state enterprises, this was also the third largest mean difference. The findings support previous discussions in the literature highlighting the strongly entrepreneurial decision-making style in private firms (Mackie 1992 p. 53; Hickson and Pugh 1995 p. 170), which is preferred over extensive use of analysis to derive "optimal" decisions. Private enterprises, as hypothesized, also seem to make less use of planning[1] ($\bar{x}$=63.8, $\Delta\bar{x}$=-8.7, *df*=87, *p*>.05), and incremental decision making[2] ($\bar{x}$=61.1, $\Delta\bar{x}$=-4.0, *df*=99, *p*>.05), but the differences were neither very large nor statistically significant and might be due to random error. The somewhat more extensive use of planning and incrementalism is in accordance with Weihrich's (1990) findings, but, as mentioned above, is not very large and not statistically significant.

Networks: As regards the hypothesized greater use of subcontracting in private enterprises compared to state-owned enterprises, the mean difference is as expected, but is very tiny and not statistically significant ($\bar{x}$=34.8, $\Delta\bar{x}$=3.5, *df*=99, *p*>.05). In addition, the absolute amount in percentage terms is also very small for both ownership modes. The findings from this analysis might therefore not be sufficient to empirically confirm the emphasis on inter-organizational, subcontracting networks or "webs" of small, very entrepreneurial enterprises, which were repeatedly mentioned in the literature (Montagu-Pollock 1991 p. 21; Whitley 1994 p. 29; Whyte 1995 p. 1003; Boisot and Child 1996) and contrasted to the more vertically integrated state enterprises which often form part of very large governmental "Industry Bureaus" (Child 1994).

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[1] "Planning" is characterized by a systematic search for opportunities, as well as anticipation of problems; a systematic consideration of costs and benefits of alternatives, as well as a conscious attempt to integrate programs of action to achieve specified goals efficiently. The accent is on profit maximization, long-term planning, very careful screening of investments to minimize risks, and the extensive use of expertise and solid research before making decisions.

[2] An incremental (termed "adaptive") decision-making style is characterized by cautious, pragmatic, one small step at a time adjustment to problems, and avoidance of "bold" decisions. Decisions are generally compromises between the conflicting demands of different stakeholders. They are made locally more often than centrally, and the primary concern is with stability and steady growth.

It might also be true that the exclusive focus on subcontracting alone does not capture the full richness of informal inter-organizational networks of entrepreneurial units, which seem to be difficult to measure with purely quantitative scales. It will therefore be important to explore this aspect, especially, the notion of *family-based* networks (Fukuyama 1995), in our illustrative case examples.

Finally, as mentioned before, it is important to analyze the influencing factors of these managerial differences. As in the case of structure, we believe that these differences, ceteris paribus, are due to the direct and indirect impact of emphasis on traditional Chinese values in private firms. This analysis will be presented in the next chapter.

6.2.3. Comparison of emphasis on culture for different ownership modes

Let us recapitulate our findings so far. We have analyzed the hypotheses related to the distinctiveness of the private Chinese management model in terms of its structural and managerial choices. We concluded that the distinctive style of *Nanyang* Chinese management, with respect to most organizational aspects, has been re-adopted in mainland Chinese private businesses and hypothesized that the differences are, ceteris paribus, due to the emphasis on traditional Chinese values in private firms.

As discussed in the literature and theory development chapters, many writers also emphasized two other aspects as constituting distinctive dimensions of Chinese management, but varied in their judgment as to whether to treat them as dependent or independent variables. We regard "emphasis on traditional cultural values" and "company size" as independent variables, but argue that the choice and absolute mean level of the factors are different for private firms as compared to state-owned enterprises. In addition, we think that there is an interaction effect between the two factors, which will be analyzed in the next chapter. The objective of this section is to analyze the first of these two factors and test the following hypothesis:

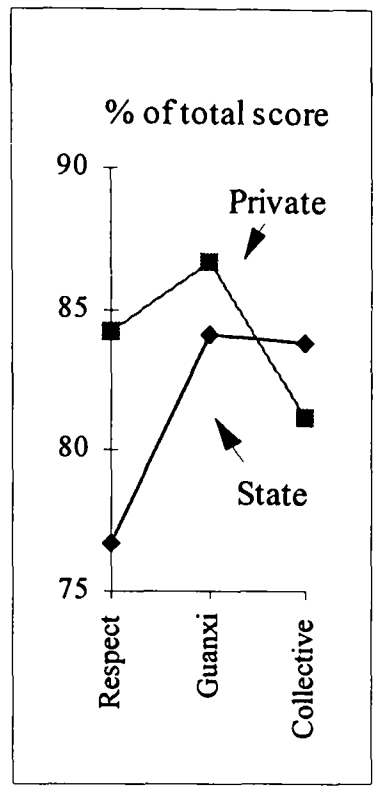
Hypothesis 1.3: In private Chinese enterprises, there is a greater emphasis on family-based relations, respect for seniority and collective orientation than in state-owned enterprises.

The governing thought is that private enterprises place great emphasis on *family*-related traditional Chinese values. The first step in the analysis was to compare the mean differences relating to the standardized "emphasis on selected Chinese cultural characteristics" scale (*see* questionnaire section 8.1)[1] between state-owned and Chinese private enterprises.

[1] On this scale, respondents were asked how much importance they attach to the various cultural characteristics in their daily business dealings.

The results are graphically illustrated in Figure 6-3 below:

Figure 6-3 Emphasis on Chinese culture



The results of the statistical mean difference comparison are reported in Table 6-3 below:

Table 6-3 Mean difference tests between private state and enterprises for "emphasis on culture"

Aspect	**Hypothesis**	**Findings from mean comparison**					
	Private enterprise	$\bar{x}$ Private (%)	$\bar{x}$ State (%)	$\Delta\bar{x}$	*t*-value	*df*	Result
Respect	Higher	84.2	76.7	7.5*	2.0•	90	√
Guanxi	Higher	86.6	84.1	2.5	.8	99	√?
Collectiveness	Higher	81.2	83.9	-2.7	-.7	99	X

•$p < .05$ (two tailed)
* Levene's test significant, therefore inequal variance *t*-test used
Where:
$\bar{x}$ = Mean; $\Delta\bar{x}$ = Mean difference; √ = Hypothesis supported; X = Hypothesis rejected (bold indicates significant differences); "?" = Indicates that although differences are as hypothesized, they are not statistically significant

The findings provide some support for the first sub-hypothesis. Specifically, private Chinese enterprises place significantly more emphasis on respect for seniority and family loyalty than their state-owned counterparts ($\bar{x}$=84.2, $\Delta\bar{x}$=7.5, *df*=90, $p<.05$). The second sub-hypothesis could not be supported by the evidence. However, though not statistically significant, the direction of difference is as hypothesized, i.e. private enterprises attach slightly more importance to personal relations ($\bar{x}$=86.6, $\Delta\bar{x}$=2.5, *df*=99, $p>.05$). However, both types of companies scored relatively high on "guanxi". In addition, the overall difference was very tiny and not statistically significant. This might reflect the fact that in state-enterprises, too, it is important to cultivate good relationships, for example, with party officials. However, it will be argued later that the *type* of relation differs between state and private enterprises. In particular, Chinese enterprises are thought to attach significantly greater importance to *family-based* relationships.

The third sub-hypothesis was not supported either. Although the difference was not significant, there seemed to be a slight tendency for CEOs of state-owned enterprises to put more stress on a collective orientation ($\bar{x}$=81.2, $\Delta\bar{x}$=2.7, *df*=99, *p*>.05). The reason for this stronger emphasis on collectiveness in state-owned companies might be the overriding influence of socialist ideology in public enterprises.

In the next step, the association between "private ownership" and "emphasis on selected Chinese cultural values" was examined. "Private ownership" was a binary variable with value 1 equal to state sector and 2 corresponding to private sector. The data were aggregated from questionnaire section 2.7 (*see* Appendix G). The findings pertaining to this analysis are reported in Table 6-4 below:

Table 6-4 Correlation between "emphasis on Chinese culture" and "private ownership"

	Private ownership	**Respect**	**Guanxi**	**Collectiveness**
Private ownership	1.00	.10	.05	-.02
Respect	.10	1.00	.21•	.25••
Guanxi	.05	.21•	1.00	.17
Collectiveness	-.02	.25••	.17	1.00

•$p < .05$; ••$p < .01$ (two tailed)
Note: Shading indicates focus of analysis

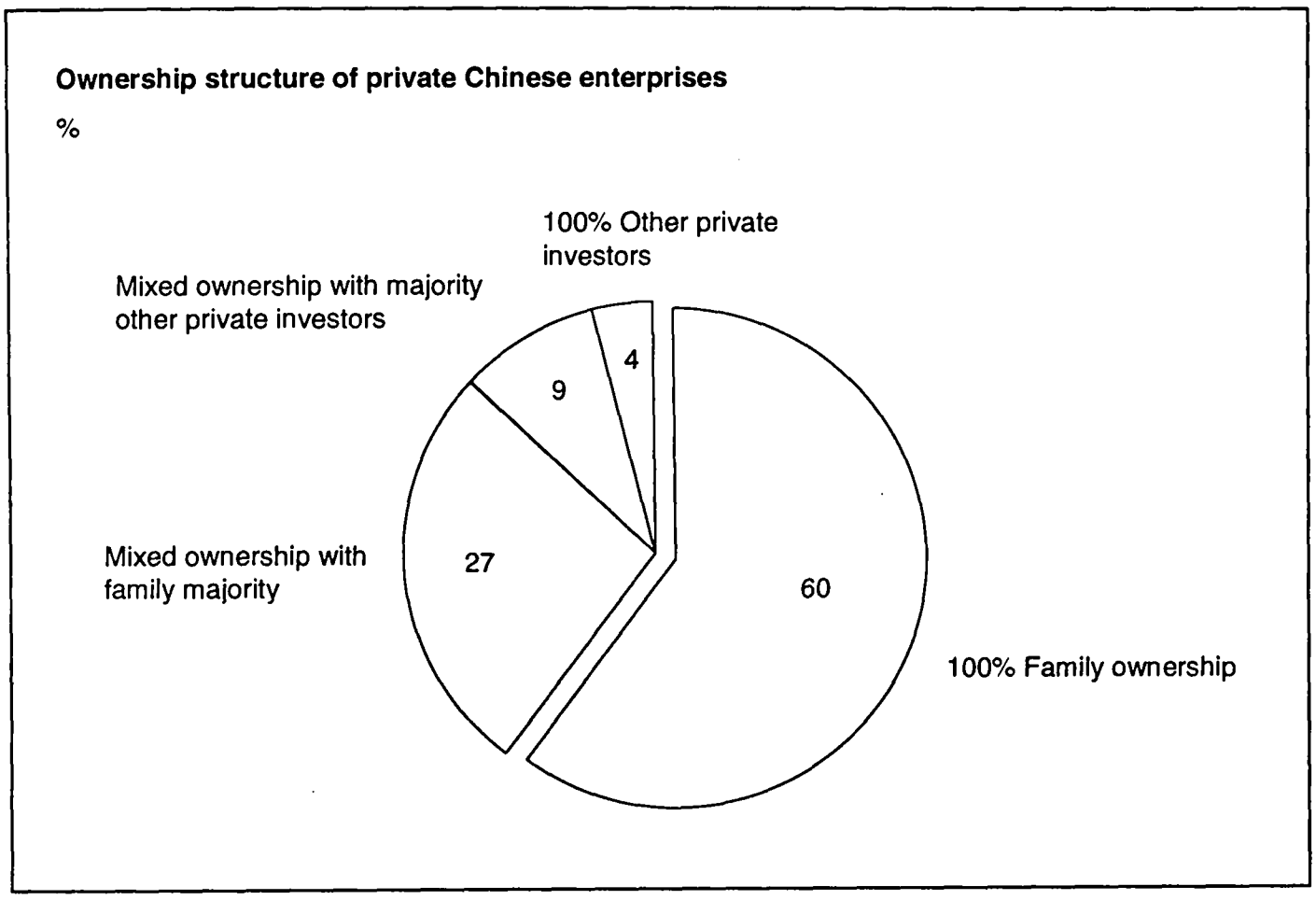
Although the coefficients in the first column were overall very small and not statistically significant, they point into the same direction as the findings from the preceding analysis. In particular, private ownership seems to be slightly positively associated with emphasis on respect (*r*=.10, N=124, *p*>.05) and personal relations (*r*=.05, N=124, *p*>.05), but was found to be slightly negatively associated with collective orientation (*r*=-.02, N=124, *p*>.05).

Given that the literature emphasized time and again the importance in private Chinese enterprises of belonging to family-based group, it was important to analyze in more detail whether Chinese private companies indeed attached greater importance to the family. To test this notion, in the next step of the analysis the shareholder structure of Chinese private companies was examined. The results, which are graphically illustrated in Figure 6-4 on the next page, show clearly that most Chinese private firms are fully owned by the family (60%). In addition, about 87% of all companies are majority family owned.[1] These results clearly show the importance of family relationships in private Chinese enterprises. Further, they also point into the same direction as findings by other researchers. First, scholars emphasized that, although in some other countries private firms at the outset often are also family-owned, the family ties in China are unusually long-lasting and strong (Whyte 1995 p. 1003; Cai 1997). It would be interesting, in a subsequent study, to analyze these international differences in more qualitative detail and thus confirm the distinctiveness of unusually close-knit familism as an aspect of Chinese traditional culture.

[1] Family ownership is distinguished from majority shareholdings by non-family private individuals or institutional investors.

Second, research in overseas Chinese communities showed that, in contrast to many other family businesses in other countries which later grow and adopt public, professional structures, Chinese private firms usually remain family-owned and do not grow significantly (Hickson and Pugh 1995 pp. 170-71). Instead, they prefer to proliferate in spawning networks. As mentioned before, given the cross-sectional nature of this research and the fact that private firms have only recently come into existence, the final proof of this situation for the P.R.C. will have to be analyzed in a later longitudinal study.

Figure 6-4



In the last triangulation step, a correlation coefficient was calculated between the private ownership scale and another scale for "family ownership". This variable ranked companies according to the percentage share of family ownership (questionnaire section 2.8). More details on this scale ("individ") will be presented in chapter 9. Suffice to say here that higher scores on the scales indicated a higher proportion of family ownership of the shareholder capital. The results showed that the two scales were significantly correlated (r=.88, N=124, p<.001). These findings confirmed that private companies to a large extent tended to be majority family-owned. Partialling out other variables such as size or industry to control for potential intervening effects did not significantly affect this positive association. The family-based ownership pattern of Chinese management in other South-East Asian enterprises, emphasized in the literature (Fukuyama 1995 p. 73; Redding 1990 p. 3; Wong 1985; Heller 1991), is thus readopted in the P.R.C. as well. It will be interesting to illustrate this importance of familism in the case examples.

Let us briefly analyze the key implications of the foregoing analysis. Overall, Chinese private companies tend to place more emphasis on certain cultural characteristics. The most important findings was the significance of family-based relationships, family loyalty and respect for seniority. This points to the re-adoption of traditional Chinese values in the newly founded private enterprises. However, state-owned enterprises appear to attach more importance to a collective orientation of their employees. CEOs of SOEs, maybe as an outcome of socialist ideology, seem to emphasize belonging to the work unit (*danwei*). These results correspond to previous findings. The importance of the *danwei* has been time and again stressed in the literature on state-owned enterprises (Lockett 1988 p. 487; Hall and Xu 1990 p. 574; Jackson 1992; Shenkar and Glinow 1994 p. 60). As a "total institution" (Goffman 1961 p. 17), the *danwei* is not only the focus of work activity, but much of the worker's entire life depends on it. This is due to the fact that, apart from work, it also controls non-work areas, such as the implementation of birth control policies, child care, schooling, health care and the allocation of housing (cf. Clayre (1984 p. 162) and Littlefield (1996 p. 8)). In contrast, judging from the correlation comparison, belonging to a *family*-based group, as reflected in ownership patterns, was still found to be very important in private companies, and, conversely, was not that crucial for state-owned enterprises. We might thus conclude that, in terms of the "protective shelter", the family is the equivalent of the work unit in state-owned enterprises. In more general terms, the study thus confirms the importance of family-based relationships in private Chinese firms highlighted in the literature (Wong 1985; Heller 1991; Whyte 1995 p. 1014).

6.2.4. Comparison of company size between private and state enterprises

As mentioned above, writers on *Nanyang* enterprises stressed the choice of small organizational size as another distinctive characteristic of Chinese management. As in the case of culture, size will be treated as an independent contextual factor, but the mean level is thought to be lower for private enterprises. In this short section, we will thus test the following hypothesis.

Hypothesis 1.4: Private Chinese enterprises on average are significantly smaller than SOEs.

The hypothesis was analyzed using *t*-tests for mean comparisons. The findings are reported in Table 6-5 below:

Table 6-5 Mean difference tests for size of private and state enterprises

Aspect	Private enterprises					State enterprises					$\Delta\bar{x}$ (log)	
	$\bar{x}$	med	s	log $\bar{x}$	s	$\bar{x}$	med	s	log $\bar{x}$	s	*t*	*df*
Sales (mio)	21	5	51	6.70	.75	347	95	789	7.80	1.00	6.17•••	99
Employees	59	20	96	1.46	.47	12,796	702	76,054	2.85	.89	9.95•••	82*

Notes: Sales are denoted in Renminbi (RMB) Yuan, China's national currency. Log sales expressed as unabreviated number.

•$p < .05$; ••$p < .01$; •••$p < .001$ (two tailed).

* Levene's test significant, therefore inequal variance *t*-test used

Where: $\bar{x}$ =mean, med=median, s=standard deviation, $\Delta\bar{x}$ =mean (log10 size) difference test

The results with respect to sales clearly support the hypothesis that private enterprises are significantly smaller than their state-owned counterparts ($\bar{x}$=21 mio RMB, $\Delta\log\bar{x}$=1.10, df=99, p<.001)[1]. In terms of employees, state enterprises are also significantly larger than private enterprises ($\bar{x}$=59, $\Delta\log\bar{x}$=1.39, df=82, p<.001).

The results correspond to discussions on overseas Chinese businesses, which highlight their small size (Hicks and Redding 1982 p. 212; Myers 1984; Myers 1986 p. 29; Tam 1990 p. 161; Montagu-Pollock 1991 p. 21; Hickson and Pugh 1995 p. 170; Lee 1996). As mentioned above, the choice of small size is thought to be due to the emphasis on "familism". It might be the only way for private Chinese enterprises of managing to "keep it all in the family" as the title of a recent article suggests (Heller 1991 p. 31).

[1] Given the skewed distribution of size which is common to most organizational studies (cf. McMillan *et al.* (McMillan et al. 1973)). The *t*-difference test was calculated using the log10 of size, which is also usually used for structural equation modeling.

6.3. Case illustrations

After having used quantitative analysis to examine the hypotheses related to the distinctive style of private enterprises in terms of structure, management and level of contextual variables, we will now enrich some of the findings through the use of illustrative case examples. As mentioned in the methodology chapter, the objective of the following case examples is to show what some of the important, but sometimes to a certain degree abstract contextual variables and organizational properties mean in practice. They also provide some more qualitative data for certain aspects in cases when, due, amongst other things, to the difficulty of measuring these issues in a purely quantitative and mathematical sense, we only had tentative support of our hypotheses. These aspects thus differed from more "straightforward" pieces of analysis, such as comparisons of company size, and were mentioned as being "earmarked" for case illustrations in the previous discussion. These case illustrations do not claim to formally test hypotheses or be statistically generalizable. They are only examples, not proofs. We will focus on the following four themes relating to one of the distinctive features of Chinese management each:

Enterprise Networks: In the previous managerial profile comparison between private and state enterprises, the mean difference related to subcontracting was not significant for the two groups and overall relatively low. As mentioned above, it therefore was important to look in some more detail into examples of broader conceptualizations of networks in private enterprises.

Family-related traditional Chinese values: Although private enterprises were shown to stress "guanxi" somewhat more than their state-owned enterprises, the difference was minor and not statistically significant. In addition, the mean level was high for both forms of companies. As mentioned before, it therefore seemed to be important to explore in some more qualitative sense the importance of *family*-based relations in private enterprises, as well as the other two aspects of emphasis on family-related Chinese cultural values, including belonging to a family-based group and respect for seniority in a family context.

Entrepreneurial management style: One of the most distinctive features of Chinese management was the high degree of entrepreneurship in private enterprises. This notion is somewhat abstract. Therefore, we considered it important to highlight what such a style actually means in practice. In addition, the case studies were supposed to shed some light on the reasons for the less clear support related to proactive and futurity-related strategic orientation and flexible leadership.

Informal dictatorship by owner-manager: The personally exercised "dictatorship" of the owner-manager in private enterprises was emphasized in the previous discussion. Once again, this notion of centralization and "dictatorship" is, to some extent, abstract and might be difficult to understand from a Western perspective. We therefore considered it important to provide some illustration of this concept through a case example. A contrast to this use of personal control and low formalization is provided by an example of impersonal bureaucracy in a large state-owned enterprise.

As regards the outline of this chapter, we start with single case descriptions of Huajia, Progress and Industrial and Commercial Bank of China. Due to the relatively long observation field visit to Huajia, this case example will be the most extensive. Afterwards, we will discuss some cross-case conclusions.

6.3.1. Huajia Qihua Ltd.

Objectives of case illustration

In this case example, we intend to provide some real world richness through focusing on three of the above mentioned themes related to the distinctiveness of the Chinese management style in private enterprises. In particular, we will illustrate the notion of enterprise networks, emphasis on family-based values and dictatorship by the owner-manger. The evidence and some more background related to the findings for this case and the other two illustrations can be found in the "Case Records" (Appendix B).

Introduction

Scene I: After sipping at his "black dragon" tea, Mr. Yi slowly leans forward to the owner of the exquisite Chinese *chaguan*[1] located in a peaceful suburb of the nation's capital. In a low voice, the two men discuss the fortunes of one of the owner's entrepreneur friends. Suddenly, Mr. Yi rises and says: "Yeah, why can't I do some design work for this guy? By the way, can you introduce me to him…".

Scene II: With a broad smile, Mr. Yi welcomes his visitors to the small exhibition on the 5th floor of his office in Chaoyang. The guests walk slowly around the room and marvel at the creative talent of the owner. The logos of famous airlines, food companies, shopping malls all side by side tell a gripping story of how high Mr. Yi's star has risen above the nation's capital, since he first came there, equipped only with his talent and ambition …

Background

Huajia Qihua Ltd. Company was founded in 1992 by the current CEO, Mr. Yi. It is registered as a private unlimited company and is 100% owned by the Yi family. Huajia is located in Beijing's Chaoyang district, which boasts one of the largest concentrations of foreign enterprises in Beijing. Huajia's business scope includes Corporate Image (CI) design and consulting, advertising, lumber trade and property development. Typical for private family businesses in China, the company is very small. It employs only 25 people on a full-time basis. Revenues or profits were not disclosed for confidentiality reasons. This secrecy is quite common among private enterprises.

Mr. Yi comes from a very humble background. He grew up on the Daxing'an Mountain in the far north of China. During the "Great Cultural Revolution", his father, a technician, had been transferred there from Hunan province, in order to be "reeducated".

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[1] Traditional Chinese teahouse.

After finishing high school, Mr. Yi moved to Beijing to try his luck there, according to the slogan "If you can make it there, you can make it everywhere." He started out studying Decorative Painting and Traditional Chinese Philosophy at the prestigious Central Institute of Industrial Arts. After graduating, he opened his own business.

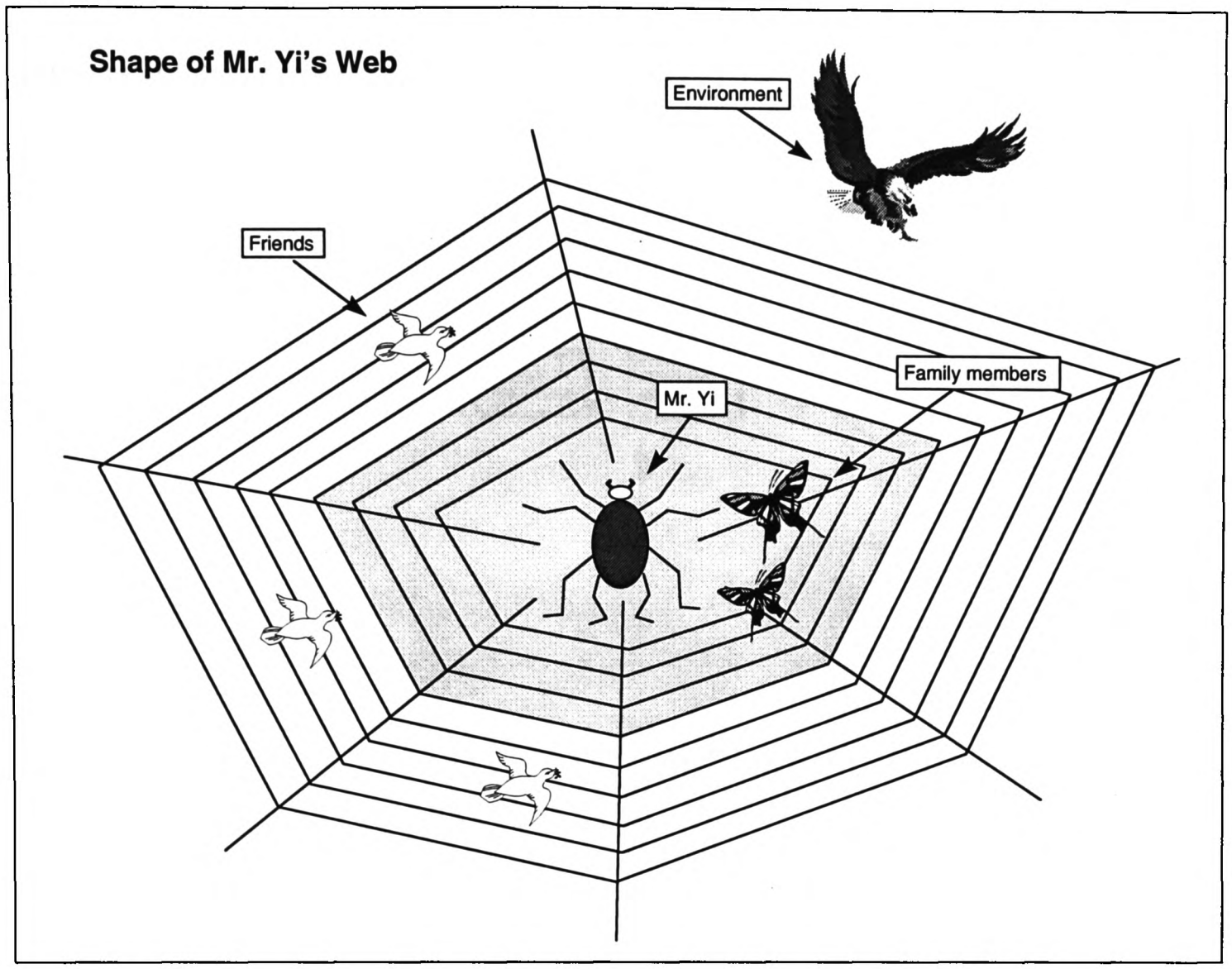
Mr. Yi would certainly be called a "high achiever". He is driven to always give his best and works extremely hard, including many night shifts. That is why he actually installed a bedroom in his office. As a benchmark for success, he tries to follow the path of American industrial pioneers such as Ford, instead that of other Chinese entrepreneurs. On his computer, he already designed his new corporate headquarters with a corporate flag on top of it. The architectural structure is strongly reminiscent of the White House in Washington D.C. He also expresses his ambitions by the choice of office location. The company cohabits a building with Siemens, the German industrial giant, in a district which is dominated by foreign firms. Such a prestigious location is quite uncommon for small Chinese private companies, which often operate from tiny flats.

Networks

We had hypothesized that the importance of enterprise "webs" is a distinctive features of Chinese private enterprises. However, from the quantitative analysis which only focused on subcontracting, we merely found some very limited indication of this distinctiveness compared to state enterprises. It was therefore important to explore a broader notion of networks in this case illustration. In fact, the extent of "guanxi" networks which Mr. Yi managed to build up over time is one of Huajia's most striking features. These networks are mainly based on family ties and other personal connections. They are thus very informal interpersonal "webs" and have to be distinguished from more formal inter-organizational networks such as alliances, joint-ventures, and even subcontracting-based relations. This might be one of the reasons why, with the exclusive focus on subcontracting relations in the quantitative analysis, the whole richness of these distinctive "webs" in Chinese private enterprises did not manifest itself in a significant fashion. Let us now look in some more detail into the characteristics of these "webs", which are graphically illustrated in Figure 6-5 on the next page.

We can conclude that Mr. Yi sits like a "spider" in a complicated and flexible web of informal ties. The closeness of these ties declines in almost concentric circles from this center. The core relations are family-based. This seems to be the most distinctive feature of private Chinese networks compared to other forms of ownership. More specifically, the importance of family is demonstrated by the fact that the very few top management positions are all held by family members. As mentioned above, Mr. Yi, the youngest son, is CEO. His elder brother is the only vice-president in the company and simultaneously functions as chief advisor to the CEO. Further, given that the CEO holds a municipal government position, the CEO's mother-in-law is *officially* sole owner of the company. Apart from this aspect, the CEO's father-in-law is editor-in-chief of the very influential Industrial Commercial Times Daily newspaper, which, in turn, is one of Huajia's major clients. Besides, the CEO's wife works for China Airline, which is also a very important client.

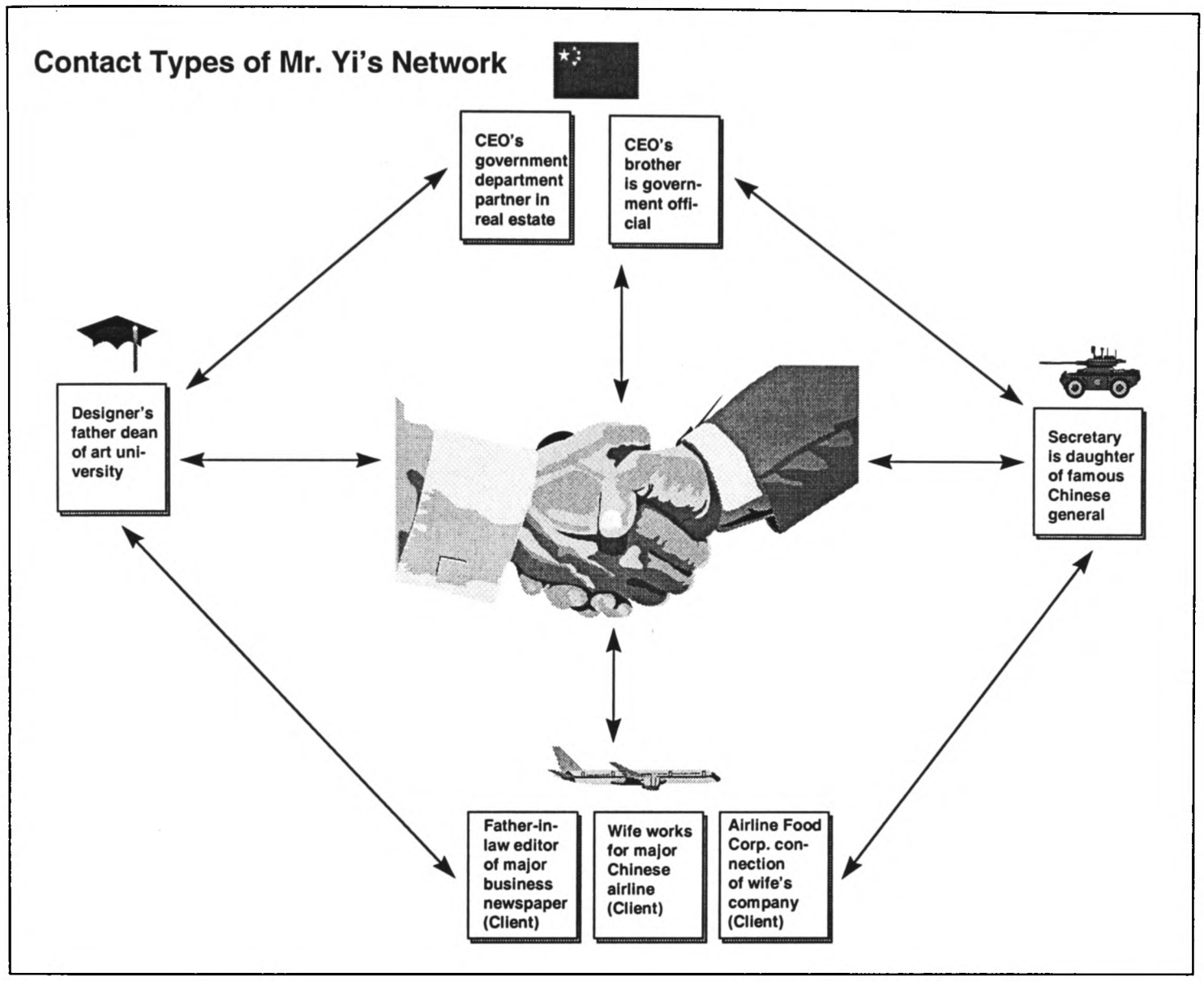
Figure 6-5



Incidentally, Mr. Yi designed the complete corporate identity package for this airline company, even including the company's well-known logo which can be seen on every national and international China Airlines plane. I had a chance to see samples of this and other logos during the private exhibition of Mr. Yi's designs, which had been mentioned in the introduction. In addition, China Airline Food Corporation is a major business connection of his wife's company. Thus, naturally, this company also became a major client. These airline connections also helped Mr. Yi, through informal family-based channels, to establish close business links with Lufthansa German Airlines, which brought him another new lucrative contract, i.e. the corporate image design of Lufthansa's Beijing-based shopping mall, called *Yansha*. We can thus see the major advantage of these informal, family-based networks of Huajia with other companies or people. As a form of social capital, it is an excellent source of new opportunities and business intelligence relating to new market developments. Since the business contacts are based on family links, they are also very stable, and a steady stream of revenues is almost certain. As a consequence, Huajia does not need to commission any public advertising. All client development is through personal relations only.

Moving from the center of the network-based web to the outside, we can identify personal relations based on friendships developed over time. Mr. Yi's various personal relationships are graphically illustrated in Figure 6-6 below:

Figure 6-6



First of all, the CEO has excellent relations with the government - he himself is a relatively high municipal government official in the Department of Housing. This department is the company's major partner in real estate development. In addition, his secretary's father is a famous Chinese general, which provides him with vital connections to the Army. Furthermore, his chief designer's father, Mr. Kong, is the Dean of the Department for Decorative Painting in the Central Institute of Industrial Arts (and claims to be a descendant of Confucius[1]). This, as might be expected, is also the department from which the CEO graduated … Due to this connection, Mr. Yi has best access to design talent, a very scarce resource in China. He attracted his chief designer mainly by offering him a mortgage which the later needed at that time to finance his house. Mr. Kong has stayed with the company ever since. Finally, Mr. Yi has excellent contacts with other important Chinese entrepreneurs which are either his clients or provide him with new contacts. A very good example is his contact to the owner of the only private teahouse in Beijing, mentioned in the introduction. Since many VIPs and new entrepreneurs frequent this teahouse on a regular basis, there is always a stream of potential new clients in the pipeline.

[1] Confucius is called *Kongzi* in Chinese. The surname Kong is thus the same as Confucius' name.

His friendships even spread out internationally. For example, during one of his several business trips to Japan, he developed close connections with Japanese Corporate Identity "gurus". He thus got access to very advanced Western design knowledge. As another international example, I myself almost became the latest "layer" in this web. During my site visit, Mr. Yi tried to convince me to introduce him to some of my other respondents so that he could sell advertising services to them ... a suggestion I kindly declined. It should be mentioned that, as illustrated in the later example, all these friendship-based relations were built up from scratch, since Mr. Yi came to Beijing with almost no connections.

Although Huajia makes extensive use of subcontracting, these somewhat more formal inter-organizational relationships only form part of the more extensive web described above. As regards the nature of subcontracting, at Huajia, amongst other things, all printing jobs are outsourced to a Taiwanese joint-venture in Beijing, whose owner is a good friend of Mr. Yi. In addition, outdoor advertising media are subcontracted as well.

Emphasis on family-based Chinese values

In the quantitative analysis, we found some support for a stronger emphasis on traditional Chinese cultural values in private enterprises. This emphasis was particularly distinctive as regards the strong sense of familism. Since the quantitative evidence was mainly derived from the response to the culture scale and ownership patterns, it was important to explore in some more qualitative detail the importance of family-based values in the Huajia case example.

More specifically, as described in the previous quantitative section, family loyalty, respect for older family members and belonging to the family are all of paramount importance in Mr. Yi's case, too. First of all, as mentioned above, the company is fully family-owned and its top management only consists of family members. Secondly, most major business connections are based on family ties, such as his wife's connection with China Airlines. In addition, Mr. Yi's great respect for seniority within the family is evident by the fact that his mother has the final word in all major decisions. He also greatly cherishes his family lineage, which is shown by his worshipping an ancestor shrine at his home. In modern China, due to the influence of communism, this practice is not very common any more. He also highly treasures his ancestors calligraphy at home.

Further, his sense of collective orientation illustrates the discussion about collectiveness in private enterprises. As argued before, belonging to the *family* group is of key importance to the CEO. In contrast, given his independence, belonging to a particular work unit is not significant. In a broader sense than conceptualized in our quantitative analysis, due to the fact that Mr. Yi studied Chinese Philosophy and Decorative Painting, as well as worked as an artist, he highly values traditional Chinese culture in general. Amongst other classics, he has books of Sun-Tzu in his office and quotes freely major passages from it. He emphasized that he heavily uses these classical Chinese warfare strategies to succeed. In addition, twice a week he gives educational classes in classic Chinese values to his employees and requires home assignments to be completed.

He thus hopes to build up strong foundations in Chinese culture for his employees who freshly graduated from art school. In traditional Confucian terms, his benevolence is exchanged for loyalty. His employees are indeed surprisingly loyal, given the fact that highly qualified human resources are very sought-after and normally switch jobs very often in China.

In an even broader terms, Mr. Yi sees it as his mission and task as a private entrepreneur to preserve, readopt and revive China's great cultural tradition, which communists and state-owned enterprises had tried to get rid off. For example, he reconstructed virtual photo images of parts of the old Imperial Summer Palace in Beijing which were destroyed by the invading foreigners. It is his great dream to one day reconstruct these buildings.

In conclusion, the Huajia case example illustrated the importance of family-based traditional Chinese values in private enterprises. It also captured some broader notion of a "mission" for this private entrepreneur to revive and readopt traditional Chinese culture. It would have been difficult to measure this aspect through quantitative means only.

Dictatorship by the owner-manager

In the quantitative analysis, we found that Chinese private enterprises were significantly more centralized in their decision-making than SOEs. To illustrate this notion and show what it actually means in practice, this third theme will be illustrated in the present case example. More specifically, Mr. Yi, a charismatic and visionary leader, although welcoming suggestions,[1] makes all final decision related to long-term strategy, products and finance either himself or together with his brother. Except for this somewhat special role of his elder brother, the organization has only two hierarchical levels, the CEO and the rest of the company. There is also an almost complete lack of formal titles. For example, there are no vice presidents except for Mr. Yi's brother. His vertical span is equal to the number of employees and, in formal terms, there is no delegation at all. Not only decisions concerning finance and personnel are made centrally, but even operative decisions are handled by the CEO himself. Mr. Yi only delegates tedious accounting matters to his secretary, since, due to his artistic temperament, he does not have much interest in these "boring" issues. Decision-making is thus highly flexible and fast, since no higher authorities have to be asked for permission. This strong centralization partly results from the CEO's belief in his own superior capabilities and insights which he thinks leads him to make better judgments than others. It also is a consequence of his emphasis on traditional Chinese values, which prompt him not to delegate power to non-family members. Due to this high degree of centralization and personal control, there is little need for "bureaucracy". For example, there is overall little or no use made of "structuring". For example, Mr. Yi strongly dislikes consensus-based structural integrative devices such as committees, liaison personnel or task forces. Instead, important decisions are all made by the CEO alone. Neither is there any use made of process liaison devices such as planning to coordinate decisions via some master plan, bargaining among heads of departments, or interactive and mutually reinforcing departmental decisions.

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[1] Ironically his Chinese name has the same pronunciation as "suggestion box" (*yijian xiang*).

The CEO only uses informal brainstorming sessions at irregular intervals for artistic purposes, such as designing a new corporate identity logo for a client. In addition, there are even no different departments and almost no specialists - employees perform whatever task is required in a given situation. Since there are no specialists who could possibly produce written documents, formalization is also very low. Except for very well designed company brochures, no organizational charts, job descriptions, operation manuals, organizational policies or research reports exist.

In conclusion, we can see from this case illustration what centralization means in practice, why it might be negatively correlated with bureaucracy and what its implications are in terms of speed of decision-making. Once again, we believe that, ceteris paribus, emphasis on familism in private enterprises is an important direct and indirect reason for this high degree of centralization.

Other observations

An interesting by-product of my field visit was another observation, which arguably was only possible due to my relatively long stay with the company. There was some degree of "loose coupling" (Meyer, Scott and Deal 1983) practiced in the enterprise, providing an illustration of what this particular aspect of Institutional Theory means in practice (Meyer et al. 1978; Meyer, Scott and Strang 1987; Meyer et al. 1988; Scott and Meyer 1988). Institutional theorists argue that within a company, there is a *management organization* which is shaped by norms held in the outside institutional environment. This management organization, which interfaces with the institutional environment and displays rituals of good management, acts as a "facade" structure and is only loosely coupled to a *work organization* or operating core where the actual work takes place, i.e. the transformation of inputs into outputs (Thompson 1967). It does not necessarily reflect outside norms or might even conflict with them. Thus, organizations, due to strong pressures to adhere to norms of society convey the *appearance* and myth of conformity, which, given the existence of separate structures at the operational level, do not correspond with reality.

In our case, the environment treats private Chinese enterprises with suspicion. They are often considered too small and thus unreliable - much in contrast to their state-owned competitors for which the government acts as lender of last resort. Therefore, as a legitimization strategy to satisfy external expectations of solidity, Mr. Yi tries to project an image of professionalism and strength. For example, as mentioned before, he cohabits the same five story office building as Siemens of Germany. Moreover, he claims to have a "Red Flag" Limousine, the former vehicle of a famous Chinese general. Further, to the outside he displays a very strong and professional corporate culture and a well-designed corporate identity. For instance, he paid great attention to the design of a very glossy company brochure which can rival even those of big Western companies. Employees have to wear elegant company uniforms which give them a very formal, army-like outer appearance. He also developed well-designed visual corporate identity artifacts such as corporate logos and company flags.

However, this external image, which is intended to dispel any notion that Huajia is a small company, in fact is only a facade or myth given that the internal core is still a tiny and very informal work organization. The uniforms are only put on when important external visitors come to the office. Once they have left, they are immediately exchanged for jeans and other informal cloth. Despite the glossy brochure, internally there are very few written documents and communication is very informal. Finally, I never sighted the "Red Flag" limousine during my one month observation period ...

6.3.2. Progress Education Group

Objectives of case illustration

In this case example, we will focus on two of the four themes related to the distinctiveness of the private Chinese management style discussed at the beginning of this section. More specifically, we will illustrate the notion of "Chinese entrepreneurship" and, due to its importance and somewhat weaker support in the quantitative study, we will once again explore in more depth the distinctive notion of enterprise networks as forming part of the Chinese management style in private enterprises.

Introduction

Looking through the window of the glamorous *New Jin Jiang* tower in one of the early days of Shanghai's splendid summer, Mr. Huang observes the sun setting slowly beyond the glittering skyline of the booming city. Down below, he spots students leaving an education center located close to the shiny five star hotel. "Yes", he muses to himself, "education has potential in China, too".

Background

The Progress Education Group is a fully family-owned, unlimited liability private Chinese enterprise. It was founded in 1983 by the present owner-manager Mr. Huang, and is headquartered in Shanghai's main business district. The company started with education and training services which are still its core business. Training classes originally focused on foreign language and computer classes for adults. Now the company provides training for everybody in a wide array of disciplines, ranging from painting classes for small children, evening university classes, special training for organizations, to in-depth preparation for students wanting to study abroad. Recently, the company expanded into the hotel business.

Progress is a small to medium-sized company. Its reported revenues are 6 million RMB Yuan, but this number might be understated, reflecting the CEO's fear to disclose the true revenues to the tax authorities. It currently employs 350 people, including part-time staff and contract-based professors. Its administrative core of full-time staff is significantly smaller, i.e. approximately 50 people. The CEO, Mr. Huang, is very ambitious and "driven". He particularly strives for external recognition. Due to his public relations talent and connections with the Shanghai local media, the company now is well-known and Mr. Huang has become a VIP of the Shanghainese society of influential businessmen.

Entrepreneurship

In the quantitative part of the analysis, we found relatively strong support for a significantly higher degree of "Chinese entrepreneurship" in private enterprises, expressed in the triad of strategy, leadership and decision-making style. However, in the case of flexible leadership, the difference was non-significant and very tiny indeed. Therefore, the objective here is to explore broader underlying notions of flexibility as well as to illustrate the other well supported findings to show what the somewhat abstract concept of "Chinese entrepreneurship" means in practice.

Strategy: In terms of strategic posture, Mr. Huang's company adopts highly proactive strategies, reflecting an appropriate degree of diversification to reduce risk. He started out by investing into education which in China is characterized by strong competition from other educational institutions, including prestigious state universities. In the early 1990s, due to his proactiveness, he spotted a new opportunity and diversified into the hotel business, both in the up-market and mass-market segments. More specifically, he became one of the major shareholders of the large-scale *New Jin Jiang* hotel. The *Jin Jiang* is a Five Star Hotel in one of the most prestigious locations in the center of Shanghai. This equity participation can be considered relatively risky, given the highly competitive nature of the hotel business in China, as well as the looming overcapacity in the sector. As regards the nature of his strategy, whereas in the mass-market hotel business he seeks competitive advantage by pursing very aggressive promotional and price-cutting strategies, in the up-market hotel segment and in his educational business there is more emphasis on product differentiation. The quality of his courses is renowned and the company prides itself of the innovativeness of these educational services, which employ "advanced" support systems for effective teaching. One example is the use of white boards, which is quite exceptional for Chinese circumstances. This practice contrasts sharply with large, state-owned educational institutions, such as the University of Statistics (*Tongji Daxue*). There, chalk dust is ubiquitous. The Progress Group also makes use of relatively advanced technology, such as video-assisted teaching. In addition, the teaching rooms are fully air-conditioned. This once again is very different from the situation in *Tongji*, where in the summer, there is only one fan per teaching room, which is directed at the teacher (!). The private students, although being "customers", have to fight with the heat and highly unpleasant mosquitoes. As a conclusion, these findings somewhat enrich our understanding of strategy in private enterprises. It illustrates the use of proactive strategies, and highlights that *combinations* of aggressive and more long-term quality-oriented strategies are possible at the same time in different business segments. It might be that these differences averaged out in the quantitative analysis, leading to a lack of support for the notion that private Chinese enterprises pursue more proactive and futurity-oriented strategies than their state-owned counterparts.

Leadership: As regards leadership, Mr. Huang's style is very autocratic and coercive with a very low degree of participation. All decisions relating to products, finance and long-term strategy are made by the CEO alone. There are no particularly strong vertical or horizontal communication flows in the company. The reason is the fact that there is little need to communicate, given that the "strong boss" makes all important decisions himself without asking other organizational members.

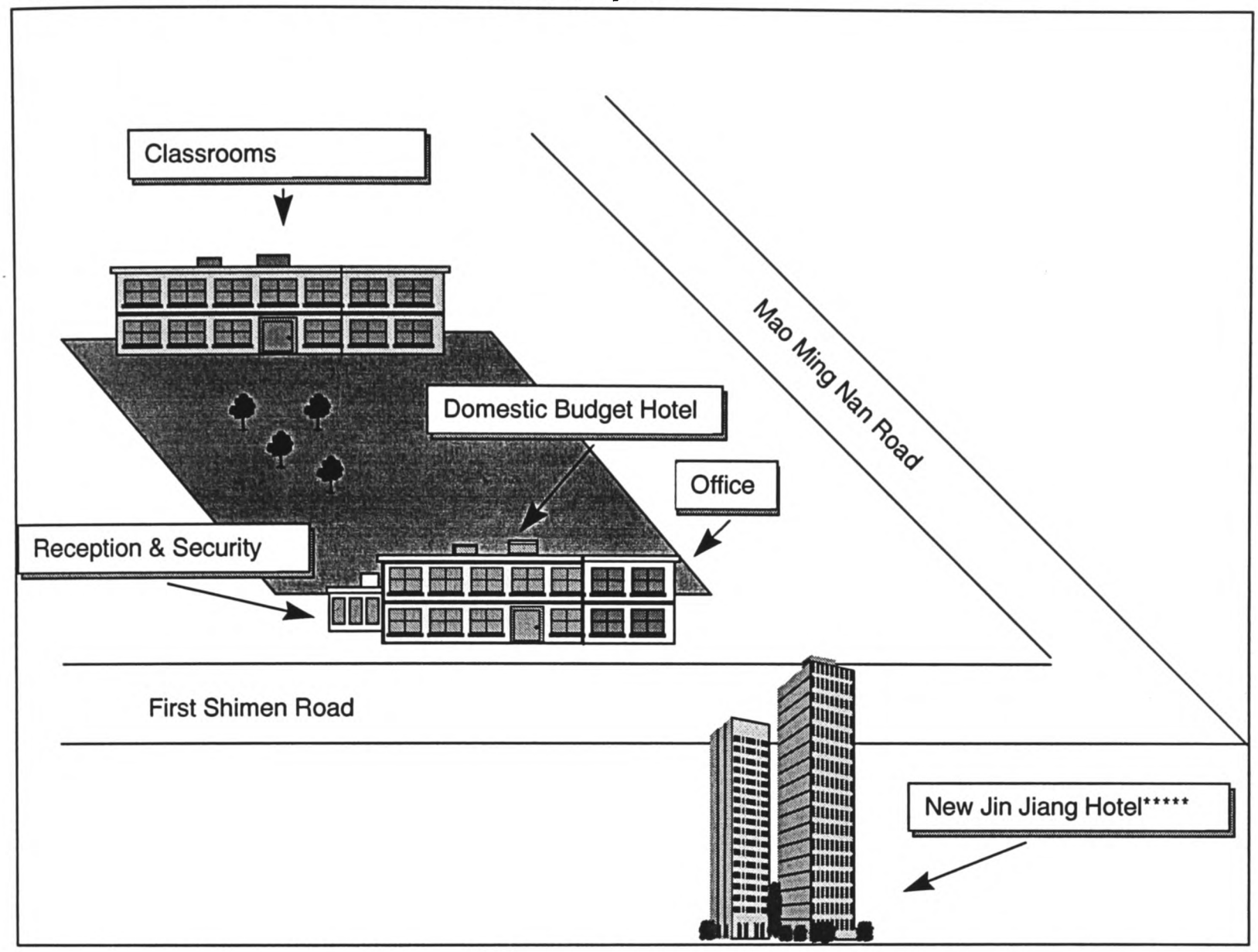
As a consequence, there is almost no teamwork used at the Progress Education Group. Similarly, very little integrative meetings are scheduled. The boss coordinates, but intentionally does not integrate the various activities. He thus wants to follow a "divide and rule" policy. The three business segments, i.e. education, up-market hotels and budget guest houses, are completely separated, in order to dilute the power of their (assistant) managers. Control is exerted personally by the CEO, who dislikes any form of paperwork or written rule, as well as through implicit values existing in the company and exemplified by the leader. There is a veritable "dictatorship by the owner-manager" and it is the "boss" who decides all major issues concerning finance and personnel. He states that he "has to centralize everything related to money, since you never can trust other people in these matters". This high degree of centralization is also enshrined in the "organizational structure" which consists of only two hierarchical levels with almost no job titles or specialists.[1] This means that the CEO's span of control is equal to the number of employees. In other words, all his employees are his direct subordinates. In addition, there are no vice-presidents at all in the organization, the next level below the CEO is "assistant". There is a small degree of decentralization regarding very minor operative decisions.

Mr. Huang's leadership style is also very flexible. In fact, his flexibility is one of the most important findings of this case illustration. As mentioned above, Mr. Huang actively searches for new opportunities and is quick to spot them. He then has a lean enough structure to rapidly seize them, exemplified by the move into the hotel business in general. His flexibility also stems from the fact that there is no higher authority in the organization whom he has to ask for permission. His flexibility is clearly illustrated by his move into the *mass-market* hotel business in particular: After his investment into the five star hotel, he suddenly realized the potential of operating a hotel for local Chinese visitors to Shanghai. His business rationale was based on a "back-on-the-envelope" calculation: The "population" of Shanghai, i.e. 13 million people, includes two million people who are visiting the metropolis. This provides a very attractive market for affordable hotel services. His enormous flexibility and pragmatic attitude was demonstrated by the way he entered the business. Given his desire to move very quickly without any major additional capital investment, he simply *converted* part of his administrative building into a budget guest house for domestic travelers. To make the move even more smarter and flexible, this guest house is also sometimes used for participants of his training programs. This example also demonstrates that the CEO values common sense instead of using complicated theories or analysis when making decisions. Opportunistic, ad hoc and partial strategies are preferred to grand designs and holistic plans. This move is also rather symbolic in the sense that Mr. Huang physically traded administration and bureaucracy for "real production".

[1] Every employee performs a variety of tasks and has to be flexible to learn new skills when circumstances require.

An outline of the architectural arrangement for his businesses is presented in Figure 6-7 below:

Figure 6-7 Arrangement of Mr. Huang's business complex



Decision-making: Mr. Huang's decision-making style is highly entrepreneurial. He is a charismatic leader - his employees cherish him so much that they hang portraits of him in the office and school building - who likes to make big and bold moves. An example is Mr. Huang's decision to move into the hotel business and buy a share in a Five-Star Hotel, which operates in a very competitive business environment. We can assume that this move was only possible by convincing the rest of his overseas family to help him out with funds to be able to participate in this risky venture. These bold moves are preferred over more incremental, planning based decisions.

Networks

As discussed above, in the quantitative analysis, we found only a very tiny piece of evidence related to the use of subcontracting networks in private enterprises. As in Huajia, it was therefore important to once again explore broader notions of formal and informal "webs" in the Progress case example. More specifically, his personal network is of paramount importance to Mr. Huang. In other words, the CEO clearly re-adopted the *Nanyang* network style.

Once again, using the spider metaphor, the inner web of family ties is most significant. He uses these strong family connections to further his business without sacrificing quality by succumbing to nepotism. For example, Mr. Huang has a strong web of overseas Chinese contacts, which are mainly family-based. He demonstrated that he can easily attract them as passive investors for new ventures. These connections are therefore a very useful source of valuable foreign currency and capital.

In the next layer, outside the family core, he also established a very extensive personal network. For example, he has excellent relations with the government. Otherwise, he would not get licenses in the very sensitive area of education in China. Further, through personal friendships, he strongly benefits from collaboration and exchanges of professors with other renowned universities. For instance, his assistant's sister-in-law is his highly qualified German professor from *Tongji* University. Moreover, he has good friends in the media who create a good image for him. In the sense of more formal inter-organizational networks, subcontracting is a key feature of the company. More specifically, the Progress Education Group makes extensive use of subcontracting in its human resource intensive business activities. Many of the very well reputed professors for its classes are hired from other universities on a contractual basis. By outsourcing these activities, he keeps the organizational structure lean and overheads low. Without the burden of much administration, he is thus free to think strategically and move quickly into new ventures.

In a broader sense, these network-based webs help the company to deal with an originally very constraining task environment. As briefly mentioned above, education in China is a highly sensitive topic and therefore, the whole sector is highly regulated. It is extremely difficult to get government licenses to start up an educational institution. Mr. Huang said he needed about 50 stamps to get approval. But over time, the CEO built up a far-reaching *guanxi* network with enabled him to secure all the vital licenses and get the backing of the authorities for his ventures. In a certain sense, Mr. Huang thus used his web to somewhat shape his environment, make it more predictable and gain more control over time. The lack of highly qualified teachers is another constraint. As described above, Mr. Huang's personal and subcontracting network is very helpful in this respect as well to overcome this particular constraint.

6.3.3. Industrial and Commercial Bank of China

Objectives of case illustration

Given that our focus in this study is on the distinctiveness of private Chinese management, we present this case example of the state-owned ICBC as a *contrast* to the above discussed private firms. We will focus on one single theme which is a dominant feature of state-owned enterprises in China, i.e. their very high degree of bureaucracy which differs sharply from the "free-wheeling", more informal style of Chinese private firms. As in the case of entrepreneurship, the quantitative evidence points clearly to a higher degree of bureaucracy in state enterprises. The focus here is therefore on illustrating the somewhat abstract notion of "structuring of activities" in practice. Once again it should be highlighted that the difference between state and private enterprises with respect to bureaucracy is, ceteris paribus, thought to be due to the stronger emphasis on familism in private enterprises, which has a direct impact on structure as well as an indirect influence by making private firms chose to proliferate in family-based webs and spin-offs instead of growing the size of the focal company. In other words, familism makes it important to provide individual members with opportunities to manage their own businesses within the family network and keep size small in the focal company to maintain personal relations with all family members. Smaller company size in turn also has significant structural implications

Introduction

The heavy wood-paneled doors open slowly. First only a glimpse of the interior becomes visible, then the sheer size of the meeting hall overwhelms the visitor. Twenty leather chairs are neatly lined up around a table which would make a good stage for one of the small theaters in Beijing's suburbs. The foreign interviewer from an old English university sits down, surrounded by an army of assistants and note-takers. The first question is asked, then the responding voice is heard in the half-darkness of the room: "Well, let's analyze this question ...".

Background

The Industrial and Commercial Bank of China (ICBC) is headquartered in Beijing's *Haidian* District, the newly emerging financial center of the nation's capital. It was founded in January 1984 and is a wholly state-owned enterprise. The top management is appointed by the State Council. Since its establishment, it has become the largest state-owned commercial bank in China. Its business activities are diversified financial services. As regards size, it can be concluded that ICBC is very large. It employs approximately 560,000 people. In 1994, it had total income of 580 billion RMB Yuan (about 71 billion US$) and net profits of 4.2 billion RMB (0.5 billion US $). With total assets of 2,960 million RMB (361 billion US $) in 1995, it is not only the largest bank in China, but also one of the largest banks in the world. In 1994, the London-based *Banker* magazine ranked it 7th largest in the world in terms of capital. In 1995, the *Euromoney* magazine assigned it position number 11 among the top 200 banks in the world in terms of total assets.

Since 1991, it has been ranked first among the 500 largest service enterprises in China for three consecutive year. The bank has 8.1 million accounts for industrial and commercial enterprises, as well as 420 million saving accounts for urban residents. The number and volume of transactions account for more than 50% of the whole banking industry in China. The company is very proud of its size. The number of employees is cited in the section "major performance statistics" at the beginning of the 1994 Annual Report.

Bureaucracy

Complexity: The ICBC is a very complex organization. The organizational chart on the following page illustrates the myriad of hierarchical levels. In addition, there is a huge number of operating sites, overall approximately 30,000 different locations. An overview of the different sites is presented in Table 6-6. Apart from its operation in Hong Kong, the organization has even started to expand overseas with representative offices or wholly owned subsidiaries in five countries, including Japan, Singapore, Korea, Kazachstan. and the UK. The branch levels are so numerous that it is even difficult to translate all the administrative units. In the Annual Report, for example, two levels are called "Business Offices", supposedly because the translator ran out of bureaucratic terminology. The translations in the table below are directly adopted from the *Chinese* version of the Annual Report and the Company Brochure:

Table 6-6 Operating sites of ICBC

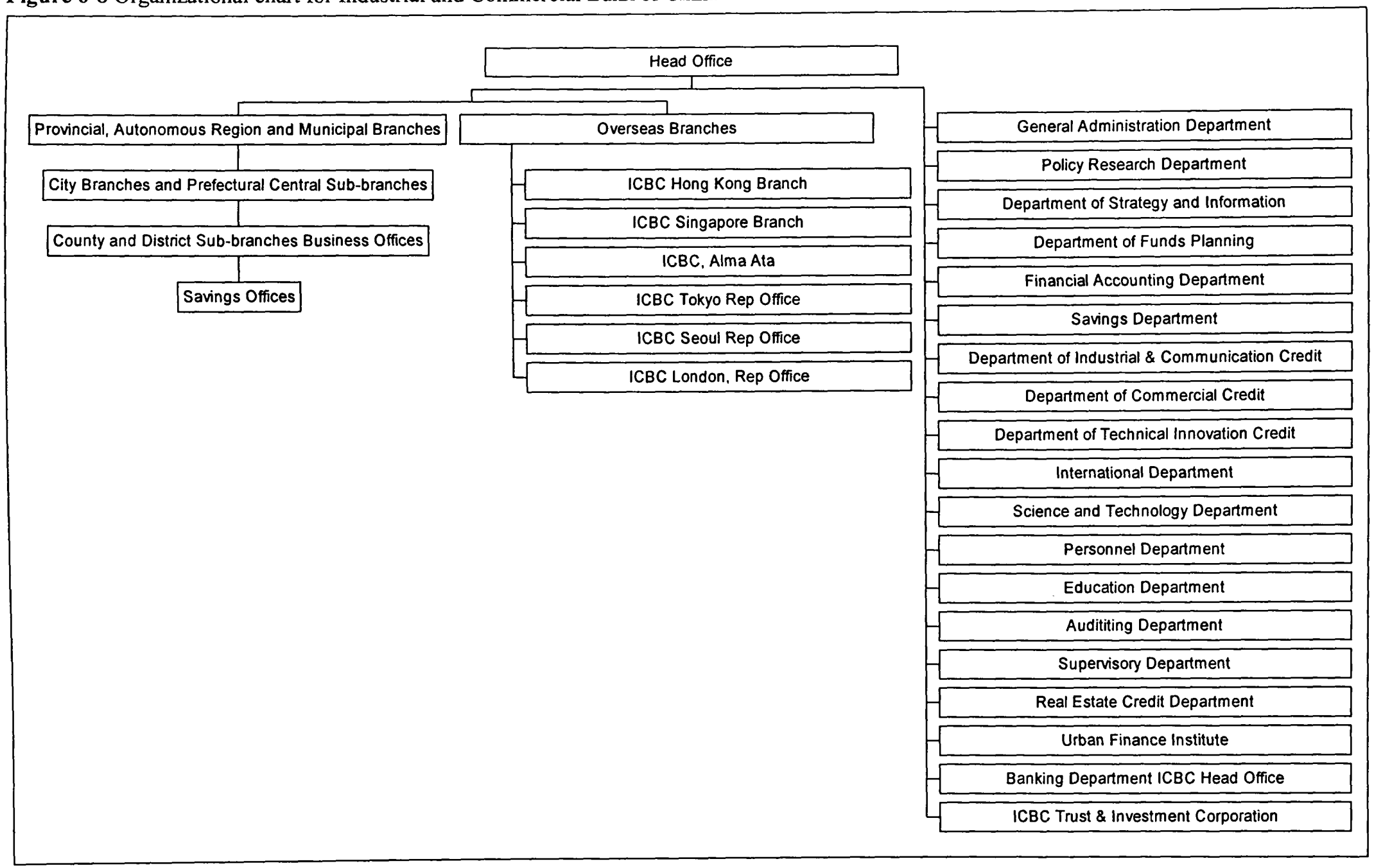
Site	Pinyin	Number
Provincial branches	*shengjifenhang*	29
City branches (sub-branches)	*shifen(zhi)hang*	194
Prefectural central sub-branches	*diquzhongxinzhihang*	242
County sub-branches	*xianzhihang*	2,336
District sub-branches	*chengshibanshichu*	1,134
Branch business offices	*fenlichu*	3,987
Town business offices	*jizhenbanshichu*	2,853
Saving offices	*chuxusuo*	21,831
(International) Representative offices	*daibiaojigou*	5
(International) Wholly-owned subsidiaries	*quanzifushujigou*	1

Source: ICBC Annual Report (ICBC 1994), ICBC Company Brochure (ICBC 1996)

The hierarchical nature of the company is also emphasized by the importance and diversified nature of titles. Some evidence of the proliferation of titles can be found in the Annual Report section introducing the Executive Directors. Adding to the complexity is the highly integrated and diversified scope of ICBC's business activities. ICBC's diversified financial services include wholesale and retail banking, investment banking, as well as international banking and trading. The mission statement offers a glimpse of this complexity:

> *"To serve the national economy by raising funds both at home and abroad, strengthening the management of credit, supporting industrial production and commercial circulation, and promoting technical renovation (sic) and up-grade of enterprises"* (ICBC 1996 p. 2).

Figure 6-8 Organizational chart for Industrial and Commercial Bank of China

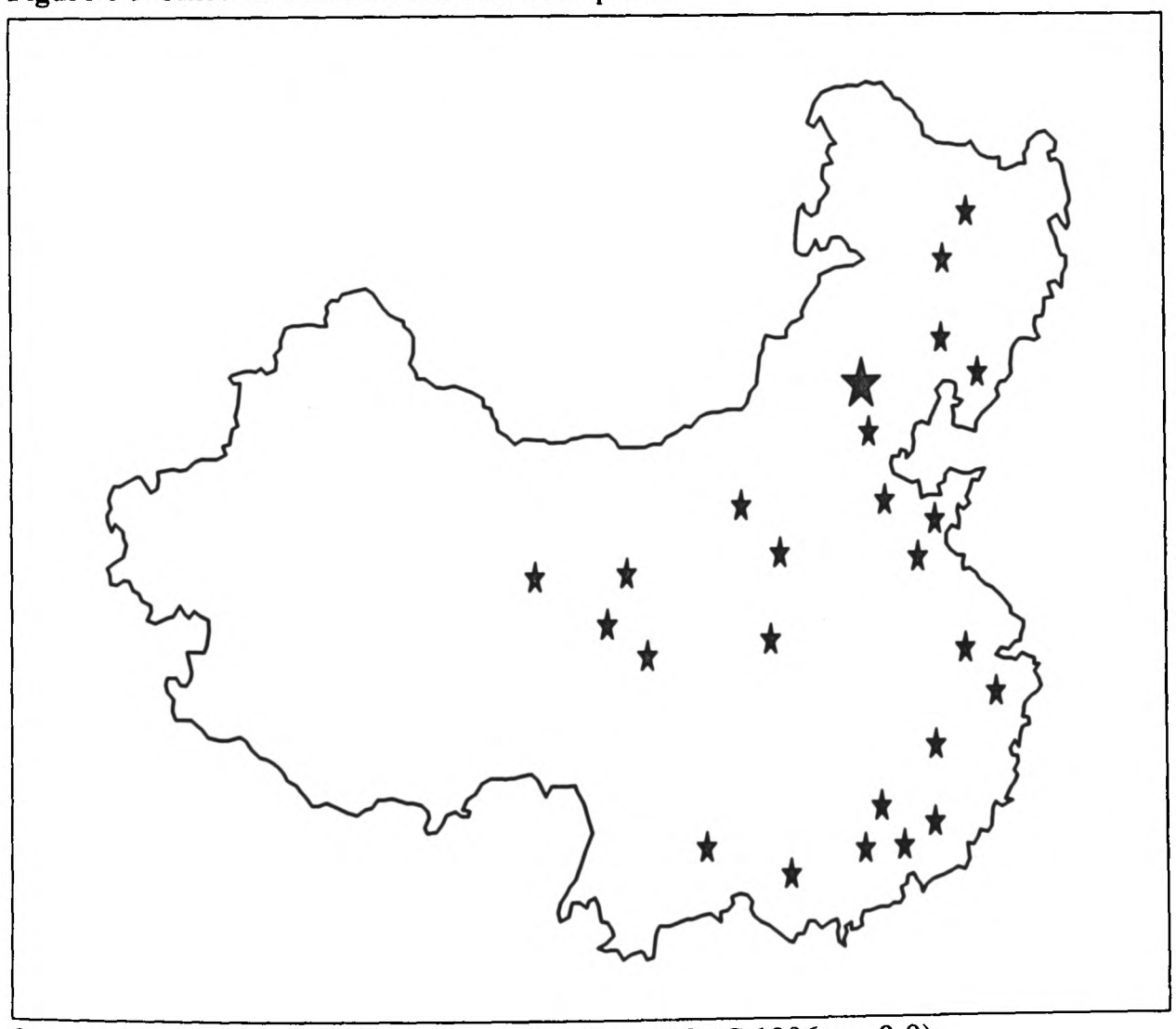


Standardization: ICBC also displays a high degree of standardization of procedures, which are used as a control mechanism for its diversified business activities. In Aston terms (Pugh et al. 1968 pp. 96-100), ICBC is highly standardized in terms of the following procedures: Production control, inspection, financial control, people control, communication, sales and marketing. A passage from the Annual Report, highlighting the importance of standardization, reads:

> *"In 1994, the Industrial and Commercial Bank of China, by focusing on raising credit quality, reducing credit risk and guaranteeing the timely satisfaction of fund requirements from State priority projects and priority industries, intensified target management and standardized its credit operation procedures, resulting in a marked increase in its credit quality" (ICBC 1994 p. 11).*

Control systems: To coordinate its diversified activities, ICBC makes heavy use of control systems. ICBC's support systems and technological applications largely follow Western models. In particular, computer systems play an important role for achieving control. The value ICBC puts on these systems is highlighted by the fact that technical details of the computer system are presented in an otherwise very general company brochure. There is a special section on Electronic Data Processing Implementation or, to use the literal Chinese translation, "Electronization Construction". The systems got first prizes for "Scientific and Technological Progress" awarded by the People's Bank of China (ICBC 1996 p. 10). The scope of ICBC's computer network, which is truly impressive for Chinese circumstances, is shown in Figure 6-9 below:

Figure 6-9 Cities with ICBC mainframe computers



Source: Adapted from ICBC Company Brochure (ICBC 1996 pp. 8-9)

Among its 37,000 offices, 24,000 are equipped with computers and connected to this system. An additional 27,000 ATMs and 12,000 POSs have been installed. Last May, ICBC successfully launched the Electronic Fund Transfer System, at that time the first and the only one in China, which enabled it to transfer funds bank-wide within 24 hours. The system is handling more than 70,000 transactions worth 10 billion RMB Yuan every day. The Bank prides itself that "the rapid and safe transmission of funds within the bank illustrates that the settlement business of the bank has entered the information super-highway era" (ICBC 1996 p. 9). Some more detailed data for the foregoing discussion are highlighted in the table below:

Table 6-7 Use of information technology at ICBC

Item	Number
Cities with mainframe computers	30
City with mini-computers	113
Mainframes and mid range systems	85
Mini-computers and micro-computers	300
Single and multi-user PCs	3,000
Automated teller machines ATM	2,000
EDP out-lets	17,000
Coverage of EDP	50%
Computerized over-the-counter business	75%

Source: ICBC Company Brochure (1996 pp. 8-9)

Formalization: ICBC is also a very formalized organization. The first indication was the fact that the managers required me to document some of my requests in written form, including a written application for an Annual Report. Formalization is thus a way of controlling the flow of information. The company also has glossy brochures, including a special "growth chart" which displays ICBC financial performance in terms of size growth. It is designed with sophisticated graphics and multi-color quality print, which is still very rare in China. During the interviews, there were special assistants noting down all details of the conversation.

Specialization: Another important ingredient in the overall strongly bureaucratic structure is the high degree of specialization. The sheer number of specialists is impressive. For example, there are about 11,000 technicians to serve its computer network alone (ICBC 1996 p. 9). The company not only has individual specialists dealing with certain specific tasks, but whole departments are set up to process the various data streams in the organization. An analysis of the organizational chart shows that there are such specialist units as a "policy research department", "department of strategy and information", "science and technology department" and a "department of technical innovation credit". There is even an entire institute which deals with "urban finance". These are major departments directly attached to the executive board. In addition, there is a myriad of smaller specialist departments below that level. These departments also include many staff positions. Apart from this, there is a significant number of high-level departments, which are directly attached to the executive board and whose major purpose is control. These departments include: auditing, supervisory department, financial accounting, and general administration.

Integration: The degree of integration at ICBC is also very high. Committees are frequently used for determining long-term strategy, as well as decisions related to the firm's operating philosophy. In addition, there are many task forces and other joint-decision making structures. Some qualitative observation evidence is provided by the gigantic meeting room in which the interview was conducted and which was adjacent to a battery of other meetings rooms of similar size. In addition, external company documents frequently picture organizational members participating in various sorts of committees. Finally one piece of anecdotal evidence also underlines the high degree of integration. An interdepartmental meeting including the international and strategy department was necessary to decide whether an interview should be granted to me.

We can conclude that, in contrast to private enterprises where the owner-manager exercises personal and informal control, people at ICBC are more controlled and influenced by an impersonal bureaucracy, which is used to enforce procedures and standards of work performance. Contrary to private companies, where ownership is the basis for power, at ICBC it is more common for one person to control another one's activities if his *role* prescribes that he is responsible for directing the other. In more general terms, the foregoing discussion highlights that family-based elements of Chinese culture are not very strong in the technocratic ICBC. Family ties and personal connections are not very important in most business transactions. Transactions are most often impersonal, anonymous and in many cases even computerized. Most personal networks are institutionalized through ICBC's very close relations with the state. However, personal connections are vital to get high positions in the company in the first place. This is due to the fact that all major appointments are made by the government and are often based on personal connections. These findings clarify why there was no big difference in the overall use of "guanxi" in the quantitative analysis for state and private businesses. Personal connections are important for both private and state enterprises. The distinctiveness in the private Chinese case is the predominance and particular importance of *family*-based ties. In addition, as hypothesized in the quantitative analysis, a certain emphasis by top management on collective orientation could be inferred from frequent references to the "collective" in interviews and, as established through content analysis of documentation, in written documents as well. This also provides clarification for the quantitative findings. Whereas in state enterprises, there is an ideologically motivated emphasis on collectiveness within the *danwei* (work unit), the major source for group affiliation in private enterprises is the family.

6.3.4. Cross-case conclusions

We will briefly synthesize the discussion of the three case examples along the four themes relating to the distinctive style of management readopted in the newly founded Chinese private enterprises:

Networks: The paramount importance of mainly informal, family-based networks in private enterprises was highlighted in the case of Huajia and Progress. The findings thus illustrates the re-adoption of this aspect of the particular Chinese management style discussed in the literature on *Nanyang* businesses (Redding 1990 pp. 17-18; Montagu-Pollock 1991 p. 21; Whitley 1994 p. 29; Whyte 1995 p. 1003; Fukuyama 1995; Boisot and Child 1996). Following Miles and Huberman's (1984 p. 221) recommendation to think metaphorically, we introduced the metaphor of a spider's web to illustrate these networks. It might be added to Morgan's (1986) collection of metaphors to describe organizations. These webs can vary in their degree of formality. In the case of Huajia, most connections were rather informal. This contrast slightly to the somewhat greater use of subcontracting at Progress, for which outsourcing constituted a major element in their business strategy to overcome the shortage of skilled labor. In the later case, the family-based networks also had a greater international reach, with overseas Chinese representing important sources of passive investor funds. In any case, subcontracting was only one part of the overall network and not necessarily the most dominant aspect. This might explain why with the exclusive focus on subcontracting, in the quantitative analysis the original hypothesis was not clearly supported. Common to both cases was the fact that the inner sanctum of the web was family-based, with friends representing more distant concentric layers from this center. As regards the surrounding of the spider web, Huajia's CEO tried to manage the expectations of his external environment by projecting a professional image, which was only loosely coupled (Meyer, Scott and Deal 1983) to the reality of the operative core. In a broader sense, the friendship-based networks seemed to play a crucial role to help these two enterprises to some extent "shape" their environment or at least reduce its constraining nature and uncertainty. They thus served as kind of buffer against external shocks. In this context it is important to mention that both private enterprises also tried to develop good personal connections with government officials to take advantage of "privileges" and make sure that the business would be left "untouched" by the government - a very important objective for many non-state enterprises. Finally, the webs were also crucial for capturing new business and keeping already existing clients.

Emphasis on family-based values: Another illustration of distinctive private Chinese management was the emphasis on familism in the two private enterprises, corresponding to discussions on the *Nanyang* style practiced overseas (Wong 1985; Redding 1990 p. 3; Heller 1991; Whyte 1995 p. 1014; Fukuyama 1995 p. 73). We knew from the quantitative findings, that most private firms were fully or majority family-owned. The case examples showed that, in addition, all top management positions were held by family members. Finally, the most important contacts in the center of the spider web were also family-based. In the case of Progress, these family links even extended internationally.

In a more general sense, in the case of Huajia in Beijing, the CEO regarded it as his mission as private entrepreneur to promote a renaissance of traditional Chinese culture and readopt certain elements of this great heritage in his company. From the quantitative analysis we did not find a striking difference in the use of relationships per se between state and private enterprises, for both of which personal connections were very important. The case examples provided a potential explanation for this difference, by illustrating the stronger importance of *family*-based relations in non-state enterprises. Other relations were important in state-enterprises as well, serving the purpose of, for example, securing appointments. An additional feature of the state enterprise was that in addition to these friendship-based connection, there was a second layer of relationships of a more institutional, impersonal nature characterized by the privileged treatment of the *company* by the government.

Entrepreneurship: Although overall the quantitative results showed a significantly stronger degree of entrepreneurship in private firms as compared to state enterprises, one of the less clear quantitative findings was the lack of support for stronger proactiveness and futurity-orientation in the strategy of private firms. The Progress case illustration offered a potential explanation for this finding. More specifically, an interesting insight was the fact that two different strategic modes coexisted at the same time, i.e. long-term strategies based on a strong overall vision and product differentiation in certain business segments, and aggressive moves with a somewhat more short-term outlook in others. For example, Mr. Huang pursued quite an aggressive strategy in the budget hotel business, but is renowned for his quality in education, achieved, amongst others, through serious investment into high-technology according to Chinese standards. This parallel coexistence might have averaged out scores on the aggressiveness scale at the aggregate level. Finally, as regards the unclear findings related to proactiveness, the most important focus for Mr. Yi in his effort to find new business opportunities was the development of new personal connections. Being the first in the market, which is one important aspect of proactive strategies, was thus less important, potentially explaining the findings from the quantitative survey.

As regards leadership style, the autocratic and "bossy" nature of the pater familliae illustrated the clear quantitative findings. This autocracy, amongst other things, was due to the fact that, given strong emphasis on familism and absence of formal rules and procedures, the CEO felt the need to keep control over non-family members through a strong leadership style. As far as flexibility of leadership style is concerned, we had pointed out that the difference from the quantitative analysis was not statistically significant and very tiny indeed. However, the case examples provided some illustration for the highly flexible orientation of the Progress Education Group. A striking example of flexibility in private Chinese enterprises was Mr. Huang's move to split and convert his office building to make room for the new hotel business, which emphasized the primacy of business over administration.

Finally, the decision-making style was very entrepreneurial. Private entrepreneurs often favored intuition over complicated planning and analysis. The charismatic leaders of the private firms undertook big and bold moves, exemplified by Mr. Huang's decision to move into the hotel business and buy a share in a Five-Star Hotel, presumably with the help of overseas Chinese funds.

In conclusion, the case examples were thus illustrations of companies in which the idiosyncratic element of "entrepreneurship", highlighted in discussions on *Nanyang* business (Chan 1982; Mackie 1992 p. 53; Fukuyama 1995 p. 80; Hickson and Pugh 1995 p. 170), was readopted in private businesses in mainland China.

Centralization and lack of bureaucracy: The significantly stronger degree of centralization and lack of "structuring" in private firms compared to state enterprises had been well-established in the quantitative findings. The case examples provided some more real world richness to illustrate these results. Specifically, in the culturally-determined virtual absence of red tape in the form of written rules or job descriptions, as well as specialists and even departments, Huajia's CEO made all important decisions himself. His span of control was effectively equal to the number of employees and reached a level which many organizational economists would consider as already exceeding the maximum feasible span before "moral hazards" might occur (cf. for example, Milgrom and Roberts (1992)). But maybe due to the strong implicit values indoctrinated by Mr.Yi and family control, this danger was somewhat mitigated.

These case examples thus illustrated the informal (Redding and Wong 1986; Redding 1990; Hickson and Pugh 1995 p. 171) and autocratic management style (Redding and Wong 1986; Cohen 1990 p. 24; Montagu-Pollock 1991 p. 23; Kao 1993; Hickson and Pugh 1995 p. 171) discussed in the literature on overseas Chinese businesses. The lack of bureaucracy contrasted sharply with the myriad of hierarchical levels, specialists, rules and systems used in the state-owned ICBC, supporting the arguments expressed in previous writings on state enterprises (Weihrich 1990; Krone, Garrett and Chen 1992).

Summary and conclusions of Chapter 6

In this chapter, we reported and discussed findings related to the first research hypothesis, i.e. the distinctiveness of private Chinese management. In a comparison between private and state-owned enterprises, we found some evidence that private companies tend to differ significantly in their structural and managerial choices from their state-owned counterparts. Specifically, we tested six constituting elements of private Chinese management:

Lack of Bureaucracy: Chinese private enterprises adopted a significantly lower degree of bureaucracy than their state-owned counterparts. More specifically, the hypotheses relating to the lower degree of formalization, specialization, standardization in terms of control systems, and integration could not be rejected.

Centralization: Private enterprises were found to be significantly more centralized than state enterprises.

Entrepreneurship: Private enterprises showed a comparatively high degree of "Chinese entrepreneurship" in terms of strategies, leadership and decision-making style. More specifically, compared to state-owned enterprises, Chinese companies adopted somewhat more aggressive strategies, as well as less defensive and less analytical strategic postures. However, greater proactiveness, futurity or riskiness could not be shown. The case examples of two private firms illustrated a potential explanation for this fact. These enterprises were shown to adopt aggressive, short-term moves and more long-term strategies at the same time in different market segment. In the sample, differences might thus have averaged out at the aggregate level. In addition, in these examples, the most important strategy was to secure more personal connections. This might be an explanation for the lesser need to follow proactive strategies. As regards leadership style, Chinese enterprise adopted a significantly less participative and more coercive style. In terms of flexibility, the difference was not statistically significant, but the case example of Mr. Huang's Progress Education Group provided some illustrations of a very flexible style. Finally, decision-making was significantly more entrepreneurial in private enterprises compared to state firms. The case illustrations also showed that bold moves were favored over incremental, planning-based decisions.

Webs: The quantitative findings failed to provide clear support for greater use of subcontracting-based networks in private enterprises. Instead, subcontracting was relatively low for both ownership forms. The case illustrations provided some potential explanation for this fact. They showed that the two private firms had a complex "spider web" of personal connections with other enterprises and individuals. These relationships varied in formality and were centered in the core around the family. Subcontracting thus was only *one* aspect of these webs and not equally important for the two companies. The singular focus on subcontracting in the quantitative analysis thus did not capture the more qualitative nature of these webs.

Family-based values: The quantitative analysis provided some support for the emphasis on family-related values in private firms. In particular, respect in terms of family loyalty and importance of seniority was significantly more important in private enterprises compared to their state-owned counterparts. There was less clear support for the greater importance of a collective orientation and relationships in general. However, the importance of family became evident from the fact that almost all private enterprises were fully or majority-owned by families. In addition, the case examples shed some light on the questions related to collective orientation and relationships. Belonging to a *family*-based group was of paramount importance to private enterprises. In contrast, state executives, potentially due to ideological reasons, heavily emphasized belonging to the work unit. In addition, whereas for both private and state enterprise managers personal connections were very important, the distinctive feature of private Chinese management was the emphasis on *family*-based relations.

Small size: As hypothesized, private enterprises were shown to be significantly smaller than their state-owned counterparts.

Throughout this analysis, we frequently mentioned our belief that the alleged distinctiveness of private Chinese management was, ceteris paribus, due to the emphasis in private firms on family-based traditional Chinese values, which is hypothesized to have a direct and indirect impact on organizational properties. Therefore, in order to explain in more detail the above described structural and managerial choices of Chinese companies, in the next chapter, we will present the findings relating to the structural equation modeling of various factors influencing organizational structure and management practices in China.

7. Influencing factors of structure and management in China

7.1. Overview

Let us recapitulate our present stage in the analysis. We have found evidence for the fact that the distinctive private Chinese management style practiced in overseas Chinese communities has been re-adopted in Chinese private enterprises. Supporting evidence was provided by the fact that certain elements of the private Chinese management style were found to be distinctive when compared to state-owned enterprises. At this point most discussions of overseas Chinese management styles would normally stop. But is the Chinese management style "monolithic"? If yes, that would mean that we have to discard contingency theory. Structural and managerial choices would be shown to be made without taking into account fit-induced constraints.

To find out, we suggest to use contingency theory itself and see whether the "traditional" contingency relations still hold. In addition, by testing the hypothesized direct and indirect impact of emphasis on traditional Chinese values in private firms, we will also test whether the private Chinese management model is distinctive.

This chapter is organized in two sections. In the first section, we will present the quantitative and qualitative findings relating to the influencing factors of organizational *structure* and compare the results to the hypotheses (7.2). In the same fashion, the second section will examine the influencing factors of *management* practices in China (7.3). In both sections, before starting to analyze the private enterprise subgroup, we will first lay some groundwork by testing our overarching general theoretical question which relates to the *total* sample:

Theoretical question: "In general, is the 'fit' notion in contingency theory valid?"

In this chapter, we will test the first part of this general theoretical questions:[1]

Research question 4: Do the relations between traditional contextual factors and organization constitute "fit" as hypothesized by contingency theory?

[1] The two additional parts of the general theoretical question will be analyzed in the next chapter. More specifically, many studies *assume* that effective companies are in "fit" with their task contingencies. This is were most empirical research on contingency theory stops. In the next chapter, we will critically examine the notion of "fit" by analyzing whether the contingency relationships differ for effective and less effective companies, with respect to both the organizational structure and managerial practice model. We will also test whether "appropriate structure" is positively related to organizational effectiveness.

7.2. Influencing factors of organizational structure in China

The objective of this section is to analyze the following detailed research question and test whether the stated sub-hypotheses were supported by the empirical findings.

Research question 4.1: Do the relationships between traditional contextual factors and *structure* correspond to the hypotheses derived from contingency theory?

We will first specify the structural equation model, explore whether the fit-induced contingency relationships hold for the *total* sample and then move on to the subgroup comparisons.

7.2.1. Model specification

To test the hypothesis of contingency fit, a structural equation model was specified. The path diagram entitled "Influencing Factors of Organizational Structure in China" in 7.2.3.3 starting on page on 7-15 illustrates the research model according to structural equation format.[1] The basic structural equation model depicted in the diagram consists of two parts, i.e. (a) the *measurement* (empirical) model and (b) the *structural* (theoretical) model.

Structural model: The structural model hypothesizes that various exogenous constructs are influencing factors of different endogenous organizational structure dimensions. More specifically, endogenous organizational structure encompasses formalization, centralization and integration. The exogenous factors include the "traditional" contingency variables size, technology, uncertainty and environmental constraints as well as the "non-traditional" factors CEO need for achievement and emphasis on selected characteristics of Chinese culture. Using LISREL technical matrix notation (Joereskog and Soerbom 1982; Joereskog and Soerbom 1993), the general equation for the *structural* model can be expressed as:

$$\eta = B\eta + \Gamma\xi + \zeta \qquad (7.1)$$

where ξ (ksi) is the vector for the independent (exogenous) constructs, η (eta) is the vector of the dependent (endogenous) constructs. Matrix elements are denoted in lower case Greek letters. The coefficient matrices Γ (gamma) and B (beta) contain the path coefficients., i.e. γ and β. More specifically, γ denotes the regression coefficient for a path leading from an independent to a dependent latent construct, whereas β is the regression coefficient for a path leading from a dependent construct to another dependent trait.[2]

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[1] Given that SEM is quite a complicated technique, we will dedicate a certain amount of space to thoroughly explain the technique and carefully test its results. For the subsequent models, we will attach more elements of the detailed statistical data related to methodology to Appendix R.

[2] It is useful to remember that traits with arrows pointing at them are endogenous variables, whereas those which have no arrows pointed at them, are exogenous variables.

The vector of disturbances ζ (zeta) represents errors in equations. Each endogenous construct is associated with such a unique error variance term ζ (structural disturbance term), named e21-e23 in the path diagram. The covariance matrices of the unique error term ζ is expressed as Ψ (psi) and is specified as zero in our case. The matrix Φ (phi) contains the covariances among exogenous concepts, paralleling the correlations among predictors in multiple regression. All covariance are specified as zero in our case. Likewise, the basic model does not specify any regression paths between exogenous constructs. Those will be introduced in a subsequent stage of the analysis.

Measurement model: The factor analytic measurement model is expressed by the following two equations:

$$y = \Lambda_y \eta + \varepsilon \tag{7.2}$$

$$x = \Lambda_x \xi + \delta \tag{7.3}$$

In the measurement model, the various exogenous and endogenous unobserved traits, drawn in elliptical shapes, are measured by different "indicators". Indicators are the observed variables in the study and are drawn in rectangular boxes. In the equation for the empirical model, *y* is a vector of observed indicators for the endogenous constructs and *x* a vector of observed indicators for the exogenous constructs. The Λ (lambda) matrices contain λ coefficients which are comparable to factor loadings. Each indicator is associated with an error term, which models the cumulative effects of excluded variables and purely random measurement error on the observed *x* and *y* variables, paralleling the error variable in regression. Error terms for the indicators of endogenous traits are denoted by ε (epsilon), for indicators of exogenous constructs by δ (delta). In the path diagrams, these errors are named e1-e20 respectively. As in regression, we assume that all three error terms (ε, δ, ζ) have zero mean values. The covariance matrices of measurement errors, i.e. Θ_ε (theta sub epsilon) and Θ_δ (theta sub delta) were specified as zero in our case.[1]

To allow empirical testing of the measurement model, including the assessment of both measurement reliability and construct validity, due to the limits of identification, each trait has to be measured by at least two indicators and preferably three (Nunnally 1978; Peter 1979; 1981). This is due to the fact that single measures typically contain considerable uniqueness and subsequently low correlation with the attribute being measured. Additionally, single items tend to frame concepts narrowly resulting in considerable measurement error. Multiple items overcome these difficulties. The specificity of individual items can be averaged out and more robust conceptualizations of complex variables be developed, thereby reducing measurement error (Segars 1997 p. 111). Therefore, scales which were not considered to be sub-dimension of a second-order factor, where randomly split in two or three parts, depending on the number of items available (Bagozzi and Heatherton 1994).

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[1] In this study, a *congeneric* measurement model was adopted, where each measure is associated with only one latent construct, and all covariation between measures is a consequence of the relations between measures and constructs.

This procedure was applied to the need for achievement scale (two indicators), uncertainty (two indicators), constraints (three indicators) and centralization (three indicators). Due to the nature of the scales, the size and technology traits only had one indicator associated with them, i.e. the natural log of the number of employees (lg10size) and the mass-technology scale (mstech). As discussed in the Exploratory Analysis chapter, the three factors "respect", "collective orientation" and "personal relations" (*guanxi*), are thought to be sub-dimensions of a second-order factor, i.e. selected characteristics of Chinese culture. The same applies for the formalization, control and specialization scales, which according to various researchers (Champion 1975; Van de Ven 1976; Jackson and Morgan 1982; Fredrickson 1984; Hall 1991 p. 65; Miller and Droege 1986 p. 548), measure one general "formalization" trait.[1] Finally, following Miller and Droege's (1986 p. 547) approach, the integration construct is also measured by two sub-scales, i.e. structural liaison devices (liastruc) and process liaison (liasdmg).

Every traits has to be perfectly correlated with at least one indicator which is used as a scaling device. Specifically, this approach makes the scale for the concept correspond to the scale for the observed indicator, by making each real unit of change in the concept correspond to exactly one unit of change in the indicator. Therefore, in structural equation models, the loading of one indicator has to be fixed. In the present study, the usual practice was followed to constrain the path (λ_1) leading from the construct (η_1) to the indicator (y_1) which supposedly best measures the underlying construct to 1.0. Further, Hayduk (1996 p. 25) pointed out that, in order to achieve absolutely fixed scaling for this first indicator and thus to rigidly specify the meaning of the construct through the indicator, it is important to also specify an error variance term ($\Theta_{\varepsilon 1}$) for the above mentioned indicator which supposedly best measures the trait. This variance term measures the "gap" between the construct and any given indicator (p. 25). This is equal to an assessment of how similar or dissimilar the concept is to the best indicator.[2] In cases where Alpha reliability coefficients were available, these coefficient were used to make an estimate of the error variance for the fixed indicator. In the two single indicator cases, i.e. size and technology, estimates were made which were approximately comparable to the other reliability estimates and reflected the assumption that the measurement error would be relatively low for these two items which could be easily verified.

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[1] The term "formalization" is chosen here to follow the terminology of previous researchers. However, to distinguish it from the formalization sub-scale, it might be preferable to use a term such as "structuring of activities".

[2] Hayduk (1996 p. 26) stresses that the important thing is to fix this error variance at a given level, but states that the *level* itself is somewhat "fictional". If the variance is not fixed, each time a new data set is used and a new error variance is estimated, a new meaning is assigned to a similarly labeled construct. He argues that freeing the errors variance "loosens the meaning of η_1 and reveals the researcher's lack of commitment to a particular, even if only fictional meaning for η_1. If η_1 has one meaning there is only one appropriate error variance for y_1. It is only if the meaning of concept η_1 is both fictional and loose that y_1 error variance becomes free."

Given that there are no rigorous rules for fixing this error variance, it was important to assess the impact on the structural model of fixing it at different values. This shows how sensitive the substantive conclusions are to the specification of this error variance. Appendix Q reports such a sensitivity analysis for the only significant influencing factor of the total sample organizational structure model, i.e. size. It reports the structural coefficients and various fit indices. Overall, the fit indices are almost not affected by the choice of error variance. The strength of structural association does change,[1] but never is there any change in direction of signs or in the significance level of individual path coefficients. Thus, in conclusion, the substantive conclusions are not affected by the choice of error variance.

7.2.2. Model input

As regards the input matrix for model estimation, most new software programs can use either covariance matrices or correlation matrices with standard deviations for all measures. In the later case, the covariance matrix can be reconstructed through the use of the individual standard deviations. Due to the fact that most fitting functions are scale invariant and the resulting estimates scale free (Bollen 1989), the overall goodness of fit and the size of the parameter estimates are not influenced by using correlation instead of covariance matrices as input for model estimation (Baumgartner and Homburg 1996 p. 148).

However, researcher pointed out that with respect to other aspects of the structural equation model, correlation and covariance matrices can yield different results (Pedhazur 1982; Joereskog and Soerbom 1989). More specifically, Baumgartner and Homburg argued that standard errors might be inaccurate (p. 148), but it is difficult to estimate the degree of negative influence of using them.

Therefore, Cudeck (1989) cautions against the use of correlation matrices. Especially, correlation matrices should not be used for multi-group analyses (Hughes, Price and Marrs 1986 p. 141; Baumgartner and Homburg 1996 p. 148). This study will take into account this fact by following Hulland *et al.*'s (Hulland, Chow and Lam 1996 p. 188) recommendation that by default the observed covariance matrix should be used as input for all covariance analyses. Significance tests for individual parameters will be based on and reported for this model input (Baumgartner and Homburg 1996 p. 148). Standardized parameter estimates can be easily obtained afterwards.

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[1] In general, by entering a fixed θ for the best indicator, one is in effect adjusting for a specific amount of measurement unreliability. This adjustment is similar to correcting for attenuation (Zeller and Carmines 1980). The more error one inserts, the larger the estimated effects are likely to be (Hayduk 1996 p. 28). Therefore, in all models we adopted a conservative approach by allowing only for a low amount of error variance.

7.2.3. Results

7.2.3.1. Test for multivariate normality assumptions

The first concern of a structural equation model-builder is the question of whether the model is under-identified. The results showed that the model was identified in our case. Second, it was important to assess whether the assumptions of the Maximum Likelihood method (ML) were met. Specifically, ML is based on the assumption that the observed variables follow a multivariate normal distribution. This implies that the variables are normally distributed both from a univariate as well as a multivariate standpoint. Bootstrapping results indicated that the distribution of parameter estimates associated with the various traits were not wider than expected under normal distribution. This means that there were no distribution problems in the data and consequently no real effects on the parameter estimates (Arbuckle 1997 p. 529). The details of this rather complex analysis can be found in Appendix R.

7.2.3.2. Evaluation of measurement model

Before testing the hypothesized substantive relationships in the structural model, it was important to test the scales used to operationalize the traits, through the estimation of a measurement model (Anderson and Gerbing 1988; Mulaik et al. 1989). Within the empirical model, three kinds of measurement properties were examined, i.e. unidimensionality, validity and reliability. For this first model, we will discuss all three aspects in detail. For the following models, in order to focus on the substantive findings, detailed results were placed into Appendix R.

7.2.3.2.1. Unidimensionality

Unidimensionality means that a single construct underlies a set of scale items. In other words, multiple indicators of each latent variable in the model should converge to measure a single construct (Hughes, Price and Marrs 1986 p. 133). The implication is that the computation of a composite score is meaningful only if each of the items is acceptably unidimensional (Segars 1997 p. 108). In the case of lack of unidimensionality, there is a danger of *interpretational confounding* which "occurs as the assignment of empirical meaning to an unobserved variable which is other than the meaning assigned to it by an individual a priori to estimating unknown parameters" (Burt 1976 p. 4). Unidimensionality is demonstrated by internal and external consistency (Anderson and Gerbing 1982 p. 454). More specifically, Burt (1976 p. 10) pointed out that it is demonstrated a) if the indicators of the unobserved variable have high correlations among themselves (internal consistency) and b) the correlations of the indicators of the unobserved variable with the indicators of other unobserved variables in the model is relatively low (external consistency). When there are less than four measures of a construct, it is not possible to test for internal consistency (Spearman and Holzinger 1924). In this case, external consistency becomes the sole condition for assessing unidimensionality (Anderson and Gerbing 1982 p. 454). The foregoing discussion thus highlights the need of including all posited scales within a single analysis so that an assessment of external consistency can be made. As mentioned before, separate confirmatory factor analysis of each scale or ordinary regression cannot provide this assessment of unidimensionality (Gerbing and Anderson 1988 p. 189).

Findings from the analysis of the correlation matrix[1] on the following page offer some support for the above described aspects of unidimensionality. In most cases the inter-correlations among the items associated with the measures were stronger than their correlations with items representing other measures.

A more rigorous and confirmatory test assesses the overall model fit in terms of various discrepancy fit tests and checks for the absence of large normalized residuals (Hughes, Price and Marrs 1986 p. 133). In this context, Kumar and Dillon (1987) pointed out that the overall fit of the model provides the necessary and sufficient information to determine whether a set of items is unidimensional. This assessment will be presented later.

7.2.3.2.2. Construct validity

Face and content validity were discussed in the scale testing section. In this section, we will therefore focus on construct validity which consists of both trait and nomological validity (Campbell 1960).

7.2.3.2.2.1. Trait validity

According to Bentler (1978), the assessment of convergent and discriminant validity of measurement models constitutes a confirmatory trait validity assessment.

Convergent validity

Convergent validity (Campbell and Fiske 1959) is assessed by the significance of an indicator's loading (λ) on its posited underlying construct factor (Anderson 1987a p. 530). As shown in Table 7-4, all indicator loadings were highly significant with critical values associated with the indicators ranging from 2.40 ($p<.05$) to 11.91 ($p<.001$). These findings offered support for the convergent validity of the items in each scale (Anderson and Gerbing 1988).

Discriminant validity

To assess the discriminant validity (Campbell and Fiske 1959) of the constructs, a nested model comparison was performed. Specifically, a baseline model in which the covariance between all exogenous traits as well as all endogenous constructs were free was compared to a model in which all constructs were perfectly correlated (Bagozzi and Phillips 1982 p. 476). A significant chi-square difference ($p<.05$) implies rejection of the more constrained model and confirms discriminant validity (Joereskog 1971b).

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[1] It should be mentioned that the correlation matrix, apart from this assessment of unidimensionality, can also be used as input data to replicate the findings of our model. In this case, the above mentioned caveats regarding the use of correlation matrices have to be taken into account.

Table 7-1 Pearson correlation matrix for organizational structure model

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. LG10SIZE	2.15	.96	1.00																			
2. MSTECH	3.01	2.38	.47	1.00																		
3. UNCERT_1	13.38	4.15	-.14	.01	1.00																	
4. UNCERT_2	7.89	3.23	-.24	-.09	.73	1.00																
5. NACH_1	17.12	2.40	.01	-.04	.25	.29	1.00															
6. NACH_2	9.89	1.99	.04	.11	.33	.32	.48	1.00														
7. CONSTR_1	13.94	5.55	.03	.22	-.04	-.08	-.21	-.05	1.00													
8. CONSTR_2	15.15	5.63	.11	.30	-.08	-.09	-.13	.03	.70	1.00												
9. CONSTR_3	11.05	4.45	.11	.18	-.05	-.16	-.18	-.09	.63	.64	1.00											
10. RESPECT	10.93	3.16	-.06	.08	.17	.18	.00	.05	.11	.04	.01	1.00										
11. COLLECT	5.77	1.34	.03	.09	.06	.01	.20	.10	.01	.10	.05	.25	1.00									
12. GUANXI	5.87	1.20	.05	.10	.32	.11	.14	.23	.08	.00	.15	.21	.17	1.00								
13. FORMAL	11.51	5.22	.46	.38	-.09	-.12	.07	-.02	.09	.19	.14	.00	.12	.04	1.00							
14. CONTROL	44.53	11.77	.25	.39	.18	.10	.18	.14	.02	.17	.10	.24	.31	.14	.53	1.00						
15. SPEC	11.13	4.48	.46	.31	.29	.22	.29	.18	.03	.08	.06	.17	.18	.11	.46	.47	1.00					
16. CENT_1	12.76	2.94	-.19	-.11	.04	.05	.08	.22	-.14	-.14	-.11	.02	-.01	.17	-.12	-.06	-.32	1.00				
17. CENT_2	11.44	3.40	-.21	-.19	.06	.01	.01	.22	-.11	-.08	-.09	.05	-.10	.10	-.13	-.10	-.35	.69	1.00			
18. CENT_3	8.53	2.23	-.25	-.18	.07	.07	.11	.33	-.18	-.13	-.05	.00	-.01	.13	-.07	-.05	-.27	.69	.72	1.00		
19. LIASTRUC	21.73	10.33	.49	.42	-.10	-.21	-.14	-.13	.18	.21	.21	.04	.11	.10	.63	.52	.37	-.26	-.31	-.22	1.00	
20. LIASDMG	17.48	5.38	.18	.38	.11	-.05	.00	.11	-.07	-.08	.03	.14	.09	.22	.40	.47	.23	.01	.00	.00	.45	1.00

Note: For a sample size of 124, a correlation plus or minus .18 is significant at the 5% level (both tails); +/- .24 is significant at the 1% level. A covariance matrix was used as model input for this and all other subsequent models.

The results of the nested model comparisons are presented in Table 7-2 below:

Table 7-2 Nested model test for discriminant validity in organizational structure model

	χ^2/df	*df*	$\Delta\chi^2$*	*p*	*df*	MD†
Model I (Baseline Unconstrained Structural Model)	2.45	144	n/a	n/a	n/a	460.42
Model II (Base w/ perfect correlation)	2.87	161	110.36•••	.00	17	549.80
Model III (Base w/zero correlation)	2.82	161	101.99•••	.00	17	541.46

Note: N=124
•p < .05; ••p < .01; •••p < .001
*Baseline comparison is Model I
†Bootstrap ML mean discrepancy (implied vs population)

The results showed a significant chi-square difference between Model I and Model II ($\Delta\chi^{2=}$110.36, *df* = 17, *p*<.001). Thus, discriminant validity could be confirmed. An even stricter test assesses whether all correlation coefficients between constructs are equal to zero which would imply perfect discriminant validity. The nested model comparisons indicated that such a model would have to be rejected ($\Delta\chi^{2=}$101.99, *df* = 17, *p*< .001).

Given that *p*-value cut-off points are to some extent arbitrary, a more "objective" approach compares the mean discrepancy between implied and population parameters obtained from bootstrapping for various models (Arbuckle 1997 p. 535). The decision rule is easy: The model with the lowest mean discrepancy has the best comparative fit. The results from bootstrapping with 500 replications show that the unconstrained model had the best comparative fit, followed by the zero correlation model and, finally, the perfect correlation model. Thus, in conclusion, discriminant validity was confirmed, but the assumption of perfect discriminant validity had to be rejected.

To examine in more detail *which* parameters deviated from perfect discriminant validity, all correlations between the endogenous traits, as well as between the exogenous constructs, were estimated. Bootstrapping (Normal-theory Monte-Carlo simulation) with 500 replications was used to obtain standard error estimates for the correlation coefficients which the Maximum Likelihood method does not provide.[1]

[1] As another demonstration of the robustness of Maximum Likelihood in our case, biases for the coefficients were very small (< 1 percentage point) and non-significant in all but one case.

The findings are presented in Table 7-3 below:

Table 7-3 Bootstrap estimates for correlation coefficients in organizational structure model

Correlation	Mean*	S.E. (Mean)	C.R.	Confidence interval† Low	High
Size ↔ Achievement	0.03	0.10	0.3	-0.17	0.23
Achievement ↔ Technology	-0.04	0.10	-0.4	-0.23	0.16
Achievement ↔ Uncertainty	0.27•	0.11	2.5	0.06	0.49
Achievement ↔ Chinese characteristics	0.01	0.10	0.1	-0.18	0.21
Achievement ↔ Constraints	-0.22•	0.09	-2.4	-0.40	-0.04
Size ↔ Technology	0.50•••	0.08	6.6	0.35	0.65
Size ↔ Uncertainty	-0.15	0.08	-1.9	-0.30	0.00
Size ↔ Chinese characteristics	-0.06	0.09	-0.6	-0.24	0.12
Size ↔ Constraints	0.04	0.08	0.4	-0.12	0.19
Uncertainty ↔ Technology	0.02	0.04	0.4	-0.06	0.09
Chinese characteristics ↔ Technology	0.09	0.09	1.1	-0.08	0.26
Constraints ↔ Technology	0.23•	0.09	2.6	0.06	0.39
Uncertainty ↔ Chinese characteristics	0.17	0.09	1.9	-0.01	0.36
Uncertainty ↔ Constraints	-0.04	0.08	-0.6	-0.20	0.11
Chinese characteristics ↔ Constraints	0.11	0.08	1.5	-0.04	0.26
Formalization ↔ Centralization	-0.02	0.10	-0.2	-0.21	0.18
Centralization ↔ Integration	-0.16	0.09	-1.8	-0.35	0.02
Formalization ↔ Integration	0.51•••	0.08	6.3	0.35	0.67

Note: N=124
•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38)
*Denotes bootstrap mean parameter estimate for correlation coefficient
†Probality = 95%
Where:
S.E.= Standard error
C.R.=Critical ratio

The results showed that no confidence interval contained unity (perfect correlation). This once again supported the discriminant validity of the constructs. Whereas the hypothesis of zero correlation (perfect discriminant validity) could not be rejected for several traits based on the computed confidence intervals and while in most other cases the correlation coefficients were relatively low and non-significant ($p>.05$), there were a few cases of significant correlation ($p<.05$). This confirmed the conclusion from the nested model comparison that the very strict notion of perfect discriminant validity at the aggregate level could not be assumed.

To fully satisfy the requirements for discriminant validity, the average variance extracted for each construct should be greater than the squared correlation between constructs (Segars 1997). Judging from the correlation matrix, the squared correlations, representing the shared variances among variables, were found not to exceed the average variance explained.

7.2.3.2.2.2. Nomological validity

Nomological validity is assessed by the performance of constructs in a "nomological network", a concept first introduced by Cronbach (1955). A nomological network is a set of relationship of one construct with other constructs as specified by some theory. Testing the structural model is a confirmatory nomological validity assessment (Bentler 1978; Gerbing and Anderson 1988 p. 191). Given that the subsequent analysis indicated that most of the hypotheses were confirmed by the empirical data, the constructs also could be said to demonstrate a relatively high degree of nomological validity. The same was true for all subsequent models, and therefore nomological validity will not be explicitly mentioned again.

7.2.3.2.3. Reliability

After the assessment of unidimensionality and construct validity, it was important to assess the reliability of the scales. Two important measures of reliability include composite factor reliability and variance extracted estimates (Fornell and Larcker 1981; Werts, Linn and Joereskog 1974). Composite factor reliability assesses the internal consistency of a measure and is analogous to Coefficient Alpha (Netemeyer, Johnston and Burton 1990 p. 151). The average variance extracted estimate (AVE) measures the amount of variance captured by a construct in relation to the variance due to random measurement error. Formulae for both diagnostics can be found in Appendix D.

Estimates of these measures for each model construct are reported in Table 7-4 on the next page. In addition, the table presents the standardized loadings (λ) and reliability (i.e. the square of the standardized loading) for each of the individual indicators. The results show that all standard scales which had been used in previous research exceeded the recommended .70 for applied research. Selected characteristics of Chinese culture exceeded the .50 cut-off point for new scales recommended for exploratory, basic research (Nunnally 1967 p. 226).

As regards average variance extracted, all standard scales exceeded or, in the case of formalization, approached within rounding error the recommended .50 cut-off point for applied research (Fornell and Larcker 1981). Chinese culture once again had to be interpreted in the context of basic research. However, the individual reliability estimates for the Chinese culture scales were relatively low and it has to be seen whether in a subsequent applications higher values will be achieved.

Table 7-4 Measurement properties of organizational structure model

Construct and indicator	Standardized loading (λ)	Reliability	Variance extracted estimate
Constraints		.83*	.63
constr_1	1.00†	1.00	
constr_2	.70•••	.49	
constr_3	.63•••	.40	
Chinese culture		.53*	.36
respect	.98†	.96	
collect	.26•••	.07	
guanxi	.22••	.05	
Achievement		.73*	.59
nach_1	.96†	.92	
nach_2	.51•••	.26	
Uncertainty		.87*	.77
uncert_1	1.00†	1.00	
uncert_2	.74•••	.55	
Formalization		.71*	.49
formal	1.00†	1.00	
control	.51•••	.26	
spec	.45•••	.20	
Centralization		.85*	.65
cent_1	.99†	.98	
cent_2	.70•••	.49	
cent_3	.70•••	.49	
Integration		.72*	.59
liastruc	1.00†	1.00	
liasdmg	.43•••	.18	

Note: All *p* values based on unstandardized ML estimates; N=124
•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38)
*Denotes composite reliabilities.
†Unstandardized regression weight constrained to unity for scaling purposes

Another assessment of reliability examines whether a measurement model is free from common method factors (Spector 1987 p. 438; Williams, Cote and Buckley 1989 p. 462; Bagozzi and Yi 1990 p. 547; Kumar and Dillon 1992 p. 52; Williams and Brown 1994 p. 185; Williams and Anderson 1994 p. 326; Schmitt et al. 1995 p. 160). Specifically, the use of single sources of information through the key informant method can introduce spurious relationships among variables. In our case, most study variables were collected with one method, i.e. interviewer assisted self-report scales. Following the approach used in previous studies (Scott and Bruce 1994 p. 592; Konrad and Linnehan 1995; Igbaria et al. 1997 pp. 290-91; Simonin 1997 p. 168), the potential effect of common method variance on the study variables was tested using Harman's (1967) one factor test. The one-factor test involves subjecting (questionnaire) items presumably measuring a variety of different constructs to a single factor analysis. The dominance of one factor suggests that the items are related because of a common method. After entering all the items into a Maximum Likelihood factor analysis with Varimax rotation, six factors with Eigenvalues greater than one were extracted, that together accounted for 69.1% of the variance.

The first factor explained only 21.1% of the variance. Since several factors, as opposed to one single factor, were identified and, and given that the first factor did not account for the majority of the variance, a substantial amount of common method variance was not evident (Podsakoff and Organ 1986).

7.2.3.3. Evaluation of basic structural model

In the next step, the overall fit of the model was analyzed by examining various indices. First of all, the chi-square statistic tests the null hypothesis that the specified model is a perfect fit for the data, i.e. that the difference between implied and observed covariance matrix is zero. Statistically significant chi-square statistics offer some support for the rejection of this null hypothesis. The chi-square statistic in our case was significant (χ^2= 454, *df*=161, p<.01). However, due to its sensitivity to sample size (Bentler and Bonett 1980; Marsh, Balla and McDonald 1988 p. 391), departures from multivariate normality (Hu, Bentler and Kano 1992 p. 351), and model complexity (cf. Netemeyer, Johnston and Burton (1990 p. 152)), there is general agreement that χ^2 should be used as a guide rather than an absolute index of fit (Bearden, Sharma and Teel 1982; Anderson and Gerbing 1984; Tanaka 1987; Bollen and Long 1993). It has also been argued that the chi-square test makes no allowance for the loose, rough, or simplifying nature of social science models (Hayduk 1996 p. 197), which are approximations and not hypotheses that are possibly true (Cudeck and Browne 1983; McDonald and Marsh 1990 p. 247).

For this reason, several writers have suggested the use of the CMIN/DF (chi-square/df) ratio as a measure of fit (Arbuckle 1997 p. 555). In other words, model fit is considered better the closer the chi-square value is to the degrees of freedom for a model (Thacker, Fields and Tetrick 1989). There is still some discussion as to what constitutes the right "cut-off" point. Wheaton *et al.* suggest a ratio of approximately five or less "as beginning to be reasonable" (Wheaton et al. 1977). Carmines and McIver are more conservative, stating "χ^2 to degrees of freedom ratios in the range of 2 to 1 or 3 to 1 are indicative of an acceptable fit between the hypothetical model and the sample data" (Carmines and McIver 1981 p. 80). Marsh and Hocevar point out that "different researchers have recommended using ratios as low as 2 or as high as 5 to indicate a reasonable fit" (Marsh and Hocevar 1985). Similarly, Jackon *et al.* maintained that a ratio of 5 to 1 was a "useful rule of thumb" (Jackson et al. 1993 p. 755). With a value of 2.82 in our case, the model shows acceptable fit according to the Carmines and McIver and the other criteria mentioned above.

Further, researchers pointed out that no single measure of overall fit should be relied on exclusively (Bollen 1990 p. 258; Bollen and Long 1993 p. 6). Therefore it was important to analyze other so called "(adjunct) fit indices" (Hoyle 1995a p. 7), which instead of a dichotomous decision strategy, assess the *degree* of fit between the model and data along a continuum with some pre-specified boundary (Hu and Bentler 1995 p. 81), usually 0 and 1. As there is no statistical test of fit, evaluation of these fit indices is somewhat subjective, but Meyer *et al.* (Meyer, Allen and Smith 1993 p. 543) suggested that "higher values indicate a better fit to the data". In contrast, selecting a point value as a cut point for determining model fit is inherently arbitrary (Kelloway 1995 p. 218).

Therefore, as further measure, the goodness of fit index (Joereskog and Soerbom 1981; Tanaka and Huba 1985),[1] i.e. the equivalent of R^2 in ordinary regression analysis, was chosen, which, in our case, was relatively high (GFI=.74). Thus, there is some evidence that the model presents a relatively good fit for the data.

Further, apart from these "absolute" or stand-alone fit indices, an *incremental* fit index was computed. The Bentler and Bonett incremental fit index (Bentler and Bonett 1980) provides a measure of the practical significance of a model in explaining the data. It compares the lack of fit of a target model to the lack of fit of a "baseline model" (cf. Anderson (1987b p. 53)), usually the independence model. The value estimates the relative improvement per degree of freedom of the target model over the baseline model. It has the same interpretation as the Tucker-Lewis index (Tucker and Lewis 1973; Bentler and Bonett 1980), but is less variable in small samples and more consistent across estimators (Hoyle and Panter 1995 p. 166). As a rule-of-thumb, values close to .9 demonstrate excellent fit (Bagozzi and Phillips 1982 p. 475). The index was moderately high in our case (IFI=.69), providing some more support for an acceptable fit of the model in a practical sense. A comparison of the various fit indices is presented in Table 7-8 on page 7-21.

Another important step in the assessment of fit is to examine whether there are any "improper" solutions in the model. Improper solutions include "Heywood cases" (Harman 1971 p. 117; Dillon, Kumar and Mulani 1987 p. 126), i.e. negative variances, standardized path coefficients, correlations or multiple coefficients greater than unity, as well as failures to obtain estimates of standard errors, for example, because the underlying correlation or covariance matrix is not positive-definite. No such elements were encountered in our analysis.

A further analysis looks for unusually high standardized residuals between the implied covariance and sample covariance structure. No unusually high residuals were found. Finally, in order to avoid capitalizing on the idiosyncrasies of the particular sample on which the covariance matrix is based (Tanaka 1987; MacCallum, Roznowski and Necowitz 1992), no *post hoc* modifications to model specification, such as introduction of "waste basket" parameters (Browne 1984), i.e. correlated error terms (Kelloway 1995 p. 221), were made to improve fit. As a conclusion, based on the foregoing two pieces of analysis, the notion of an "acceptable" fit could be once again supported.

Finally, the significance and absolute amount of the structural parameter estimates provides some additional information on the overall model fit, which might be hidden in global fit indices (Brannick 1995 p. 227).

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[1] In addition, Joereskog and Soerbom (1984) developed the adjusted goodness-of-fit index (AGF) to mitigate the bias of fit indexes resulting from model complexity (Hu and Bentler 1995 p. 97).

Unstandardized as well as standardized path coefficients (gamma) together with their standard errors[1] are presented in Table 7-5 below. The standardized regression coefficients are also displayed in the path diagram entitled "Influencing factors of organizational structure in China" on the following page.

Table 7-5 Maximum Likelihood path coefficients (gamma) for organizational structure model

Independent Variable	Unstandardized	S.E.	Standardized
Size			
Formalization	2.40•••	.47	.43
Centralization	-.71•	.30	-.22
Integration	5.23•••	.89	.48
Technology			
Formalization	.43•	.17	.20
Centralization	.01	.11	.01
Integration	.84•	.32	.20
Uncertainty			
Formalization	-.08	.10	-.07
Centralization	-.01	.06	-.02
Integration	-.05	.18	-.02
Constraints			
Formalization	.05	.07	.06
Centralization	-.07	.05	-.13
Integration	.18	.14	.10
Achievement need			
Formalization	.23	.18	.11
Centralization	.09	.12	.08
Integration	-.54	.34	-.13
Chinese characteristics			
Formalization	.03	.13	.02
Centralization	.02	.08	.03
Integration	.17	.25	.05
SMC*			
Formalization	.35	.07	n/a
Centralization	.14	.08	n/a
Integration	.30	.08	n/a

Note: N=124

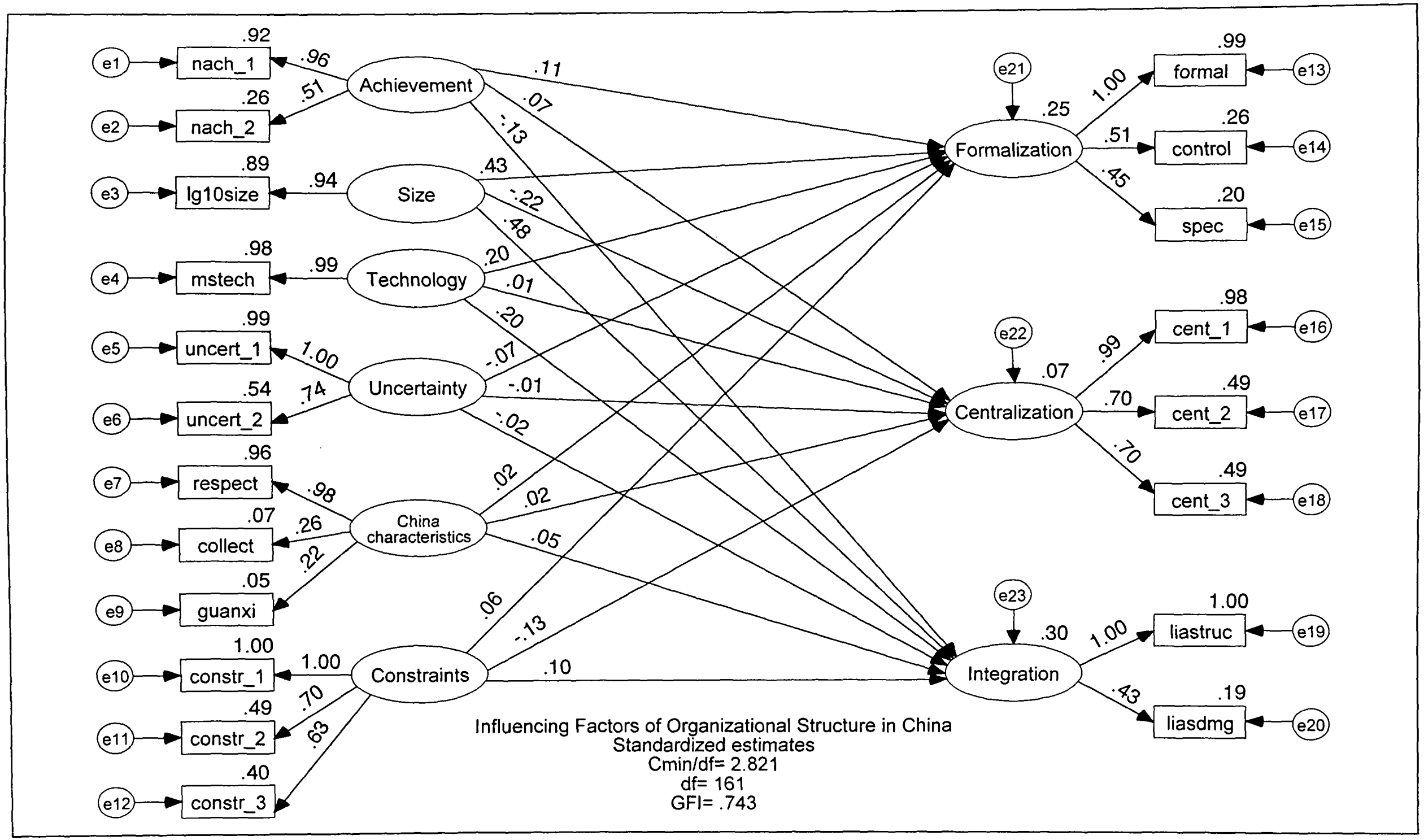
•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38).

*Bootstrap estimates (ML estimates reported on path diagram)

Where:

Unstandardized = Unstandardized path coefficient
S.E. = Standard error
Standardized = Standardized path coefficient
C.R. = Critical Ratio (comparable to *t*-ratio)
SMC = Squared multiple correlation

[1] Bootstrapping standard errors for standardized path coefficients showed that these estimates were very similar to the ones for unstandardized coefficients. Therefore, when reporting on the significance of structural coefficients, the standard errors for the unstandardized path coefficients from Table 7-5 were used in all analyses to allow for easy reference.



Influencing Factors of Organizational Structure in China
Standardized estimates
Cmin/df= 2.821
df= 161
GFI= .743

The findings show strong significance for path coefficients related to the "traditional" contingency factors of size and technology, and non-significant coefficients for the "non-traditional" factors. In general, the squared multiple correlation (bootstrap estimates) were moderately high, ranging from 14% for centralization to 35% for formalization. These findings from the structural model indicated that the exogenous variables contributed meaningfully to explaining part of the variation in the endogenous structural constructs.

In the next step, we tested whether an extended model which specifies size as an endogenous variable regressed on emphasis on traditional Chinese values represents a better fit to the total sample. The path diagram on page 7-31 related to the subsequent ownership-based comparison, which will be discussed later, shows the structure of the extended model. Specifically, the following two models were compared:

Table 7-6 Description for total sample extended organizational structure models

Model name	Description
Model I a	Extended model with unconstrained regression path leading from Chinese characteristics to size
Model I b	Extended model with path coefficient between Chinese caracteristics and size fixed to zero

The results of this analysis are reported in Table 7-7 below:

Table 7-7 Fit indices for extended organizational structure model

	χ^2/df	*df*	GFI	AGFI	IFI	$\Delta\chi^2$*	*p*	*df*
Saturated model (Covariance structure)	.00	0	1.00	n/a	1.00	n/a	n/a	n/a
Model I a (Base model w/o constraints)	2.84	160	.74	.66	.69	n/a	n/a	n/a
Model I b (Model w/ zero path coefficient)	2.82	161	.74	.67	.69	.40	.53	1
Null model (Independence model)	5.75	190	.48	.42	.00	n/a	n/a	n/a

Note: N=124
•p < .05; ••p < .01; •••p < .001
*Baseline comparison is Model Ia

The findings show that the model in which the path coefficient between "emphasis on traditional Chinese values" and "size" is fixed to zero could not be rejected at any conventional significance level ($\Delta\chi^2$=.40, *df*=1, *p*=.53). In other word, for the total sample, the original research model which treats both Chinese culture and size as independent variables seems to be a better fit for the data. We therefore base our subsequent analysis for the total sample on this original research model. However, we will subsequently test whether there is a significant relationship between culture and size for the *private enterprise* subgroup.

In the next step, we compared the empirical findings of the original research model with the stated research hypotheses. The research hypothesis is presented below:

Hypothesis 4.1: The relationships between traditional contextual factors and *structure* correspond to the hypotheses derived from contingency theory.

Before starting to comment on these findings, it should be mentioned that in this chapter we will normally discuss only significant findings. Whereas in the previous chapter, due to the fragmented and oftentimes insufficient theoretical literature, we sometimes commented on non-significant findings, in the case of most contingency relationships there is a well developed body of theoretical literature which allows us to adopt a more rigorous attitude in commenting on findings. Therefore, in the next step we first had to identify significant influencing factors at the aggregate level to decide on which findings to comment.

7.2.3.4. Nested model comparisons

In order to assess the significance of the individual influencing factors, a more rigorous testing procedure than simple ad-hoc inspection of path coefficient *p*-values was deemed to be appropriate. In addition, researchers have pointed to the importance of specifying and examining the relative performance of alternative models (Bentler 1990 p. 238; Bollen and Long 1993 pp. 6-7; Hayduk 1996 p. 198). Therefore, in a next step, the significance of individual parameters was tested through a series of nested model comparisons. A nested model is a more constrained version of another more general structural equation model. To test the significance of individual exogenous constructs, it is possible to constrain their path coefficients to zero and then compare this nested model to the original baseline model. For nested model comparisons, the chi-square difference statistic ($\Delta\chi^2$) with degrees of freedom (*df*) equal to the difference in *df* between the two models, tests the null-hypothesis of no significant difference in fit between the two models. Significant chi-square difference statistics ($p<.05$), imply rejection of the more constrained model and demonstrate that the factor is statistically significant.[1]

For the purpose of the present study, the above described baseline model was compared to various nested model, each of which constrained the regression weights of one of the six influencing factors to zero. The results of the nested model comparisons in terms of $\Delta\chi^2$ and other comparative fit indices are presented in Table 7-9 on page 7-22. The findings support the tentative conclusions reached on the basis of the above described inferential statistics for the individual path coefficients. Size and technology were found to be significant influencing factors of structure. The χ^2 was significantly lower for the unconstrained model both in the case of size ($\Delta\chi^2=40.76$, $df=3$, $p<.001$) and technology ($\Delta\chi^2=8.77$, $df=3$, $p<.05$), suggesting rejection of those models which constrained the influencing factors' path coefficients to zero.

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[1] It should be noted that, in this context, the limitations of the chi-square statistic in terms of its sensitivity to various factors, such as, for example, sample size are mitigated, given that in nested models the researcher looks at chi-square *differences* which indicate *improvement* in fit from one model to another instead of fit in an absolute sense (Bagozzi 1981 p. 380).

The results relating to the chi-square difference for uncertainty ($\Delta\chi^2$=0.70, *df*=3, *p*=.87), environmental constraints ($\Delta\chi^2$=3.87, *df*=3, *p*=.28), need for achievement ($\Delta\chi^2$=4.53, *df*=3, *p*=.21), and emphasis on selected characteristics of Chinese culture ($\Delta\chi^2$=.55, *df*=3, *p*=.91), indicated that the constrained models with zero path coefficients could not be rejected at any conventional probability level. Therefore, these three factors significantly did not significantly increase the explanatory power of the model. This finding was also supported by the other comparative indices. Specifically, the GFI and AGFI which measure the total variation explained by the exogenous variables, as well as IFI, which assesses the practical significance of the model, both showed only very small decrease in fit for the more constrained models.

As shown above, the "non-traditional factors", including the CEO's need for achievement (McClelland et al. 1953; McClelland 1961; 1963) and emphasis on Chinese traditional cultural values were not significant in explaining variation in structure. Nor did their presence distort the fundamental contingency relationships in any case. This reassures us that contingency theory is valid and is not seriously challenged by the influence of non-traditional factors, discussed in the literature chapter.

Table 7-8 Nested model comparisons for organizational structure

	χ^2/df	*df*	GFI	AGFI	IFI	$\Delta\chi^2$*	*p*	*df*
Saturated model (Covariance Structure)	0.00	0	1.00	n/a	1.00	n/a	n/a	n/a
Model I (Baseline Structural Model)	2.82	161	.74	.67	.69	n/a	n/a	n/a
Model II (Structural Model w/o Size)	3.02	164	.73	.65	.64	40.76•••	.00	3
Model III (Structural Model w/o Technology)	2.82	164	.74	.66	.68	8.77•	.03	3
Model IV (Structural Model w/o Uncertainty)	2.77	164	.74	.67	.69	0.70	.87	3
Model V (Structural Model w/o Constraints)	2.79	164	.74	.67	.68	3.87	.28	3
Model VI (Structural Model w/o Achievement)	2.80	164	.74	.67	.68	4.53	.21	3
Model VII (Structural Model w/o Chinese)	2.77	164	.74	.67	.69	.55	.91	3
Null model (Independence Model)	5.75	190	.48	.42	.00	n/a	n/a	n/a

Note: N=124; •p < .05; ••p < .01; •••p < .001
*Baseline comparison is Model I
Where: χ^2=Chi square, $\Delta\chi^2$=Chi square difference, *df* =Degrees of freedom, *p* =Significance level, GFI = Goodness of fit index, AGFI =Goodness of fit index adjusted for degrees of freedom, IFI = Incremental Fit Index

Referring back to the research hypothesis (4.1), we now have to examine whether the significant size and technology relationships actually correspond to the "fit" relations suggested by contingency theory. The findings reported in Table 7-5 on 7-17 show that the detailed hypotheses relating to the influence of size and technology were supported by the significant empirical evidence.

The detailed sub-hypotheses and findings are summarized in Table 7-9 below:

Table 7-9 Comparison of hypothesis and findings for organizational structure model

	Formalization		**Centralization**		**Integration**	
	Hypothesis	Findings	Hypothesis	Findings	Hypothesis	Findings
Size	(+)	(+)	(-)	(-)	(+)	(+)
Technology	(+)	(+)	(+)	(+)	(+)	(+)
Uncertainty	(-)	(-)	(-)	(-)	(+)	**(-)**
Constraints	(+)	(+)	(-)	(-)	(+)	(+)
Achievement need	(+)	(+)	(+)	(+)	(+)	**(-)**
Chinese culture	(-)	**(+)**	(+)	(+)	(+)	(+)

Note: Signs in **bold** indicate departures from hypothesized direction of association. Items in shading are significant at the aggregate level, other findings due to their lack of significance cannot be thought of as "supporting" the hypothesis.

Size: There is strong evidence that size is positively associated with "bureaucratization", confirming the large body of previous theoretical and empirical literature, discussed in the literature chapter (Weber 1968; Blau 1970b; Astley 1985; Donaldson 1986; Miller 1987). More specifically, size was significantly positively related to formalization (γ=.43, p<.001). This confirms the results of previous empirical studies, such as the Aston research program (Pugh et al. 1963; Pugh et al. 1968; Pugh et al. 1969; Hickson, Pugh and Pheysey 1969; Inkson, Pugh and Hickson 1970), which showed that greater scale often increases the frequency of recurrent events, which then can be standardized (Haas and Collen 1963). Further, as suggested in the literature (Mintzberg 1993 p. 124; Miller and Droege 1986), larger companies also tended to make more use of liaison devices to integrate and coordinate the diversified activities in the organization (γ=.48, p<.001). In addition, size was significantly negatively associated with centralization (γ=-.22, p<.05), equally confirming the results of previous studies (Blau and Schoenherr 1971; Blau 1973; Mansfield 1973; Jennergren 1981 p. 54). These studies emphasized that with larger size the CEO, due to information processing limits combined to bounded rationality (Simon 1957), cannot make all decisions himself.

Technology: Confirming the results of several previous authors, mass technology (Khandwalla 1974) was found to be positively associated with bureaucracy (Woodward 1958; 1965; Thompson 1967; Perrow 1970). More specifically, the use of mass-technology, maybe due to its routine component (Hage and Aiken 1969 p. 371), often requires or facilitates more written procedures and guidelines (γ=.20, p<.05). This supported the results of previous studies (Pugh et al. 1969 p. 103; Dornbusch and Scott 1975) which used slightly different measures of technology. Mass-technology was also positively and significantly related to integration (γ=.20, p<.05). The direction of *signs* is equal to Miller and Droege's study (1986 p. 550), who, however, found that it was not significantly related to structure. As regards the positive association between mass technology and centralization, although the sign is as hypothesized, the association is very tiny indeed and not statistically significant (γ=.01, p>05). It therefore cannot be thought of as supporting our hypothesis. Likewise, Mintzberg's (1993 p. 169) thesis of a significant association, which was mentioned in the literature review, could not be confirmed. Instead, the findings suggest that technology is unrelated to centralization.

The importance of technology is somewhat surprising, since there were also several previous studies which established that it did not have a significant impact on structure, except for a vary narrow core which is directly affected by technology (Hickson et al. 1974a p. 16; Singh 1986; Miller and Droege 1986). However, as discussed in the literature review, the evidence and importance of size was heavily disputed (cf. Marsh and Mannari (1981)). We will discuss this issue in more detail in the conclusion chapter.

In more general terms, given that only size and technology were significant influencing factors, there was strong support for the "traditional" (as contrasted to the "modernized") version for the culture-free hypothesis (Hickson et al. 1974a p. 8). The relationships between the structural characteristics of work organizations and variables of organization context indeed appear to be stable across societies, and "non-traditional" factors do not distort these relationships.

7.2.3.5. Stacked model subgroup comparisons

Let us briefly recapitulate: We started this section with laying some groundwork testing the theoretical research question related to the notion of "fit" in contingency theory. So far, we have shown that the contingency relations for the *total* sample correspond to these "fit" relations and are not disturbed by non-traditional "challengers" to contingency theory. It is important to point out that the foregoing analysis was performed at an aggregate (total sample) level which might average out differences between various types of companies. There are thus still two further potential "challenges" to contingency theory:[1]

First, we have to test whether the personality factor still can upset this picture through interaction effects with firm size and age.

Second, the Chinese management style could be "monolithic", i.e. independent of contingencies. We will thus afterwards zoom back to the analysis of the distinctiveness of private enterprises, by looking at its influencing factors.

To analyze these aspects, stacked model analysis (Hayduk 1996 p. 155) was performed for different firm size and age, as well as for the private and state-enterprise subgroups. The significance of subgroup differences was assessed by a series of nested model comparisons using chi-square and other fit indices to test for between-group equivalence.

[1] Additional challenges will be tested in the next chapter. More specifically, the foregoing analysis *assumes* that the identified contingency relationships constitute "fit" with their environment without taking into account effectiveness.

The results pertaining to this analysis are reported in Table 7-10 below:[1]

Table 7-10 Nested model comparisons for total sample organizational structure subgroup analyses

	χ^2/df	*df*	GFI	AGFI	IFI	$\Delta\chi^2$*	*p*	*df*
Model I a (Baseline firm size subgroup)	2.04	322	.67	.57	.66	n/a	n/a	n/a
Model I b (Firm size subgroup w/ equality)	2.11	340	.64	.56	.61	61.91•••	.00	18
Model I c (Size subgroup w/ nach ->form eq)	2.03	323	.67	.57	.66	.01	.92	1
Model I d (Size subgroup w/ nach ->cent eq)	2.04	323	.67	.57	.66	1.02	.31	1
Model I e (Size subgroup w/ nach ->int eq)	2.04	323	.67	.57	.66	3.01	.08	1
Model II a (Baseline firm age subgroup)	2.17	322	.65	.54	.62	n/a	n/a	n/a
Model II b (Firm age subgroup w/ equality)	2.12	340	.64	.56	.60	22.34	.22	18
Model III a (Baseline ownership subgroup)	2.25	322	.64	.53	.61	n/a	n/a	n/a
Model III b (Ownership subgroup w/ equality)	2.21	340	.64	.56	.59	26.63	.09	18

•p < .05; ••p < .01; •••p < .001; *Compared to baseline model; where: nach = achievement need; form=formalization, cent=centralization, int=integration, eq=subgroup equality.

7.2.3.5.1. Firm size and age subgroup comparison

Hayduk (1996 p. 155) pointed out that stacked (or multisample) models can be used to locate interaction, also called "conditional differential effectiveness". Thus, the major objective of the firm size and age subgroup comparison was to test an interaction effect between CEO need for achievement and firm size.

Firm size subgroups: Miller and Droege (1986) suggested that the influence of CEOs with high achievement need might be stronger in smaller companies where executive decisions often have an immediate impact on concrete actions. To test this notion, the total sample was split into two halves along the median for the natural logarithm of the number of employees (Miller and Droege 1986). A subsequent chi-square difference test between the general model and a model which assumed equality between the two subgroups was statistically significant ($\Delta\chi^2$=61.91, *df*=18, p<.001). Therefore, there was some evidence that the two groups were indeed different.

It then was important to see whether the influence of CEO need for achievement was indeed larger in smaller companies. The findings of the analysis relating to path coefficients for all subgroup comparisons are presented in Table 7-11 on the next page:

[1] The findings related to the effectiveness subgroup comparisons will be reported in the next chapter.

Table 7-11 Subgroup analysis for organizational structure (ML standardized path coefficients)

	Total	Firm Size		Firm Age		Ownership	
Independent	All*	Large	Small	Old	Young	Private	State
Size							
Formalization	.43•••	.30•	.59•	.28•	.39••	.61•••	.18
Centralization	-.22•	-.22	-.39•	-.31•	-.39••	-.21	-.37••
Integration	.48•••	.36••	.93•	.32•	.51•••	.58•••	.42•••
Technology							
Formalization	.20•	.32••	.13	.29•	.11	.17	.26•
Centralization	.01	.11	-.06	-.10	.05	-.03	.14
Integration	.20•	.14	.28•	.19	.13	.30••	.05
Uncertainty							
Formalization	-.07	.05	-.20	.02	-.13	-.05	.05
Centralization	-.02	-.05	-.03	-.13	.03	.08	-.21
Integration	-.02	.04	-.06	.12	-.16	-.04	.13
Constraints							
Formalization	.06	.14	.01	.07	.05	.10	-.04
Centralization	-.13	.00	-.18	.04	-.15	-.15	-.02
Integration	.10	.13	.00	-.06	.11•	.19•	-.10
Achievement							
Formalization	.11	.14	.12	.11	.11	.07	.05
Centralization	.08	-.07	.13	-.02	.21	.12	-.02
Integration	-.13	-.02	-.33••	.06	-.33••	-.23•	-.06
Chinese							
Formalization	.02	.06	-.01	.04	.06	.24•	.03
Centralization	.03	-.11	.11	-.12	.07	.07	-.13
Integration	.05	.03	.20	.03	.26	.25•	.14

Note: Total sample N=124; Large n=60, Small n=64;[1] Old n=60, Young n=61;[2] State n=63, Private n=61.
•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38).
* All critical ratios based on unstandardized coefficients
Shading indicates focus of size interaction analysis.

The results show that in larger companies there were no significant associations between CEO need for achievement and structure whatsoever. With respect to individual differences, as judged by the absolute size of the regression weight, there was a stronger negative influence of CEO need for achievement on integration in smaller companies (γ=-.33, p<.01) compared to larger ones (γ=-.02, p>.05). Nested model comparisons (*see* Table 7-10 on page 7-22) showed that this difference was significant ($\Delta\chi^2$=3.01, df=1, p=.08) at the slightly less conservative level used by some researchers. In smaller companies, CEOs may make less use of committees and other liaison devices which function on the basis of consensus. This contradicted the results of Miller and Droege (1986 p. 545) who found that high achieving CEOs tended to promote the use of more integrative devices. As regards the association between need for achievement and centralization, the coefficient was also larger in absolute terms in smaller companies (γ=-.13, p>.05), but not statistically significant at any conventional level ($\Delta\chi^2$=1.02, df=1, p=.31).

[1] Unequal split due to fact that several observations at median value.

[2] Three missing values for company age.

Although the difference was not significant, the findings show a slight tendency for "driven" CEOs in small companies to centralize decision-making power, confirming Miller and Droege's (1986 p. 545) findings, whereas in large companies they appeared to delegate this authority. Generally speaking, the presence of this interaction effect between size and need for achievement did not change the significance or reverse the signs of the traditional contingency factors of size and technology. Thus, as discussed in the literature review, the presence of interaction effects *per se* did not undermine the validity of contingency theory.

In addition, in the literature review we had outlined a model which specified a causal path from need for achievement to company size. We had expressed our view that this was only a hypothetical model which did not correspond to our theory. Nevertheless, following the "plausible rival hypothesis approach" we tested this model. Results of a nested model comparison for the total sample showed that the more constrained model which fixed the path to zero could not be rejected at any conventional significance level ($\Delta\chi^2$=.02, *df*=1, *p*=.88). In other words, the model which specified a path from need for achievement to size was not a good fit for the data. These results, too, showed that need for achievement did not present a threat to contingency theory.

Firm age subgroups: Similar to the firm size comparison, the objective for the firm age subgroup analysis was to see whether there was a stronger influence of CEO personality in younger compared to older companies. For this purpose, the total sample was split into two equal subgroups along the median for firm age. A subsequent chi-square difference test between a general model and a model which hypothesized equality between the two subgroups was not statistically significant ($\Delta\chi^2$=22.34, *df*=18, *p*=.22). Therefore, equality between the two groups could not be rejected and an interaction effect was not evident. In addition, the sign of the core contingency relations were as hypothesized.

7.2.3.5.2. Ownership subgroup comparison

After this general ground work, we now zoom back to our main empirical theme, i.e. the distinctiveness of private Chinese management. We remember from our discussion in the previous chapter, that there was support for certain distinctive structural and managerial elements of the Chinese management style which had been readopted in mainland private enterprises. We hypothesized that this distinctiveness in terms of mean levels, ceteris paribus, was due to the direct and indirect influence of emphasis on traditional Chinese values, most importantly familism, in private firms. As mentioned above, by testing this hypothesis, we can also clarify the second challenge to contingency theory in general, i.e. the alleged presence of a monolithic management model independent of any contingency factors. In this section, we will therefore analyze the following question:

Research question 2: Do the distinctive features of private Chinese management, ceteris paribus, result from an emphasis on traditional Chinese cultural values?

We will test the following hypothesis:

Hypothesis 2.1: Ceteris paribus, the distinctive characteristics of private Chinese management are due to the influence of emphasis on traditional Chinese cultural values.

In this organizational structure model, we focused on the first two of the four distinctive characteristics of private Chinese management, i.e. bureaucracy and centralization. A nested model comparison was performed to assess whether private firms differ from state-owned enterprises in their responses to contextual factors at the aggregate level. As a first step, we assessed a model in which no regression path between emphasis on Chinese culture and organizational size was specified. This assumption was relaxed in a subsequent model which was thought to more accurately reflect our theory. The general model in which parameters were allowed to vary freely within the two subgroups was compared to a nested model in which the respective structural parameters were constrained to equality for both subgroups. A significant chi-square difference would imply rejection of the model with equality constraints and would provide evidence for a significant difference between the two subgroups, therefore justifying the choice of ownership comparison.

The findings reported in Table 7-10 showed that the chi-square difference, although relatively large in absolute terms, was not statistically significant at the recommended $p<.05$ level ($\Delta\chi^2=26.63$, $df=18$, $p=.09$). Therefore, for *this* simplified model, equality between the two groups could not be rejected. However, given that some researchers would still accept such a model at a $p<.10$ level, it was important to see whether clearer results could be obtained by extending the model.

7.2.3.6. Extended organizational structure model

In the next step, we examined an extended organizational structure model which, in accordance with our hypothesis, specified a regression path leading from emphasis on Chinese culture to organizational size. In addition to the above stated hypothesis, we thus also tested the notion that the *choice* regarding the level of contextual factor size is due to the emphasis on traditional Chinese values in private firms. The following hypothesis expresses this idea:

Hypothesis 2.2: The small size of Chinese private enterprises is due to the cultural emphasis on family ties in private Chinese firms.

The first step in the analysis was to perform a set of nested model comparisons within the overall stacked model to see whether the private enterprises were distinctive in their choice of small size. The various models tested are described in Table 7-12 on the next page:

Table 7-12 Model descriptions for extended organizational structure stacked model comparisons

Model name	Description
Model I a	Extended stacked model with unconstrained regression path leading from emphasis on Chinese characteristics to size
Model I b	Extended stacked model with equality constraints for all structural parameters between state and private enterprise subgroups
Model I c	Extended stacked model with equality constraint only for regression path leading from Chinese characteristics to size for state and private enterprise subgroups
Model I d	Extended stacked model with path coefficient between Chinese characteristics and size fixed to zero
Model I e	Extended stacked model with equality constraint for regression path leading from Chinese characteristics to formalization for state and private enterprise subgroups
Model I f	Extended stacked model with equality constraint for regression path leading from Chinese characteristics to centralization for state and private enterprise subgroups
Model I g	Extended stacked model with equality constraint for regression path leading from Chinese characteristics to integration for state and private enterprise subgroups

The results are reported in Table 7-13 below:

Table 7-13 Fit indices for extended organizational structure model

	χ^2/df	*df*	GFI	AGFI	IFI	$\Delta\chi^2$*	*p*	*df*
Saturated model (Covariance structure)	.00	0	1.00	n/a	1.00	n/a	n/a	n/a
Model I a (Base model w/o constraints)	2.23	320	.65	.53	.62	n/a	n/a	n/a
Model I b (Model w/ all equality)	2.20	338	.64	.56	.60	29.79•	.04	18
Model I c (Model w/ Culture→Size path equality)	2.25	321	.64	.53	.61	8.62••	.01	1
Model I d (Model w/ zero Culture→Size path)	2.25	322	.64	.53	.61	12.51••	.00	2
Model I e (Model w/ Culture→Form path equality)	2.24	321	.65	.54	.61	5.44•	.02	1
Model I f (Model w/ Culture→Cent path equality)	2.22	321	.65	.54	.62	.03	.86	1
Model I g (Model w/ Culture→Int path equality)	2.23	321	.65	.54	.62	4.06•	.04	1
Null model (Independence model)	3.55	380	.44	.38	.00	n/a	n/a	n/a

Note: N=124

•p < .05; ••p < .01; •••p < .001

*Baseline comparison is Model Ia

Where:

Form = Formalization

Cent = Centralization

Int = Integration

The findings related to the base model (I a) show an acceptable absolute fit as measured by the chi-square statistic adjusted for the degrees of freedom (χ^2/df=2.23, *df*=320). What is even more important is the fact that, as shown by the chi-square nested model difference test ($\Delta\chi^2$=12.51, *df*=2, p<.01), this model actually represented a significantly better fit to the data than the basic stacked research model (I d) which did not allow for a regression path between emphasis on Chinese culture and size. In addition, within this stacked model, as suggested by the significant chi-square statistic for model I b ($\Delta\chi^2$=29.79, *df*=18, p<.05), the structural path coefficients for private enterprises were significantly different from their state-owned counterparts. Most importantly, comparing model I c to the base model (I a) showed that the path coefficient between "emphasis on Chinese culture" and "size" was significantly different for both subgroups ($\Delta\chi^2$=8.62, *df*=1, p<.01).

In the light of these results, it was important to look in some more detail into the differences in individual path coefficients between the two subgroups. Given that all constrained models had to be rejected, in Table 7-14 on the next page we report the results for the unconstrained model (1 a). The findings with respect to private firms are also graphically illustrated in the modified path diagram on the following page:

Table 7-14 ML standardized path coefficients for extended organizational structure model (1a)

Independent Variable	Private	State
Size		
Formalization	.89•••	.19
Centralization	-.32	-.37••
Integration	.84•••	.41••
Technology		
Formalization	.16	.26•
Centralization	-.01	.14
Integration	.28••	.05
Uncertainty		
Formalization	-.04	.05
Centralization	.07	-.21
Integration	-.03	.13
Constraints		
Formalization	.11	-.04
Centralization	-.16	-.02
Integration	.20•	-.10
Achievement need		
Formalization	.04	.05
Centralization	.14	-.02
Integration	-.27•	-.06
Chinese characteristics		
Formalization	.57••	.03
Centralization	-.05	-.12
Integration	.55••	.13
Chinese characteristics → Size	-.58•••	.18

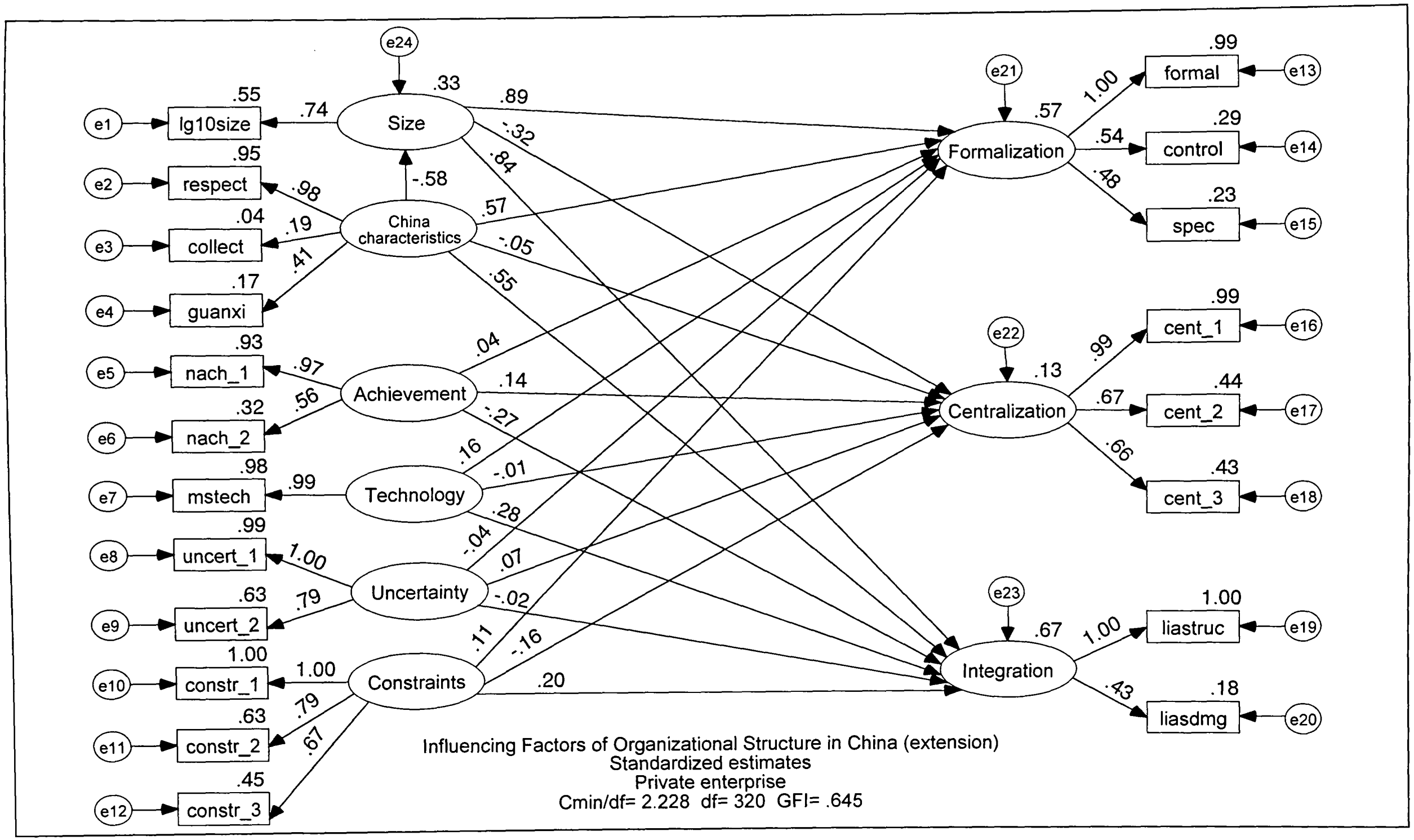
Note: N=124

•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38).

* All critical ratios based on unstandardized coefficients

Where:

→ = Regression path (γ)


e24
.33
Size
.74
.55
lg10size
e1
.89
-.32
.84
-.58
China characteristics
.98
.95
respect
e2
.19
.04
collect
e3
.41
.17
guanxi
e4
.57
-.05
.55
.04
.97
.93
nach_1
e5
.14
Achievement
.56
.32
nach_2
e6
-.27
.16
.99
.98
mstech
e7
Technology
-.01
.28
-.04
.07
1.00
.99
uncert_1
e8
Uncertainty
.79
.63
uncert_2
e9
-.02
.11
-.16
1.00
1.00
constr_1
e10
Constraints
.20
.79
.63
constr_2
e11
.67
.45
constr_3
e12
e21
.57
Formalization
1.00
.99
formal
e13
.54
.29
control
e14
.48
.23
spec
e15
e22
.13
Centralization
.99
.99
cent_1
e16
.67
.44
cent_2
e17
.66
.43
cent_3
e18
e23
.67
Integration
1.00
1.00
liastruc
e19
.43
.18
liasdmg
e20
Influencing Factors of Organizational Structure in China (extension)
Standardized estimates
Private enterprise
Cmin/df= 2.228 df= 320 GFI= .645

To first test research hypothesis 2.1 and see which factors were significant at the aggregate level, we performed an additional nested model comparison for the private sample only, using the extended model. The results of this analysis are reported in Table 7-15 below:

Table 7-15 Nested model comparisons for private firms extended organizational structure model (1a)

	χ^2/df	*df*	$\Delta\chi^2$*	*p*	*df*
Saturated model (Covariance Structure)	0.00	0	n/a	n/a	n/a
Model I (Baseline Structural Model)	2.53	160	n/a	n/a	n/a
Model II (Structural Model w/o Size)	2.56	163	11.83••	.01	3
Model III (Structural Model w/o Uncertainty)	2.49	163	.27	.97	3
Model IV (Structural Model w/o Achievement)	2.52	163	6.16	.10	3
Model V (Structural Model w/o Constraints)	2.51	163	3.77	.29	3
Model VI a (Structural Model w/o Chinese)	2.55	163	10.02•	.02	3
Model VI b (Structural Model w/o Chinese->Form path)	2.56	161	6.61••	.01	1
Model VI c (Structural Model w/o Chinese->Cent path	2.52	161	.08	.78	1
Model VI d (Structural Model w/o Chinese->Int path)	2.56	161	7.50••	.01	1
Model VII (Structural Model w/o Culture→Size path)	2.58	161	10.70•••	.00	1
Null model (Independence Model)	4.04	190	n/a	n/a	n/a

Note: n=61 (private enterprises subgroup); •p < .05; ••p < .01; •••p < .001
*Baseline comparison is Model I
Where: Form=Formalization, Cent=Centralization, Int=Integration

Direct impact of cultural emphasis: The findings provide support for the research hypothesis. Holding other factors constant, Model VI a shows that emphasis on traditional Chinese cultural values in private firms is a significant factor ($\Delta\chi^2$=10.02, *df*=3, *p*<.05) explaining the distinctive characteristics as regards the structural choices of private Chinese enterprises. It was not significant for state-owned enterprises. More specifically, as hypothesized, an emphasis on Chinese cultural values was significantly positively associated with integration (γ=.55, *p*<.01; $\Delta\chi^2$=7.50, *df*=1, *p*<.01). A nested model comparison using the stacked model (Model I g in Table 7-13 on page 7-29) showed that this difference was also significant compared to state enterprises ($\Delta\chi^2$=4.06, *df*=1, *p*<.05). Contrary to the original research hypothesis, emphasis on traditional Chinese values was also significantly *positively* associated with formalization (γ=.57, *p*<.01; $\Delta\chi^2$=6.61, *df*=1, *p*<.01). This suggests that the hierarchy-related aspects contained in traditional Chinese values, such as, for example, respect for seniority, seem to call for more formalized structures. This difference, as shown in the nested stacked model comparison (Model I e in Table 7-13), was also once again significant when compared to state enterprises ($\Delta\chi^2$=5.44, *df*=1, *p*<.05).

Indirect impact of cultural emphasis: In addition, research hypothesis 2.2 stating a causal relationship leading from emphasis on Chinese cultural values to size was supported by the empirical evidence. More specifically, as reported in Table 7-14, in the case of private enterprises, there is a significant negative causal relation between emphasis on Chinese culture and size (γ=-.58, p<.001). Company size in turn significantly influences structure ($\Delta\chi^2$=11.83, df=3, p<.01). In contrast, as regards state-owned enterprises, the association between emphasis on culture and size is actually positive and *not* statistically significant (γ=.18, p>.05). These findings were also confirmed in the nested model comparisons for the private enterprise subgroup (Table 7-15). A nested model which fixed the path from culture to size to zero had to be rejected at conventional significance levels ($\Delta\chi^2$=10.70, df=1, p<.001).

The findings thus might explain some previous observation in the literature on overseas Chinese. Specifically, they shed some light onto why in countries which allow the Chinese free economic activity, most firms from the private sector are at the same time family-owned (Fukuyama 1995 p. 73; Redding 1990 p. 3; Wong 1985; Heller 1991) and very small (Hicks and Redding 1982 p. 212; Myers 1984; Myers 1986 p. 29; Tam 1990 p. 161). These findings also provide some empirical support for related discussions in the literature on *Nanyang* management, emphasizing that in order to keep strong family ties, there is a preference to "spawn" or proliferate instead of growing company size (Whyte 1995 p. 1003; Hickson and Pugh 1995 p. 170). This makes it possible to grant responsibility to family members who can head spin-offs, but still facilitates integration and personal relationships within the family.

Thus, in conclusion we saw that the structural aspects of the distinctive private Chinese management model were, ceteris paribus, due to the emphasis placed on traditional, often family-oriented values, in Chinese private enterprises, which could not be detected for state-owned enterprises. More specifically, Chinese family-oriented values had some direct and indirect (Fox 1980 p. 3) impact on organizational structure. Let us define "potency" as a combination of high mean levels for a contextual factor and strength of association between this factor and other contextual or structural properties. Using this definition, emphasis on Chinese cultural characteristics is very potent in private firms in three forms: First, the mean level related to emphasis on family-based values is relatively high (compared to state enterprises). Second, there is a strong (indirect) influence of culture on the choice of mean level for the contextual factor size in private firms, which in turn significantly influences organizational structure.[1] Third, there is also a strong direct influence of emphasis on culture on structure in private firms.

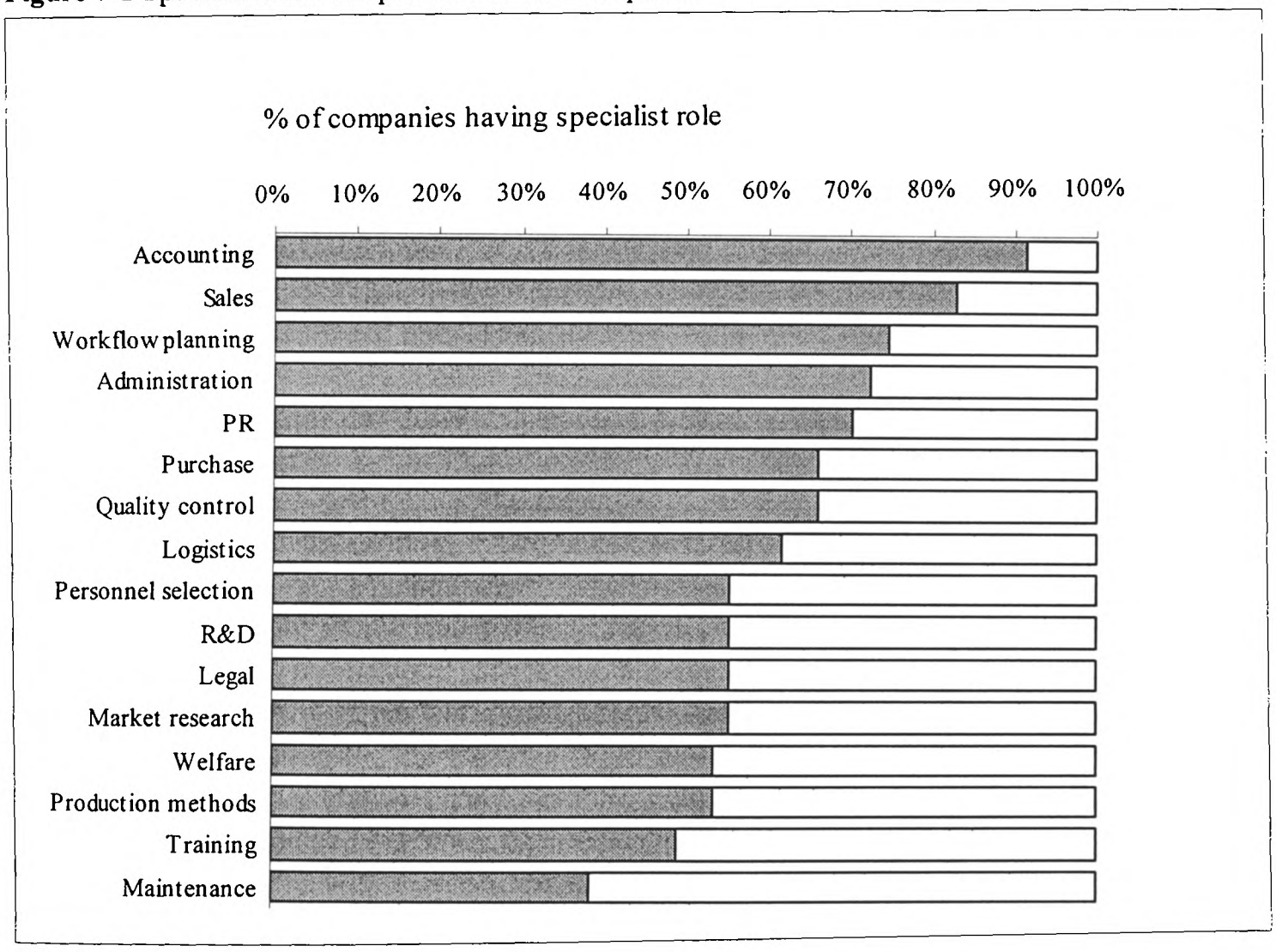
[1] As a caveat it should be mentioned that in the absence of longitudinal data, we can never "proof" causality. It might as well be true that larger companies tend to put less emphasis on cultural values. However, due to the strong theoretical basis, we favor the other explanation.

Zooming back to the general theoretical question, do these findings challenge contingency theory and the culture-free hypothesis? We believe that this is not the case. The basic "culture-free" contingency relationships expressed by Hickon *et al.* (Hickson et al. 1974a p. 8), i.e. the hypothesized relationships and direction of association between size and structural dimensions as well as technology and structure, were still found to be stable for private Chinese enterprises as well. In addition, the one non-traditional factor, though significant, did not alter these basic relationships. In more general terms, these findings show that the second challenge to contingency theory, i.e. a monolithic Chinese management style, existing independently from any influencing factors, can be rejected.

7.2.3.7. Private enterprise item level differences

In addition to the findings at the aggregate scale level, there might be inter-item variations *within* the respective scales, including specialization, formalization and centralization, which, ceteris paribus, might be due to the emphasis placed on family-based values in private Chinese firms. It should be highlighted that such an inter-item analysis of individual structural dimensions is not normally performed by contingency empiricists. The result of this item-level analysis for specialization in private enterprises are presented in Figure 7-1 below:

Figure 7-1 Specialists roles in private Chinese companies



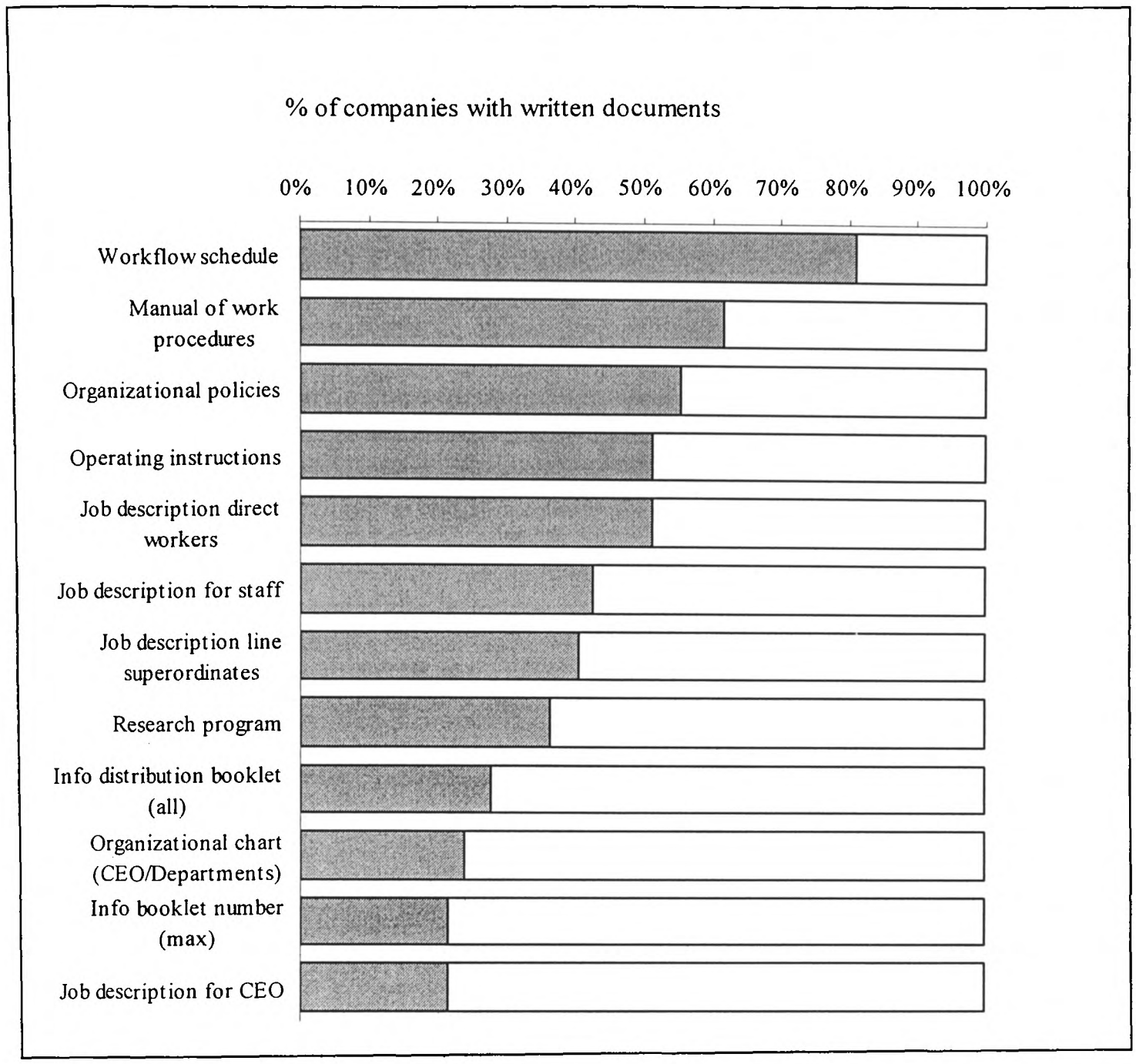
The findings reveal important differences in specialist roles at the item level. In particular, most private enterprises tend to have dedicated positions for basic functions, such as accounting, sales, planning and administration. Fewer companies have the more sophisticated functions of maintenance, training and production methods. Some of these relatively low scores seem to reveal a certain distinctiveness of Chinese private enterprises in their emphasis on controlling financial matters and pursuing aggressive strategies through sales specialists. In contrast, highly specialists functions such as maintenance and market research might rather be contracted out to other companies. These findings in particular correspond to Redding and Wong's (1986 p. 276) observation related to *Nanyang* (overseas Chinese) firms which were thought to lack ancillary departments, such as research and development, labor relations, public relations and market research.

In addition, companies with worker welfare specialists are relatively few in number in most private enterprises. This might reflect the fact that these companies are quite different from state-enterprises which due to their many social responsibilities (Benson and MacLachlan 1996) are sometimes called "welfare agencies" (Jackson 1992) or "mini-governments". Finally, it might also be the possible that in many instances, CEOs assume direct control for the welfare of their employees and thus would not need a specialist to deal with these issues. In more general terms, the lack of specialists in human resource related functions conforms to Cai's (1997) observation that most private overseas Chinese firms do not have personnel departments, since they usually rely on networks for recruitment.

The item-level analysis for the Aston formalization scale is presented in Figure 7-2 on the next page. The results once again confirm item level differences for the composite scale. Though overall formalization is relatively low, there is a comparatively stronger emphasis on formalizing basic "scientific management" related areas (McMillan et al. 1973 p. 43), such as workflow schedules, manuals of procedures, and operating instructions. These findings might reflect the importance the CEO attaches to technology which he protects, amongst other things, by bureaucratic control means. This could also be a reason for why technology is thought to have such a great impact on formalization. Greater use of mass-technology would presumably require more scientific management related documentation.

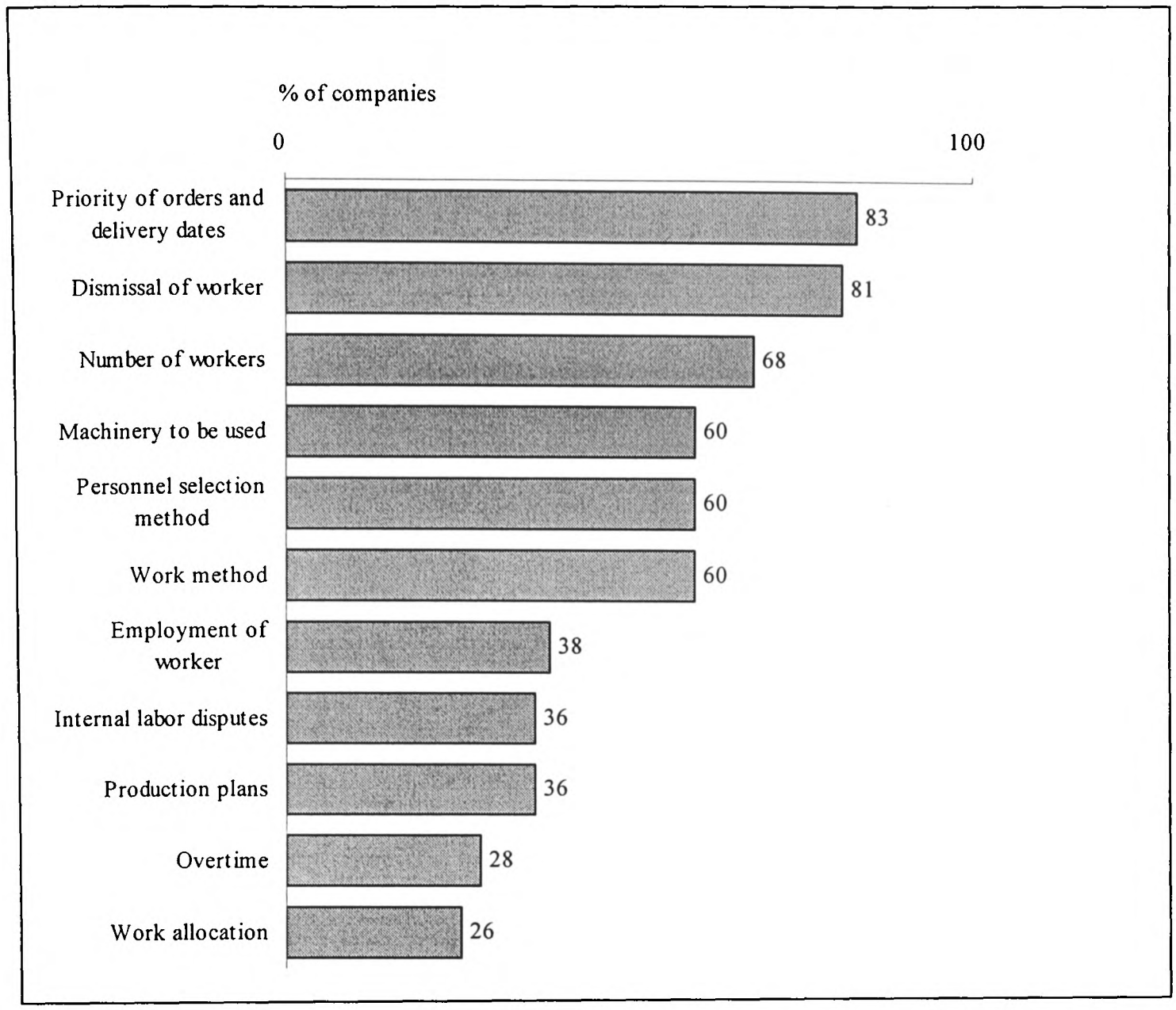
Apart from this, private firms score relatively low on formalized job descriptions and organizational charts. This might be an outflow of the desire to remain flexible and having employees perform a wide range of tasks depending on the task contingencies. The lack of a job description for the CEO is conspicuous, maybe reflecting his authority in the company, i.e. the fact that nobody can possibly prescribe *him* what to do. Finally, only few companies have information booklets treating, for example, security or working conditions. Written research programs are not in wide-spread use either. This might be viewed as further evidence of the CEO's distaste for red tape, which he can express in relatively small companies.

Figure 7-2 Formalization in Chinese private companies



The findings relating to the item level analysis of centralization in Chinese private enterprises are reported in Figure 7-3 on the next page. The findings suggest a dichotomy with respect to decision-making centralization. Though the centralization score overall is very high, there is an even greater tendency for the CEO to centralize strategic decisions, such as issues related to the priority of orders (83%) and type of machinery to be used (60%). In most companies, the CEO also centralizes questions related to human resource management, in particular firing decisions (81%) as well as the total number of workers to be employed (68%). In contrast, some more operational issues are decentralized. There are few companies in which the CEO deals with detailed work allocation (26%), the amount of overtime to be worked (28%) or technical production plans (36%).

Figure 7-3 Decisions in Chinese private enterprises centralized at CEO level or above



Thus, in conclusion, we found some intra-scale differences related to the various structural dimensions. We tentatively speculated that some of these differences might be distinctive for private enterprises. Maybe it is in these intra-scale differences that the direct effect of emphasis on Chinese culture becomes visible. It would be interesting in a future study to rigorously examine this issue. In more general terms, it is interesting to note that these differences are hidden in the aggregate Aston scores. Researchers who are interested in a more detailed analysis of organizational structure would therefore have to take into account the above mentioned findings and analyze differences at the item-level. This would also help to develop a more refined version of contingency theory at the item level.

7.3. Influencing factors of management practices in China

We will now move on to analyze the above mentioned research questions in the context of management practices. As in the preceding section, we will first focus on the theoretical question examining the "fit" relations for the total sample in general and will afterwards focus on management in private enterprises in particular.

7.3.1. Model specification

The basic model in structural equation format is presented in the path diagram entitled "Influencing factors of management practices in China" in section 7.2.3.3 which starts on page number 7-15. In the most general terms, the model tests the hypothesis that various managerial practices in Chinese companies are significantly influenced by different exogenous contextual traits.

Structural model: As regards the substantive model, the contextual constructs are identical to those employed in the organizational structure model with the only exception that technology was not included, given that it was not hypothesized to have a significant impact on general management practices. The independent variables thus included size, uncertainty, constraints, CEO need for achievement and emphasis on selected characteristics of Chinese culture. The endogenous managerial variables were proactive strategy, participative leadership, adaptive decision making, horizontal communication and subcontracting.

Empirical model: In the measurement model, we hypothesized that the various exogenous and endogenous unobserved traits were measured by different indicators. Proactive strategy was gauged by the degree to which companies actively pursue new opportunities (opport), i.e. company questionnaire item 4.1.i, and attempt to be the first company to introduce new products to the market (newprod), item 4.1.j. Indicators for "participative leadership style" included the degree to which democratic decision making at top levels in the firm is used for product (prodpart), finance (finpart) and strategy-related issues (strapart), i.e. company questionnaire items 5.1 a-c. "Adaptive decision making" is characterized by a cautious, pragmatic, one small step at a time adjustment to problems. Decisions are generally compromises between the conflicting demands of owners, government, managers, customers, etc. They are made locally more often than centrally, and the primary concern is with stability and steady growth. The manifest variable is labeled "adapt" and can be found in questionnaire item 6.1. Horizontal communication is measured by the degree to which the company used departmental meetings which are set up to allow members of the same department to engage in joint-decision making (horcom), i.e. questionnaire item 7.2. Finally, subcontracting was operationalized as the degree to which the focal company outsources various functions in the organizational value chain (questionnaire items 18.4.1-k). The items were randomly split (every *k*th item) into three indicators (subcon_1, subcon_2 and subcon_3) to allow for the assessment of scale measurement properties. As in the previous model, each indicator was associated with an error term, which models random measurement error (e1-e21). In addition, each endogenous construct was linked to a unique error variance term (e22-e26). Moreover, the path leading from the construct to the indicator which supposedly best measures the underlying construct was constrained to unity.

Further, in cases where Alpha reliability coefficients were available, they were used to make an estimate of measurement error. These estimates were used to fix the error variance for the indicator which supposedly best measured the underlying construct. In the other cases, conservative estimates were made.

7.3.2. Results

7.3.2.1. Test for multivariate normality assumption

Results showed that the model was identified. In addition, bootstrapping findings demonstrated that the Maximum Likelihood method was very robust against violations of the normality assumption. More details are reported in Appendix R.

7.3.2.2. Evaluation of measurement model

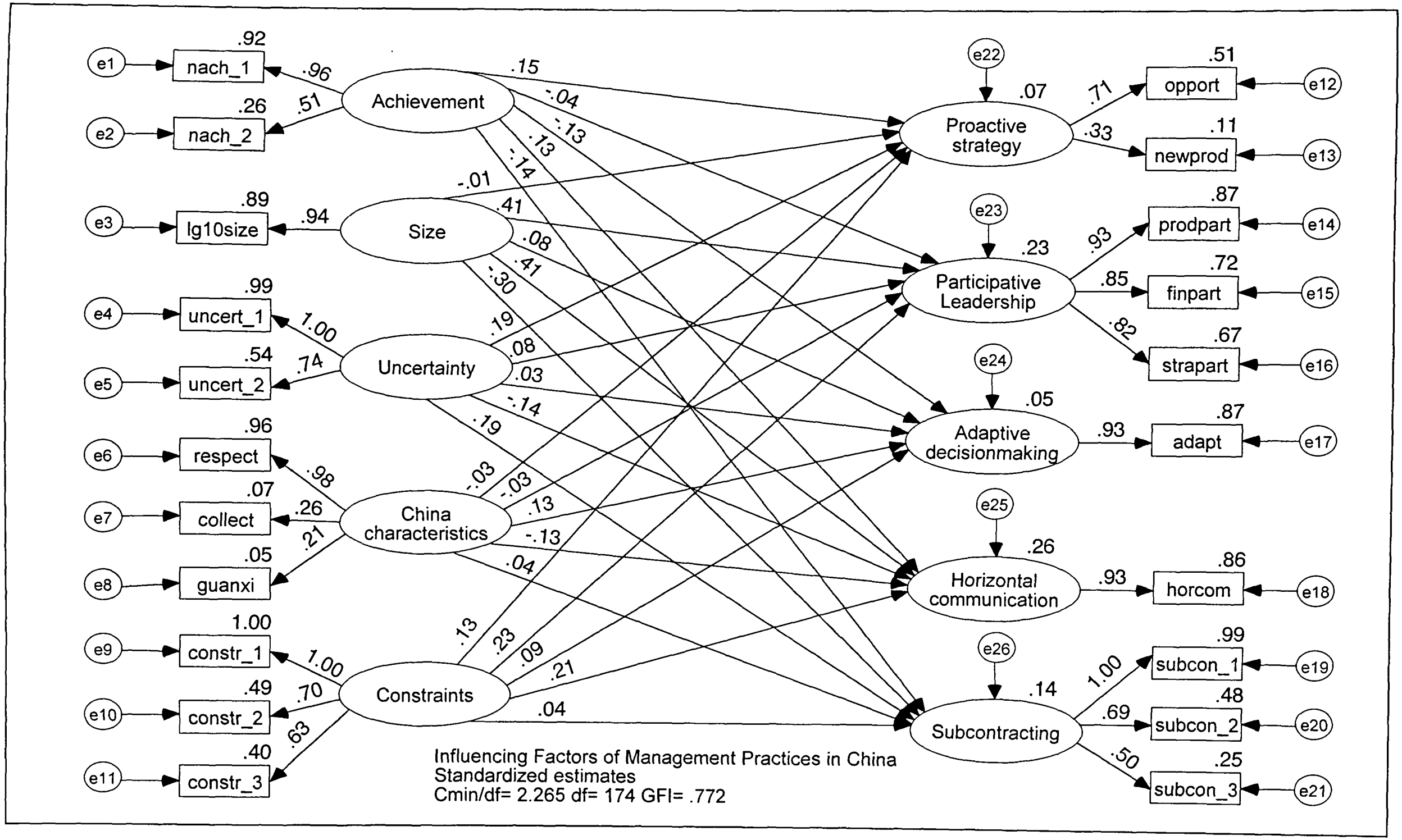
The evaluation of the measurement model provided support for the unidimensionality of measures, their relatively high degree of convergent and discriminant validity, as well as reliability. Details related to the assessment of the measurement model are reported in Appendix R.

7.3.2.3. Evaluation of basic structural model

In the next step, the overall fit of the model was analyzed by examining various indices. The chi-square statistic was significant (χ^2= 394.2, df=174, p<.01). However, due to its sensitivity to sample size, failures to satisfy the multinormality assumption, and model complexity, the CMIN/DF was preferred as a measure of fit. With a value of 2.27 in our case, the model shows acceptable fit according to Carmines and McIver's (1981 p. 80) criterion. Further, the goodness of fit index, i.e. the equivalent of R^2 in ordinary regression analysis, was relatively high (GFI=.77). Thus, there was some additional evidence that the model presents a relatively good fit for the data. Finally, the incremental fit index (Bentler and Bonett 1980) was moderately high (IFI=.76), providing some more support for an acceptable fit of the model in a practical sense. A comparison of the various fit indices is presented in Table 7-19.

Furthermore, there were no "improper" solutions in the model, such as "Heywood cases", out-of-range covariances (standardized estimates greater than 1.0) and non-positive underlying covariance matrices. In addition, there were no unusually high normalized residuals. Moreover, no *post hoc* modifications to model specifications, such as introduction of "waste basket" parameters (Browne 1984), were made to improve fit. On the basis of these additional pieces of analysis, the notion of "acceptable" fit was supported.

Finally, the significance and absolute amount of the structural parameter estimates provides some additional information on model fit. Unstandardized as well as standardized path coefficients (gamma) for the total sample are reported in Table 7-16 on page 7-38. These regression coefficients are also displayed in the path diagram entitled "Influencing factors of management practices in China" on the following page:


nach_1
nach_2
lg10size
uncert_1
uncert_2
respect
collect
guanxi
constr_1
constr_2
constr_3
Achievement
Size
Uncertainty
China characteristics
Constraints
Proactive strategy
Participative Leadership
Adaptive decisionmaking
Horizontal communication
Subcontracting
opport
newprod
prodpart
finpart
strapart
adapt
horcom
subcon_1
subcon_2
subcon_3
Influencing Factors of Management Practices in China
Standardized estimates
Cmin/df= 2.265 df= 174 GFI= .772

The findings show large and significant path coefficients for the "traditional" contingency factors size, moderately high and significant values for constraints and, in one case, uncertainty, and non-significant coefficients for the "non-traditional" factors. In general, the squared multiple correlation (bootstrap estimates) were moderately high, ranging from 17% for proactive strategy to 31% for horizontal communication. These results relating to the structural model indicated that the exogenous variables contributed meaningfully to explaining part of the variation in the endogenous managerial constructs.

Table 7-16 Maximum Likelihood path coefficients (gamma) for managerial practice model

Independent Variable	Unstandardized	S.E.	Standardized
Size			
Proactive strategy	-.01	.10	-.01
Participative leadership	.83•••	.18	.41
Adaptive decisionmaking	.17	.20	.08
Horizontal communication	.80•••	.18	.41
Subcontracting	-1.45••	.44	-.30
Uncertainty			
Proactive strategy	.03	.02	.19
Participative leaderhip	.04	.04	.08
Adaptive decisionmaking	.02	.04	.03
Horizontal communication	-.06	.04	-.14
Subcontracting	.20•	.09	.19
Constraints			
Proactive strategy	.02	.02	.13
Participative leaderhip	.08••	.03	.23
Adaptive decisionmaking	.03	.03	.09
Horizontal communication	.07•	.03	.21
Subcontracting	.04	.07	.04
Achievement need			
Proactive strategy	.05	.04	.15
Participative leaderhip	-.03	.07	-.04
Adaptive decisionmaking	-.10	.08	-.13
Horizontal communication	.10	.07	.13
Subcontracting	-.26	.17	-.14
Chinese characteristics			
Proactive strategy	-.01	.03	-.03
Participative leaderhip	-.02	.05	-.03
Adaptive decisionmaking	.07	.06	.13
Horizontal communication	-.07	.05	-.13
Subcontracting	.06	.12	.04
SMC*			
Proactive strategy	.17	.10	n/a
Participative leaderhip	.28	.08	n/a
Adaptive decisionmaking	.12	.07	n/a
Horizontal communication	.31	.08	n/a
Subcontracting	.19	.07	n/a

Note: N=124

•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38).

*Bootstrap estimates (ML estimates reported on path diagram)

Where:

Unstandardized = Unstandardized path coefficient
S.E. = Standard error
Standardized = Standardized path coefficient
C.R. = Critical Ratio
SMC = Squared multiple correlation

In the next step, we tested whether an extended model which specified size as an endogenous variable regressed on emphasis on traditional Chinese values represented a better fit to the total sample. The path diagram on page 7-51 related to the subsequent ownership-based comparison shows the structure of the extended model. The following two models were compared:

Table 7-17 Description for total sample extended management practice models

Model name	Description
Model I a	Extended stacked model with unconstrained regression path leading from emphasis on Chinese characteristics to size
Model I b	Extended model with path coefficient between Chinese caracteristics and size fixed to zero

The results of this analysis are reported in Table 7-18 below:

Table 7-18 Fit indices for extended management practice model

	χ^2/df	*df*	GFI	AGFI	IFI	$\Delta\chi^{2}$*	*p*	*df*
Saturated model (Covariance structure)	.00	0	1.00	n/a	1.00	n/a	n/a	n/a
Model I a (Base model w/o constraints)	2.28	173	.77	.70	.76	n/a	n/a	n/a
Model I b (Model w/ zero path coefficient)	2.27	174	.77	.70	.76	.40	.53	1
Null model (Independence model)	5.17	210	.53	.48	.00	n/a	n/a	n/a

Note: N=124
•p < .05; ••p < .01; •••p < .001
*Baseline comparison is Model Ia

The findings show that the model in which the path coefficient between "emphasis on traditional Chinese values" and "size" was fixed to zero could not be rejected at any conventional significance level ($\Delta\chi^2$=.40, *df*=1, *p*=.53). In other word, for the total sample, the original research model which treats both Chinese culture and size as independent variables is a better fit for the data. We therefore based our subsequent analysis for the total sample on this original research model. However, we will subsequently test whether there is a significant relationship between emphasis on culture and size for the *private enterprise* subgroup.

In the next step, we compared the empirical findings of the original research model with the stated research hypothesis:

Hypothesis 4.2: The relationships between traditional contextual factors and *management* practices correspond to the hypotheses derived from contingency theory.

7.3.2.4. Nested model comparisons

To test which contextual factors were significant at the aggregate level, a series of nested model comparisons was performed, in which an unconstrained model was compared to a model in which the regression weights of one of the five influencing factors were fixed to zero. The findings relating to this analysis are reported in Table 7-19 below:

Table 7-19 Nested model comparisons for total sample managerial practices

	χ^2/df	*df*	GFI	AGFI	IFI	$\Delta\chi^2$*	*p*	*df*
Saturated model (Covariance Structure)	0.00	0	1.00	n/a	1.00	n/a	n/a	n/a
Model I (Baseline Structural Model)	2.27	174	.77	.70	.76	n/a	n/a	n/a
Model II (Structural Model w/o Size)	2.46	179	.75	.67	.71	45.27•••	.00	5
Model III (Structural Model w/o Uncertainty)	2.25	179	.77	.71	.75	9.37	.10	5
Model IV (Structural Model w/o Constraints)	2.28	179	.76	.70	.75	14.17•	.02	5
Model V (Structural Model w/o Achievement)	2.24	179	.77	.70	.76	7.05	.22	5
Model VI (Structural Model w/o Chinese)	2.22	179	.77	.71	.76	3.98	.55	5
Null model (Independence Model)	5.17	210	.53	.48	.00	n/a	n/a	n/a

Note: N=124
•p < .05; ••p < .01; •••p < .001
*Baseline comparison is Model I

As regards organizational size, the χ^2 was significantly lower for the unconstrained model ($\Delta\chi^2$=40.27, *df*=5, *p*<.001), implying rejection of the model which constrained all path coefficients to zero. Environmental constraints, in contrast to the organizational structure model, were also found to be a significant influencing factor of management practices in China ($\Delta\chi^2$=14.17, *df*=5, *p*<.05). All other factors were non-significant at the aggregate level. The findings relating to the chi-square difference for uncertainty ($\Delta\chi^2$=9.37, *df*=5, *p*=.10), need for achievement ($\Delta\chi^2$=7.05, *df*=5, *p*=.22), and emphasis on selected characteristics of Chinese culture ($\Delta\chi^2$=3.98, *df*=5, *p*=.55) showed that the constrained models with zero path coefficients could not be rejected at any conventional probability level. These findings were also supported by other indices. Specifically, the GFI and AGFI which measure the total variation explained by the exogenous variables, as well as the IFI, which assesses the practical significance of the model, both showed only very small decrease in fit for the more constrained models. As in the case of organizational structure, these results provide support for contingency theory in general, since "non-traditional" factors, given that they were not statistically significant, did not distort the fundamental contingency relationships.

Referring back to the first part of our theoretical research question, we now have to examine whether the significant "company size" and "environmental constraints" relationships actually corresponded to the "fit" relations suggested by contingency theory. The findings reported in Table 7-16 on page 7-41 show that the detailed hypotheses relating to the influence of size and constraints were directionally supported by the empirical evidence. The detailed sub-hypotheses and findings are summarized in Table 7-20 below:

Table 7-20 Comparison of hypothesis and findings for managerial practice model

	Proactive strategy		**Participative leadership**		**Adaptive decision making**		**Horizontal communication**		**Subcontracting**	
	H	F	H	F	H	F	H	F	H	F
Size	(-)	(-)	(+)	(+)	(+)	(+)	(+)	(+)	(-)	(-)
Uncertainty	(+)	(+)	(+)	(+)	(+)	(+)	(+)	**(-)**	(+)	(+)
Constraints	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)	(+)
Achievement need	(+)	(+)	(-)	(-)	(-)	(-)	(-)	**(+)**	(-)	(-)
Chinese culture	(-)	(-)	(-)	(-)	(+)	(+)	(-)	(-)	(+)	(+)

Signs in **bold** indicate departures from hypotheses
Where: H = Hypothesis, F = Findings
Items in shading are significant at the aggregate level, other findings due to their lack of significance cannot be thought of as "supporting" the hypothesis.

Size: Larger companies were significantly more participative in their leadership style (γ=.41, p<.001), which affords a ready way to make use of local knowledge. This positive association corresponds to the findings from previous studies (Mahoney et al. 1972; Khandwalla 1977). In addition, larger companies also made significantly more use of horizontal communication (γ=.41, p<.001), maybe reflecting the need for integrating the complex activities within various departments. Finally, larger companies, proportionally to their size, were found to make significantly less use of subcontracting (γ=-.30, p<.01).This might be due to the fact that large companies often are more vertically integrated and thus perform more activities in-house. Proactive strategy (γ=-.01, p>.05) and adaptive decision-making (γ=.08, p>.05), although their sign of association was in the hypothesized direction, were not found to be significantly related to size. As regards proactiveness, we can refer back to our caveat regarding the fact that although most prescriptive management advice suggests that with leaner size, companies can be more proactive, this relation had not been extensively empirically tested. We had pointed out that in some industries, large companies are actually in a better position to seize new openings. At the aggregate level with a representative mix of industries, these different forces at work might have averaged out.

Constraints: Companies in a more constraining or "hostile" environment adopt a more participative leadership style (γ=.23, p<.01), potentially an outflow of the need to decentralize some of the decision making to the many experts who are qualified enough to deal with the constraints. This supports the results from previous studies (Khandwalla 1977). In addition, in order to resolve the conflicting demands of the various constituencies, more use of intra-departmental meetings was made (γ=.21, p<.05).

Although the signs of association were as hypothesized, environmental constraints were not significantly related to strategy (γ=.13, p>.05), decision-making (γ=.09, p>.05) and subcontracting (γ=-.04, p>.05). Thus, the argument of Levitt and Nuss (1989), who had emphasize the importance of constraints in the institutional environment on decision-making styles, could not be empirically validated. The same applies for Hall *et al.*'s (1977) study which had shown that legal aspects, being one form of environmental constraints, were related to more inter-organizational interaction, such as subcontracting.

We can conclude that the research hypothesis (4.2) was supported by the empirical evidence. The "fit"-induced core contingency relations were found to hold for management practices as well. In addition, non-traditional factors were not significant and thus did not distort these basic relationships.

7.3.2.5. Stacked model subgroup comparisons for extended management model

The foregoing analysis was performed at an aggregate level which might have averaged out subgroup differences between various types of companies. After this general test of contingency theory, we therefore now once again focus on our main empirical theme, i.e. the distinctiveness of the private Chinese management model. We will formally analyze the second *management*-related part of the following question:

Research question 2: Do the distinctive features of private Chinese management, ceteris paribus, result from an emphasis on traditional Chinese cultural values? (restated)

We will test the following hypotheses:

Hypothesis 2.1: Ceteris paribus, the distinctive characteristics of private Chinese management are due to the influence of emphasis on traditional Chinese cultural values (restated).

Hypothesis 2.2: The small size of Chinese private enterprises is due to the cultural emphasis on family ties in private Chinese firms (restated).

Out of the four hypothesized structural and managerial characteristics of Chinese management, we have already examined the influencing factors of bureaucracy and centralization. In this section, we will test whether the other two distinctive elements, i.e. the high degree of entrepreneurship and strong subcontracting are "monolithic" or whether they can be mainly explained by contextual variables, especially the emphasis on cultural values in private firms. To test for between-group equivalence, chi-square difference tests and other fit indices were computed for stacked models containing two subgroups, i.e. private and state-owned enterprises (questionnaire item 2.7).[1]

[1] As in the case of the organizational structure model, the effectiveness related subgroup analyses will be presented in the next chapter.

Given the findings from the organizational structure model, we performed this analysis using the extended model straight away. This model introduced a "causal" regression path leading from "emphasis on traditional Chinese cultural values" to "organizational size". The first step in the analysis was to perform a set of nested model comparisons within the overall stacked model to see whether private enterprises were in any way distinctive as regards the relationship between context and managerial choices, as well as their contextually determined choice of small size. The various models tested are described in Table 7-21 below:

Table 7-21 Model description for extended management practice stacked model comparisons

Model name	Description
Model I a	Extended stacked model with unconstrained regression path leading from Chinese characteristics to size
Model I b	Extended stacked model with equality constraints for all structural parameters between state and private enterprise subgroups
Model I c	Extended stacked model with equality constraint only for regression path leading from Chinese characteristics to size for state and private enterprise subgroups
Model I d	Extended stacked model with path coefficient between Chinese caracteristics and size fixed to zero
Model I e	Extended stacked model with equality constraint for regression path leading from Chinese characteristics to proactiveness for state and private enterprise subgroups
Model I f	Extended stacked model with equality constraint for regression path leading from Chinese characteristics to participation for state and private enterprise subgroups
Model I g	Extended stacked model with equality constraint for regression path leading from Chinese characteristics to adaptation for state and private enterprise subgroups
Model I h	Extended stacked model with equality constraint for regression path leading from Chinese characteristics to communication for state and private enterprise subgroups
Model I I	Extended stacked model with equality constraint for regression path leading from Chinese characteristics to subcontracting for state and private enterprise subgroups

The results of these model comparisons are reported in Table 7-22 on the following page. The findings related to the base model (I a) show a good absolute fit as measured by the chi-square statistic adjusted for degrees of freedom (χ^2/df=1.91, *df*=346). What is even more important is the fact that, as shown by the nested model chi-square difference test ($\Delta\chi^2$=10.52, *df*=2, $p<.01$), this model actually represented a significantly better fit to the data than the basic *stacked* research model (I d) which did not allow for a regression path between size and structure. In addition, within this stacked model, as suggested by the significant chi-square statistic for model I b ($\Delta\chi^2$=42.24, *df*=25, $p<.05$), the structural path coefficients for private enterprises were significantly different from their state-owned counterparts. Most importantly, comparing model I c to the base model (I a) showed that the path coefficient between "emphasis on Chinese culture" and "size" was significantly different for both subgroups ($\Delta\chi^2$=7.87, *df*=1, p=.005).

Table 7-22 Fit indices for extended management practice stacked models

	χ^2/df	*df*	GFI	AGFI	IFI	$\Delta\chi^2$*	*p*	*df*
Saturated model (Covariance structure)	.00	0	1.00	n/a	1.00	n/a	n/a	n/a
Model I a (Base model w/o constraints)	1.91	346	.69	.59	.69	n/a	n/a	n/a
Model I b (Model w/ all equality)	1.89	371	.68	.60	.67	42.24•	.02	25
Model I c (Model w/ Culture→Size path equality)	1.92	347	.69	.58	.69	7.87••	.01	1
Model I d (Model w/ zero Culture→Size path)	1.93	348	.69	.58	.68	10.52••	.01	2
Model I e (Model w/ Culture→Proact equality)	1.90	347	.69	.59	.69	.94	.33	1
Model I f (Model w/ Culture→Participat equality)	1.91	347	.69	.59	.69	1.32	.25	1
Model I g (Model w/ Culture→Adapt equality)	1.90	347	.69	.59	.69	.42	.52	1
Model I h (Model w/ Culture→Commu equality)	1.92	347	.69	.59	.69	7.89••	.01	1
Model I i (Model w/ Culture→Subcont equality)	1.90	347	.69	.59	.69	.05	.82	1
Null model (Independence model)	3.25	420	.49	.44	.00	n/a	n/a	n/a

Note: N=124

•p < .05; ••p < .01; •••p < .001

*Baseline comparison is Model Ia

Given these results, it was important to look in some more detail into the differences in individual path coefficients between the two subgroups. Since all constrained models had to be rejected, in Table 7-23 on the next page we report the results for the unconstrained model (1 a). The findings are also graphically illustrated in the modified path diagram on the following page:

Table 7-23 ML standardized path coefficients for extended managerial practices model (1a)

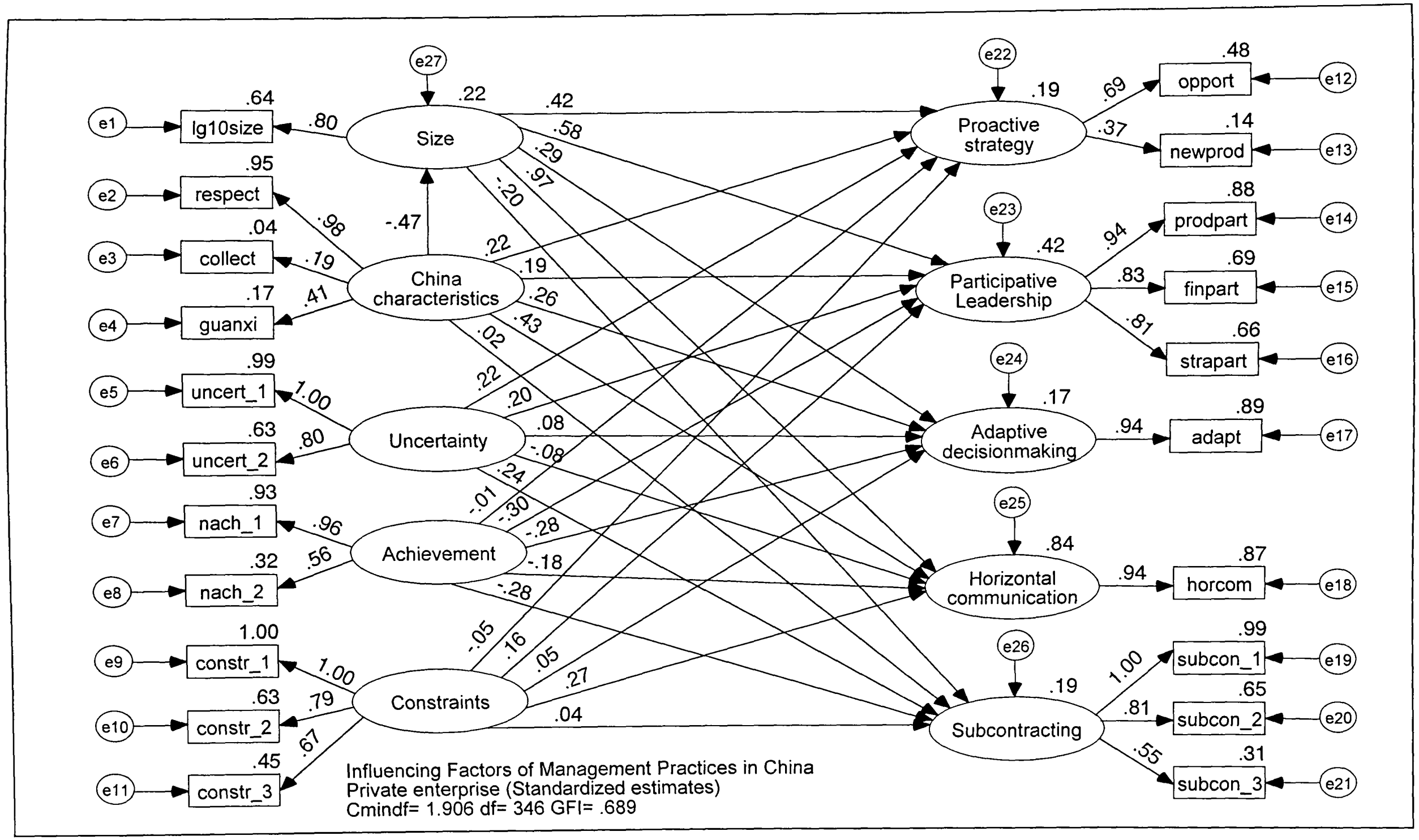
Independent Variable	Private	State
Size		
Proactive strategy	.42	-.14
Participative leadership	.58•••	.37••
Adaptive decisionmaking	.29	-.09
Horizontal communication	.97•••	.15
Subcontracting	-.20	-.32•
Uncertainty		
Proactive strategy	.23	.15
Participative leaderhip	.20	.01
Adaptive decisionmaking	.08	.06
Horizontal communication	-.08	-.03
Subcontracting	.24•	.16
Constraints		
Proactive strategy	-.05	.27
Participative leaderhip	.16	.25•
Adaptive decisionmaking	.05	.07
Horizontal communication	.27••	.02
Subcontracting	.04	-.04
Achievement need		
Proactive strategy	-.01	.10
Participative leaderhip	-.30•	.12
Adaptive decisionmaking	-.28•	-.03
Horizontal communication	-.19	.31•
Subcontracting	-.28•	.06
Chinese characteristics		
Proactive strategy	.22	-.06
Participative leaderhip	.19	-.03
Adaptive decisionmaking	.26	.20
Horizontal communication	.43••	-.13
Subcontracting	.02	.10
Chinese characteristics → Size	-.47••	.18

Note: N=124

•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38).

* All critical ratios based on unstandardized coefficients

Where: → = Regression path (γ)


e27
.22
.64
lg10size
.80
Size
.42
.58
.29
.97
-.20
e22
.19
Proactive strategy
.69
.37
.48
opport
e12
.14
newprod
e13
e1
e2
.95
respect
.98
e3
.04
collect
.19
-.47
China characteristics
.22
.19
.26
.43
.02
e23
.42
Participative Leadership
.94
.83
.81
.88
prodpart
e14
.69
finpart
e15
.66
strapart
e16
e4
.17
guanxi
.41
e5
.99
uncert_1
1.00
.22
.20
.08
-.08
.24
e24
.17
Adaptive decisionmaking
.94
.89
adapt
e17
e6
.63
uncert_2
.80
Uncertainty
-.01
-.30
-.28
-.18
-.28
e7
.93
nach_1
.96
e8
.32
nach_2
.56
Achievement
e25
.84
Horizontal communication
.94
.87
horcom
e18
e9
1.00
constr_1
1.00
e10
.63
constr_2
.79
e11
.45
constr_3
.67
Constraints
-.05
.16
.05
.27
.04
e26
.19
Subcontracting
1.00
.81
.55
.99
subcon_1
e19
.65
subcon_2
e20
.31
subcon_3
e21
Influencing Factors of Management Practices in China
Private enterprise (Standardized estimates)
Cmindf= 1.906 df= 346 GFI= .689

To first test research hypothesis 2.1 and see which factors were significant at the aggregate level, we performed an additional nested model comparison for the private sample only, using the extended model (1 a). The results of this analysis are reported in Table 7-24 below:

Table 7-24 Nested model comparisons for private firms extended managerial practices model (1a)

	χ^2/df	*df*	$\Delta\chi^{2}$*	*p*	*df*
Saturated model (Covariance Structure)	0.00	0	n/a	n/a	n/a
Model I (Baseline Structural Model)	2.08	173	n/a	n/a	n/a
Model II (Structural Model w/o Size)	2.23	178	36.75•••	.00	5
Model III (Structural Model w/o Uncertainty)	2.07	178	7.65	.18	5
Model IV (Structural Model w/o Constraints)	2.06	178	6.57	.26	5
Model V (Structural Model w/o Achievement)	2.09	178	12.19•	.03	5
Model VI a (Structural Model w/o Chinese)	2.08	178	9.94	.08	5
Model VI b (Structural Model w/o Chinese->Proactiveness)	2.08	174	.94	.33	1
Model VI c (Structural Model w/o Chinese->Participation)	2.08	174	1.50	.22	1
Model VI d (Structural Model w/o Chinese->Adaptation)	2.08	174	2.34	.13	1
Model VI e (Structural Model w/o Chinese->Communication)	2.12	174	7.73••	.01	1
Model VI f (Structural Model w/o Chinese->Subcontracting)	2.07	174	.02	.88	1
Model VII (Structural Model w/o Culture→Size path)	2.12	174	8.70••	.00	1
Null model (Independence Model)	3.77	210	n/a	n/a	n/a

Note: n=61 (private enterprises subgroup)
•p < .05; ••p < .01; •••p < .001
*Baseline comparison is Model I

Direct impact of cultural emphasis: The findings provide support for the research hypothesis. The results related to Model VI a (Table 7-24) indicate that emphasis on traditional Chinese cultural values was found to be an important factor ($\Delta\chi^2$=9.94, *df*=5, *p*=.077) explaining the distinctive managerial characteristics of private Chinese enterprises. It was significant at the slightly less conservative level of $p<.10$ which is used by some researchers. In contrast, as shown in Table 7-23 the path coefficients were not significant at any conventional level for state-owned enterprises. In order to draw more accurate conclusions regarding the significance of emphasis on Chinese culture, it was important to look in more detail into individual path coefficients. Contrary to the original research hypothesis, an emphasis on traditional Chinese values was significantly *positively* associated with horizontal communication (γ=.43, $p<.01$, *see* Table 7-23).

Most important, the nested model comparison for the private subgroup (Model VI e in Table 7-24) showed that this factor was actually significant at the more conservative $p<.05$ level ($\Delta\chi^2=7.73$, $df=1$, $p=.005$). The detailed comparison thus clarified the results from the aggregate nested model comparison (Model VI a in Table 7-24). Nested comparisons within the context of the *stacked* model (Model 1 h in Table 7-22 on page 7-47) showed that this coefficient was also significantly different from the state enterprise group ($\Delta\chi^2=7.89$, $df=1$, $p=.005$). A potential explanation for the positive association between emphasis on culture and horizontal communication might be the fact that the CEO encourages or at least allows for horizontal communication between people in the same department which often might be family members. He thus caters for the family-based collective orientation of these members and their communication needs. However, the final decisions are still made at the top.

Indirect impact of cultural emphasis: Research hypothesis 2.2 stating a causal relationship between emphasis on Chinese cultural values and size in private firms was supported by the empirical evidence. More specifically, as reported in Table 7-24 on page 7-57, in the case of private enterprises, there is a significant negative causal relation between emphasis on Chinese culture and size ($\gamma=-.47$, $p<.01$). Size in turn significantly affects management practices ($\Delta\chi^2=36.75$, $df=5$, $p<.001$). In contrast, as regards state-owned enterprises, this association is actually positive and *not* statistically significant ($\gamma=.18$, $p>.05$). These findings were also confirmed in the nested model comparisons for the private enterprise subgroup (Table 7-23). A nested model which fixed the path from culture to size to zero had to be rejected ($\Delta\chi^2=8.70$, $df=1$, $p=.003$).

Need for achievement: CEO need for achievement was found to be an additional "non-traditional" significant factor ($\Delta\chi^2=12.19$, $df=5$, $p<.05$) explaining part of the variation in the management practices of private enterprises. It was not significant for state-owned enterprises. More specifically, as hypothesized, CEO need for achievement was negatively associated with participative leadership ($\gamma=-30$, $p<.05$), incremental decision-making ($\gamma=-.28$, $p<.05$) and subcontracting ($\gamma=-.28$, $p<.05$). The impact of CEO need for achievement supports the notion that in the case of management practices, CEO's have somewhat more discretion in imprinting their particular style with potentially equifinal results. This finding thus confirms Khandwalla's (1977) hypothesis.

Thus, in conclusion, as in the case of organizational structure, the managerial aspects of the distinctive private Chinese model were, ceteris paribus, due to the emphasis placed on traditional, often family-oriented values, which could not be detected for state-owned enterprises. Chinese family-oriented values had some indirect and direct impact on organizational structure. First, the mean level related to emphasis on family-based values is relatively high (compared to state enterprises). Second, there is a strong (indirect) influence of culture on the choice of contextual factor size, which given the significance of size as endogenously determined contextual factor, influences managerial practices. Third, there is also a direct influence of emphasis on culture on management.

7.3.3. International comparison

We will now move back to the overarching theoretical question. After having confirmed that the fit-induced contingency relations applied for China as well, it was important to ascertain in an international meta-analytical comparison whether the findings in China were comparable to what would be expected by contingency theory based on empirical data from other countries. Such an analysis thus further tests hypothesis 4.1:

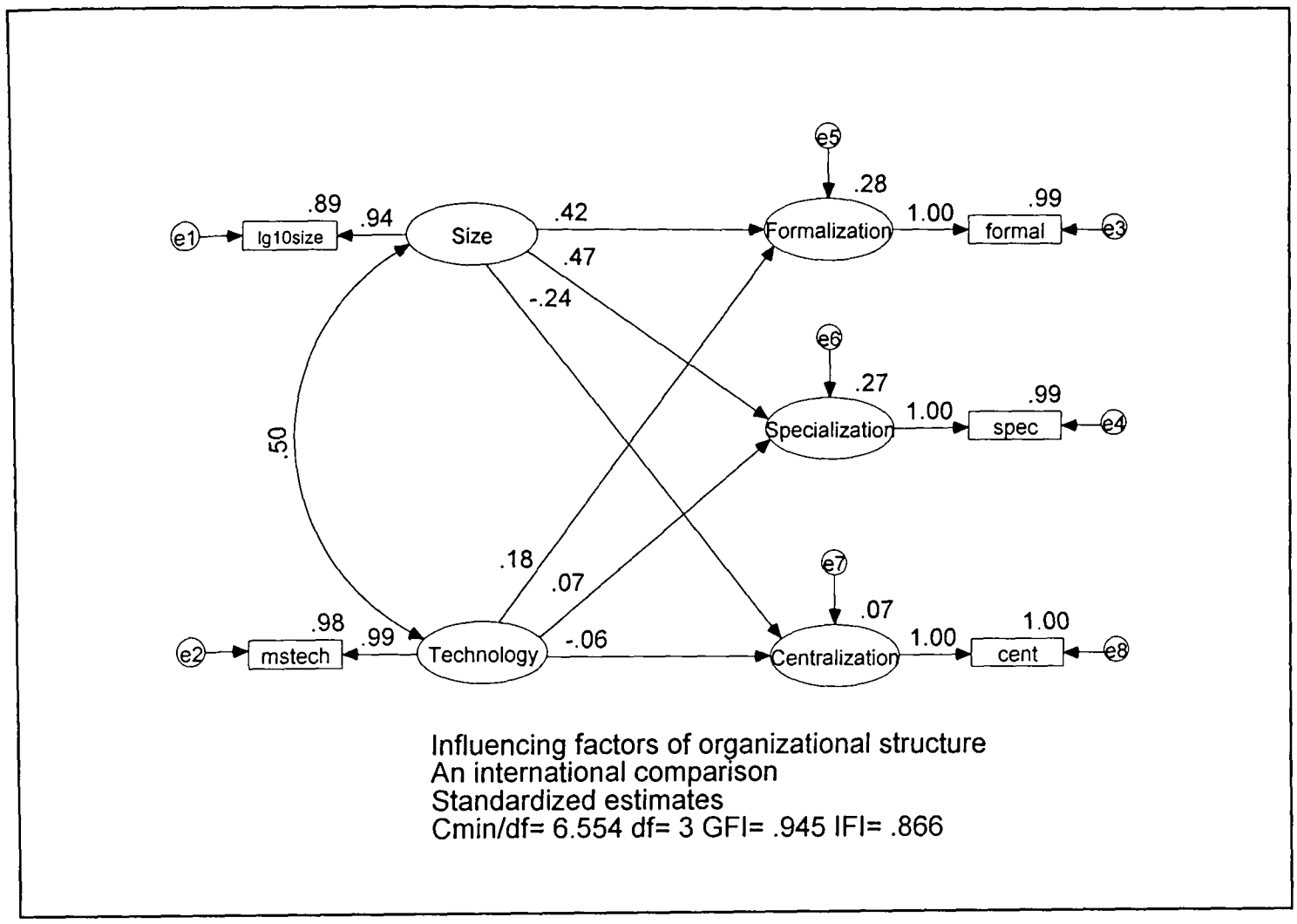
Hypothesis 4.1: The relationships between traditional contextual factors and structure correspond to the hypotheses derived from contingency theory (restated).

In particular, the "culture-free" hypothesis was tested. As mentioned before, this hypothesis states that the relationship between *traditional* contextual factors and structure is stable across the globe. A fine distinction has to be made here. The culture-free hypothesis allows mean scores to vary from country to country since these variations will probably be due to varying contexts of organizational structure in different societies, such as, for example, higher average size in one country compared to another one (Hickson et al. 1974a p. 5). But the hypothesis postulates that the *relationships* between traditional context and structure are basically the same across the globe. This relationship can be examined, both in terms of the direction of signs as well as in terms of absolute magnitude. We will therefore compare both aspects with respect to organizational structure. Due to the fact that the culture-free hypothesis relates mainly to organizational structure, as well as given the fact that there is quite a considerable lack of comparative data on management practices using the same scales as this study, the analysis focused on structural comparisons only.

Following the methodological tradition of international comparisons using the Aston scales for organizational structure (cf. Hickson *et al.* (1974a); Inkson *et al.* (1970); McMillan *et al.* (1973); Child *et al.* (1979); Kuc *et al.* (1980); Ayoubi *et al.* (1981); Azumi *et al.* (1981), Clark (1990) and Wong *et al.* (1994)), Pearson product moment correlations between context and structure were compared across a wide range of countries. It should be mentioned as a caveat, that although used extensively in the past, this kind of comparison can be criticized from a methodological standpoint. First, isolated comparisons of correlations ignore the fact that there might be other intervening variables, including statistical artifacts (Miller 1987), which attenuate the observed relationship, changing not only the overall amount of correlation, but potentially also the direction of signs. Secondly, such a comparison does not test the fit of a model which proposes a relationship between context and structure. Thirdly, researchers which used correlation comparisons in the past often did not use inferential statistics to assess the statistical significance of the alleged differences or points of correspondence.

In order to partly examine the extent to which these issues were problematic, a simplified structural equation model was constructed for our data (N=124) incorporating the same variables as the other Aston comparisons. The only difference was the use of Khandwalla's mass-technology scale as a measure of technology instead of the Aston automaticity score.[1] The model is presented in Figure 7-4 below:

Figure 7-4 Simple organizational structure model for international comparison



The overall model fit as measured by the chi-square statistic was relatively poor (χ^2=19.66, *df*=3, *p*<.001). Due to the previously mentioned criticism of the chi-square statistic, the χ^2/df was analyzed as well. Based on this assessment, the model fit was also very bad (χ^2/df =6.55). Further, constraining the covariance (Φ) between size and equality to zero, in order to exactly replicate the models used in all other international comparisons, resulted in an even worse fit. The chi-square difference statistic was significant, implying rejection of the more constrained model ($\Delta\chi^2$=30.61, *df*=1, p<.001). These findings suggest that the models used by previous researchers were too simplistic and did not represent a good fit to the data. A more complex model, as presented in this chapter, was necessary to achieve overall better fit. This finding was hidden by the simple bivariate correlation methodology. A second important observation was the fact that, though showing the same direction of signs, the path coefficients for technology were on average much lower than the Pearson correlations. This might be due to the fact that in the case of Pearson moments, parameters are allowed to correlate freely without any constraints or other factor being held constant.

[1] Singh (1985) had shown that Khandwalla's (1974) measure has the strongest impact on organizational structure.

Specifically, in many studies the correlation between technology and structure disappeared once size was partialled out (Hickson, Pugh and Pheysey 1969; Inkson et al. 1970 p. 35; Hickson et al. 1974a p. 16). Unfortunately, past data from international studies was incomplete. As a consequence, it was not possible to use a combination of observed correlation matrices and standard deviations as raw data input to fit the same model as specified above and test differences in the structural parameters. Furthermore, the overall bad model fit would not have suggested using a structural equation model anyway. Finally, given that in many studies no standard errors were reported for the correlation coefficients, the significance of difference between correlations could not be estimated. The results relating to the international correlation comparison are reported in Table 7-25. Footnotes to the table indicate which measures of technology were adopted:

Table 7-25 International comparison of structural contingency relationships

	Organizational structure			
Context	Form	Spec	Cent	Int
Size				
China	.46••	.46••	-.24••	.45••
Canada (Miller and Droege 1986 p. 560)	.24•	.34•••	-.43•••	.11*
Canada (Hickson et al. 1974a p. 12)	.49••	.49••	n/a	n/a
USA (Hickson et al. 1974a p. 12)	.48•	.82••	n/a	n/a
Britain (Horvath et al. 1976 p. 179)	.37	.90	-.53	n/a
Germany (Child and Kieser 1979 p. 57-62)	.22	.83•••	-.35•	n/a
Poland (Kuc, Hickson and McMillan 1980 p. 85)	.26	.67	-.35	n/a
Jordan (Ayoubi 1981 p. 104)	.73•••	.78•••	-.33•	n/a
Egypt (Badran and Hinings 1980 p. 129)	.49•	.53•	-.45•	n/a
India (Shenoy 1981 p. 145)	.28	.29	-.31	n/a
Hong Kong (Wong and Birnbaum-More 1994)*	.25	n/a	-.27•	n/a
Japan (Horvath et al. 1976 p. 179)	.67	.66	-.00	n/a
Technology				
China**	.38••	.31••	-.18•	.47••
Canada**(Miller and Droege 1986 p. 560)	-.17	.19	.02	.07*
Canada‡ (Hickson et al. 1974a p. 12)	.01	.13	n/a	n/a
USA‡ (Hickson et al. 1974a p. 12)	.24	.42•	n/a	n/a
Britain‡ (Horvath et al. 1976 p. 179)	.19	-.05	.55	n/a
Germany‡ (Child and Kieser 1979 p. 57-62)	.04	.08	-.04	n/a
Poland±(Kuc, Hickson and McMillan 1980 p. 85)	.43	.48	.32	n/a
India† (Shenoy 1981 p. 145)	.50	.45	.32	n/a
Jordan†‡ (Ayoubi 1981 p. 104)	.68•••	.68•••	-.21	n/a
Egypt†‡ (Badran and Hinings 1980 p. 129)	.42•	.48•	-.52•	n/a
Hong Kong ‡(Wong and Birnbaum-More 1994)	.17	n/a	-.04	n/a
Japan‡ (Horvath et al. 1976 p. 179)	.18	-.15	.34	n/a
Uncertainty				
China	-.11	.28••	.06	-.11
Canada (Miller and Droege 1986)	-.01	.06	.07	.08*
Achievement need				
China	.03	.28••	.19•	-.10
Canada (Miller and Droege 1986)	.26•	.22••	.37•••	.37•••

•p < .05; ••p < .01; •••p < .001 (two-tailed)

*Focused only on banks, but included, since *relationship* between context and structure likely to be comparable across industries; ** Mass technology (Khandwalla 1974); †Workflow rigidity (production continuity) (Pugh et al. 1969 p. 102); ‡Automaticity (Amber and Amber 1962); †‡Workflow integration (Pugh et al. 1969 p. 103); ±Operations technology (Hickson, Pugh and Pheysey 1969 p. 380); Form = Formalization; Spec = Functional specialization; Cent = Centralization; Int = Integration.

Size: The results show that the influence of size on organizational structure was uniform in terms of direction in all studies. As measured by the absolute size of the correlation coefficient, everywhere size is the most important factor influencing "structuring of activities", i.e. the degree to which the intended behavior of employees is overtly defined. Specifically, larger companies tended to be more formalized, specialized, integrated and less centralized no matter in which geographic area they were located. As expected on the basis of contingency theory, China was no exception to this pattern. As regards the absolute amount of the correlation coefficient, China ranked somewhere in the middle between countries with relatively low coefficients, such as India, and other countries in which companies showed greater responsiveness to the size contingency factor, such as Japan and Jordan.

In conclusion, the "culture-free" hypothesis was once again supported by the empirical evidence of our study. The *traditional* contingency relationships are stable across societies. These findings also provide support for the thesis that organizations have to follow an "industrial logic". Although the levels of bureaucratization and magnitude of correlation coefficients may differ across countries, the pressure exerted by size is the same and in the same direction in each country. This confirmed the findings from Miller's (1987 p. 321) meta-analysis of a slightly different sample of companies. No matter whether located in Asia or Europe or North America, a large organization with many employees is likely to improve efficiency by specializing its activities and by making more use of controlling and coordinating devices. Economies of scale will make it possible to benefit from larger specialization in the sense of division of labor. As the activities become more fragmented it will be necessary to codify and spread knowledge through increased formalization. At the same time, as more people are brought together, problems of control will lead to the development of further control devices, such as auditing and standard costing. Nowhere will traditionalistic custom be adequate for social control once large numbers are gathered (Hickson et al. 1974a p. 13).[1]

Technology: The findings on the influence of technology, though not showing exactly the same conformity across all countries, are still uniform enough to draw relatively firm conclusions, supporting the research hypothesis.

Technology and formalization: In most cases, more use of technology led to higher formalization scores. This might be due to the fact that in such a situation more formal means of control are necessary in the form of standardized procedures. The influence of technology on formalization was greater in developing countries. China was no exception to this pattern. We might argue that technically complex machinery is one of the highest cost factors in the production process. More specifically, in China, it is usually imported at very high cost and the design of the organization has to ensure a high utilization ratio of these technical resources. High levels of utilization and predictability might be achieved through the control of operations based on planning and programming. It might also be necessary to protect this investment through formal rules and procedures.

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[1] It should be mentioned as a caveat that the causation might as well be the other way around or taking place simultaneously, i.e. more bureaucratization, in terms of the availability of formal means of control, might lead to the possibility of bringing more people together.

Technology and specialization: With the exceptions of Britain and Japan, the use of various technologies was also systematically associated with higher functional specialization. This might be due to the fact that when more use of technology is made, more experts are necessary who can handle the technology. In addition, technology in itself encourages and facilitates division of labor as was demonstrated more than 200 years ago by Adam Smith's (1937 (originally published in 1776)) pin factory example.

Technology and centralization: The relationship between technology and centralization is less clear. In some countries, a positive relationship between these two factors was found. Horvath *et al.* (Horvath et al. 1976 p. 181) maintained that with higher levels of automation in the production system, there is less workflow flexibility. In such a situation, decisions concerning the market, product and the production system will be considered "strategic". Given that in many instances strategic decisions are centralized, automation would lead to higher centralization. Similarly, Kuc *et al.* (Kuc, Hickson and McMillan 1980 p. 86) in their study of Polish companies suggested that new investment in higher process technology may have led to a more centralized form of decision-making. In more general terms, one aspect or at least by-product of scientific management (Taylor 1911) was the fact that, through the introduction of standardized procedures and technology, control was transferred from the worker to the manager. In contrast, there are arguments supporting a negative relationship between technology and centralization. Given the high costs of technology, decision might have to be taken close to the point of production in order to maintain the necessary smooth and continuos operation required for the most efficient utilization of this technology (Badran and Hinings 1980 p. 130). Thus the final direction of association might be a result of the type and importance of the decision to be centralized. In other words, we might argue that the degree of centralization associated with technology might ultimately depend on whether technology is regarded as "strategic" and whether it can actually be easily centralized without interrupting its smooth operation.

Uncertainty: The relationship between uncertainty and organizational structure were to a large extent comparable between China and the only other comparable study available (Miller and Droege 1986).[1] With more turbulence in the environment, it is more difficult to program rules and formalize procedures. At the same time more specialist are needed who are skilled enough to deal with this uncertainty. In addition, when holding constant other factors in a structural equation model, there was a negative association between uncertainty and centralization, potentially motivated by the desire to make more use of local knowledge when the environment is rapidly changing. The two studies differed with respect to the degree of integration associated with higher environmental uncertainty. Given that the correlation coefficients were very small and not statistically significant, this comparison cannot be used for a final verdict.

[1] It has to be mentioned as a caveat that when using structural equation modeling instead of simple correlation analysis, the influence of uncertainty at the aggregate model was not statistically significant in either study.

Achievement need: Results relating to the effect of CEO need for achievement were quite similar for the two studies.[1] More ambitious CEOs consistently attempted to achieve high levels of control over the organization by introducing rules and regulations, specialist control positions and outright centralization of decision making. The only difference was the fact that in China, CEOs showed a certain dislike for formal integrative devices, whereas in Canada, perhaps due to greater executive sophistication, various liaison devices were recognized as increasing control or facilitating higher organizational effectiveness through a more efficient flow of important information throughout the organization.

[1] Once again, it has to be remembered as a caveat that when using a structural equation model, the influence of need for achievement was not significant for the total China sample.

7.3.4. Limitations

It is important to briefly discuss certain methodological limitations applying to the analysis reported in this chapter:

First, in structural equation models there is always the possibility that other equivalent models might provide the same or even better fit for the data (MacCallum et al. 1993). There is thus no unique solution, but a potentially infinite solution set. In this sense, models are never confirmed by the data, they gain support by failing to be rejected. It is therefore important to base a model on a very firm theoretical basis, which makes it possible to use the analysis of covariance structures as a test for a strong hypothesis. This approach was attempted in the foregoing analysis.

Secondly, in the context of the measurement model, there is always the potential of being trapped into the nominalistic fallacy (Anderson 1987a p. 533). Naming something does not necessarily mean that we understand it. Due to the influence of measurement error and omitted variables, we can never be completely sure whether we attach the right meaning to latent variables. But at least, the assessment of a measurement model makes it possible to assess the degree of potential error.

Thirdly, structural models, although often called "causal models" (Heise 1975; Kenny 1979; Bentler 1980; Homburg 1991 p. 137), strictly speaking do not prove causality (Cliff 1983). It is possible that causality is reversed in direction. Certain potential examples were mentioned in the foregoing discussion. For instance, more "structuring of activities" might make it possible to grow. Therefore, in the foregoing analysis, we attempted to avoid causal language whenever possible. Apart from sound theoretical foundations, longitudinal studies (Gollob and Reichardt 1987; Bentler and Chou 1987 p. 81) are necessary to assess more clearly the nature of causality.

Fourthly, in a more technical sense, the sample sizes for the subgroup analyses were half of the original size for each group. However, fit indices and other assessment of model fit suggested that this issue did not represent a serious problem in our study. In addition, as mentioned before, other studies used smaller sample sizes for comparable or even more complex models.

Finally, as regards international comparisons, the different time intervals in data collection is an additional research limitation, given that it is not known whether organization in different societies were changing at the same rates, in the same directions, or from equivalent points (McMillan et al. 1973 p. 42). However, most previous studies adopted the same approach and no major difficulties have been encountered. In addition, the contingency relationships seem to be relatively stable over time. Further, as pointed out earlier, the stage of development of several Western countries some time ago might be even *more* comparable to the current level of Chinese development than more recent studies. Apart from this, the influence of emphasis on Chinese cultural characteristics in private firms should be compared to other countries to prove its *international* distinctiveness besides its distinctiveness when compared to state enterprises.

Summary and conclusions of Chapter 7

In this chapter, using structural equation modeling, the relationship between influencing factors and organizational properties was analyzed. The analysis focused on two intertwined themes reflecting the two research questions of our study. They included (a) the first part of the overarching theoretical question, i.e. the validity of traditional, fit-induced contingency relations in the total sample in general, as well as (b) the main empirical research question relating to the "Art of Chinese Management", in this case the influencing factors of Chinese management in private enterprises in particular. We will briefly synthesize the main findings related to these two themes:

Contingency theory: As part of the overarching theoretical theme, the "culture-free" hypothesis was tested for the total sample, stating that the relation between various *traditional* contextual factors and organizational structure correspond to the hypotheses derived from functional contingency theory and are stable all over the world. The empirical findings from nested model comparisons provided some broad support for this hypothesis.

Organizational structure: Size and technology were significant influencing factor of structure for the total sample. Other non-traditional factors whose presence might have disturbed the culture-free relations were not significant. A significant negative interaction effect between size and need for achievement did not upset the traditional contingency relationships. The individual "traditional" sub-hypotheses of contingency theory related to the influence of size and technology were also supported by the empirical evidence. In particular, there was strong support for the notion that larger companies are more "structured" and more decentralized. There was also a significant positive association between technology and bureaucracy. Finally, international comparisons supported the traditional culture-free hypothesis of identical core relations between the influencing factors, size and technology, and organizational structure. Whereas the relationship between technology and bureaucracy in terms of formalization and specialization were very similar in most countries, its influence on centralization was less stable. In terms of methodology, the problems associated with simple correlation comparisons were demonstrated using a simple structural equation model. The results showed that a simple model which only included size and technology as influencing factors did not provide a good fit for the data. In addition, it revealed the inflated nature of Pearson correlation coefficients which were calculated without partialling out of other influencing factors.

Management practices: In the case of managerial practices, as regards the total sample, company size and environmental constraints were significant influencing factors. Non-traditional factors were not significant in explaining variations in the endogenous constructs. Once again, the individual relations between size and management, as well as environmental constraints and management corresponded to the hypotheses.

Chinese management: As regards the Chinese private management theme, we analyzed whether the distinctive model we had identified in the previous chapter could actually be attributed to contextual influencing factor, especially the emphasis on traditional Chinese values, instead of being monolithic.

Organizational structure: The results of nested comparisons within the context of stacked models showed that the two distinctive structural choices of private firms were, ceteris paribus, due to the emphasis on traditional cultural values in private firms. More specifically, emphasis on Chinese culture in private firms, especially in the form of familism, was shown to have a potent impact on structure in three ways, i.e. first through the higher mean level of the contextual factor itself, second through a direct significant association with structure, and thirdly through an indirect effect in terms of a significant association with company size which in turn was significantly associated with organizational structure. Finally, an intra-scale analysis related to the various structural constructs revealed differences in structural choices in private enterprises at the item-level. It might well be that these difference were due to the above described direct influence of emphasis on Chinese cultural values.

Management practices: The two distinctive managerial aspects of the Chinese private model were, ceteris paribus, due to the direct and indirect impact of emphasis on traditional cultural values in private firm. In addition, CEO need for achievement accounted for part of the variation in the endogenous constructs, indicating the potentially influence of personality on management styles previously hypothesized in the literature.

In the next chapter, we will present the research findings relating to the effectiveness implications of "fit" in general and Chinese private ownership in particular.

8. Organizational effectiveness of Chinese companies

In this chapter, we will analyze two intertwined themes. First, from a broad theoretical point of view, we will test the "fit" notion in contingency theory. Secondly, in order to conclude whether private Chinese management is an "art", we will analyze whether the Chinese management style based on private family ownership is positively associated with organizational effectiveness. This chapter is organized in three sections. In the first section, we will analyze the relationship between "fit" and effectiveness (section 8.1). Afterwards, a structural equation model will be presented which examines the effect of "appropriate" structure, Chinese private family-based ownership and other key success factors on performance (8.2). In the third section, we will report some more detailed findings regarding organizational effectiveness obtained from one case example (8.3).

8.1. Relationship between "fit" and effectiveness

Contingency theorists have commonly analyzed the relationships between various contextual factors and structural properties and claimed that the established relationships constituted "fit". More specifically, in empirical studies which examined contingency relationships, using, for example, ordinary regression, they often simply *assumed* that their findings represented "fit" with the environment. In these studies, "fit" is often only implied by the existence of a correlation between context and structure. These researchers also assumed *by symmetry* that less effective companies would be in "misfit" with their respective task environments. The basic problem of many studies adopting a contingency framework is thus the fact that they analyzed fit between context and structure without paying attention to organizational effectiveness. Therefore, in the first step, we will clarify the relationship between fit and effectiveness by analyzing the following research question:

Research question 5: Are less effective companies in "misfit"?

Based on the cumulated literature on contingency theory, we can formulate the following hypothesis:

Hypothesis 5: Less effective companies are in "misfit", which provides support for the validity of the "symmetry" argument implied in contingency theory.

To empirically test the assumptions of traditional contingency theory stating that the observed relationships between context and organizational properties "automatically" constitute "fit", implying, by symmetry, that less effective companies are in "misfit", a stacked model subgroup analysis was performed for two subgroups of the total sample consisting of more and less effective companies split across the median of Khandwalla's subjective index of performance (Khandwalla 1977). This comparison tested the difference in contingency relations between the two subgroups.[1] Structural equation models were fitted for the two subgroups, both for the basic organizational structure and management practice model discussed in the previous chapter.

[1] Khandwalla's index compares *relative* performance and thus holds the influence of industry constant.

To test for subgroup equality, a chi-square difference test was performed between the general model and a more constrained version which fixed the regression coefficients of the two groups to equality. The results of this nested model comparison related to the organizational structure stacked model are reported in Table 8-1 below:

Table 8-1 Nested model comparisons for total sample organizational structure subgroup analysis

	χ^2/df	*df*	GFI	AGFI	IFI	$\Delta\chi^2$*	*p*	*df*
Model 1 a (Baseline effectiveness subgroup)	2.05	322	.67	.58	.67	n/a	n/a	n/a
Model 1 b (Effectiveness subroup w/ equality)	1.98	340	.67	.59	.67	13.69	.75	18

•p < .05; ••p < .01; •••p < .001
*Compared to baseline model

The detailed path coefficients resulting from the stacked model analysis for both sub-groups are presented in Table 8-2 below:

Table 8-2 Subgroup analysis for organizational structure model (ML standardized path coefficients)

	Total	**Effectiveness**	
Independent	All*	High	Low
Size			
Formalization	.43•••	.38••	.58•••
Centralization	-.22•	-.27•	-.17
Integration	.48•••	.48•••	.62•••
Technology			
Formalization	.20•	.06	.10
Centralization	.01	.05	-.16
Integration	.20•	.01	.12
Uncertainty			
Formalization	-.07	-.12	-.04
Centralization	-.02	-.20	.14
Integration	-.02	-.06	.01
Achievement			
Formalization	.11	.05	.11
Centralization	.08	.23	-.14
Integration	-.13	-.18	-.17
Constraints			
Formalization	.06	.20	.03
Centralization	-.13	-.09	-.13
Integration	.10	.19	.12
Chinese			
Formalization	.02	.06	.03
Centralization	.03	-.06	.21
Integration	.05	.17	-.00

Note: Total sample N=124; State n=63, Private n=61; Large n=60, Small n=64;[1] Old n=60, Young n=61;[2] Effective n=64, Ineffective n=60.[3]
•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38).
* All critical ratios based on unstandardized coefficients

[1] Unequal split due to fact that several observations at median value.

[2] Three missing values for company age.

[3] Unequal split due to fact that several observations at median value.

The results showed that the null hypothesis of equality between the two subgroups could not be rejected at any conventional significance level ($\Delta\chi^2$=13.69, *df*=18, *p*=.75). This finding is quite striking and highlights the importance for contingency theorists to explicitly examine effectiveness differentials. Less effective companies are not necessarily in misfit with their environment. The symmetry argument hidden in the language of contingency theory (Schoonhoven 1981 p. 353) does therefore not automatically apply. Companies might be less effective due to many other reasons. To see whether structure is related to higher effectiveness, all other influencing factors of success have to be held constant. Such an analysis will be performed later in this chapter.

The same nested model comparison was performed for the basic management practice stacked model discussed in the previous section. The results are reported in Table 8-3 below:

Table 8-3 Nested model comparisons for managerial practices subgroup analysis

	χ^2/df	*df*	GFI	AGFI	IFI	$\Delta\chi^2$*	*p*	*df*
Model I a (Baseline effectiveness subroup)	1.90	348	.69	.59	.71	n/a	n/a	n/a
Model I b (Effectiveness subroup w/ equality)	1.84	373	.68	.60	.70	25.43	.44	25

•p < .05; ••p < .01; •••p < .001
*Compared to baseline model

The results from the detailed stacked model subgroup comparison are presented in Table 8-4 on the next page. The chi-square difference was not statistically significant at any conventional level ($\Delta\chi^2$=25.43, *df*=25, *p*=.44). Therefore, equality between the two groups could not be rejected. The findings such corresponded closely to the results from the organizational structure model and showed that less effective companies are not necessarily in "misfit" with their environment.

Table 8-4 Subgroup analysis for managerial practices (ML standardized path coefficients)

Independent Variable	Total	Effectiveness	
	All*	High	Low
Size			
Proactive strategy	-.01	-.35•	.11
Participative leadership	.41	.44•••	.34•
Adaptive decisionmaking	.08	-.06	.24
Horizontal communication	.41	.32•	.47•••
Subcontracting	-.30	-.22	-.35••
Uncertainty			
Proactive strategy	.19	.02	.25
Participative leaderhip	.08	.17	.00
Adaptive decisionmaking	.03	.08	.06
Horizontal communication	-.14	-.08	-.23
Subcontracting	.19	.24•	.11
Achievement need			
Proactive strategy	.15	.22	.04
Participative leaderhip	-.04	-.05	-.11
Adaptive decisionmaking	-.13	-.08	-.15
Horizontal communication	.13	.06	.13
Subcontracting	-.14	-.27•	-.06
Constraints			
Proactive strategy	.13	.37•	-.01
Participative leaderhip	.23	.21	.24
Adaptive decisionmaking	.09	.06	.16
Horizontal communication	.21	.42•••	.05
Subcontracting	.04	.11	-.05
Chinese characteristics			
Proactive strategy	-.03	-.22	.19
Participative leaderhip	-.03	-.01	.04
Adaptive decisionmaking	.13	.32•	-.17
Horizontal communication	-.13	-.09	-.15
Subcontracting	.04	.04	.06

Note: Total sample N=124; State n=63, Private n=61; Effective n=64, Ineffective n=60.
•$p < .05$ (C.R. > 1.98); ••$p < .01$ (C.R. > 2.62); •••$p < .001$ (C.R. > 3.38).
* All critical ratios based on unstandardized coefficients

8.2. Organizatinal effectiveness model

The foregoing analysis showed that there were no significant differences between effective and ineffective companies in the basic contingency relationships. More specifically, less effective companies were not shown to be in "misfit" with their environment. Therefore, we suggest a new approach to test the notion of "fit". In particular, it will be argued that a broader array of factors influence effectiveness. Within this array of factors we believe that, *ceteris paribus*, "appropriate structure" leads to higher performance. Just comparing the contingency relationships does neither isolate this aspect nor does it hold constant other factors influencing effectiveness. Effectiveness differences as shown in the two subgroups might well be due to these other factors. We thus will examine the following research question:

Research question 6: Holding other factors constant, is "appropriate" structure positively associated with organizational effectiveness?

Based on the foregoing discussion we can formulate the following hypothesis:

Hypothesis 6: In addition to other key success factors, "appropriate" structure is positively associated with organizational effectiveness.

The detailed research hypotheses related to the other influencing factors of success can be found in Table 8-9 on page 8-14. To test the hypothesis that "appropriate" structure leads, ceteris paribus, to higher organizational effectiveness, an analysis was performed which explicitly compared effectiveness differentials between companies with "appropriate" structure and companies with "inappropriate" structure. This is different from an approach which compares effective with less effective companies, given that in such an analysis the less effective companies do not necessarily display inappropriate structure. More specifically, structural equation modeling was used to assess the role of "appropriate" structure as an influencing factor of organizational effectiveness. To hold constant other intervening variables, various hypothesized success factors[1] were also included in the model.

8.2.1. Model structure

The path diagram entitled "Key success factors of Chinese companies" on page 8-10, illustrates the research model according to structural equation format.

Structural model: The basic theoretical model tests the hypothesis that organizational effectiveness, the endogenous variable, is determined by several exogenous variables. The exogenous variables can be categorized into managerial and contextual factors. The managerial influencing factors which, to a relatively high degree, seem to be under executive control include "appropriate" structure, as well as proactive and aggressive strategy. Other such factors are "professionalism" (Khandwalla 1977), i.e. participative leadership and decision-making which is characterized by an optimizing, analytical approach ("planning"). Another managerial factor is the degree of subcontracting, which facilitates concentration on core competencies.

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[1] Key success factors are defined as "the limited number of areas in which satisfactory results will ensure a successful competitive performance for a business" (Hax and Majluf 1991 p. 406).

Contextual factors include company size and age, private family-based ownership, as well as environmental constraints and supportive government regulations. We know from the previous analysis and other theoretical work that some of the influencing factors are correlated, i.e. the Φ (phi) matrix contains non-zero covariances among exogenous concepts. For the sake of simplicity, we first specified a basic model in which there were zero covariance between all influencing factors. In a subsequent model, some of these constraints were relaxed based on clear theoretical grounds.

Measurement model: The empirical model posits that the exogenous and endogenous traits are measured by several indicators. Except for the traits which were discussed in the previous chapter, several new scales were introduced:

Appropriate structure measures the degree to which a company's structural choices are in "fit" with its environment. Given the lack of clarity related to the "fit" notion in the contingency literature, it is important to point out which theoretical interpretation is used here (Schoonhoven 1981 p. 352). Adopting a "matching" theory, we assume that there is a value of structure (X) for each value of the contingency factor which will maximize effectiveness (Y). Deviations in either direction from the unique X reduce the value of Y. The following detailed procedure was used: Companies obtained scores of 1 or 0 depending on whether their degree of formalization, centralization and integration, was appropriate given the contextual circumstances. For each company, more instances of "appropriate" structure in the light of the respective contingencies led to higher overall scores on the "appropriate" structure scale, called "structur" in the model. Table 8-5 presents the detailed scoring procedures used:

Table 8-5 Appropriate structure scoring grid

	Formalization		**Centralization**		**Integration**	
	High	Low	High	Low	High	Low
Large size	1	0	0	1	1	0
Small size	0	1	1	0	0	1
High Uncertainty	0	1	0	1	1	0
Low uncertainty	1	0	1	0	0	1
Maximum score	2	2	2	2	2	2

Note: 1 = "appropriate" structure, 0 = "inappropriate" structure

Each pair of adjacent cells for the three structural variables represents one variable. For example, the first variable "large size-high formalization" scores large companies with high degrees of formalization as 1 and the remainder as 0. The structural and contextual dimensions were split at their median. Therefore, "large" or "high" mean "greater than the median". Following the approach used by previous researchers (Miller and Droege 1986 p. 548; Champion 1975; Van de Ven 1976; Jackson and Morgan 1982; Fredrickson 1984; Hall 1991 p. 65), formalization represents "total structuring of activities" and was an aggregate score for all items of the specialization, formalization, and control scales (questionnaire sections 12, 13 and 16). Centralization was measured by the composite score for the Aston centralization scale (questionnaire section 14). Integration represented a composite score of structure and process liaison (Miller and Droege 1986), i.e. questionnaire section 17.

All structural scales were standardized, i.e. scaled to 100%. In addition, size was measured by the log of the number of employees, and uncertainty was the composite score for the uncertainty scale (section 19.1. in the questionnaire). Given that each company was either large or small, and was operating either in a more or less uncertain environment, the maximum total score for each structural dimension was 2. The counts on all 12 variables were added to arrive at the final "appropriate structure" scale. This scale ranges from a minimum of 0 ("completely inappropriate structural choices") to a maximum of 6 ("perfect structural fit with the environment").

Planning measures the degree to which decisions in the organization are characterized by a systematic search for opportunities, as well as anticipation of problems; a systematic consideration of costs and benefits of alternatives; and a conscious attempt to integrate programs of action to achieve specified goals efficiently. The accent is on profit maximization, long-term planning, very careful screening of investments to minimize risks, and the extensive use of expertise and solid research before making decisions (questionnaire item 6.3). The manifest variable is denoted with "planning" in the structural equation diagram.

Management expertise is a composite measure consisting of four items, including the CEO's international experience (denoted with "abroad"), i.e. questionnaire item 1.4. Another element was his degree of higher education (educat), questionnaire item 1.3, the total time he had been working with the company (firmtime), item 1.6, and his age (ceo_age), item 1.1.

Family-based private ownership was measured by two indicators. The first one, "private" is a dichotomous variable aggregated from item 2.7 on the company questionnaire, with value 1 equal to "state-owned enterprise" and 2 equal to "private enterprise". Secondly, "individ" measures the degree of family-based private ownership. It was derived from the pattern of share ownership concentration, i.e. item 2.8 on the company questionnaire. It has a maximum of 7 ("100% family owned") and minimum of 1 ("100% state-owned"). The detailed scoring grid for this variable is presented in Table 8-6 below:

Table 8-6 Scoring grid for family-based private ownership scale

Value	Label
1	100% State ownership
2	100% Collective ownership
3	Majority non-private ownership
4	50% State ownership, 50% private ownership
5	Majority private ownership
6	100% Other private investors
7	100% Family ownership

Government support measures the degree to which government regulations had a positive impact on the business. The scale ("regulat") was obtained from the composite score on all items from section 19.3 in the company questionnaire.

Company age indicates the number of years the company existed since its foundation ("firm_age") and was measured by item 2.5. in the company questionnaire.

Company size in this case was measured by two indicators to ensure that the overall model was identified. Apart from the log of the number of employees ("lg10size"), the log of total revenues ("lg10sale") was included.

Organizational effectiveness was measured using Khandwalla's subjective index of performance (questionnaire section 11.1-5.). It evaluates the company's relative effectiveness in comparison to its industry rivals and thus holds industry constant. It comprises five elements: the company's long-run level of profitability ("profit"), the annual growth rate of revenues ("revenues"), employee morale, job satisfaction, and commitment to the firm' s objectives ("morale"), financial strengths, defined as liquidity and the firm's ability to raise financial resources ("liquid"), as well as public image and good-will ("image").

8.2.2. Model specification

In the path diagram "Key success factors of Chinese companies" on page 8-10, for each set of indicators for a given trait, the first indicator's trait loading (λ_1) was fixed to 1.0 in order to scale the other items. This indicator supposedly best measured the underlying construct (η_1). Each indicator was associated with an error term, which modeled random measurement error (e1-e30). In addition, the endogenous construct was associated with a unique error variance term (e31). Following "best practice" (Hayduk 1996 p. 25), an estimate of the amount of measurement error was made for the variance of this first indicator ($\Theta_{\varepsilon 1}$). In cases where Alpha reliability coefficients were available, they were used to make an estimate of measurement error. These estimates were used to fix the error variance for the indicator which supposedly best measured the underlying construct. This approach could be used for organizational effectiveness, government support, constraints and subcontracting. As regards the scales which were used in the previous models, error estimates were derived from the earlier empirical findings. In the other cases, conservative estimates of measurement errors were made based on the degree of subjectiveness involved in the respondent's judgment as well as the ease to which these responses could be checked with other sources

8.2.3. Results

8.2.3.1. Test for multivariate assumption

Results showed that the model was identified. Further, the assumptions relating to the multivariate normality of the observed variables were tested. There were no distribution problems in the data and consequently no real effects on the parameter estimates (Arbuckle 1997 p. 529). More details are reported in Appendix R.

8.2.3.2. Evaluation of measurement model

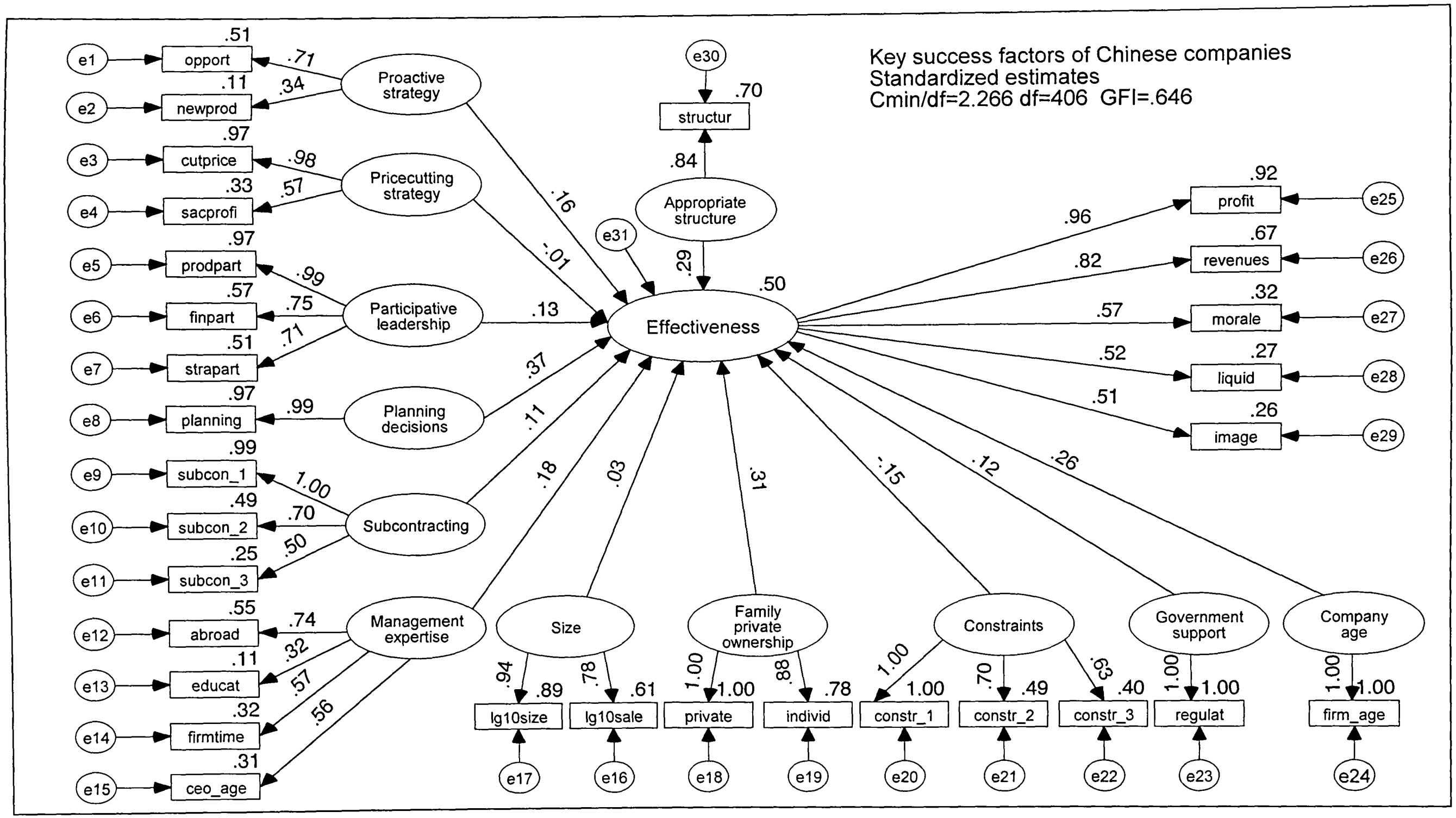
Results of the empirical model indicated that overall the measures showed relative high degrees of unidimensionality, construct validity and reliability. A detailed assessment of the measurement model is presented in Appendix R.

8.2.3.3. Evaluation of basic structural model

In the next step, the overall fit of the model was examined by means of various fit indices. The χ^2 statistic which tests the null hypothesis that the specified model is a perfect fit for the data was significant (χ^2=920.14, *df*=406, p<.01). However, due the its sensitivity to sample size, failure to satisfy the multinormality assumption, and model complexity, the CMIN/DF was preferred as a measure of fit. With a value of 2.27 the model showed acceptable fit according to the Carmines and McIver (1981 p. 80) criterion. Further, the goodness of fit index, i.e. the equivalent of R^2 in ordinary regression analysis, was moderately high (GFI=.65). Thus, there was some additional evidence that the model presents an acceptable fit for the data. Finally, the incremental fit index (Bentler and Bonett 1980) was moderately high in our case (IFI=.68), providing some more indication for an acceptable fit of the model in a practical sense. A comparison of the various fit indices is presented in Table 8-8 on page 8-12.

Furthermore, there were no "improper" solutions in the model, such as "Heywood cases", out-of-range covariances (standardized estimates greater than 1) and non-positive underlying covariance matrices. In addition, there were no unusually high normalized residuals between the implied covariance and sample covariance structures. Furthermore, no *post hoc* modifications were made with respect to model specification, such as the introduction of "waste basket" parameters (Browne 1984) in an attempt to improve "fit". In conclusion, the notion of an "acceptable" model fit was supported on the basis of these analyses, too.

Finally, the significance and absolute amount of the structural parameter estimates provides some additional information on the overall model fit. Unstandardized as well as standardized path coefficients (gamma) are reported in Table 8-7 on page 8-11. These regression coefficients are also displayed in the path diagram entitled "Key success factors of Chinese companies" on the following page. The findings show strong significance for family-based private ownership (γ=.31, p<.001), optimization through planning (γ=.37, p<.001), appropriate structure (γ=.29, p<.01), company age (γ=.26, p<.001), management expertise (γ=.18, p<.05) and environmental constraints (γ=-.15, p<.05). The squared multiple correlation (bootstrap estimates) was very high (r=.60, SE= .09).


Key success factors of Chinese companies
Standardized estimates
Cmin/df=2.266 df=406 GFI=.646
Proactive strategy
Pricecutting strategy
Participative leadership
Planning decisions
Subcontracting
Management expertise
Appropriate structure
Effectiveness
Size
Family private ownership
Constraints
Government support
Company age
opport
newprod
cutprice
sacprofi
prodpart
finpart
strapart
planning
subcon_1
subcon_2
subcon_3
abroad
educat
firmtime
ceo_age
structur
profit
revenues
morale
liquid
image
lg10size
lg10sale
private
individ
constr_1
constr_2
constr_3
regulat
firm_age
e1
e2
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These results relating to the substantive structural model indicated that more than half of the variation in the endogenous effectiveness constructs could be explained by the exogenous factors included in the model.

Table 8-7 Maximum Likelihood path coefficients (gamma) for effectiveness model

Independent Variable	Unstandardized	S.E.	Standardized
Appropriate structure	.38••	.11	.29
Proactive strategy	.32	.20	.16
Price-cutting strategy	-.01	.06	-.01
Participative leadership	.10	.05	.13
Planning decisions	.29•••	.06	.37
Subcontracting	.04	.02	.11
Management expertise	.74•	.35	.18
Size	.05	.12	.03
Family-based private ownership	.88•••	.20	.31
Constraints	-.04•	.02	-.15
Government support	.02	.01	.12
Company age	.02•••	.00	.26
SMC*	.60•••	.09	n/a

Note: All figures rounded to second decimal place (critical ratio for particpation, subcontracting and government below 1.98); N=124.
•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38).
*Bootstrap estimate (ML estimates reported on path diagram)
Where:
Unstandardized = Unstandardized path coefficient
S.E. = Standard error
Standardized = Standardized path coefficient
C.R. = Critical Ratio
SMC = Squared multiple correlation

In the next step, we compared these empirical findings with the research hypothesis restated below:

Hypothesis 6: In addition to other key success factors, "appropriate" structure is positively associated with organizational effectiveness (restated).

8.2.3.4. Nested model comparisons

To test the research hypothesis, the statistical significance of individual key success factors was examined through a series of nested model comparisons in which an unconstrained baseline model was compared to a model in which, in turn, the regression weight of one of the influencing factors was fixed to zero. Significant chi-square statistics imply that the null hypothesis of no significant difference in fit is not supported. In such a case, the more constrained model will be rejected, indicating that the factor is statistically significant.

The findings relating to this nested model analysis are reported in Table 8-8 below:

Table 8-8 Nested model comparisons for organizational effectiveness model

	χ^2/df	*df*	GFI	AGFI	IFI	$\Delta\chi^{2}$*	*p*	*df*	SMC
Saturated model (Covariance Structure)	0.00	0	1.00	n/a	1.00	n/a	n/a	n/a	n/a
Model I (Base Structural Model)	2.27	406	.65	.59	.68	n/a	n/a	n/a	.60
Model II (Base w/o Proactive)	2.27	407	.65	.60	.68	2.43	.12	1	.57
Model III (Base w/o Price-cutting)	2.26	407	.65	.60	.68	.03	.87	1	.59
Model IV (Base w/o Participative)	2.27	407	.65	.59	.68	2.86	.09	1	.58
Model V (Base w/o Planning)	2.31	407	.64	.59	.67	20.57•••	.00	1	.50
Model VI (Base w/o Subcontract)	2.27	407	.65	.60	.68	2.04	.15	1	.58
Model VII (Base w/o Expertise)	2.27	407	.65	.60	.68	1.77	.18	1	.55
Model VIII (Base w/o Size)	2.26	407	.65	.60	.68	.07	.80	1	.59
Model IX (Base w/o Ownership)	2.28	407	.65	.60	.67	6.99••	.01	1	.49
Model X (Base w/o Constraints)	2.27	407	.64	.60	.68	3.56	.06	1	.57
Model XI (Base w/o Government)	2.27	407	.65	.60	.68	2.31	.13	1	.61
Model XII (Base w/o Firm Age)	2.28	407	.65	.60	.68	6.86••	.01	1	.52
Model XIII (Base w/o Structure)	2.29	407	.64	.59	.67	10.87•••	.00	1	.49
Null model (Independence Model)	4.61	435	.40	.36	.00	n/a	n/a	n/a	n/a

Note: N=124

•p < .05; ••p < .01; •••p < .001

*Baseline comparison is Model I

Where:

χ^2 = Chi square
$\Delta\chi^2$ = Chi square difference
df = Degrees of freedom
p = Significance level
GFI = Goodness of fit index
AGFI = Goodnessof fit - adjusted for degrees of freedom
IFI = Incremental fit index
SMC = Squared multiple correlation

First of all, the chi-square difference test for a model which constrained the influence of "appropriate" structure to zero was significant ($\Delta\chi^2$=10.87, *df*=1, *p*<.001). This shows that appropriate structure is a significant influencing factor of organizational effectiveness. More specifically, appropriate structure was found to be positively associated with higher performance (γ=.29, *p*<.01). On the basis of the absolute size of the regression weight, it is the second most important success factor in China.

This suggests that the basic claim of contingency theory is valid. Companies which are in "fit" with their environment, *ceteris paribus*, show higher degrees of organizational effectiveness than companies which are in "misfit". The results thus support the findings from other studies which focused only on one contingency relation at a time and suggested that companies in fit showed higher performance than companies in "misfit" (Lawrence and Lorsch 1967; Child 1974; 1975; Khandwalla 1973). In a broader sense, these findings imply that the fundamental traditional contingency relationships hold not only in most major geographic areas, as concluded on the basis of the correlation comparison which, however, did not consider effectiveness, but they are valid in China as well. Therefore, there is some evidence of the universal (worldwide) applicability of contingency theory. Hage and Aiken's (1970) thesis that the environment poses requirements for efficiency to which the organization must adapt in order to be successful, thus was supported by the evidence. Large companies which are more formalized, less centralized and more integrated are likely to be more successful wherever they are. Likewise, companies in highly volatile environments which are less formalized, centralized and more integrated, are, on average, more successful. These findings also clarify Schoonhoven's (1981 p. 353) question related to the symmetry of structural fit relations, expressed in research hypothesis 5. Given that our scale of "appropriate" structure" was symmetrical, ranging from low to high, we can interpret the above mentioned findings as showing that companies in "misfit", *ceteris paribus*, are less effective. The "fit" relations were therefore empirically shown to be symmetrical, when other factors were held constant.

From this general discussion, let us now once again focus back on private Chinese management. We had discussed in the literature review that writers occasionally commented on the potential high degree of effectiveness of this distinctive management model based on private family ownership, but rarely actually tested it in an empirical study. We therefore analyzed the following hypothesis:

Hypothesis 3: Holding other things constant, the family-based private Chinese model is positively associated with organizational effectiveness.

Nested model comparisons testing the significance of family-based private ownership showed a significant chi-square difference ($\Delta\chi^2$=6.99, df=1, p=.01). Therefore, we can conclude that it is highly unlikely that the observed positive relationship between family-based private ownership and organizational effectiveness would have been due to chance. Thus, the second research hypothesis was supported by the empirical evidence. More specifically, a stronger degree of family-based private ownership in China is positively associated with organizational performance (γ=.31, p<.001). Judged from the absolute size of the gamma coefficient, this factor was the most important single influencing factor of organizational effectiveness.

In more general terms, given that the Chinese management model was confined to private companies, we might argue that this management model is, ceteris paribus, also associated with higher performance. The findings thus confirm theoretical discussion in the literature on *Nanyang* management.

Those authors argued that reasons for the effectiveness of this management model included the social capital provided by Chinese family structures (Smart and Smart 1993; Whyte 1995 p. 1004; Cai 1997), as well as the flexibility associated with small firm size and both national (Montagu-Pollock 1991 p. 21; Whyte 1995 p. 1004) and international (Watson 1975b; Salaff 1981; Fukuyama 1995 p. 92) lineage-based networks. A third reason is the cost-efficiency (Montagu-Pollock 1991 p. 21; Turpin 1998 p. 8) associated, amongst other things, with these family-based networks. As mentioned in the literature review, there are also drawbacks to this management model. One of the major drawbacks was its alleged limits to growth in company size (Wong 1988 p. 139; Jenner 1992; Fukuyama 1995). This factor was taken into account here, since size was held constant in the organizational effectiveness model. Apart from this, by symmetry, we can infer from these findings that state ownership is negatively related to performance. This confirms Mun's (1990) findings who maintains that the "non-owner" feeling depresses long-run performance.

The largest chi-square difference was observed for planning and optimizing decision making ($\Delta\chi^2$=20.57, df=1, p<.001) which therefore was a highly significant influencing factor of organizational effectiveness. Company age was another significant factor ($\Delta\chi^2$=6.86, df=1, p=.01). Chi-square difference tests for the other factors, i.e. strategy, leadership, subcontracting, management expertise, constraints, size, company age and government support were not statistically significant at any conventional level.

After these nested model comparisons, we will now comment in more detail on the other observed relationships apart from "appropriate" structure and family-based ownership. Before reporting the detailed findings, we should clarify our position regarding comments on non-significant findings. In contrast to the hypotheses in the previous chapter, in this case the theoretical basis is somewhat thinner. We will therefore also tentatively discuss non-significant findings. A comparison between the detailed sub-hypotheses and research findings is presented in Table 8-9 below:

Table 8-9 Comparison of hypotheses and findings for effectiveness model

	Hypothesis	**Findings**
Appropriate structure	(+)	(+)
Proactive strategy	(+)	(+)
Price-cutting strategy	(-)	(-)
Participative leadership	(+)	(+)
Planning decisions	(+)	(+)
Subcontracting	(+)	(+)
Management expertise	(+)	(+)
Size	(-)	**(+)**
Family-based private ownership	(+)	(+)
Constraints	(-)	(-)
Government support	(+)	(+)
Company age	(+)	(+)

Signs in **bold** indicate departures from hypotheses
Items in shading are significant at the aggregate level, other findings due to their lack of significance cannot be thought of as "supporting" the hypothesis.

Strategy: Starting with the managerial variables at the top left hand corner in the path diagram on page 8-10, a proactive strategy appears to be slightly positively associated with organizational performance (γ=.16, p>.05). Though not statistically significant, this result corresponds to the findings from previous studies, such as Schendel and Patton's (1978) observation that strategy is, ceteris paribus, an important determinant of performance. It also fits well into the accumulated strategy literature which emphasizes the importance of creating competitive advantage based on, for example, product differentiation (Porter 1985), and stressed the importance of a "bias for action" (Peters and Waterman 1982) and "prospector" style (Miles and Snow 1978) in general. Proactive strategies were also found to be positively related to company success in China (Tan and Litschert 1994 p. 12). In contrast, a strategy which is only based on price cutting and aggressively sacrificing profitability in order to gain market share, does not seem to be strongly associated with long-run performance (γ=-.01, p>.05). The small overall association, strictly speaking seems to imply that aggressiveness is not correlated with performance. At best, the negative sign might imply that aggressive price cutting can easily lead to price wars, which in the long-run will destroy value for a whole industry. A good example were the price wars in the American airline industry. In a very tentative fashion, these findings convey the notion that the whole essence of strategy is to achieve differentiation from competitors and avoid price wars. Only such strategies will create economic "rents" (Milgrom and Roberts 1992). They also correspond to findings from mature, low performing U. S. organizations which often sacrificed high long-term performance by focusing on current short-term profits instead of pursuing proactive strategies (Schollhammer 1982; Tan and Litschert 1994 p. 14). It should be mentioned as a caveat that different strategies (and different influencing factors in general) might have differential impacts on the different *dimensions* of the aggregated performance construct (Galbraith and Schendel 1983; Hambrick 1983). It would therefore be important in a subsequent study to refine our insights by looking at this differential impact. In general, it should be remembered that we still are in agreement with contingency theory, since, instead of stating that, for example, proactive strategy is always effective, we insist on holding constant the other significant influencing factors of proactiveness from the previous model, i.e. size and constraints. The same comments apply as well to other constructs mentioned below.

Management style: A "professional" management style (Khandwalla 1977), consisting of participative leadership (γ=.13, p>.05) and optimizing, planning decision-making (Lindblom 1959) (γ=.37, p<.001), ceteris paribus,[1] was found to be positively correlated with organizational performance, confirming Khandwalla's (1977 p. 579-580) general findings.

Participation: It is efficient for the individual member of the organization to participate in the decisions on those events that affect him vitally (Khandwalla 1977 p 417). The reason might be the fact that such participation both increases employee morale and motivation (Likert 1961), as well as makes it possible to use local knowledge more effectively. In addition, the effectiveness of a participative leadership style resounds well with the key ideas expressed in human relations (Mayo 1933) and human resources (Argyris 1953; Argyris 1956; Argyris 1964; McGregor 1960).

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[1] This and all other findings apply for the total sample and require all other factors to be held constant, including, for example, private family-based ownership.

Planning: The significant results correspond to findings in the literature stating that an optimizing approach towards decision-making which is characterized by a systematic search for opportunities and long-term planning, ceteris paribus, is associated with overall higher performance in the long-run (Thune and House 1970; Herold, Thune and House 1972; Ansoff 1970; Khandwalla 1977 pp. 578-579). One single study in the electronics industry in China also showed that an analytical approach towards strategic planning was slightly positively related to performance (Tan and Litschert 1994 p. 13). It should be remembered that the effectiveness scales measures long-term performance. Writers have frequently emphasized the importance for investors in China (as well as in other countries) to pursue a long-term systematic vision for value-creation, instead of trying to capture quick gains at the expense of future profitability. In a more general sense, based on the results, it could be tentatively argued that scientific management might be highly effective in China for long-term performance.

Subcontracting: The level of subcontracting (γ=.11, p>.05), was somewhat positively related with performance, but as a caveat is has to be mentioned that this causal path was not significant. A tentative explanation for this slight positive association might be the fact that, as mentioned in the literature, by subcontracting peripheral activities the company can focus on core competencies (Porter 1994; Prahalad and Hamel 1994). The company might also be "leaner" and thus have more flexibility to adapt quickly to changing circumstances. At the same time the subcontractor, perhaps due to learning curve effects, is likely to have developed special expertise and might benefit from economies of scale or specialization which makes it possible to deliver higher quality products and services at lower price. These findings thus point into the same direction as Faulkner's (1995 p. 5) explanation that, by sub-contracting, the focal organization can draw on the specialized competencies of other members in an inter-organizational network without incurring the overhead costs arising from in-house development of these special skills. Organizations can thus achieve "best-in-world" status when this is impossible internally (Quinn, Doorley and Paquette 1994 p. 336). In a more general sense, it also highlights the importance of networks in China, previously emphasized by Boisot and Child (1996).

Let us now move on to discuss the contextual factors:

Management expertise: The CEO plays an important role for overall company success. His level of management expertise in terms of education, international exposure and work experience, was found to be significantly positively associated with corporate performance (γ=.18, p<.05). Therefore, a highly skilled and experienced CEO is a very valuable resource for overall business success. These results correspond to general findings in the literature emphasizing the importance of knowledge to management and performance (Fiol and Lyles 1985; Huber 1991; Kogut and Zander 1992; Nonaka 1994; Helleloid and Simonin 1994; Nonaka and Takeuchi 1995; Simonin 1997 p. 1150). As regards China, the lack of well educated managers has often been emphasized as stifling performance (Warner 1986 p. 353; 1987; Dalton 1990 p. 48), prompting the government to put more emphasis on industrial training (Lockett and Littler 1983; Helburn and Shearer 1984).

Likewise, Tan and Litschert's (1994 p. 13) argued that the relatively low educational level and lack of managerial experience of Chinese managers in dealing with increased uncertainty might hinder their ability to handle complex multidimensional situations. Similarly, intellectual ability and training to increase executive competence were found to be the most important reasons for managerial effectiveness in the P.R.C. (Okechuku 1994 p. 79; Steward and Him 1990 p. 62), but organizational effectiveness was not assessed.

Size: With respect to the influence of size on organizational effectiveness, the original research hypothesis has to be rejected. More specifically, size was found to be slightly positively related to organizational performance (γ=.03, p>.05). However, the effect is very small and not statistically significant. A significant positive association of size with effectiveness could be explained by the fact that, in general, large companies are more likely to survive (Hall 1991 p. 90). Starbuck and Nystrom (1981 p. xiv) pointed out that "nearly all small organizations disappear within a few years. In addition, a study of the Chinese electronics industry supported the notion of a positive relation between size and organizational performance (Tan and Litschert 1994 p. 13). In particular, they found that size was the single most important influencing factor of performance (r=.32, $p\leq$ 01). However, given the very small positive association and the fact that its sign changed from positive to negative when some of the exogenous variables were allowed to covary freely, it is most reasonable to conclude that size is not related to performance. Its most important function in this model was to act as a control whose influence had to be held constant.

Constraints: Research findings indicate that environmental constraints are significantly negatively correlated with organizational effectiveness (γ=-.15, p<.05). In an environment which is characterized by high inflation, poor infrastructure, political instability, difficult access to capital, as well as shortage of technical manpower, it is likely that a company will find it difficult to secure vital resources and to operate effectively. This support the findings of other studies outside of China (Fruhan 1972; Verbrugge, Shick and Thygerson 1975; Verbrugge and Goldstein 1978; Smith and Grimm 1987). In a broader sense, the results support resource dependence theory (Pfeffer and Salancik 1978), stating that a more constrained environment tends to depress performance.

Government support: Positive government support seemed to be important for organizational effectiveness (γ=.12, p>.05), but it should be mentioned as a caveat that the association was not statistically significant. Companies which secured "privileges" such as tax relieves, subsidies, special incentives for operations in designated zones, as well as export aid were found to outperform companies which failed to receive such favorable treatment. It should be remembered that industry is held constant and therefore it really seems to depend on the company's relations with the government whether legislation and directives are interpreted in a benevolent way. Besides, Tan and Litschert (1994 p. 13) highlighted the importance of government regulations in a previous study in the Chinese electronics industry, but did not empirically test its influence on effectiveness. Government regulations were reported by managers to be the most influential, least predictable and most complex strategic variable in China. They found that regulatory information was difficult to obtain, and even when available, the information was to vague to help managers plan their business activities.

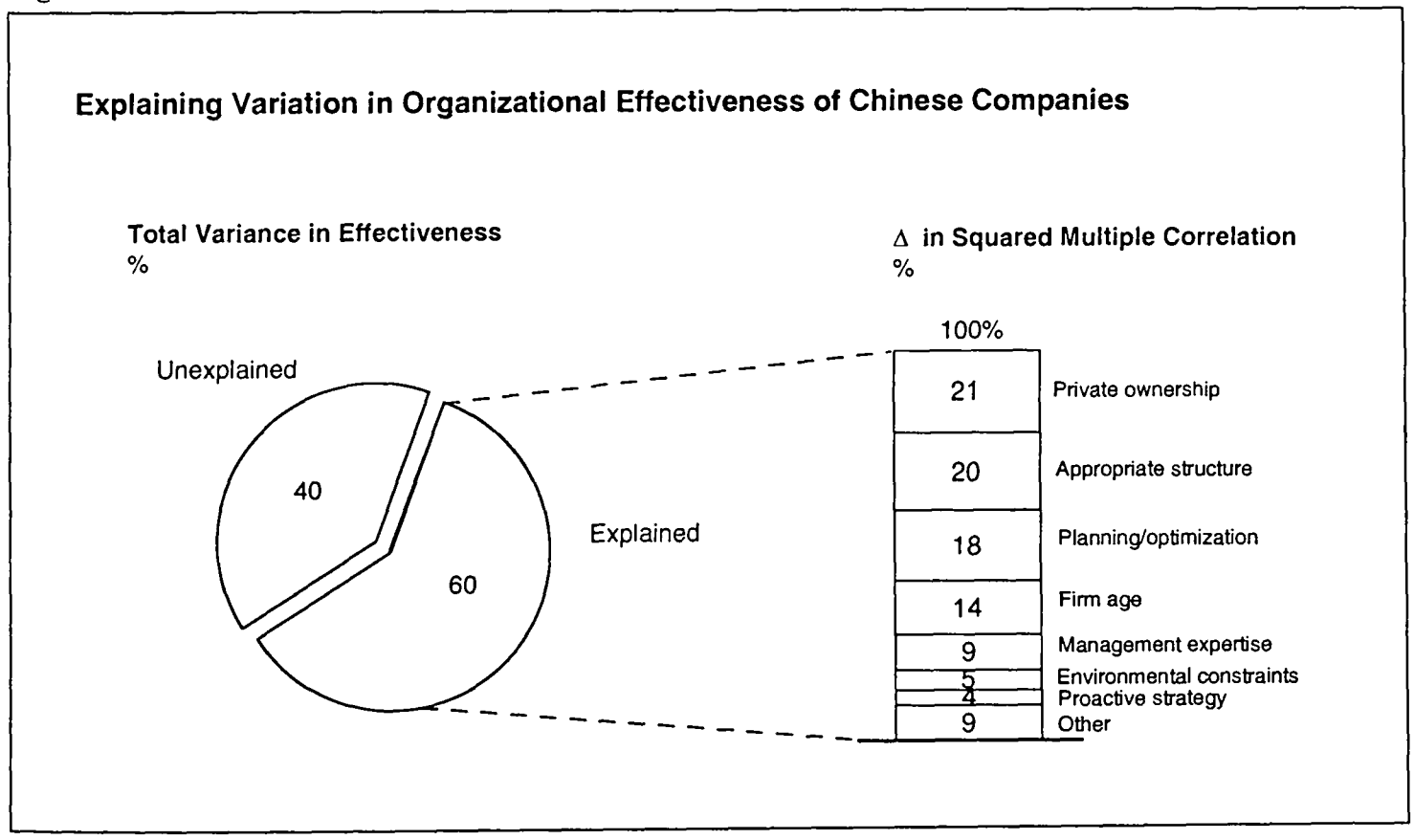
In many cases, collection and interpretation of regulator information even became a primary focus of top executives. This study thus expanded Tan and Litschert's work by theoretically arguing that regulations are not only important, but that government support is *positively* associated with performance, and by empirically testing this association.

Company age: Company age was found to be significantly positively associated with organizational effectiveness (γ=.26, p<.001). A potential explanation is the fact that in China, managers of older companies had more time to develop a wide-reaching *guanxi* network which they can effectively use, for example, to gather important market information, secure new business and receive favorable government treatment. In contrast, young companies might be more exposed to the environment and suffer from the "liability of newness", leading to the general rule that "a higher proportion of new organizations fail than old" (Stichcombe 1965 p. 148).

8.2.4. Incremental contributions of key success factors

In order to get an approximate estimate regarding the contributions of individual influencing factors in explaining variations of organizational performance and therefore to assess their relative importance, incremental changes in the square multiple correlation (*see* Table 8-8 on page 8-12), i.e. the equivalent to R^2 in ordinary regression, resulting from the inclusion of individual factors were compared. Incremental changes in the SMC were thought to be a very rough estimate of the explanatory power of individual factors. The results of this analysis are presented in Figure 8-1 below:

Figure 8-1



The diagram shows that on the basis of the SMC (bootstrapping estimate) for the base model, more than half (60%) of the variance in organizational effectiveness could be explained by the structural equation model. Private ownership was the most important explanatory factor. Specifically, the SMC deteriorated by 11% percentage point from 60% to 49% when the influence of this factor was constrained to zero. This 11% percent decrease corresponded to a share of 21% of the total change in SMC (overall 53%) due to the different influencing factors. Appropriate structure (20% of total SMC incremental change) was also a very important factor explaining variation in organizational effectiveness. Thus there was more evidence for the support of the research hypotheses. Ownership mode and structure were not only found to be significantly and positively associated with organizational performance, but they even were the most important explanatory sources of success and performance differences of companies in China. Finally, planning (18%), firm age (15%) and CEO expertise (9%) were also found to be important sources of variation in effectiveness. Compared to these important factors, the impact of strategy, leadership style and other, contextual constructs was rather marginal.

8.2.4.1. Stacked model subgroup comparisons

In the next step, we assessed whether key success factors varied for different geographic areas. To answer this question, a nested model subgroup analysis was performed between companies located in Beijing (North) and Shanghai (South).[1] The results of this analysis are reported in Table 8-10 below:

Table 8-10 Organizational effectiveness nested model comparisons for geography subgroup analysis

	χ^2/df	*df*	GFI	AGFI	IFI	$\Delta\chi^2$*	*p*	*df*
Saturated model (Covariance Structure)	0	0	1.00	n/a	1.00	n/a	n/a	n/a
Model I a (Baseline subgroup)	1.94	812	.55	.48	.60	n/a	n/a	n/a
Model I b (Subgroup w/ equality)	1.94	824	.54	.48	.59	23.74•	.02	12
Null model (Independence Model)	3.10	870	.34	.30	.00	n/a	n/a	n/a

•p < .05; ••p < .01; •••p < .001
*Baseline comparison is Model I a

In the nested comparison, a baseline stacked model with no constraints was compared to a model which required all pairs of gamma coefficients to be equal across the two geographical subgroups. The chi-square difference test between the two nested model was statistically significant ($\Delta\chi^2$=23.74, *df*=12, *p*<.05). This result implied that there were indeed differences in the key success factors for cities located in the North and South of China. It was therefore important to analyze in more detail the nature of these differences by comparing all individual pairs of gamma coefficients.

[1] It should be mentioned as a caveat that the two samples strictly speaking are only representative for the two cities. Extensions to "North-South" comparisons have to be viewed somewhat more cautiously.

The results of this detailed subgroup comparison are reported in 8-20 below. The table also contains the results of some more detailed nested model comparisons, in which the unconstrained model (I a) was compared to a model which fixed the coefficient for an individual key success factor to equality for the two subgroups. Significant chi-square differences imply rejection of this more constrained model and show that the difference between the two subgroups with respect to this success factor is significant.

Table 8-11 Subgroup analysis for organizational effectiveness (ML standardized path coefficients)

	Total	**Geography**		**Nested model comparison**		
Independent Variable	All*	North	South	$\Delta\chi^2$**	*p*	*df*
Appropriate structure	.29••	.33••	.32••	.00	.98	1
Proactive strategy	.16	.52	.07	5.71•	.02	1
Price-cutting strategy	-.01	-.14	.03	1.48	.22	1
Participative leadership	.13	.19•	.09	.41	.52	1
Planning decisions	.37•••	.15	.33•••	.86	.36	1
Subcontracting	.11	.09	.11	.02	.88	1
Management expertise	.18•	.31•	.02	1.44	.23	1
Size	.03	-.26••	.31•••	6.35•	.01	1
Family-based private ownership	.31•••	.23•	.47•••	1.45	.23	1
Constraints	-.15•	-.16	-.01	.76	.38	1
Government support	.12	.38•••	-.04	8.79••	.00	1
Company age	.26•••	.10	.35•••	2.29	.13	1
Squared multiple correlation	.60	.85†	.68†	n/a	n/a	n/a

Note: Total sample N=124; North n=60, South n=64.
•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38).
* All critical ratios based on unstandardized coefficients
** Baseline comparison is unconstrained Model I a (*see* Table 8-10 on 8-19)
† Maximum Likelihood estimate (bootstrap not available due to smaller subgroup sample size)

The results show that the two subgroup models had very strong explanatory power with a squared multiple correlation of .85 for companies in Beijing, and a value of .68 for enterprises in Shanghai. Except for size, the *direction* of association for the two subgroups was the same as for the total sample (within the bounds of conventional confidence intervals) and the difference was found in the strength of association. As regards the more detailed comparison, there were two significant subgroup differences with respect to government regulation and size.[1] All other differences were not significant, but we will comment on them in a tentative fashion:

Government regulation: The largest geographical difference was found with respect to government support ($\Delta\chi^2$=8.79, *df*=1, *p*<.01). It was one of the strongest success factors in the North (γ=.38, *p*<.001), whereas it was non-significant and even slightly negatively related to performance in the South (γ=-.04, *p*>.05). While in the South, private ownership is the most important influencing factor of organizational effectiveness, government support is the most crucial key success factor in the North. The findings thus correspond to anecdotal evidence from the literature, in which it was emphasized that in the North, business and government are very strongly intertwined (Ou, Shi and Xu 1996).

[1] It is important to bear in mind that some of the coefficients discussed are not statistically significant at conventional levels. These coefficients should be viewed with caution and the discussion be regarded as tentative and exploratory. We will not comment on difference when coefficients for *both* subgroups are not significant, which applies, for example, to proactive strategy.

These findings explain the paramount importance Northern companies attach to building such tight and smooth relations with the government, since favorable treatment, such as tax breaks, export subsidies and special economic zone incentives, will be one of the most decisive factors for their overall long-term performance. In more general terms, the results also provide support for the thesis that the influence of the government decreases to the extent to which the location is physically distanced from Beijing.

Size: Subgroup difference with respect to company size were significant as well ($\Delta\chi^2$=6.35, *df*=1, p<.05). More specifically, size was positively related to success in the South (γ=.31, p>.001) whereas it was negatively related to effectiveness in the North (γ=-26, p<.01). This might once again underline the importance in the South to build a "buffer" against government influence through sufficient scale of the organization which will increase its influence and resilience.

We will now tentatively comment on the remaining differences, which were statistically not significant:

Appropriate structure: The influence of structure on effectiveness was almost identical ($\Delta\chi^2$=.00, *df*=1, p=.98) both in terms of absolute size as well as with respect to the statistical significance for companies in the North (γ=.33, p<.01) and South (γ=.32, p<.01) of China. This strongly supports the fundamental importance of organizational structure which has to follow an "industrial logic".

Family-based ownership: Family-based private ownership was somewhat more important as a key success factor in the South (γ=.47, p<.001) compared to the North (γ=.23, p<.05), but given the insignificant results from the nested model comparisons, the results can only be treated tentatively. In the South, private family property was also more important than the sample average and the most crucial success factor. By symmetry, in the more entrepreneurial South, state-owned companies, perhaps due to their alleged inflexibility, might find it harder to be successful. The case example at the end of this chapter will illustrate in more detail differences related to the value created by state and private enterprises.

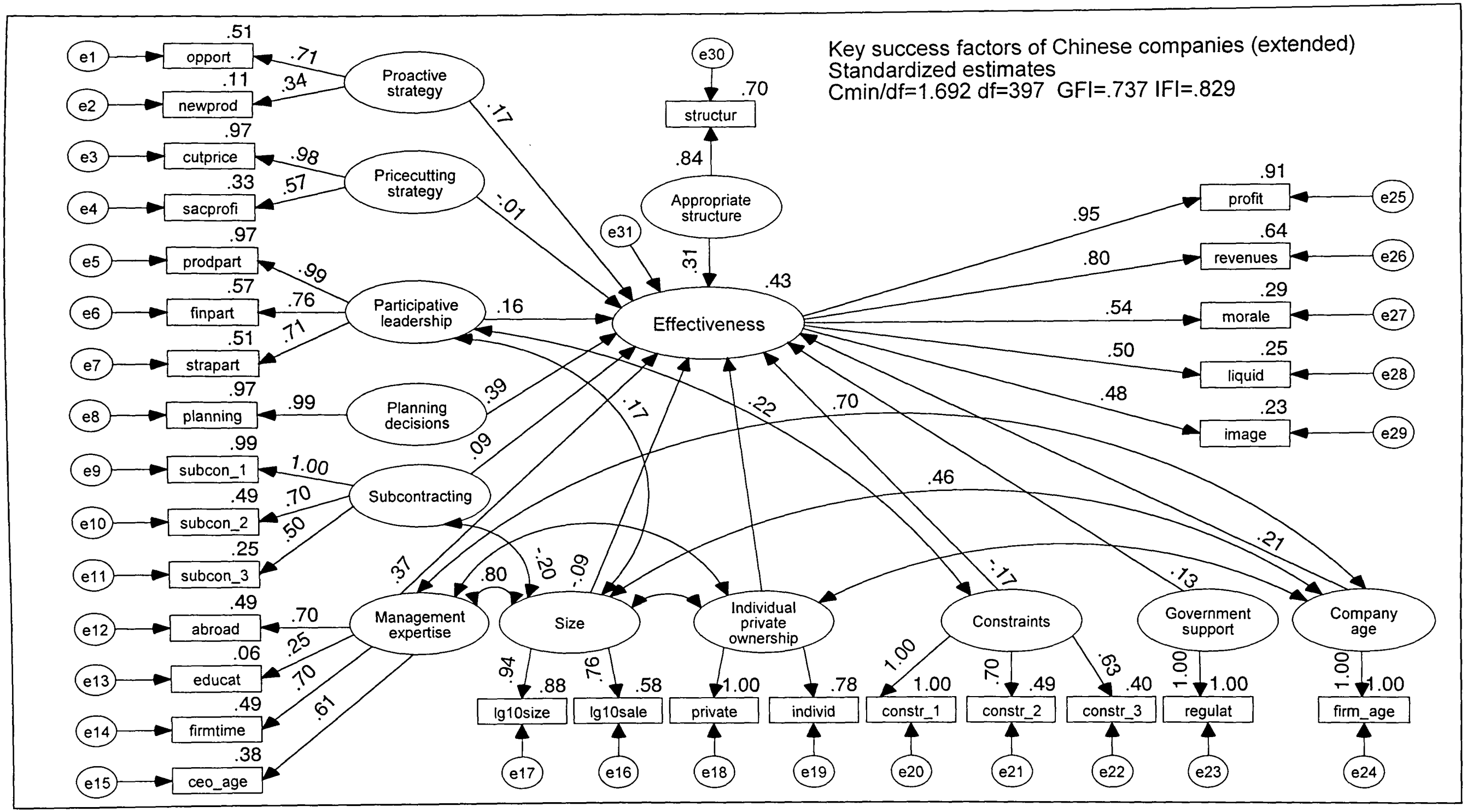
Company age: Company age was found to be more important in the South (γ=.35, p<.001) compared to the North (γ=.10, p>.05), but once again the results have to be treated in an exploratory fashion given that the difference was not statistically significant ($\Delta\chi^2$=2.29, *df*=1, p=.13). A reason might be the fact that learning curve effects are even more important in a more competitive environment, such as in Shanghai.

Expertise: The expertise of the CEO seems to be somewhat more important for success in the North (γ=.31, p<.05) than in the South (γ=.02, p>.05) where it almost has no association with effectiveness at all. However, once again the results are only tentative, since the overall difference was not statistically significant ($\Delta\chi^2$=1.44, *df*=1, p=.23). In the South, there might be a premium on entrepreneurship (Fitzgerald 1986) and formal education might not really count much for success. In contrast, in the North, high educational standards might be greatly valued and also lead to better business connections.

Planning: A somewhat unexpected finding is the fact that an optimization and planning mode of decision-making seems to be more important in the South (γ=.33, p<.001) than in the North (γ=.15, p>.05), but the difference has to be treated with caution given that it is not statistically significant ($\Delta\chi^2$=.86, df=1, p=.36). A priori we would have expected that in the supposedly "free-wheeling" South, flexible and opportunistic moves would be more successful than in the North and, as a consequence, planning be less important. In a very tentative way, it might be argued that "scientifically" managed companies are more distinctive in the South which might be dominated by short-term, aggressive moves, and thus be more effective in the *long-run*. Alternatively, it could be argued that the South, and particular Shanghai, is more sophisticated and competitive. Therefore, it might require more advanced management techniques for success. This issue certainly deserves some more attention in future research.

8.2.5. Model extensions

In order to produce a simpler model for the first stage in the analysis process, covariances in the initial basic model were intentionally fixed to zero. However, it was mentioned before that there were *a priori* theoretical grounds or facts to allow some of the exogenous constructs to covary. Therefore, in the next step, the basic model was extended by freeing up nine of these Φ (phi) covariances. In particular it was hypothesized that private companies on average tended to be relatively young. In addition, given that many private entrepreneurs lacked much formal education, a negative correlation was expected between private ownership and CEO education. Further, old and large companies were thought to have more experienced managers. Besides, smaller companies were although thought to be relatively young. Moreover, we knew from the sample characteristics that private companies tended to be relatively small. From the previous analysis, we knew that there is a positive relationship between constraints and participative leadership, as well as size and participation. We also know that size was negatively related to the level of subcontracting in the firm. The path diagram for the extended structural equation model is presented on the following page:


Key success factors of Chinese companies (extended)
Standardized estimates
Cmin/df=1.692 df=397 GFI=.737 IFI=.829
Proactive strategy
Pricecutting strategy
Participative leadership
Planning decisions
Subcontracting
Management expertise
Appropriate structure
Effectiveness
Size
Individual private ownership
Constraints
Government support
Company age
opport
newprod
cutprice
sacprofi
prodpart
finpart
strapart
planning
subcon_1
subcon_2
subcon_3
abroad
educat
firmtime
ceo_age
structur
profit
revenues
morale
liquid
image
lg10size
lg10sale
private
individ
constr_1
constr_2
constr_3
regulat
firm_age
e1
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Absolute and comparative fit indices are reported in Table 8-12 below:

Table 8-12 Fit indices for extended organizational effectiveness model

	χ^2/df	*df*	GFI	AGFI	IFI	$\Delta\chi^2$*	*p*	*df*
Saturated model (Covariance Structure)	.00	0	1.00	n/a	1.00	n/a	n/a	n/a
Model I a (Extended model w/o constraints)	1.69	397	.74	.69	.83	n/a	n/a	n/a
Model I b (Basic model w/ constraints)	2.27	406	.65	.59	.68	248.51•••	.00	9
Null model (Independence Model)	4.61	435	.40	.36	.00	n/a	n/a	n/a

Note: N=124
•p < .05; ••p < .01; •••p < .001
*Baseline comparison is Model I a

The results for the extended model (Model I a) revealed a relatively good fit for the underlying sample covariance structure. The χ^2 statistic was significant (χ^2= 671.63, *df*=397, *p*<.001), but it had been mentioned before that due to its sensitivity to sample size, failure to satisfy the multinormality assumption, and model complexity, the CMIN/DF was preferred as a measure of fit. With a value of 1.69 the extended model showed acceptable fit according to the Carmines and McIver (1981 p. 80) criterion. Further, the goodness of fit index (GFI=.74) and incremental fit index (IFI=.83), both were relatively high. Thus, there was some additional evidence that the model presents a relatively good fit for the data. Furthermore, there were no "improper" solutions in the model, such "Heywood cases", out-of-range covariances and non-positive underlying covariance matrices. In addition, there were no unusually high normalized residuals between the implied covariance and sample covariance structure. Finally, the significance and absolute amount of the structural parameter estimates provided some additional information on the overall model fit. Except for two differences, the pattern and significance of the structural parameters were almost identical to the basic model. The only directional difference was the fact that size was found to be slightly negatively, but still not significantly, related to organizational performance, thus pointing into the same direction as the original research hypothesis. The initial rejection of the research hypothesis might thus have been due to the constrained nature of the basic model. Finally, the squared multiple correlation (bootstrap estimate) was close to the basic model estimate (*r*=.57, S.E.=.14).

The results from the nested model tests supported the better comparative fit of the extended model compared to the base version. More specifically, the basic model represented a more constrained version of the more general extended version, thus making it possible to use a chi-square difference test for nested model comparisons. With degrees of freedom equal to nine (the number of paths which were freed), the chi-square statistic was significantly lower for the extended model, thus implying a better fit compared to the basic model ($\Delta\chi^2$=248.51, *df*=9, *p*<.001). The goodness-of-fit index (ΔGFI=.09) and incremental fit index (ΔIFI=.15) were also higher for the extended model, supporting the notion of a better fit for the data.

The detailed results related to the covariance (correlation) coefficients (Φ) are presented in Table 8-13 below:

Table 8-13 Maximum Likelihood correlation estimates (phi coefficients) for effectiveness model

Independent Variables	Unstandardized	S.E.	Standardized
Management expertise ↔ Company age	5.59•••	1.06	.70
Size ↔ Management expertise	.22•••	.04	.80
Size ↔ Participative leadership	.28•	.12	.17
Size ↔ Subcontracting	-.76••	.27	-.20
Size ↔ Family-based private ownership	-.26•••	.05	-.59
Size ↔ Company age	10.09•••	2.21	.46
Family-based private ownership ↔ Company age	-7.90•••	1.34	-.63
Family-based private ownership ↔ Management expertise	-.13•••	.02	-.81
Constraints ↔ Participative leadership	2.40•	.99	.22
SMC*	.57•••	.14	n/a

Note: N=124
•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38).
*Bootstrap estimate (ML estimates reported on path diagram)

Where:
Unstandardized = Unstandardized path coefficient
S.E. = Standard error
Standardized = Standardized path coefficient
C.R. = Critical Ratio
SMC = Squared multiple correlation

The results showed that all hypotheses related to the various covariance relationships between the exogenous constructs were supported by the empirical data and were in all cases statistically significant with critical ratios ranging from |2.41| (p<.05) to |5.88| (p<.001).

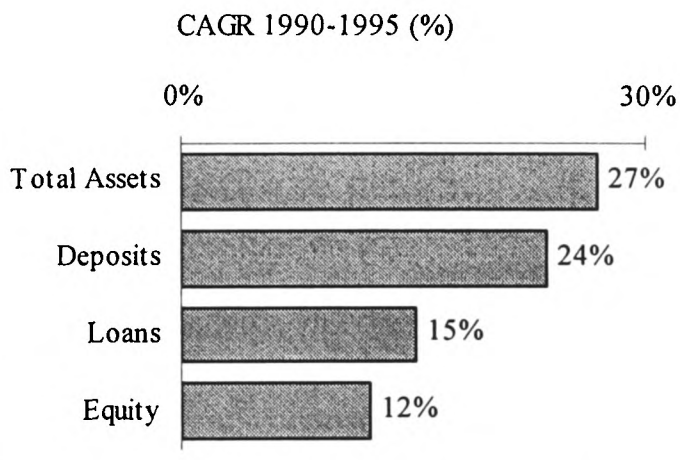
8.3. Case example

Case example Value-destruction at ICBC

One of the most important findings from the foregoing analysis was the fact that private family-owned companies, on average, attained higher degrees of organizational effectiveness than their state-owned counterparts. In order to illustrate the financial implications of these findings, we analyzed one case example in more detail. Specifically, we focused on the effectiveness of the Industrial and Commercial Bank of China (ICBC).

On the surface, ICBC seems to be a high performing company. In particular, its growth is very dynamic. Table 8-14 reports some medium term growth rates of different financial indicators over the last five years:

Table 8-14 ICBC Growth rates



The results show that the company's compounded average growth rates (CAGR) for total assets, loans, deposits and equity tended to outstrip overall national macroeconomic growth (about 9%). In addition, the strongest growth rate in total assets suggests increasing financial strength. Growth in sheer size also is the most important corporate objective as stated in external documents such as Annual Reports and special glossy "growth charts". However, many corporate finance specialists pointed to the importance for companies of not only growing, but also increasing profitability along the way. Real high-performing companies, such as Intel, increase revenues dramatically, but at the same time also create shareholder value. Other companies, such as IBM at the beginning of the 1990s, which failed to translate growth into value creation, subsequently encountered substantial business problems and financial troubles. In the final analysis, only long-run value creation will provide the company with the necessary free cash-flow to finance future growth and innovation. Value creation is therefore currently accepted as the most important yardstick or "acid" test for corporate performance from the owners' perspective.

A more detailed analysis of ICBC accounting ratios related to profitability and other key financial performance indicators showed that past rapid growth was value destroying, not value creating. This meant that the more the company grew, the more it destroyed value.

A first "smoking gun" was the fact that equity growth was markedly smaller than overall growth in total assets. If we assume for the sake of simplicity that the shareholders' capital was not markedly increased and dividend payout-ratio constant, this implies that the level of retained earnings was comparatively low. A more rigorous analysis of value creation (or net present value) is the assessment of the spread between return on invested capital and the cost of capital for the company. In our case, we used return on equity as a proxy for return on invested capital. The assumption for this value analysis are presented in Figure 8-2 below:

Figure 8-2 Assumptions for ICBC's value analysis

bn Yuan

Influencing factors of cost of capital

Factors		Explanation
• Risk-free rate (r_f)	7%	• Bank of China 3-months interest rate
• Market risk-premium(r_m)	5%	• Global market risk premium
• Cost of debt (r_d)	8%	• Risk-free rate plus 1% risk premium
• Tax rate (t)	15%	• Official tax rate

Formula for WACC*

$$WACC = r_d(1-t) \cdot \frac{D}{D+E} + (r_f + Beta \cdot r_m) \cdot \frac{D}{D+E}$$

Calculating WACC

	ICBC	State	Private
Beta (estimate)	1.0	1.0	1.0
Total Debt	2,287	n/a	n/a
Total equity	88	n/a	n/a
D/E ratio	96%	0%	0%
WACC	7%	12%	12%

*WACC=Weighted Average Cost of Capital
Source: CIBC Annual Report 1994, Datastream, China Study

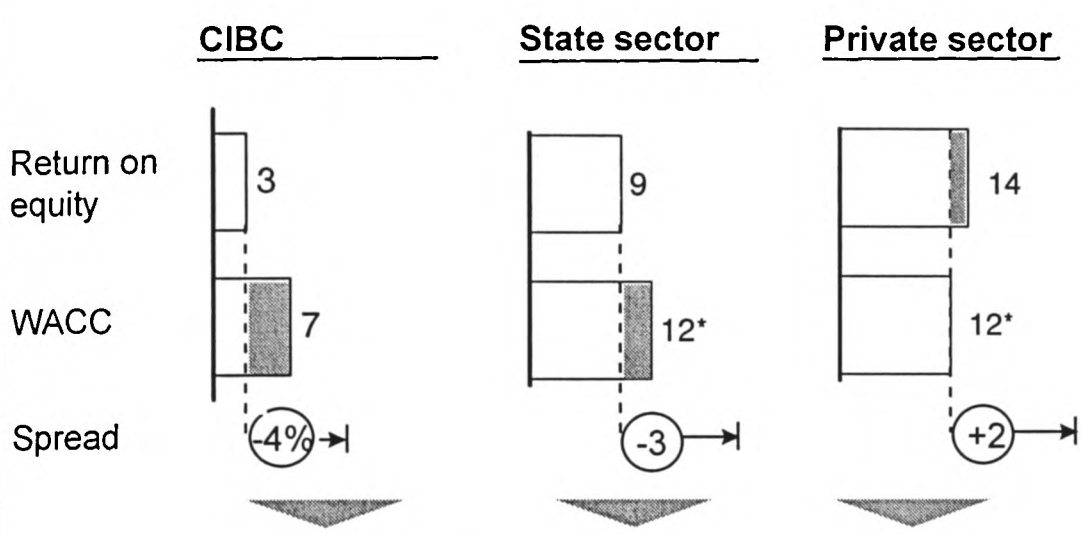
"WACC" is a weighted cost for both equity capital and debt. The formula is given in the left-hand box located in the diagram above. Specifically, it weights the cost of debt according to the proportion of debt to total capital and adds it to the costs of equity adjusted for the proportion of equity to total capital. The cost of debt is the official Bank of China three months interest rate plus a risk premium for the company. Cost of equity is the return a global investor would expect from his assets adjusted for the "riskiness" of the asset. According to the Capital Asset Pricing Model the riskiness of the asset is assessed by its covariance with the total market portfolio, i.e. its beta value. It should be mentioned that the foregoing analysis is very new for China and therefore no exact beta books were easily available. For the sake of simplicity, the beta value was therefore fixed at 1.0 reflecting the fact that ICBC is not expected to increase the riskiness of a well-diversified portfolio very much.

The cost of capital was calculated for ICBC, as well as for the state and private sector in China. ICBC's cost of capital was lower, due to the fact that as a Bank, most of its capital are loans, i.e. deposits from investors. Given that interest is a tax deductible expense, a higher debt to equity ratio tends to increase value, at the expense of a higher risk of bankruptcy. For the private and state sector, to be conservative, a 100% equity finance model was used. Since industry averages were compared, the beta weights were equal to 1.0.

The results of the comparative value analysis are presented in Figure 8-3 below:

Figure 8-3 Comparison of value creation in China

1994, %



	CIBC	State sector	Private sector
Economic Loss** (mio yuan)	-3,939	n/a	n/a

* Assuming 100% equity financed
** Economic Profit=Invested Capital x (ROIC-WACC)
Source: CIBC Annual Report 1994, China Study

With a return on equity of 3% and a WACC of 7% the results showed that the economic spread for ICBC was *negative* (-4%). In other word, it was not a high performer in producing positive net present value or "economic rent". On the contrary, it massively destroyed shareholder value by making an economic loss of about 3,939 million RMB Yuan (approximately 500 million US $) in 1994. These findings contrast sharply with the superficial aggregated growth rates. In addition, triangulation with results from the content analysis of company external relations documents corroborates with these findings. These documents show that mere growth and the achievement of strategic milestones, such as the number of Peony credit cards issued or signed-up merchants, were highlighted. Profitability or value creation were never mentioned.

It is interesting to note that the questionnaire methodology was very robust in identifying these very subtle distinctions. Whereas ICBC's CEO rated the company's performance on financial strength as higher than other industry competitors, it ranked itself lower than average on profitability.

In more general terms, based on the data from the total sample, the state sector on average had a return of equity of 9%. Given a WACC of 12% it also had a negative spread (-3%). In contrast, private companies on average had a significantly higher return on equity (14%). Given a WACC of 12%, they thus had a positive spread (2%) and therefore were found to *create* value. It should be mentioned that this is a very conservative estimate. It is very likely that the private company's cost of capital is significantly lower than the figure used above. In particular, private owners might be satisfied with much lower returns as long as they "survive". In addition, due to their international networks with overseas Chinese, it is usually possible for them to easily tap relatively "cheap" additional liquid funds and long-term capital.

The ICBC example and sector-wide comparisons, which used an "objective" measure of organizational effectiveness thus illustrated the results of the structural equation model which used a "subjective" index of performance. It explained some of the financial reasons for the greater success of private companies, i.e. the fact that holding constant their cost of capital, they had higher levels of profitability than state-owned companies and also earned a positive spread (or "rent") on their invested capital. Structural and managerial reasons which might have led to this higher performance were discussed in a previous chapter. The comparison also provided empirical evidence for the anecdotally suggested inefficiency of the state-owned sector at an aggregated level and the discrepancy between the appearance of growth and the reality of value destruction on a grand scale.

Summary and conclusions of Chapter 8

In this chapter, we focused on two broad themes, i.e. the notion of "fit" in contingency theory in general and the effectiveness of Chinese family-based private ownership in particular.

Fit in contingency theory: Given that previous contingency studies often only assumed "fit" and did not explicitly model company performance, we used nested structural equation model comparisons to empirically test the "fit" notion. Specifically, we first showed that companies in "misfit" were not necessarily less effective than companies in "fit", rejecting the "symmetry" assumption for analyses in which other variables are not held constant. Therefore, subsequently, this study took a step further and included a broad set of key success factors in a structural equation-based effectiveness model. The explanatory power of the model was relatively strong, i.e. the included key success factors accounted for more than half of total variation in the effectiveness score. In addition, the findings supported the research hypothesis. Companies with "appropriate" structure, *ceteris paribus*, displayed significantly higher organizational performance, in terms of growth, profitability, financial strength, morale and public image, than companies in misfit. "Appropriate" structure was also the second most important explanatory variable accounting for the variation in the organizational effectiveness of Chinese companies. These findings provided some support for the universal applicability of contingency theory.

Family-based private ownership: Companies with a high degree of family-based private ownership tended to significantly outperform their state-owned counterparts. Given that the private companies were thought to have adopted a distinctive management model, this particular mode of operation also seemed to be more effective than other models. Based on a rough estimation in terms of incremental changes in the squared multiple correlation for the endogenous variable, private ownership was the most important contributing factor explaining variation in performance. This positive association with performance seems to suggest that Chinese management is an "art", i.e. the skill of doing something well. We will explore some broader notions of Chinese management as an "art" in the concluding chapter.

Apart from "appropriate" structure and private family-based ownership, several other factors were found to be significantly related to organizational performance. Nested model comparisons revealed that, at the aggregate level, optimization-driven planning was the most significant determinant of long-run performance. In addition, the significance of firm age was thought to be an important feature of China, potentially explained by the fact that older companies had more time to build up social capital in the form of *guanxi* than younger companies. Further, all individual sub-hypotheses relating to other key success factors, though not statistically significant, pointed into the hypothesized directions. More specifically, as expected all of these factors, except for price-cutting strategy and environmental constraints, had positive associations with company performance. Size first was found to have a negative association with performance, but in the extended model, this association became positive.

Further results from stacked model subgroup comparisons showed that some success factors were significantly different in the North as compared to the South. The analysis of detailed differences in pairs of structural path coefficients showed that there was a significant subgroup difference between government support (more important in Beijing) and company size (more important in Shanghai). In contrast, the influence of structure on effectiveness was almost identical for companies in Beijing and Shanghai. This supported the notion that structural choices have to follow an "industrial logic". Other managerial factors seemed to be more diverging in their importance, but the differences were not statistically significant.

In an extension of the basic structural equation model, hypotheses, deduced from theory or previously established facts, which related to the correlation between various key contextual success factors were tested and broadly supported by the data both in terms of the direction of influence as well as in terms of the overall better model fit. There were no significant changes in the direction of the structural relationships, demonstrating the relative robustness of the overall research model.

Finally, results from an in-depth case example relating to the financial performance of the Industrial and Commercial Bank of China (ICBC) illustrated the research findings derived from the quantitative structural equation model. In particular, ICBC, though growing rapidly in terms of total assets, was found to have incurred a large economic loss in the chosen year. In other words, its return on equity was shown to be significantly lower than its costs of capital. The example thus provided a potential explanation for why state ownership was found to be negatively correlated with success. A more general comparative value analysis between the state and private sector confirmed these findings. Across all industries, the state sector destroyed value, whereas private companies on average were found to produce positive economic "rents". The findings thus provided "hard", quantitative support for the often anecdotal references to the comparatively higher financial performance of private companies, and have important implications for policy-making in the areas of privatization. More specifically, it underlines the importance for the Chinese government to further encourage the growth of private companies, such as township enterprises and start a full-scale privatization program of the moribund state sector. Its implications for mangers will be presented in the next chapter.

In the following final chapter, we will draw some general conclusions, develop a strategy framework which translates the findings into managerial recommendations and propose a future research agenda on Chinese management.

Part IV: Conclusions and limitations

9. Conclusions and recommendations

The objective of this final chapter is to draw conclusions and present recommendations based on a synthesis of the results reported in the preceding three findings chapters. In the first of the three major sections (9.1), the significant findings of the study as related to the research hypotheses will be reviewed and discussed. In particular, the results will be evaluated in the light of existing research studies or "themes", and implications will be drawn for current theory. Besides, findings that failed to support the hypotheses will be referred to and examined. In the next section (9.2), the implications of this study for applications to professional managerial practice will be discussed. In the final section (9.3), we will elaborate on this work's limitations that may affect the validity or generalizability of the results. Recommendations relating to further research in the subject area will also be given in this context.

9.1. Main conclusions

The distinctive contributions of this study, compared to the present status of existing knowledge, are summarized in Figure 9-1 on page 9-2 and are discussed below. There were two intertwined themes, i.e. the distinctive Chinese private management model, as well as the "fit" notion in contingency theory. In addition, we made several methodological contributions. The contributions will be discussed in turn.

9.1.1. The Art of Chinese Management?

The main empirical research question dealt with the distinctiveness, influencing factors and organizational effectiveness implications of the Chinese private management model.

9.1.1.1. Characteristics of Chinese private management model

A distinctive model

The empirical findings provided support for the hypothesis of a distinctive private Chinese management model which is readopted in the new, mostly family-owned enterprises in mainland China. In particular, the empirical findings showed that private companies significantly differed from state-owned enterprises in terms of structure and management and were, to some degree, also distinctive judged from an international perspective. However, the international mean comparison can be viewed only as being highly exploratory and tentative, given that company size could not be held constant. In most cases where the quantitative findings were less clear-cut, the case examples provided useful illustrations and explanations.

Figure 9-1

Compared to previous research, this study made distinctive empirical, theoretical and methodological contributions by developing and testing a Chinese management model for private companies in mainland China, expanding contingency theory and advancing organizational methodology.

Contributions of China Study

Aspect	Present status	New contributions
Chinese management	• Fragmented discussions related to elements of Chinese management • Distinctive *overseas* Chinese management model • Model is invariable and "monolithic"; no item-level analysis • Effectiveness of family-based management model not tested • Literature mainly descriptive, not international	• Chinese private management framework developed • Readoption of Chinese management model and family-based values in mainland private firms • Chinese model and choice of small size, ceteris paribus, due to emphasis on Chinese values; structural differences at item-level detected • Holding other factors constant, effectiveness of private family ownership demonstrated, • Rigorous *empirical* study with ownership and international comparisons
Contingency theory	• "Fit" hypotheses supported in international studies • Little empirical evidence concerning differential discretion in structural and managerial responses • Effectiveness of companies in fit and ineffectiveness of companies in misfit assumed • Other key success factors not modeled in contingency theory • Little practically useful advice	• "Traditional" contingency relations supported in mainland China and size endogenously determined • More managerial than structural discretion (significant impact of CEO personality on management practices of private enterprises) • Fit does not necessarily imply higher effectiveness; symmetry argument not automatically applicable; appropriate structure positively associated with performance • Significant other key success factors • Translation of findings into actionable CHINA strategy framework
Organizational methodology	• No scales measuring culture and subcontracting in China • "Appropriate" structure not modeled • Fragmented analysis of individual aspects of context, structure and management • Mainly use of ordinary regression without simultaneous measurement model and subgroups analysis	• Scale for "emphasis on selected Chinese values" and subcontracting developed and tested • "Appropriate" structure operationalized • Integrated, multi-level and multi-disciplinary analysis of context, structure and management • Rigorous structural equation modeling with simultaneous assessment of measurement properties, nested model comparisons and stacked model subgroup analyses

We will not repeat the detailed facts which haven been reported earlier, but only briefly synthesize the six distinctive characteristics of private Chinese management:

a) ***Centralization***: A high degree of centralization of power in the hands of one entrepreneur ("dictatorship by the owner-manager").

b) ***Lack of bureaucracy***: A low degree of formalization, specialization, standardization of control systems and integration. In addition, there is a distinctive lack of a formal organizational hierarchy.

c) ***Chinese entrepreneurship***: Aggressive strategies, autocratic, coercive and flexible leadership, as well as entrepreneurial decision-making.

d) ***Enterprise networks***: "Spider" web of formal and informal personal and company connections, with family being the inner sanctum.

As regards the choice of contextual factors, there are two more distinctive features:

e) ***Re-adoption of family-related cultural values***: Emphasis on family loyalty, collective belonging to family, as well as (family-based) relations. This emphasis was in certain cases partly due to CEOs being driven by the desire to give rebirth to traditional Chinese culture.

f) ***Small size***: Due to the importance of familism, Chinese private enterprises prefer to "proliferate" into a large number of small to medium-sized companies instead of growing the focal firm.

Mainland Chinese and Nanyang management

In more general terms, the empirical findings correspond to the somewhat fragmented discussions of *Nanyang* writers who thought that particular aspects of the management style practiced by overseas private Chinese businesses are distinctive. Distinctive structural design choices included the autocratic, personalistic and paternalistic rule of their owners (Redding and Wong 1986; Cohen 1990 p. 24; Montagu-Pollock 1991 p. 23; Kao 1993; Hickson and Pugh 1995 p. 171; Weidenbaum 1996 p. 141; Turpin 1998 p. 8) and low degree of formalization (Redding 1980; Redding and Wong 1986; Redding 1990; Hickson and Pugh 1995 p. 171; Weidenbaum 1996 pp. 149-150). Likewise, the study also confirmed their distinctive managerial practices mentioned in the literature, including entrepreneurial and flexible leadership (Mackie 1992 p. 53; Hickson and Pugh 1995 p. 170), epitomized by Redding's (1990 pp. 17-18) description of the "typical" *Nanyang* Manager, as well as the importance of enterprise networks (Montagu-Pollock 1991 p. 21; Whitley 1994 p. 29; Whyte 1995 p. 1003; Williamson 1997; Cai 1997), especially those based on family ties (Heller 1991).

Back to the mainland Chinese origin ...

We thus witness the completion of a full circle. The traditional Chinese management model (Chan 1982) and emphasis on traditional family-based values which "left" China to be spread across the overseas Chinese Diaspora, has come back to the mainland. Whereas previous studies described this *Nanyang* model as applicable for the overseas Chinese management model, this study, for the first time, showed that the management model can also once again be found in mainland China, i.e. in the newly private Chinese enterprises. Interestingly, it is well possible that the readoption of the traditional Chinese management style and cultural values in the P.C.R. is partly due to the influence of overseas Chinese companies, which are the most important "foreign" investor group in mainland China.

In conclusion, as regards the "distinctive" Chinese management style, we thus contributed to the discussion by (a) synthesizing the partial aspects mentioned in the literature into an integrated private Chinese management framework, (b) conceptualizing what distinctiveness means in terms of ownership comparisons and, in more exploratory terms, international comparisons, (c) theorizing that the model is readopted in the P.R.C., including a readoption of Chinese traditional values and (d) testing and supporting the usually descriptive statements by empirical methods based on a survey - a technique which, so far, has not been often used in mainland China.

Weber revisited

Taking one step further to discuss "structuring" in general, the findings suggest rejection of the notion that bureaucracy is a unitary concept (Weber 1947 (originally published in 1924)). Instead, results corresponded with a fairly cohesive body of literature which highlighted the different dimensions of bureaucracy (Blau 1963; Hall 1963; Pugh et al. 1968; Miller and Droege 1986). "Structuring of activity" is not one homogenous "block", but consists of rather distinct mechanisms of control - the choice and degree of which might be subject to some managerial discretion.

We moved this discussion one step further, by using item-specific analysis and showing that even these separate dimensions, such as formalization, specialization and centralization, are internally further differentiated. In particular, a more detailed analysis of the structural scales showed that private companies tended to centralize strategic decisions, but delegated purely operational issues. Moreover, "scientific management" related areas were more formalized than work-content related fields. Finally, basic functions such as accounting and sales were performed by specialists, but many firms lacked experts in more technical fields such as maintenance and market research.

Late developers?

Finally, the findings also suggest rejection of the "late development" thesis. Kuc *et al.* (Kuc, Hickson and McMillan 1980) attributed the international uniformity as regards the high level of formalization and specialization in developing countries to the politico-economic idea of what Dore (1973) called the "late development effect". In nations that, judged by current measures, are "late developers", it is feasible to design organizations from scratch to resemble very closely those in industrialized nations. The countries can directly adopt the textbook techniques of scientific management which then manifest themselves in the respective high specialization and formalization scores. Therefore, proponents of this thesis argue, that not the "newcomers" stand out in terms of low formalization, but the earliest developers such as Britain which due to its comparatively slower industrialization process, still manages organizations in a way that relies partly on traditional, non-formalized implicit relationships which were not displaced (Hickson and McMillan 1981a p. 191). However, despite being "late developers", Chinese private companies domestically were found to be distinctive in their *low* formalization and, in the more tentative international comparison, were not found to show particularly high formalization scores either.

9.1.1.2. Influencing factors of Chinese private family-based management

A monolithic management model?

Writers on *Nanyang* management implied that Chinese management is in a certain sense "monolithic" and does not vary with contextual circumstances. However, to demonstrate its distinctiveness, we had to move the discussion one step further by analyzing contextual factors and showing that the distinctiveness was not only due to size differences. We found that the distinctiveness of private Chinese structure and management was, ceteris paribus, due to the emphasis placed on traditional, often family-based values in private Chinese enterprises which had a threefold impact on organizational design. First, the mean level of this influencing factor was higher for private compared to state enterprises. Second, in contrast to state enterprises, there was a direct significant impact on structure and management. In this context, we hypothesized that some of the item-level structural differentiation were due to this direct impact of emphasis on culture - a thesis which has to be tested in a subsequent study. Third, expanding traditional contingency theory, we showed that this emphasis on culture, once again in contrast to state enterprises, led to the adoption of smaller company size, which, through the mechanism of "traditional" contingency relations, also had a significant impact on organizational properties. The decision to stay small was thought to be motivate by the desire to maintain personal relations with important stakeholders, most importantly other trusted family members.

... and Weberian bureaucracy once more

In more general terms, these findings once again suggest an elaboration of Weber's (1947 (originally published in 1924)) theory of bureaucracy. Weber had predicted that the bureaucratic model, due to its economic efficiency, would uniformly win over the whole world. While we found that bureaucracy is a wide-spread phenomenon which reached China as well, we can refine Weber's notion by stating that the choice of contextual mean level for size can actually lead to the persistence of non-bureaucratic organizations.

9.1.1.3. Effectiveness of Chinese family-based ownership model

Private family ownership as key success factor

Previous studies assumed that the private family ownership of Chinese companies explains much of the success of *Nanyang* businesses. We contributed to this debate by (a) operationalizing family-based ownership and (b) empirically testing its effectiveness within the context of a structural equation model which held constant other factors, especially size. This analysis also made it possible to conclude whether Chinese management is actually an "art". The results showed that enterprises with a high degree of family-based private ownership tended to outperform their state-owned counterparts. Given that private enterprises were shown to have adopted a distinctive management model, this particular mode of operation, ceteris paribus, thus was also more effective than other models.

Our findings correspond to the theoretical literature on overseas Chinese businesses. Mackie (1992 p. 53) in his recent review concluded that "virtually all accounts of the economic behavior of Overseas Chinese emphasize the versatility and entrepreneurial qualities of their family firms, as well as the particular characteristics of Chinese family structure, as the primary source of socialization and of the transmission of values conducive to business success". It also confirms Wu's (1993) thesis of higher average *productivity* in Chinese private enterprises compared to state-owned enterprises, a hypothesis also mentioned in numerous anecdotal reports on the inefficiency of Chinese SOEs (cf. Forney (1996 p. 62)).

The reasons for the success of the family-based management model include, first of all, the valuable social capital provided by Chinese family structures (Smart and Smart 1993; Whyte 1995 p. 1004; Cai 1997). There has been a growing interest in the notion of social capital (cf. Coleman (1988; 1990); Kramer, Brewer and Hanna (1996); Nahapiet and Ghoshal (1998 p. 243)), and private Chinese enterprises are one of the best illustrations of its importance, representing an anti-thesis to the superiority of the market in many spheres of our society. In more broader terms, the family structure might alleviate the problem related to the separation of ownership and control, resulting in moral hazards such as "empire-building" (Williamson 1970) and residual loss (Jensen and Meckling 1976 p. 308; Fama and Jensen 1983). Indeed, instead of building empires, Chinese private enterprises spin intelligent and intricate *webs*. In addition, "class struggles" between scientifically managing executives and workers will be alleviated when many employees are actually dedicated and trusted family members.

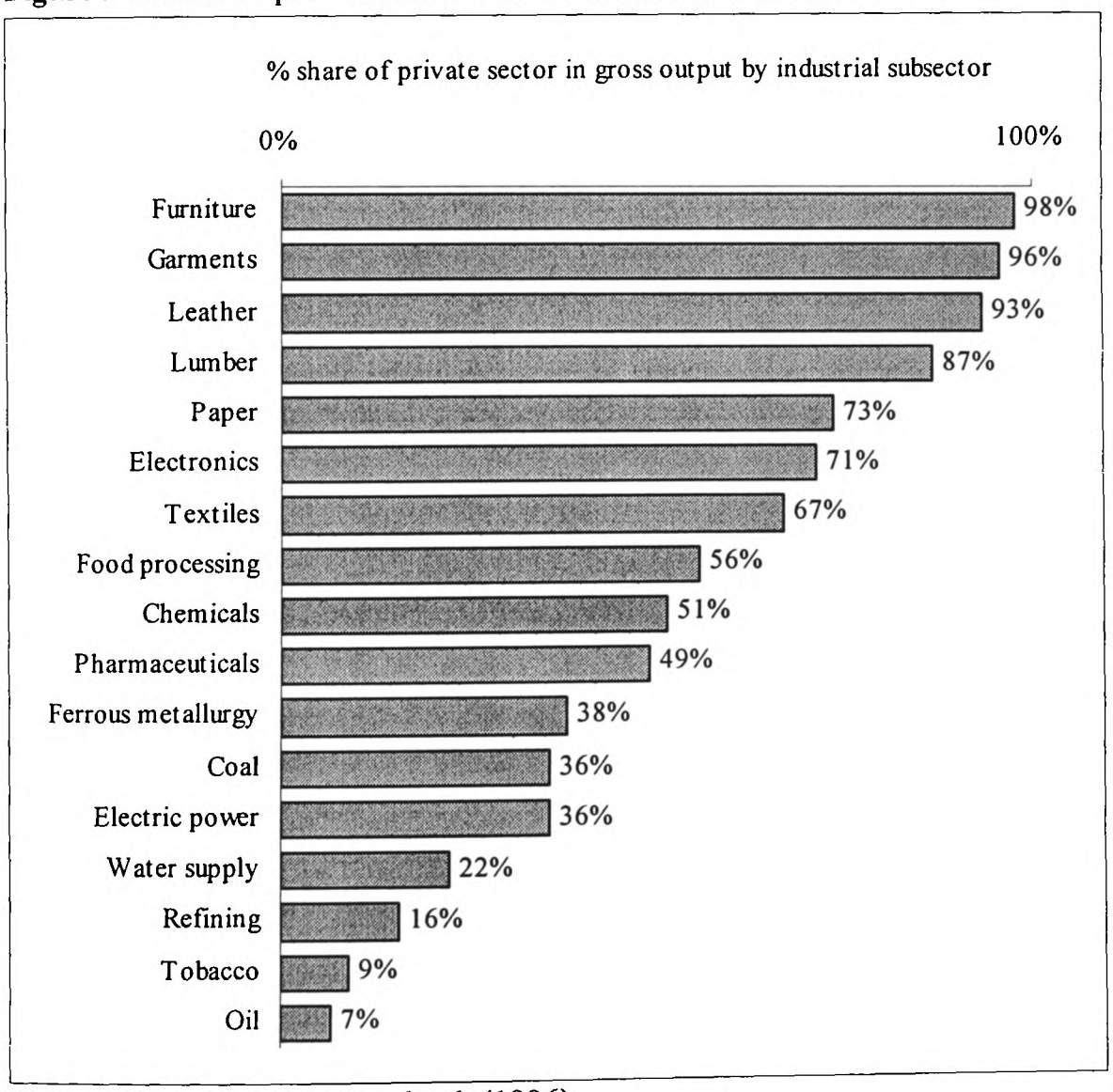
Secondly, the positive impact on performance is also due to the flexibility associated with small firm size and national (Montagu-Pollock 1991 p. 21; Whyte 1995 p. 1004), as well as international (Watson 1975b; Salaff 1981; Fukuyama 1995 p. 92) lineage-based networks. This flexibility is particularly important in a highly uncertain environment in which sensitivity to changing consumer tastes is vital and mass-specialization instead of mass-production important. It therefore will be most successful in industries in which small size is a distinctive advantage. A third reason for the success is the cost-efficiency (Montagu-Pollock 1991 p. 21; Turpin 1998 p. 8) associated, amongst other things, with these family-based networks.

... and its down-sides

We have to remember that our analysis held constant size, which neutralized one of the alleged major drawbacks of the family-based model, i.e. the possibility that it limits its growth in company size (Wong 1988 p. 139; Jenner 1992; Fukuyama 1995) and, in consequence, prevents exploitation of economies of scale in steady-state mass production industries, limiting its application to sectors where small size is most effective.

We tested this argument by looking at the share of P.R.C. based private enterprises in gross output by industrial subsector. The findings are presented in Figure 9-2 below:

Figure 9-2 Share of private sector in different industries in mainland China



Source: China Statistical Yearbook (1996)

The findings show clearly that Chinese private enterprises are strongest in industries which are dominated by small-scale businesses given that they do not require much capital investment and demand rapid adaptation to changing tastes, such as garments, electronics and textiles. They are very weakly represented in scale-intensive industries such as oil, refining, energy and utilities.

The Art of Chinese management?

It is now time to come back to our title question asking whether Chinese management is an "art". To answer this question, let us first look for an appropriate definition of the word "art". The following definition can be found in the Oxford English Dictionary (Simpson and C. 1989 p. 657):

> "Skill in doing anything as the result of knowledge and practice." (9.1)

At the beginning of the century, Webster's International Dictionary of the English Language produced two somewhat "richer" definitions (Harris 1902 p. 85):

> "A system of rules serving to facilitate the performance of certain actions; a system of principles and rules for attaining a desired end; method of doing well some special work; often contradistinguished from science or speculative principles; as the art of building, the art of war." (9.2)

> "Skill, dexterity, or the power of performing certain actions, acquired by experience, study, or observation; knack; as, a man has the art of managing his business to advantage." (9.3)

Adopting the last definition (9.3), we believe that private Chinese management is indeed an "art", given that it meets the underlined requirements postulated in the definition:

Dexterity: It is fair to say that the private Chinese management style constitutes a particular skill of "doing something well" given that (a) it is characterized by distinctive structural and managerial choices (sections 9.1.1.1 and 9.1.1.2) and (b) proved to be effective (9.1.1.3). As regards the first point, we believe that maybe the most important and distinctive skill is the ability of many private Chinese businessman to "craft" or spin their own family-based webs. An interesting feature of these webs is the fact that it allows the Chinese entrepreneurs to "shape" their environment or, at least, partly insulate themselves from uncertainty. Second, based on the effectiveness evidence from our study and the track-record in terms of, for example, the numbers of millionaires it produced not only overseas, but in mainland China as well, we can conclude that by applying this skill, the private Chinese entrepreneurs "do very well". In more general terms, the fact that certain Chinese private businesses, such as Huajia and Progress in certain business segments adopt differentiation strategies based on innovative, high quality products and services contradicts the thesis developed for other South-East Asian countries which implied that the Chinese businessmen are often mere "ersatz" capitalists (Yoshihara 1988; Clad 1989). These researchers thought that many Chinese businessmen are just "rent-seekers" rather than truly productive entrepreneurs, or, when they do produce, are to a large extent depended on external sources of capital and technology.

Action-orientation: Private Chinese management is also geared towards powerful action. We found that instead of analysis and planning, there is a distinctive urge to make bold entrepreneurial decisions and get things done in a short period of time. Examples included Mr. Huang's single-handed decision to first buy a stake in a luxury hotel without having the necessary "financial cloud" and then, within a couple of months, to move into the mass-market hotel business. In both cases, solutions were found through action, such as tapping the international overseas network for funds to overcome the capital constraints and converting his office into a hotel to avoid huge time lags which might have neutralized the benefits of quickly seizing the attractive opportunity and occupy the market niche. This action orientation can be traced back to ancient origins. The ancient Chinese warfare strategist Sun Zi (Sungzi 1963 (first published about 500 B. C.)) said that, by contrast, "complacency is perhaps the greatest danger that could hasten the ruin of a successful operation".

Experience-based: Chinese management is not a science or a system - just the opposite. The lack of bureaucracy, systems and analysis supported this conclusion. Its practice is based on uncodified experience, which resembles Polanyi's (1962 p. 49; 1967) notion of tacit knowledge or knowing, as well as observation and, presumably, the willingness to learn from other web participants. Sun Zi emphasized this importance of rapidly learning from situational experience: "The one who is able to alter and revise his tactics and strategy according to the enemy's situation will be considered as divine as God".

A new business model for the 21st Century? - Lenin vs. Sun Zi

In general, though highly exploratory and tentative in nature, we suggest that based on the findings we can propose our version of private Chinese management as a candidate for becoming a future new "management model" in business studies. In its distinctiveness, it might perhaps later join the pedigree of previous management models which due to historical and maybe cultural reasons originated in certain countries but later became world-wide in implication, including "German" Bureaucracy (Weber 1947 (originally published in 1924)), "American" Scientific Management (Taylor 1911) and "Japanese" Management (cf. Clark (1979), Lambert (1982), and Pascale and Athos (1981)). We can call our model "Web-based Chinese Management" (WCM) to stress maybe its most distinguishing feature.

WCM is assumed to be practiced in private firms mainly located in mainland China's "non-communist" large, booming business centers - especially along the sea coast and in the South, as well as among the overseas Chinese in general. Its success under certain circumstances has been described above. While recognizing the criticism of "ideal types" in the sense that selected elements invariably reflect subjective choices of the researcher, as well as acknowledging the still underdeveloped empirical basis for such categorizations to date - it was the objective of this research to fill some of these gaps - the six dominant features of Chinese private enterprises are conceptualized as broadly characterizing this business model.[1]

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[1] It is recognized that the management of private rural enterprises might be different from this model and was not examined in this study.

In certain cases, some of these features of Chinese private enterprises can be discovered in Western companies as well. One example is the tendency towards smaller and more entrepreneurial units. Other attributes seem to be more distinctive, such as the importance of family-based networks and the autocratic leadership style. Those features contrast with our Western culture which tends to rely more on the legal system to enforce contracts and moves toward a more participative leadership style. The distinctiveness of the emerging Chinese management model is thus based not only on the individual structural and managerial attributes, but also on the fact that most of the above mentioned elements are thought to be existing as a *bundle* in the focal Chinese organization.

In a sense, this model represents an antidote to Weberian bureaucracy and Taylorian management science. This juxtaposition has been highlighted in the opening quotes to this thesis (p. v), comparing the theoretical superiority of scientific systems of organization to the practical functionality and efficiency of "art" which operationalizes knowledge by skill. In figurative terms, it is not only the contrast between science and art, but also between Lenin's theoretical principles of collective organization and Sun Zi's practical "Art of War", or, as applied to our study, between state and private enterprises in China.

The new web-based Chinese management model might be very appropriate as a blueprint for the organization of the future. Curiously, it fits very well with the prevailing *zeitgeist* characterized by the importance of internet, communitarianism, multipolar (political) alliances and globalization in general. In all these cases the unifying theme is an emphasis on networks. If it does not achieve this grand success, at least WCM might become *one* new instrument in the manager's toolbox for achieving success in highly uncertain industries and services. In such a case, it will just be a new business *model* instead of a new paradigm.

In more general terms, by proposing an alternative to (state) bureaucracies, the Chinese management model might be the only way to stop the seemingly unstoppable bureaucratization of the planet. Incidentally, by substituting social capital for market forces, it also is an alternative model to the increasing marketization of business. If applied widely, we might argue for a slightly changed version of the Weberian prediction, i.e. we would propose to see "not an ever bureaucratizing but ever proliferating" model of organization which has to "win" because of its differential effectiveness. If this prediction came true the distinctive private Chinese management style would also become a new *paradigm* in the sense of radically breaking with well accepted patterns of thinking (Kuhn 1970).

A new global force?

Having praised the model in such high terms, does it mean that we have to prepare for an invasion of a new force of Chinese private firms into Western countries comparable to the Japanese "take-over" of corporate America? We believe that the answer is negative for two reasons: First of all, so far there have been very few P.R.C. based companies which have made a successful inroad into Western markets by means of foreign direct investment. Secondly, if our prediction is correct, most family-based private companies will not grow substantially enough to be able to fund such a foreign "campaign". In this context it is important to note that in contrast to Japan and Korea, private enterprises in the P.R.C. do not receive strong government support and have to raise their funds from private sources of capital instead of national banks and well-functioning saving systems. Chinese private businesses thus have not only not expanded internationally because they had enough growth opportunities at home, but also for these intrinsic limits to growth of family-based firms.

There will be certain exceptions of private companies (but normally not family-owned ones), which will become successful international players. Potential candidates are the Shenzhen-based financial service company Pingan which in less than 20 years has become the second largest insurance company in China after the state-owned People's Insurance Company. Potential additional candidates are the fast growing CITIC and China Everbright. Another group of companies are presently state-owned enterprises which, due to their political connections, enjoy strong political cloud and financial muscle. They will seek international listings in New York or London to expand internationally. In all these cases, to grow internationally, private companies need to form hybrid professionally and family-managed organizations and adopt universal management techniques, such as strong brand management and international marketing.

Having argued for intrinsic limits to international expansion, we still think that in mainland China itself, the new generation of private enterprises will become very strong competitors to MNCs by occupying niche positions and gaining advantage through quick adaptation in uncertain, competitive markets with low entry barriers. For example, in less than two years, China's Legend Group has become number 3 in the Chinese computer market (from number 6), just behind IBM and Compaq (Turpin 1998 p. 8). But once again, WCM is likely to be successful only in sectors which favor small scale and greater flexibility rather than predictability of organization. Put bluntly, WCM will not be suitable or successful for the management of nuclear power stations, hospitals or other high-reliability organizations.

An interesting failure and "misuse" of the private Chinese management model, which has not yet been discussed in the literature, is the predominance of a large number of small cement companies in China in a fragmented market. Most companies are below minimum efficient scale and compete aggressively for market share. However, experience shows that in the cement businesses, only cooperative strategies and very careful capacity management of a very few number of players can ensure profitability levels which allow for reinvestment to take place at all. In the cement business, this is a particular skill of large professionally managed Western conglomerates.

In conclusion, although private firms themselves are not likely to become a major force internationally, they will be the major engine of domestic economic growth which will make *China* an economic, political and military powerhouse and new strategic force in the world. The present short-term economic crisis in Asia does not change this fundamental economic reality. If anything should stop China's growth, in our view, it will be the lack of sufficient skilled human resources, not short-term economic disruptions.

9.1.2. "Fit" notion in contingency theory

9.1.2.1. "Traditional" fit-induced contingency relations

Traditional factors

The "culture-free" hypothesis, stating that the influencing factors between *traditional* contextual factors and organizational properties correspond to the hypotheses derived from functional contingency theory and are stable all over the world, has been largely supported by the empirical findings. At the aggregate level, size (number of employees), technology and constraints were found to be significant influencing factors of organizational properties, and the individual direction of association were as hypothesized. It should be emphasized that the influence of contingencies for any one case is a probability not certainty. The effect of size is the strongest probability (Pugh and Hickson 1976; Donaldson 1986). Uncertainty was not a significant factor of either structure or management. When analyzed separately, the traditional relations were also found to be valid for private and state enterprises.

It is important to relate these findings back to the accumulated body of literature on contingency theory. In international comparisons, we showed that the findings with respect to size and technology were largely consistent with a long list of previous cross-national Aston studies. China was one of the major countries still missing on this list (Hickson and McMillan 1981a p. 189):

Size: Having filled one of the last major gap in Aston reach, we now can conclude with a relatively high degree of confidence that there is conceptual closure on the influence of size on structure. Hickson *et al.* (Hickson et al. 1974a p. 8) seem to be right in stating that the stability of (traditional) context-structure relationships across societies can be summarized in a "focal paradigm" of traditional contingency relationships (Hickson et al. 1979). As regards large companies, the "machine" model of organization, i.e. the proposition that once a large unit has been established and bureaucratically "programmed", decisions can be decentralized within it because they will be taken in accordance with the programming, was supported.

Technology: After having somewhat courageously proclaimed "closure" on the influence of size, we suggest that the findings to some extent *re-open* the conceptual debate on the role of technology. As mentioned above, the results of our structural equation model showed that mass-production technology was a statistically significant influencing factor of structure. This contradicts the emerging consensus that its influence on structure is not very important and might at maximum influence those parts of the organization which constitute the technological core (Hickson et al. 1974a p. 16; Singh 1986; Miller and Droege 1986).

This study thus connect back to the "origin", i. e. the work of authors which emphasized the role of technology on structure (Woodward 1965; Thompson 1967; Perrow 1970). It also corresponds to the significant findings of Marsh and Mannari (1981) in their Japanese study, which we mentioned in the literature review.

Given the relative consistency in most recent findings on the minor importance of technology on structure, we suggest at this stage that the findings for China represent an anomaly. It might be argued that imported technology is one of the most expensive factors of production in China. In addition, the workforce overall is less skilled than in the West. Under these circumstances more centralization and bureaucracy might be needed as control mechanism to safeguard this important investment. In addition, formalization helps to codify and diffuse knowledge on how to use the technology, contributing to the upgrading of workers' skills.

Non-traditional factors

Chinese culture: The results of stacked model subgroup comparisons, which are not part of the traditional repertoire or toolbox for testing contingency theory, underline the importance of comparing subgroup data. Several differences were averaged out at the aggregated level, attenuating the statistical importance of various factors. As mentioned in the discussion of private enterprises, findings revealed that emphasis on Chinese culture was a significant influencing factor of the structure and management adopted by private enterprises. The presence of this significant factor, however, did not disturb the direction of association of the "traditional" contingencies.

Need for achievement: CEO's personality had some impact on the structure and management in small companies. This corresponds to research findings showing that in small organizations CEOs frequently have direct and personal contact with most levels of management and thus play a vital role in determining strategy, dominating decision-making and setting the climate of the organization through their style, goals and attitudes (Kets de Vries and Miller 1984). In contrast, large organizations may have a style, culture, and bureaucratic momentum of their own. They can thus more easily absorb or resist the initiatives of a leader (Thompson 1961; Crozier 1964). This interaction effect between size and CEO need for achievement did however not change the traditional contingency relations.

In addition, CEO need for achievement had a significant impact on the management practices of private firms, but not on their structural choices. These results correspond to Khandwalla's (1977) findings that executives are relatively free to determine their own management style, but have less options in terms of structure. We can thus expand on Child's idea of strategic choice (Child 1972b), stating that there are differences in strategic choice, which, due to effectiveness-induced constraints on account of an "industrial logic", seems to be somewhat limited in the case of structure, but somewhat wider in term of management practices.

In more theoretical terms, the contingency thesis (Woodward 1958; 1965; Burns and Stalker 1961; Pugh et al. 1963; Chandler 1962; Hage 1965; Lawrence and Lorsch 1967; Perrow 1967; Thompson 1967; Blau 1970b) states that there is one best way of organizing for every task contingency. System theory (Emery and Trist 1965), on the other hand, highlights the notion of equifinality (Katz and Kahn 1966), claiming that in many cases, there is more than one way of achieving the same outcome. We could therefore say that contingency theory seems to be valid for organizational structure, with system theory offering a somewhat richer interpretation of managerial practices.

A globalizing planet? - Conclusions on the convergence vs. culture-bound debate

In more general terms, the findings invite some general thoughts about the debate relating to convergence versus cultural specificity.

Convergence argument: Convergence theorists (cf. Pugh (1993)) argue that organizations tackling the same tasks in whichever culture will become more and more alike. They state that there is a logic of industrialism, amongst others, due to the need to achieve maximum efficiency (Kerr et al. 1964). To succeed and survive, organizations will require the most managerially efficient practices to be adopted, which are tailored to technical needs regardless of culture (Hickson and Pugh 1995 p. 278).

Applied to contingency theory, these writers claim that although there are variations in the magnitude of the links among the variables, the direction of the relationship is the same no matter where the organization is located (Horvath et al. 1976 p. 183). These variables emerge as major factor pushing for similar forms organization design and management patterns. Even if there was no intrinsic "industrial logic", shared management ideas will lead to equivalent organizational manifestations around the world. In the context of China, researchers pointed out that modern management theories and practices have been introduced to Chinese managers and incorporated into their decision-making process (Bacharach and Baratz 1962; Burstein 1983; Wang 1986; Luo and Yu 1991).

As a consequence of these factors, according to convergence writers, we are moving towards a global management culture in which national cultural differences become less and less central. Organizations in all nations are converging on common patterns of control and through them mold common kinds of employees, and in the end, similar societies in general.

Culture-bound argument: Other writers emphasized that organizations are culture-bound. The socialized characteristics of individuals are thought to shape organizations "through the implicit models of the ideal organization which people carry" (Hofstede 1980 chapter 7). In addition, transfers of technology, knowledge and skills will always be reinterpreted by the receiving culture. This culture changes slowly - even in the face of "cultural revolutions" (Lachman, Nedd and Hinings 1994) and thus sets firm limits on the tendencies to managerial convergence (Hickson and Pugh 1995 p. 297).

Furthermore, even if a particular structure is similar to one elsewhere, this does not mean that it is *used* in the same way. Organizations in their formal characteristics may share more similarities than differences, but Chinese behave towards one another and operate such formal systems in ways that are specifically Chinese. Finally, our results showed that although the emphasis on traditional culture did not change traditional contingency relations, it had a significant impact on structure and management, as well as significantly affected the choice of context, i.e. the decision to stay small and proliferate instead. Thus size in itself is not a convergence factor.

Synthesis: We suggest to synthesize the "culture-bound" view with the convergence argument by proposing an interacting relationships between "culture" and "industrial logic", rather than arguing for one side exclusively. More specifically, based on the results we see that the consequences of one "free" strategic choice constrain and determines the next choice. For example, once a certain size is reached as a result of choice, the freedom of maneuver in decision on structure might be constrained. Given that the correlation coefficients are far from unity, structural options are not fixed, but at least restricted, in the same way everywhere (Hickson and McMillan 1981a p. 194). It might not be completely impossible to manage an organization with 20,000 employees without formal bureaucratic control, but it might prove very difficult and will most probably decrease overall effectiveness.

Moreover, based on the findings, we believe that the pressures towards convergence have their greatest impact on *structural* choices. As shown by the significant influence of CEO need for achievement on the management, but not structure of private firms, we concluded that management practices and styles in China are more subject to difference in behavior which overall might slow down managerial convergence. In other words, there might be different but equally viable organizational processes and behavior. These conclusions show the importance of combining an analysis of management and structure in one sample which allows for such comparisons, holding constant sample structure and methodology.

Further, various environmental conditions do provide similar forms of constraints, but the choice of *strategies* to meet them may well be a critical cultural phenomenon (Horvath et al. 1976 p. 183). Thus, even in the case of structural responses we saw that while there were certain factors leading to the need for more control, the choice of *which* control mechanism to adopt might differ. For example, private companies instead of using formalization which might be equally viable in small companies, preferred personal control exercised by the owner and implicit contracts through strong cultural values. In addition, emphasis on culture could influence *intra-scale* differences in the structure of private firms. Finally, even if the direction of association is consistent across subgroups, the *strength* of association, i.e. the "transmission mechanism", might also be influenced by the emphasis on culture. The last to aspects have not been formally tested in this study and might be an interesting topic to be further explored in a subsequent study. In terms of methodology, these findings highlight the importance of performing subgroup and item-level analyses.

In conclusion, the findings thus empirically confirm Child's (1981) more general thesis that the contingency of context and the constraints of the socio-economic system act upon organizations and their members but are moderated by cultural norms. In other words, the contingencies set outer bounds of culturally determined variations within. We empirically demonstrated the validity of this thesis by showing that, while traditional contingency relations applied, there was also a significant impact of emphasis on traditional cultural values on the organizational design of Chinese private enterprises. By showing that size itself was, ceteris paribus, influenced by this emphasis on culture, we moved the general thesis one step further and broadened it, hypothesizing and demonstrating that the outer bounds themselves can be expanded by management's choice of context.

9.1.2.2. "Fit" relationships and effectiveness

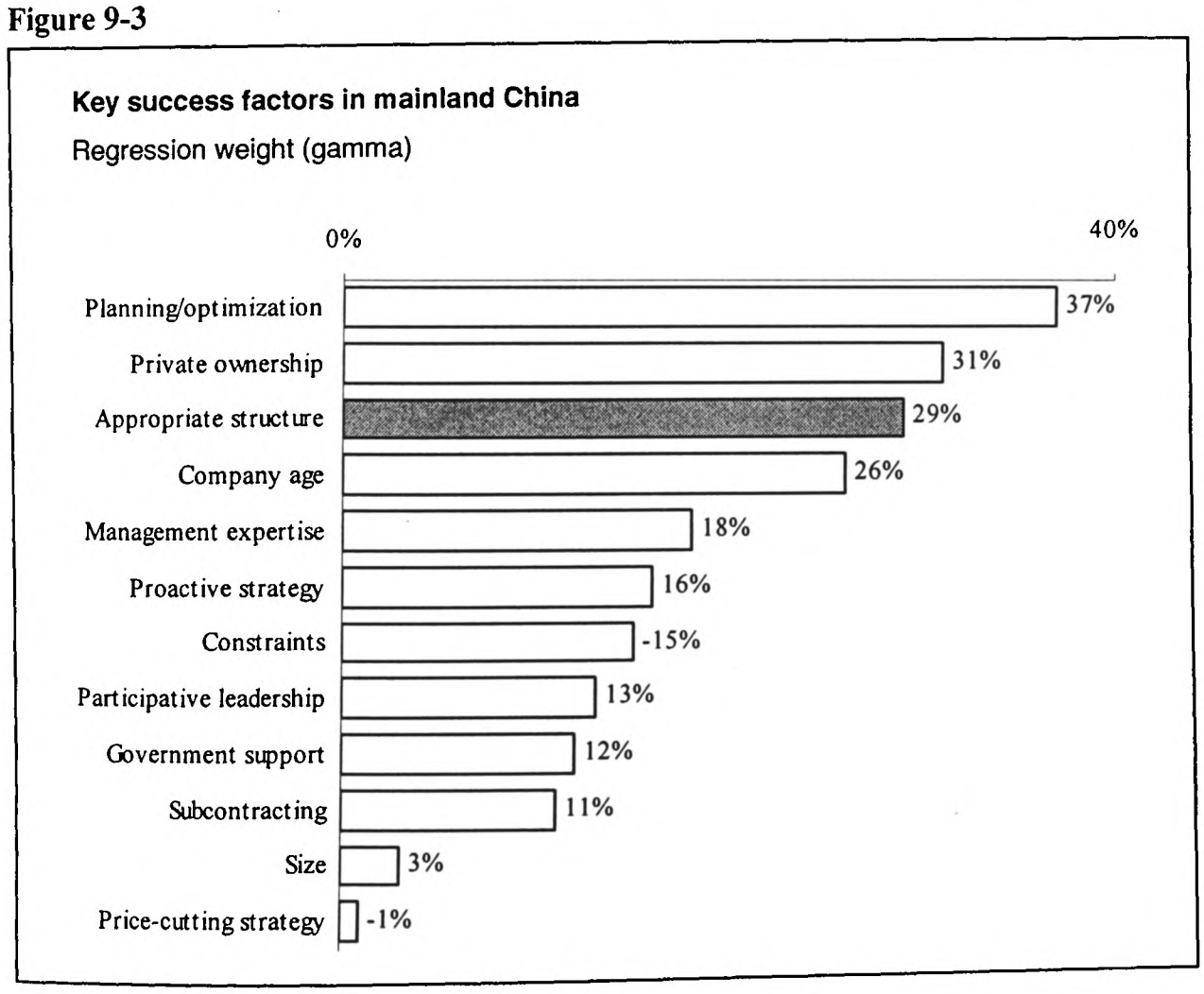
As regards the proposition that companies with lower effectiveness are necessarily in "misfit", we have to report failure to support this hypothesis. At the aggregate level, the difference between effective and ineffective companies with respect to structure and management was not found to be significant. The later finding indicated that less effective companies were not automatically in "misfit" with their environment and stressed the importance of holding constant a broad set of influencing factors when analyzing the effect of "appropriate" structure on effectiveness. In more general terms, Schoonhoven's (1981 p. 353) warning related to "*default*" symmetry assumptions in contingency theory proved to be justified on empirical grounds.

9.1.2.3. Relation between "appropriate" structure and effectiveness

The previous section showed that less effective companies were not necessarily in "misfit" with their environment. On the basis of these results, using structural equation modeling, we moved contingency theory one step further by analyzing in more detail the influence of "appropriate structure" on organizational performance within the context of a broad set of managerial and contextual factors. Previous contingency studies often neglected effectiveness and either "assumed fit" or disbanded this issue by stating that they were only interested in a "positive" analysis without saying anything about effectiveness implications.

The key success factors in China, ranked according to the magnitude of their regression weight, are summarized in Figure 9-3 below:

Figure 9-3



Success versus survival

Most importantly, companies with "appropriate" structure or "contingency fit", *ceteris paribus*, displayed higher organizational performance than companies in "misfit". Clarifying previous speculation, these findings thus provided empirical support for the validity of the "fit" notion in contingency theory. In more general terms, the results suggest rejection of one of the population ecology hypotheses (Hannan and Freeman 1977; Aldrich 1979; Hannan and Freeman 1989), stating that structural choices are not very relevant for the success of companies. *Survival*, however, will still be at least partly determined by the government's (i.e. the owner's) desire to keep alive ineffective state enterprises. In the Western context, this survival-related argument is paralleled by the fact that the willingness and ability to withstand poor performance is partly determined by the mobility of the assets controlled by the organization's owners and its overall readiness to accept poor performance (Gimeno et al. 1997 p. 751).

Child revisited

Referring back to our more detailed analysis of Child's (1994) work on Chinese management outlined in the literature review, our findings related to the higher degree of effectiveness associated with *appropriate* structure thus also refines his argument that more formalization of SOEs would be invariably desirable from a functional point of view. Specifically, he concluded "the country will have to strengthen its substantive formalization and structuring (...) before it can accomplish the transformation into a social-market economy which is envisaged by the reformers" (p. 297). We mentioned the need for a contingency approach, a point which is justified by our results showing that the effectiveness of formalization depends on the task contingencies.

Contingency theorists have to adopt broader view

Except for family-based ownership, planning and firm age were also found to be significant factors influencing performance. Thus, we contributed to contingency theory discussions by showing that the single-minded preoccupation of contingency theorists with structure misses other important key success factors and makes their insights less valuable in practice. Apart from the findings related to the individual research hypotheses described above, results also showed that the success factors were significantly different in the North as compared to the South. This highlighted the importance of performing geography-related subgroup analyses not often used by contingency theorists.

9.1.3. Methodological contributions

Various methodological contributions have been mentioned throughout the text and will be briefly reviewed here:

Integrated perspective: To overcome some of the fragmentation in the field, we combined the analysis of context, structure, management and effectiveness in one study. This made it possible to compare the differential impact of contextual factors on structure and management, as well as assess their effectiveness implications. The study was also in a certain sense multi-level, given that we combined macro-level "traditional" contextual factors with more micro-level psychological determinants. It was also multi-disciplinary given that the macro-level factors normally belong to Organizational Theory, whereas the micro-level factors are more part of the Organizational Behavior domain (cf. Lewin and Stephens (1994 p. 183)).

SEM: This study hopes to further popularize the use of structural equation modeling in organizational studies to assess the influence of contingency variables in the context of nomological networks with simultaneous measurement models. We advanced this application of SEM in organizational studies by addressing some of the shortcomings of previous modeling practices, such as the lack of incorporating meaningful measurement models, as well as by making full use of its rich tools for analyzing organizational models.

Subgroup analysis: We have shown the rich use of subgroup analysis which is still rarely performed by contingency analysts. Amongst other things, we found important subgroup differences between state and private firms as well as exposed the false symmetry assumption related to "fit" models which do not hold constant other success factors.

Intra-item analysis: We contributed to the Aston tradition by showing that for private firms, there were intra-item differences for the structural scales which are hidden in aggregate analysis. Subsequent studies, which are interested in more subtle structural differences, thus have to look into this "atomic" level.

New scales: We added a scale for "emphasis on Chinese culture" and subcontracting to the toolbox of organizational researchers.

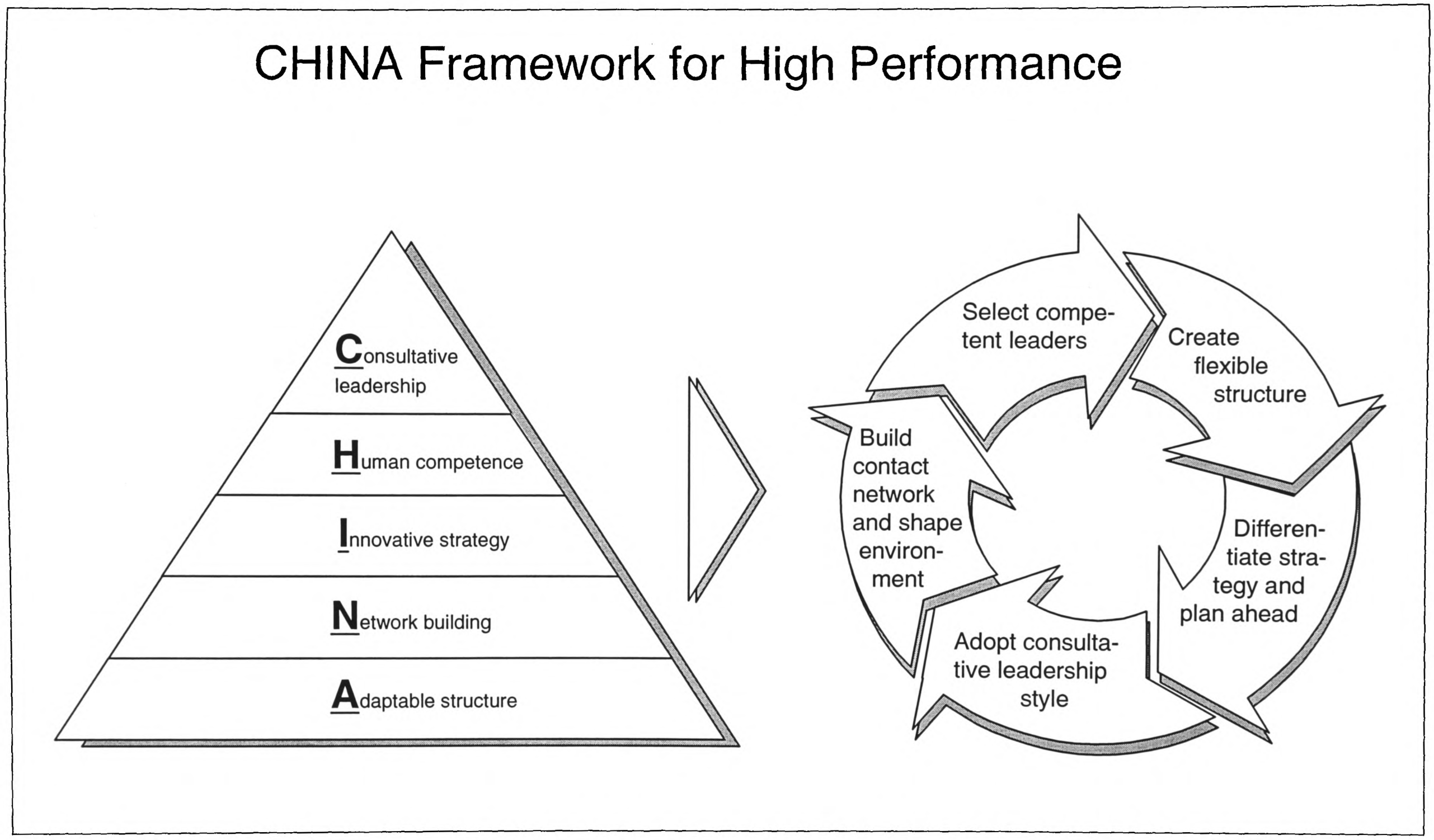
9.2. Normative recommendations for managers

The objective of this section is to briefly translate some of the positive findings of the organizational effectiveness model discussed in the preceding part into normative and actionable recommendations for managers. Traditionally, contingency theory studies have been relatively short on concrete, practical advice to managers. This is due to the fact that the Aston tradition set out to explain variations in structure from a positive standpoint only. In addition, effectiveness considerations were usually not explicitly taken into account, since it was assumed that companies "in fit" were automatically more effective, a hypothesis which has to be rejected in the light of our research findings. However, given that managers commonly are very interested in increasing organizational effectiveness - a desire which is often expressed in the strive to increase "shareholder value" - we contributed to contingency theory by developing normative recommendations. For contingency theory to provide such normative guidance to managers, it is important to identify, analyze and discuss key success factors for companies operating in China as well as to elaborate on "best practice" in terms of effective organizational architecture and management practices in China.

Bearing in mind these requirements, we analyzed the key influencing factors of organizational performance in China. Some of these factors are controllable and others are not. To successfully deal with both types, we suggest the notion of an executive "control panel" and an environmental "radar screen". The manager operating in China should view the controllable factors as levers he can pull on a control panel to increase effectiveness. The other contextual factors, such as the various environmental constraints and government regulations, should be monitored on an "environmental radar screen" which is fed by intelligence information, and managerial adjustments be made accordingly.

To operationalize the theoretical insights for the controllable factors, we recommend a strategy framework for high effectiveness in the People's Republic. This CHINA framework describes the levers an executive can pull to increase organizational performance. The acronym contains the first letter of five distinctive strategic recommendations. It is based on the learnings from high-performing Chinese companies. Since it was based on the findings of the organizational effectiveness model which was analyzed for the total sample containing state and private enterprises, the strategy advice applies for both groups. Some of the advice might be applicable to the Western world as well and parallels certain Western management techniques. It is recognized that there might be some additional key success factors for Western companies entering or operating in China, such as the selection of the right joint-venture partner and the management of strategic alliance. There might also be special success factors for Chinese companies in this area of joint-venture management. These specific aspects are not captured in the general framework. In addition, since action always has to be simple, the advice is also to some extent simplified. The model is presented in Figure 9-4 on the next page.

Figure 9-4


CHINA Framework for High Performance
Consultative leadership
Human competence
Innovative strategy
Network building
Adaptable structure
Select competent leaders
Create flexible structure
Differentiate strategy and plan ahead
Adopt consultative leadership style
Build contact network and shape environment

Based on the organizational effectiveness model, the CHINA framework suggests five broad key success factors in China. These can be described in the following "10 Golden Rules" which are also graphically illustrated in Figure 9-5 on page 9-24:

Consultative leadership: Adopt consultative leadership style

1. *Use flexible and consensus-building leadership style*: A participative leadership style has been found to be positively related to company performance. Participation, in China, however does not mean democracy. Managers should demonstrate benevolence by asking their subordinates for opinions and ideas, but might be best advised to show leadership strength by making important strategic decisions himself.

Human competence: Select competent leaders

2. *Select China leaders with high general management skills*: Recognize the importance of the CEO and other leader for the overall success in China. Talented and experienced executives are a scarce resource in China and can often represent a very important competitive advantage.

Innovative strategy: Differentiate strategy and plan ahead

3. *Be driven by search for rent-creating differentiation strategies and avoid price wars*: Successful companies in China were shown to follow ingenious strategies which gave them an edge over their competitors. High performing foreign companies often redefined their value propositions to be more successful in China. Simply slashing prices will not be a path to long-run high organizational effectiveness.

4. *Plan ahead and optimize decision-making*: "Excellent companies" in China develop a long-term vision for their business and implement this vision through thorough planning. Therefore, we recommend to define strategic milestones and follow up with action plans. The financial implications of action should be evaluated with scenarios and sensitivity analysis.

Network building: Build contact network and shape environment

5. *Establish "guanxi", especially with the government*: It is of paramount importance to develop good connections to important external stakeholders. Once established and institutionalized, they are a source of sustainable competitive advantage and cannot be easily copied by competitors. We found that good relations with the government are especially important, for example to get up to date information on new regulations and make sure that all potential incentives are fully used and applied to the company.

6. *Build your (subcontracting) networks*: Focus on your core competence and look for opportunities to outsource some less important activities. Especially for Chinese companies, it is important to develop a network of different types of relationships with other companies. This networks provides important business intelligence as well as new business opportunities.

7. *Select and shape your environment to avoid constraints*: Constraints abound in China and were found to be a negative influencing factor of success. Therefore, if at all possible, select a niche for your company and make this environment more "livable" and "supportive". For example, if skilled human resources are scarce, it might be a good idea to set up a special company training center.

Adaptable structure: Create flexible structure

8. *Flexibly adapt your structure to the task contingencies*: It is important to follow the advice given by contingency theory. If the company is large, it is recommended to increase the degree of formalization, specialization and standardization. Decisions also will have, to some extent, be decentralized. In a highly volatile environment, the best structural response would be to decrease the level of bureaucracy and, as in the previous scenario, decentralize decision making to make use of local knowledge.

9. *Create small entrepreneurial units with private capital*: Private ownership creates powerful incentives especially in China, where many managers are tired of "eating rice from a big bowl", i.e. a situation in which everybody gets the same low pay. Therefore, even if the company is large, it would be advisable to create a feeling of ownership. Potential approaches are the design of small, flexible and entrepreneurial units headed by highly independent general managers. One approach might be to "carve out" individual divisions. This design option entails floating the division on the stock exchange and making the market responsible for monitoring. The corporate center might still deliver services to the carve-out unit, but this would take place on a clearly contractual basis. In addition, family capital might be replicated in the form of stock ownership or options granted to general managers of business units.

10. *Build caring culture with strong Chinese values*: Both for Western and Chinese leaders, it is important to deeply understand traditional Chinese values in terms of, for example, the role of seniority, concern for the collective and trust, to be able to create a strong corporate culture. This can be achieved by "going back to the origins" and reading the classics, maybe starting with the "Sishuwujing", the ancient canon for scholars wanting to pass the imperial exams. Based on this knowledge, a culture can be created which instills values of hard work, loyalty and honesty, and in return, offers paternalistic protection to the individual.

Figure 9-5 Detailed description of key success factors in China

The 10 Golden Rules for Success in China

1. Use flexible and consensus-building leadership style
2. Select China leaders with high general management skills
3. Be driven by search for differentiation strategies, avoid price wars
4. Plan ahead and optimize decision making
5. Establish guanxi, especially with the government
6. Build your subcontracting networks
7. Select and shape your environment to avoid constraints
8. Flexibly adapt your structure to the task contingencies
9. Create small entrepreneurial units with private capital
10. Build caring culture with strong Chinese values



9.3. Research limitations and outlook

The subject area of empirical, survey-based studies on organizational structure and management in China is still very young. This work is one of the pioneering first steps towards a greater understanding of Chinese organizations. In this context, it is important to outline some important general limitations of this research, apart from other more detailed methodological issues mentioned in preceding chapters. For these limitations, we propose the following need for further research as related to the following broad issues:

9.3.1. Expansion of sample design

Longitudinal studies: This study adopted a cross-sectional design. Therefore, strictly speaking, no inferences can be made about causal relationships between contextual antecedents and organizational properties. As a consequence, further longitudinal studies dealing with samples of organization in different time periods are needed which would provide more support for causal explanations. In this context, it is particularly important to observe the development of the average size of Chinese private enterprises over time. We have argued that the small size is at least partly chosen and due to the importance of "keeping it all in the family". However, it might as well be true that companies are small at present because they are young and the focal companies might grow themselves over time instead of proliferating into a large number of small to medium-sized companies. Although this scenario seems to be less likely based on what we know about *Nanyang* businesses, only longitudinal studies will enable us to make a final judgment on this point.

National sample: The sample only includes companies located in two locations, i.e. Beijing and Shanghai. Inferences to general differences between the North and South therefore have to be viewed very cautiously and in an exploratory manner. This is particularly true given China's diversity in terms of different growth rates cultural differences in various regions. In addition, the sample only covered companies located in urban areas. Therefore, further studies are needed which cover companies in the whole of China including firms in rural areas, such as Township Enterprises (TSE).

Other forms of organization: The study was limited to economic organizations. However, the nature, cause and outcomes of other forms of organization in China might differ from the findings from this study. Hinings (1979), for example, suggested that there might be political effects in local government organizations and religious effects of beliefs in churches that would not occur in industry. It will therefore be important to extend the analysis to other form of organizations, both in China and other countries.

More qualitative studies: More in-depth case studies in private, family-owned businesses are needed to elaborate on the constituent parts of private Chinese management and its cultural roots.

International managerial comparisons: To further assess its distinctiveness, Chinese management practices and their antecedents should be compared to samples of companies in other countries, in the same fashion as the Aston scales were compared world-wide.

9.3.2. Refinement of measures

Further assessment of culture scale: The measurement properties of the "emphasis on traditional Chinese culture" scale should be further examined in a further study. Though acceptable for exploratory research, it has to be seen whether its reliability coefficient will be higher in replicated studies. Ideally, the culture scale would also be tried in other countries to further demonstrate its validity. This further attention to the scale is particularly important given that Chinese culture does not consist of a black and white view of the world. It rather adopts a holistic view which contains ambiguities, contradictions and multiple means, which are difficult to analyze and understand (Child 1994 p. 285). We should be reminded of an ancient Chinese proverb which says: "If you think you understand, you do not really understand".

9.3.3. Development of theory

Emergence of new class: From a more political scientific view, we have argued that Chinese private entrepreneurs are potentially the torchbearers of a great Chinese cultural revival. We also witnessed the growing importance of private firms in general. It will be interesting to analyze in the future whether this new, rising entrepreneurial class will be able to shape the political agenda as well.

If we proceed along this research agenda, we will be able to further enhance our understanding of the giant which, using Napoleon' s dictum, has been awakened and is soon to become a political and economic superpower. With this growing importance, it becomes increasingly more urgent to better understand organization in China, identify similarities with the West and observe differences due to diverging cultural backgrounds and ideas. We will thus be able to improve the quality of advice we can give to managers and politicians, and in general move towards even higher level of international cooperation with this important ancient nation.

In general, understanding and learning from other, especially oriental cultures might well be an important advantage in our globalizing world. Increasingly, success will depend on a synthesis of East and West and the East, so far, has been in a much better position to achieve this than the West. We hope that our study is the first step to reverse this trend and prepare us for the coming oriental challenge in the new millennium. Sun Zi said that "only he who, fully prepared, waits for the unprepared, will be victorious."

—完—
(End)

Summary of Chapter 9

In this chapter, we discussed the major conclusions of this study in terms of the distinctiveness of the Chinese management model in private companies as well as the "fit" notion in contingency theory in general. In addition, the CHINA strategy framework suggested a set of "10 Golden Rules" for companies to achieve higher effectiveness in China. Finally, some important limitations and need for further research were identified. In the following part, we include all individual appendices which have been referred to in this thesis.

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Appendix A: Overview of survey design options

Given that there is no one best approach towards survey design, the choice depends on the selection criterion which is most important to the researcher. The following section provides an outline of the various survey design choices available, as well as briefly discusses their merits and demerits with respect to different criteria.

The *case study* method usually consists of interviews with a few individuals of a very limited number of organizations. These interview data are usually complemented by a wide variety of other sources of evidence, such as archival data and artifacts. It provides real world richness on qualitative aspects of the organization, but findings cannot normally be easily generalized due to the small number of cases.

In *field studies*, the investigator normally interviews a representative sample of organizational members, sometimes even all of them. It yields rich qualitative and, if structured questionnaires are used, quantitative data, but findings once again are limited to the small number of organizations studied.

In *participant observation*, the investigator becomes a member of the organization he examines. Although it often provides valuable "insider information", problems exist with potential bias by the researcher and limited generalizability.

Surveys use either interviews or self-administered questionnaires to analyze large sets of organizations. Its advantage are its greater representativeness compared to other methods, which makes it more feasible to generalize some of the findings. It might, however, lack some of the qualitative, real world richness of other methods.

In *field experiments*, the investigator attempts to control or manipulate some organizational properties and afterwards study the effects. Though it might yield interesting insights, findings normally cannot be easily generalized, since only one organization is studied. The same applies to *natural experiments*, in which the management, not the investigator, decides which variables are going to be manipulated. The researcher then studies the effect of these decisions. *Laboratory experiments* provide the investigator with most control over the variables studied, but it is difficult to recreate the real world complexity of organizations in a laboratory setting.

In *action research*, the researcher serves as consultant to the organization and, at the same time, studies it as it solves a particular problem. Other forms of research include self-contained *literature searches* which might result in new models or theories, *computer simulations*, *management games* and *mathematical model building* in the fashion of economics.

Table 10-15 summarizes the discussion related to the various research methods:

Table 10-15 Advantages and disadvantages of research methods for studying organizations

Research Method	Control	Generalizability	Validity	Expense	Speed	Ease
Case study	Low	Low	Low	Low	High	High
Field study	Low	Low	High	Fair	Low	Low
Participant observation	Low	Low	Fair	Low	Low	Low
Survey	Fair	High	Fair	Fair	Fair	Fair
Field experiment	Fair	Low	High	High	Low	Low
Natural experiment	Fair	Low	High	Fair	Low	Fair
Laboratory experiment	High	Low	Fair	Fair	Fair	Low
Action research	Low	Low	Fair	Fair	Fair	Fair
Desk (literature) search	Low	Fair	Low	Low	Fair	Fair
Computer simulation	High	Low	n/a	Fair	Fair	Low
Management game	Fair	Low	Fair	Fair	Fair	Low
Mathematical models	High	Low	n/a	Low	Fair	Fair

Source: Adapted from Khandwalla (1977 p. 26)

Appendix B: Case records

Case Protocol

Classification

Category	• *Private Chinese company*
Name	• *Huajia Qihua Ltd Co.*
Time	• *Spring 1996*
Respondent	• *CEO (Mr.Jian Xiang Yi), Vice-President (Mr. Yi, brother of CEO), Chief Designer (Mr. Kong)*
Data sources	• *Qualitative interview* • *Standardized questionnaire* • *Archival records (company brochure 1996)* • *Artifacts (exhibits at tradeshow)* • *Observation (1 month)*
Reasons for selection	• *Typical example of entrepreneurial private company with low formalization* • *Emphasis on traditional Chinese culture* • *Strong personal networks*

Background

Foundation	• *Founded in 1992 by current CEO*
Location	• *Beijing*
Ownership	• *Private unlimited company with 100% family ownership*
Major business lines	• *Corporate Image design and consulting, advertising, lumber trade, property development*
Revenues	• *Not disclosed (confidentiality)*
Employees	• *Currently employs 25 people (full-time)*

	Formalization	Centralization	Integration	Objectives
Major findings and conclusions	• Low degree of formalization • Low degree of role specialization • Little use of support systems	• Very high degree of centralization exercised by CEO ("dictatorship by owner-manager")	• Low integration	• Emphasis on growth through diversication in different companies • Importance of employee satisfaction and education
Supporting Evidence	• Except for very well designed company brochure, no organizational charts, job descriptions, operation manuals, organizational policies or research reports • No specialists for sales, market research, logistics, purchase, legal matters or personnel • Almost no control support systems or advanced procedures • Very low administrative density	• Overall there are only two hierarchical levels in the firm • There are no vice-presidents except for brother • Major decisions concerning finance and personnel made by CEO and his brother • Even operative decisions centralized • CEO delegates financial matters, since no strong interest in financial matters • Centralization not due to lack of trust, but due to CEO's belief in his superior capabilities and insights	• Very few company-wide meetings • CEO only uses informal brainstorming sessions at irregular intervals for artistic purposes, such as designing a new corporate identity logo for a client.	• Tries to expand core business through, for example, investment into highly advanced technology • Provides training and mortgages to employees
Other important points	"Loose coupling": CEO tries to portray solidity through externally used formal documents			

	Strategy	Leadership	Decision-making	Communication	Subcontracting
Major findings and conclusions	• Highly proactive strategies • Aggressive strategy • Long-term view • Little use of analysis • Moderate risks	• Little participation • High flexibility	• Highly enterpreneurial style • Very charismatic and visionary	• Strong informal communication flows	• Moderate use of subcontracting
Supporting Evidence	• Core business based on real artistic competence (CEO is graduate of famous design university) • Frequently uses price-cutting to attract customers • Strategy based on intuition, instinct and artistic feeling, instead of analysis • Investment into advanced technology	• Although CEO welcomes suggestions, all final decisions related to products, finance and long-term strategy all made by CEO and his brother • High flexibility since no higher authorities have to be asked	• Actively searches for new opportunities, for example, wanted to acquire our respondents as advertising customers • Detailed designs for future headquarters modeled after White House • Plans to build new town outside of Beijing geared to foreign community • Plans to reconstruct old summer palace	• Everybody has 24h access to CEO's mobile phone (CEO's favorite toy)	• Printing subcontracted to Taiwanese joint-venture • Outdoor advertising media subcontracted
Other important points					

	Corporate culture	Face	Seniority	Importance of family	Company loyalty
Major findings and conclusions	• Strong emphasis on traditional values, but no institutionalized corporate culture inside the organization	• Face extremely important for CEO	• High respect for seniority	• Very strong family ties	• CEO heavily emphasizes company loyalty • Highly sought-after employees are surprisingly loyal
Supporting Evidence	• Education in classical values (twice a week), CEO requires home assignments to be completed, in order to build up graduates' foundation in Chinese culture • Strong work ethic symbolized by CEO's heavy night work	• Pretends to have Red Flag limousine (former vehicle of famous general) which I never saw during a month with him in Beijing	• Mother is very highly respected and has the final word in all business decisions • CEO treasures ancestor calligraphy at home	• Younger brother is CEO, elder brother is vice president and adviser to CEO • CEO's mother-in-law is sole owner, since CEO holds government position • CEO's father-in law is editor-in-chief of Industrial Commercial Times Daily Newspaper (major client) • CEO's wife works for China Airlines (major client) • Chinese Airline Food Corporation (major client) is business connection of CEO's wife's employer	• CEO ties employees by means of education and welfare provisions • Highly qualified human resources in China normally switch jobs very often
Other important points	"Loose coupling": CEO displays strong corporate culture (uniforms, CI logos) when dealing with outsiders, but inside organization very informal				

	Guanxi/networks	Warfare strategies	Western textbooks	Team	Common sense	Integrative solutions	Trust	Collectiveness
Major findings and conclusions	• Personal relations very important	• CEO heavily uses warfare strategies	• Uses Western design knowledge	• Little teamwork	• Common sense more important than theory	• Fragmented ad-hoc solutions	• CEO has moderate trust in his employees	• Importance of family-group
Supporting Evidence	• CEO has excellent relations with government - he himself is municipal government official in Housing Department • CEO's government department is major partner in real estate development • Chief designer's father is the Dean of the No 1 Art Design University (claims to be descendant of Confucius) • Secretary is daughter of famous Chinese General	• Has books of Sun Zi in his office and quotes freely major passages	• Several business trips to Japan, major connections to Japanese Corporate Identity guru • Has been working in Canada	• Decisions made by CEO alone, only creative design work done in teams	• CEO renown for pragmatic attitudes and approach	• Opportunistic seizure of opportunities without overall integrating system	• Personal assistant manages financial affairs	• Strong emphasis on family ties (*see* "Importance of family" column)
Other important points								

Case Protocol

Classification

Category	• *Private Chinese company*
Name	• *Progress Education Group*
Time	• *Summer 1997*
Respondent	• *CEO, Assistant*
Data sources	• *Qualitative interview*
	• *Standardized questionnaire*
	• *Archival records (special company newsletter '97)*
Reasons for selection	• *Typical example of entrepreneurial private company with low formalization*
	• *Strong personal networks (including overseas Chinese)*

Background

Foundation	• *Founded in 1983 by current CEO*
Location	• *Shanghai*
Ownership	• *Private unlimited company with 100% family ownership*
Major business lines	• *Private educational services and hoteling*
Revenues	• *Reported revenues are 6 mio Yuan, but probably significantly understated*
Employees	• *Employs currently about 350 people, including part-time staff (approximately 50 full-time employees)*

	Formalization	Centralization	Integration	Objectives
Major findings and conclusions	• Low degree of formalization • Low degree of role specialization • Little use of support systems	• Very high degree of centralization exercised by CEO ("dictatorship by owner-manager") • "Boss decides"	• No integrative devices used: Boss coordinates, but intentionally does not integrate	• High emphasis on growth through diversication in different companies • Strong emphasis on liquidity to finance further growth • "Obsession" with good public image, since as a private business, CEO fears company might be thought of as "small" and unreliable
Supporting Evidence	• No organizational charts, company introductions, job descriptions, operation manuals, organizational policies or research reports • No specialists for sales, market research, logistics, purchase, legal matters or personnel • Almost no control systems or advanced procedures • Administrative density only 10%	• Overall there are only two hierarchical levels in the firm • There are no vice-presidents, the next level is "assistant" • Major decisions concerning finance and personnel made by CEO • "Centralize everything related to money, since no trust" • Some decentralization of operative decisions	• Three businesses activities, education, upmarket hotels and budget guesthouse completely separated to dilute power • "Divide and conquer" strategy • No committees	• Despite little use of specialist roles, there is one person dealing exclusively with public relations
Other important points				

	Strategy	Leadership	Decisionmaking	Communication	Subcontracting	Corporate culture
Major findings and conclusions	• Highly proactive strategies • Diversification strategies to reduce risk	• No participative leaderships at all • Very coercive leadership	• Highly enterpreneurial style • Great degree of flexibility	• Neither strong vertical, nor strong horizontal communication	• Extensive use of subcontracting in human resource intensive business activities	• Strong emphasis on values, but no strong institutionalized corporate culture
Supporting Evidence	• Active search for new opportunities as evidenced by branching out into hoteling • Invests into very stable business, ie. education, and very risky ventures, such as hotels	• Decisions related to products, finance and long-term strategy all made by CEO alone	• Bold decisions such as acquisition of stake in New Jin Jiang hotel • High flexibility since no higher authorities have to be asked • Pragmatic attitude shown when office building was partly converted into hotel to seize new business opportunity	• Little need to communicate, since boss makes all important decisions	• Many of the very well reputed professors for his classes are hired from other universities on a contractual basis	• CEO tries to instill Confucian values of discipline, hard work and honesty • CEO promotes very caring culture, where everybody can grow according to his talents • CEO enforces values through symbolic action, such as publicly throwing pupils - which are afterall customers - out of the classroom in case of bad behavior
Other important points						

	Face	Seniority	Importance of family	Company loyalty	Guanxi/networks	Warfare strategies
Major findings and conclusions	• Face and good reputation extremely important for CEO	• Seniority deemed important, but CEO does not show much respect for seniority	• CEO uses strong family connections, without sacrificing quality (no "nepotism")	• CEO heavily emphasizes company loyalty • High sought-after employees are surprisingly loyal	• Personal relations extremely important	• CEO did not publicly acknowledge use of ancient warfare strategies
Supporting Evidence	• Heavy emphasis on public relations and extensive use of permanent advertising in local newspapers	• His own relatively old age leaves almost nobody to pay respect to	• Overseas Chinese network is mainly family-related. Easily attracts overseas Chinese family members as passive investors for new ventures	• Highly qualified human resources in China normally switch jobs very often • Employees are proud of their boss and display portraits of him and his meetings with state officials in the office, educational and hotel buildings	• Has excellent relations with government - otherwise he would not get licences in the very sensitive area of education • Strong collaboration and exchange of professors with other universities through personal friendships • Has good friends in media who create good image for him • The sister-in-law of CEO's assistant is his highly qualified German professor from Tongji University	• CEO did not mention using warfare strategies
Other important points						

	Western textbooks	Team	Common sense	Integrative solutions	Trust	Collectiveness
Major findings and conclusions	• CEO uses Western management knowledge	• No team work	• Common sense more important than theory	• No particular emphasis on integrative solutions	• CEO has little trust to non-family members	• Importance of family group
Supporting Evidence	• Several business trips to the West for study purposes	• Strong "boss" culture	• CEO renown for pragmatic attitudes and approach	• Heavy use of opportunistic, adhoc, partial strategies	• Everything to do with money is concentrated in CEO's hands	• Importance of family (*see* "Importance of family" column)
Other important points						

Case Record

Classification

Category	• *State-owned enterprise*
Name	• *Industrial and Commercial Bank of China (ICBC)*
Time	• *Spring 1996*
Respondent	• *CEO (written), Strategy department, International department, Assistant*
Data sources	• *Qualitative interview*
	• *Standardized questionnaire*
	• *Archival records (Company Introduction 1996, Annual Report 1994, Growth Chart 1995)*
Reasons for selection	• *Representative of state-owned financial institution*
	• *High degrees of formalization and role specialization*
	• *System-based management style*

Background

Foundation	• *Founded in January 1984*
Location	• *Beijing, Haidian District*
Ownership	• *State-owned enterprise*
Major business lines	• *Diversified financial services including wholesale and retail banking, investment banking, and trading*
Assets	• *Reported assests are 2,960 bn Yuan (1995), largest Bank in China, No 11 in World (Euromoney)*
Revenues	• *Reported revenues are 580 billion Yuan (1994)*
Profit	• *Reported earnings are 4,2 bn Yuan (1994)*
Employees	• *Employs currently about 560,000 people*

	Formalization	Centralization	Integration	Objectives
Major findings and conclusions	• High formalization • Very high specialization • Very advanced control systems • Very high degree of standardization • Very high degree of complexity	• Relatively decentralized at operational level • Major strategic decisions made at government level	• High degree of integration	• Financial strength is major objective
Supporting Evidence	• Complete set of written documents, growth charts, glossy company brochures, written application needed for interviews • Specialist departments for all major and minor activities (see organizational chart); there are about 11,000 technicians serving the computer network alone • Heavy use of technology for control and standardization purposes (extensive computer system, applications etc.) • Large number of departments whose major purpose is control (auditing, supervisory department etc.) • Myriads of hierarchical levels due to elaborate branch network (see organizational chart), large number of operating sites (about 30,000)	• Various computer networks are installed to enable decentralized operational decision-making • Repeated government interference regarding strategic decisions. For example, ICBC was forced to provide funds to newly established "policy banks". • Presdident of ICBC partcipates in KP Plenary sessions	• Interdepartmental meetings were necessary to decide whether to grant interview • Large number of huge meeting rooms	• Heavy emphasis on size and solidity in interviews and written documents
Other important points				

	Strategy	Leadership	Decision-making	Communication	Subcontracting	Corporate Culture
Major findings and conclusions	• Competitive advantage based on differentiation • Strategic posture best characterized by analysis mode	• Very participative, consensus-based leadership style	• ICBC strives for optimization in decision-making through analytical tools instead of bold entrepreneurial moves	• Moderate degree of vertical communication, strong use of horizontal communication	• Very low degree of subcontracting	• No strong corporate culture in terms of implicit values, but emphasis on "role culture"
Supporting Evidence	• Emphasis on quality and variety of services, instead of price-cutting • Blance sheet ratio management and monthly quantitative assessment for forex operative system	• Decisions relating to capital budgeting, operations and marketing strategy are made by on the basis of consensus among the top management groups • Extensive computer network supports involvement of lower hierarchical levels in decision-making	• ICBC has sophisticated "Management Information Comprehensive Network Application System" to assist decision-making	• Horizontal communication used to coordinate decentralized operational decisions	• ICBC has a strong tendency to integrate vertically by acquiring wholesaling and retailing channels. • The only service which is partly contracted out is security	• People controlled and influenced by impersonal controls through systems
Other important points						

	Face	Seniority	Importance of family	Company loyalty	Guanxi/networks	Warfare strategies
Major findings and conclusions	• Importance of face-keeping not emphasized	• Seniority is quite important at ICBC	• Family ties are not very important in conducting business	• Company loyalty is not one of the major concerns	• *Family-based* networks not very important for conducting business; guanxi important for getting high positions	• Apparently little use of classical Chinese warfare strategies
Supporting Evidence	• With formal appraisal and technocratic systems, there is not much room for face-keeping.	• Hierarchical nature of company in which age seems to be somewhat correlated with position	• Enormous scale of business leads to large number of impersonal (and even computerized) transactions	• No major effort made to retain employees • No pressing shortage of talent: ICBC regarded as prestigious place for young talents; bank can also use official channels to acquire new human resources	• Most guanxi are institutionalized through the very close relations with the state. • Major appointments are made by the government, often based on personal connections	• Strategies are mostly based on thorough analysis instead of classical warfare strategems
Other important points						

	Western textbooks	Team	Common sense	Integrative solutions	Trust	Collectiveness
Major findings and conclusions	• Intensive use of Western management knowledge	• Strong use of teams	• Common sense not very important in decision-making	• ICBC intends to reach highly integrated decisions	• Relative low degree of trust	• Importance of collective orientation
Supporting Evidence	• Business portfolio, major management techniques, systems and technological applications follow Western models	• Teams used for coordination and consensus-building purposes	• Decision-making aims at optimization through use of sophisticated analytical tools	• Frequent use of coordination devices and advanced systems to find integrative, instead of partial solutions	• Major effort made to standardize procedures, for example, through use of technology, to control individual decisions	• Frequent reference to the "collective" in interviews and written documents
Other important points						

Appendix C: Comparison of different sampling approaches

Sampling method	Description	Advantages	Disadvantages
A. Simple random	Select sample items by use of random numbers	1. Requires minimum knowledge of population in advance 2. Free of possible classification errors 3. Easy to analyze data and compute errors	1. Does not make use of knowledge of population which researcher may have 2. Larger errors for same same sample size than in stratified sampling
B. Systematic	Select random starting point and then every *k*th subject (*k*=sampling ratio)	1. Simplicity of drawing sample, easy to check	1. Estimates of error likely to be high where there is stratification effect
C. Multistage random	Sequence of random samples is drawn from one primary selection sample but only the last sample of subjects is studied	1. If sampling units are geographically defined, cuts down field costs 2. Sampling lists, identification, and numbering required only for members of last sample	1. Errors likely to be larger than in A or B for same sampling size
D. Stratified	Divide population into strata such that the elements within each stratum are more alike than are the elements in the population as a whole; draw random sample within each stratum	1. Ensures that different population groups are adequately represented in sample and thus increases level of accuracy of parameter estimates 2. Reduces execution costs if not too many strata	1. Requires accurate information on proportion in each stratum, otherwise increases error 2. If stratified lists are not available, may be costly to prepare them; possibility of faulty classification and hence increase in variability
E. Cluster	Select sampling units by random sampling and take complete count of each unit	1. Lowest field costs, if clusters are geographically defined 2. Requires listing individuals only in selected clusters 3. Characteristics of clusters as well as those of population can be estimated 4. No sampling frame necessary	1. Respondents might come from a specialized population group and may not represent the whole spectrum of the population 2. Requires ability to assign each member of the population uniquely to a cluster to avoid duplication or omission of individuals
F. Quota	Classify population by pertinent properties; determine proportion of sample from each class; fix quotas for each observer	1. Introduces some stratification effect 2. Reduces cost since ultimate units can be selected so that they are close together	1. Introduces bias of observer' s classification of subjects 2. Non-random selection within classes
G. Judgement	Select a subgroup of the population which is judged to be representative and take complete count of it	See (2) above	1. Variability and bias of estimates cannot be measured or controlled 2. Requires strong assumptions or considerable knowledge of population and subgroup selected

Source: Adapted from Ackoff's Sampling Chart (1953 p. 124), Sarantakos (1993) and Frankfort-Nachmias *et al.* (1992)

Appendix D: Statistical formulae

1. Correlation difference test

The *t*-test for the significance of a single sample correlation coefficient was calculated using the following formula (Agresti and Finlay 1986 p. 338):

$$t = \frac{r}{\sqrt{\frac{1-r^2}{N-2}}}$$

where:

r = correlation coefficient
N = total sample size

Significant t values with $df = n-2$ suggest rejection of the null hypothesis of zero correlation, i.e. indicate that the correlation is statistically significant. For a sample size of 124, a correlation plus or minus .18 is significant at the 5% level (both tails); +/- .24 is significant at the 1% level.

2. Reliability coefficient

The reliability coefficient, i.e. the estimated average correlation of a test with all possible tests of the same length obtained by domain sampling is estimated using the following formula (Nunnally and Bernstein 1994 p. 235):

$$r_{kk} = \frac{k\bar{r}_{ij}}{1+(k-1)r_{ij}}$$

where:

k = number of items in the measure
$\bar{r}_{ij}$ = the average correlation among all the items in the test

Cronbach's Coefficient Alpha (r_{kk}) is a special case and assesses internal consistency reliability. The square root of alpha is the estimated correlation of a test with erroless true scores (Nunnally and Bernstein 1994 p. 235). It is measured by:

$$r_{kk} = \frac{k}{k-1}\left(1-\frac{\sum\sigma_i^2}{\sigma_y^2}\right)$$

3. Composite reliability

Composite factor reliability is assessed by the following formula (Fornell and Larcker 1981; Segars 1997 p. 113):

$$Composite\ Reliability = \frac{\left(\sum_i \lambda_i\right)^2}{\left(\sum_i \lambda_i\right)^2 + \left(\sum_i \left(1 - \lambda_i^2\right)\right)}$$

where:

λ_i = The *i*th factor loading of indicator *x* on factor ξ.

4. Average variance extracted (AVE)

The following formula is used to assess average variance extracted (Fornell and Larcker 1981; Segars 1997 p. 113):

$$AVE = \frac{\left(\sum_i \lambda_i^2\right)}{\left(\sum_i \lambda_i^2\right) + \left(\sum_i \left(1 - \lambda_i^2\right)\right)}$$

where:

λ_i = The *i*th factor loading of indicator *x* on factor ξ.

5. Mean difference test with unequal variances

The following formula was used for two independent samples, interval/ratio levels *t*-tests of means with unequal variances testing the null hypothesis of no difference in means (Sarantakos 1993 p. 408). Significant *t* values support the alternative hypothesis of inequality of means:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\frac{s_1^2}{n_1 - 1} + \frac{s_2^2}{n_2 - 1}}}$$

where:

$\bar{x}_i$ = mean of variable *i*

s_i^2 = variance of *i*

n_i = sample size of variable *i* with degrees of freedom $df = (n_1 - 1) + (n_2 - 1)$

The null hypothesis of equality of variances can be tested by the following F statistic:

$$F = \frac{Ls^2}{Ss^2}$$

where:

Ls^2 = larger variance
Ss^2 = smaller variance

Significant F values with $df_1 = (n_1 - 1)$ and $df_2 = (n_2 - 1)$ indicate that equality of variance has to be rejected. In such a case, the above mentioned *t*-test for unequal variances can be applied.

6. Mean difference test with equal variances

The adjusted *t*-test for independent samples with equal variances was calculated by the following formula (Sarantakos 1993 p. 410). Significant *t* values with $df = n_1 + n_2 - 2$ suggest rejection of the null hypothesis of no difference between means.

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{(s^2)\frac{n_1 + n_2}{n_1 n_2}}}$$

where:

$$s^2 = \frac{(n_1 - 1)s_1^2 + (n_2 - 1)s_2^2}{n_1 + n_2 - 2}$$

and:

$\bar{x}_i$ = mean of variable *i*
s_i^2 = variance of *i*
n_i = sample size of variable *i*

Appendix E: Definitions of scale validation tests

1. Reliability

Reliability is the extent to which a survey instrument is free from measurement error. It indicates the degree of reproducibility or stability of a survey. Reliability can be tested by either of the following traditional means. More advanced techniques to assess "measurement models" in structural equations are discussed in the context of the individual models.

(a) ***Internal consistency reliability*** (homogeneity) is the extent to which all items or questions assess the same skill, characteristic, or quality. It is normally assessed by Cronbach Alpha, which basically is the average of all the correlation between each item, which measure different aspects of the same concept, with the total score of this concept (Fink 1995 p. 48)). In other words, it is a reflection of how well the different items complement each other in their measurement of different aspects of the same variable or quality (Litwin 1995 p. 24). The formulas for the reliability coefficient and Cronbach Alpha can be found in this Appendix.

(b) ***Inter-rater reliability*** measures the extent to which two or more individuals agree in their assessment of a variable. Whenever there is a subjective component in the measurement of an external variable it is important to calculate this statistic. It is therefore often used when the measurement process is less quantitative than the variable being measured. However, this measure is not used when survey instruments are self-administered by respondents and designed to measure their own behaviors or attitudes (Litwin 1995 p. 27). Inter-rater reliability is assessed by the correlation coefficient of findings obtained from different data collectors.

(c) ***Test-retest reliability*** (stability) is measured by the correlation coefficient between scores on a measure used at two different occasions with the same set of respondents (Litwin 1995 p. 8).

(d) ***Alternate form reliability*** (equivalence) examines the extent to which two items measure the same concept at the same level of difficulty.

2. Validity

Validity is the degree to which a survey instrument assesses what it purports to measure and is thus able to uncover the underlying truth. Validity is assessed along the following dimensions:

(a) ***Face validity*** indicates how a measure appears on the surface. It is assessed casually, mostly by untrained judges.

(b) ***Content validity*** is the extent to which a measure thoroughly and appropriately assesses the skills or characteristics it is intended to measure. It is a subjective measure of how appropriate the items seem to reviewers who have some knowledge of the subject matter. It is not quantified by statistics. Instead, it is expressed as an overall opinion by a group of *trained* judges.

(c) ***Criterion validity*** compares responses to future performance or to responses obtained from other, more well-established surveys. It assesses how well one measure compares with another instrument or predictor. It can be measured by "predictive validity", i.e. the extent to which a measure is able to forecast future events, behavior, attitudes or outcomes. "Concurrent validity", on the other hand, is demonstrated when two assessments agree (or disagree, when they should disagree). Alternatively, it is shown when the new measure shows high correlation with another criterion, sometimes called the "gold standard", measuring the same concept and already found to be valid.

(d) ***Construct validity*** measures the degree to which a survey distinguishes between subjects which do and do not have certain characteristics. It is a measure of how meaningful the scale is when in practical use. It consists of two parts, i.e. "convergent validity", the degree to which a new measure correlates with one or more measures of a similar unobserved trait. It is established when several different methods for obtaining the same information about a given construct produce similar results. In the case of "discriminant validity", the measure does not correlate with measures of dissimilar characteristics.

3. Unidimensionality

Unidimensionality refers to the degree to which multiple indicators of each latent variable in a model, such as scale items, converge to measure a single construct only (Hughes, Price and Marrs 1986 p. 133). It is best assessed in a structural equation context and was discussed in the main text.

Appendix F: Letter to CEO asking for participation in mailed pilot

Note: This cover letter was used to accompany the mailed questionnaire for the initial pilot study. This letter is retranslated from the Chinese version. To convey the Chinese meaning, it was thought to be more important to provide a literal but sometimes somewhat artificial translation rather than a free translation. The Chinese version fitted on one A4 page.

School of Management Studies
UNIVERSITY OF OXFORD
THE RADCLIFFE INFIRMARY, WOODSTOCK ROAD, OXFORD OX2 6HE
TELEPHONE: 01865 228470 FAX: 01865 228471

Dear Sir/Madame:

The Oxford University School of Management is very glad to invite you to participate in our research project. This project is undertaken for a thesis on the organizational structure and management model of Chinese companies. The survey targets a wide variety of different organizations, ranging from manufacturing, banking, media & entertainment industries to various other services. Your company has been selected through a random sampling procedure. We will use a questionnaire-based survey approach for this project. The questions in the survey form do not relate to personal, political or specific problems of your company's business. The survey approach is anonymous and all data will be treated completely confidential. We guarantee that the sole purpose of the data is macro-analysis at an aggregate level.

In the attached questionnaire, we would like to ask you (Company CEO) to personally fill out all sections. If you are not available, please ask your most senior vice-president to fill in the questionnaire. The accuracy of this survey heavily depends on the overall response rate. Non-response presents great difficulties for the subsequent data analysis and statistics. Therefore, it would be a great help for us, if you could spend half an hour to fill out this questionnaire. We thank you very much for your support and cooperation with this research project.

I also would like to introduce myself. My name is Kai-Alexander Schlevogt. My Chinese name is Shi Kai Ya. I am German, but speak Chinese and also like China very much. Coming from the Oxford Management School, I have already arrived at Beijing, especially to conduct this research. I expect to stay one month in Beijing (i.e. I will return to Oxford around April 20). As you might know, Oxford University is one of the most famous places of higher education in the world. Its management school also is an important forum for international management studies.

If requested, we will send you the results of this study free of charge. Please indicate on your reply letter whether you are interested in receiving these results. To facilitate correspondence, please attach your business card. Should you have email access, please include your electronic address as well. Meanwhile, if you have any questions, please contact me any time. My address and numbers in Beijing (until April 20) are as follows:

✂---------- (can be used as address label)

Kai-Alexander Schlevogt (Shi Kai Ya)
(Beijing Address)

After April 20, please contact me at the address and numbers below:

✂---------- (can be used as address label)

Kai-Alexander Schlevogt (Shi Kai Ya)
(Oxford Address)

Thank you very much once again for your support and cooperation with our research project!

Kai-Alexander Schlevogt (Shi Kai Ya)
University of Oxford School of Management Studies
March 31, 1996

Appendix G: Company questionnaire in English

1. Overview of questionnaire sections

This section briefly describes the various sections of the company questionnaire:

Instructions: This cover sheet defines the unit of analysis for the respondent, explains how to use rating scales, defines some financial and operational terms and asks for complete answers. For the pilot mailed questionnaires, some contact addresses were included.

Section 1: This part covers some personal socio-demographic background on the CEO, including age, sex, education, trips abroad, exact position and time with the company and in current position.

Section 2: Covers background information relating to the company, including its dependency relationships, nature of business, revenues, employees, founding time, legal form and ownership structure.

Section 3: This part examines broad and specific company objectives, as well as orientation towards vertical and horizontal integration. The scales are adopted from Khandwalla.

Section 4: Examines the various dimensions of strategy using Venkatram's scales.

Section 5: This part covers the degree of participative, flexible and coercive leadership styles adopted in the company, based on Khandwalla scales.

Section 6: Deals with adaptive, entrepreneurial and planning decision-making styles, using Khandwalla's scales.

Section 7: Examines the degree of horizontal and vertical communication in the company, based on Khandwalla's scales.

Section 8: The first part uses the self-developed scales related to emphasis on selected aspects of Chinese culture, and the second part contains Handy's corporate culture questionnaire.

Section 9: Measures the degree of conflict in the company, based on Khandwalla's scales.

Section 10: Assesses CEO need for achievement using Steers and Braunstein's scales.

Section 11: This part includes Khandwalla's scales for subjective and objective effectiveness.

Section 12: Features the Aston specialization scales.

Section 13: Uses the Aston formalization schedule.

Section 14: Examines the degree of centralization in the company, using the Aston schedules.

Section 15: Examines the differential use of technology and overall degree of automaticity in the company, based on Khandwalla's scales.

Section 16: Features Khandwalla's control measures.

Section 17: Assesses the degree of structural and process integration, based on Miller's scales.

Section 18: Measures complexity, using the Aston configuration schedules and the self-developed scales on subcontracting.

Section 19. Assesses the degree of uncertainty in the environment (Miller's scales), measures the importance of environmental constraints (Khandwalla's schedule) and finally assesses the influence of government regulations on the company (Khandwalla's measures).

2. Company questionnaire

School of Management Studies
UNIVERSITY OF OXFORD
THE RADCLIFFE INFIRMARY, WOODSTOCK ROAD, OXFORD OX2 6HE
TELEPHONE: 01865 228470 FAX: 01865 228471

Company Questionnaire Instructions

1. This questionnaire has to be filled out personally by the company's CEO (Factory Director), or, if not available, by the company's Vice-President (Deputy Factory Director).

2. The firm in this questionnaire means the entity of which you are the senior executive, whether it be a division, a subsidiary, or an independent corporation. Answers to all questions, unless otherwise stated, refer to this entity's operations, policies and environment.

2. Most of the questions are rating scales. Please circle the number in each scale that seems closest to describing the reality of your company as you perceive it. Feel free to make any additional explanatory or qualifying comments under the relevant scale. For all scale items, there are <u>two extreme points</u> on every scale: 1 represents the statement on the left and 7 the statement on the right; numbers between 1 and 7 represent different degrees of the extremes. Please always only tick one answer. Do not write on or mark shaded areas.

Very low	1	2	3	4	5	6	7	Very high
↑								↑
Do not mark this			Mark *one* of these					Do not mark this

4. Please answer <u>all</u> questions, as incomplete questionnaires create severe problems in subsequent statistical and data analysis. After completing the questionnaire, please check to see that no questions are left unanswered.

5. Service oriented firms (such as banks) please note: In the questionnaire, (a) "sales" = "gross income" or "revenues"; (b) "product" = "service", (c) "manufacturing" or "production" = <u>principal</u> operations of firm (e.g., banking operations). Write "N.A." where an item appears to be clearly irrelevant to your type of business.

6. Please do not use a pencil to fill in this questionnaire.

Thank you very much for your cooperation!

Kai-Alexander Schlevogt (Shi Kai Ya)
University of Oxford School of Management Studies

1. CEO Personal Information

1) Age: _____

2) Sex:
a) Male
b) Female

3) Education:
a) Middle School d) Polytechnic g) University Master
b) High School e) College (two-years) h) University Ph.D.
c) Vocational School f) University Bachelor

3A) If higher education, which subject did you study?: _____

4) Have you ever been to at least one country of the "Western" developed world (US, Canada, Western Europe, Japan, Australia)?
a) Yes
b) No

4A) If you have been abroad, what was the main objective of the visit?
a) Studying d) Traveling
b) Working e) Others: _____
c) Business study tour

4B) If you studied abroad, in which country/ies did you study?_____

5) Position:
a) CEO
b) Others: _____

5A) If you are not CEO: What are your responsibilities?_____

6) How long have you been working for the company? ____ Years ____ Months

7) How long have you been holding your current position? ____ Years ____ Months

2. Company information

1) To which category does your company belong?
a) Independent corporation
b) Subsidiary
c) Division

2) Nature of your company's business: _____

3) Approximate annual revenues (RMB):_____

4) Approximate number of employees: _____

5) How many years ago the company was founded? _____

6) Legal form of your company?
a) Unlimited Companyc) Shareholder's Company
b) Limited Companyd) Joint-venture

7) Ownership structure of your company?

a) State
b) Collective (community)
c) Foreign (solely owned, joint-venture, alliance)
d) Private

8) Share structure (Total 100%):

a) State: _____ % of shares
b) Collective: _____ % of shares
c) Foreign: _____ % of shares
d) Family (members): _____ % of shares
e) Other Chinese private: _____ % of shares

3. Goals

1) Performance aspirations: How important are the following goals to your firm's top management in making strategic decisions or commitments of a long-term nature (i.e. more than 5 years)?

	Little importance ↓						Extreme importance ↓
a) Earning a high, above average profit	1	2	3	4	5	6	7
b) Achieving a high, above average rate of growth in sales or revenues	1	2	3	4	5	6	7
c) Retaining or securing high, above average liquidity and financial strength	1	2	3	4	5	6	7
d) Maintaining or securing high, above average employee morale, job satisfaction, and commitment to firm's objectives	1	2	3	4	5	6	7
e) Achieving or maintaining an excellent public image	1	2	3	4	5	6	7

2) Orientation to diversification and vertical integration: an operating top management philosophy of?

a) Concentration on a single group of related products or a single industry; great emphasis on defining one's industry and sticking to it	1	2	3	4	5	6	7	Strong emphasis on diversification of product or services, even if it means venturing into unrelated industries
b) Strong avoidance of vertical integration	1	2	3	4	5	6	7	Strong tendency to integrate vertically, such as by acquiring raw material sources and processing facilities and/or by acquiring wholesaling and even retailing channels

3) Orientation to diversification and vertical integration: what is the existing structure of the company?

a) Concentration on a single group of related products or a single industry; great emphasis on defining one's industry and sticking to it	1	2	3	4	5	6	7	Strong emphasis on diversification of product or services, even if it means venturing into unrelated industries
b) Strong avoidance of vertical integration	1	2	3	4	5	6	7	Strong tendency to integrate vertically, such as by acquiring raw material sources and processing facilities and/or by acquiring wholesaling and even retailing channels

4) How much attention does top management pay to the following characteristics of your main industry? In other words considering their impact on long-term profitability or growth, how much importance does your top management attach to these aspects?

	Little importance ↓						Extreme importance ↓
a) Competition in delivery and after sales services in your industry	1	2	3	4	5	6	7
b) Innovation of new or better operating processes	1	2	3	4	5	6	7
c) Price competition in the industry	1	2	3	4	5	6	7
d) Rate at which products or services are getting obsolete	1	2	3	4	5	6	7

	Little importance ↓						Extreme importance ↓
e) Competition for technical manpower	1	2	3	4	5	6	7
f) Competition in promotion, advertising, selling, distribution, etc.	1	2	3	4	5	6	7
g) Competition for purchases of inputs (e.g. raw materials), parts, equipment	1	2	3	4	5	6	7
h) Competition in quality and variety of products and services	1	2	3	4	5	6	7

4. Strategy

1) How much importance does top management attach to the following characteristic aspects of strategy?

	Little importance ↓						Extreme importance ↓
a) Sacrificing profitability to gain market share	1	2	3	4	5	6	7
b) Cutting prices to increase market share	1	2	3	4	5	6	7
c) When confronted with a major decision, we usually try to develop thorough analysis	1	2	3	4	5	6	7
d) Information systems provide support for decision-making (the information system incorporates operative data of the company such as costs, products etc.)	1	2	3	4	5	6	7
e) Significant modifications to the manufacturing technology	1	2	3	4	5	6	7
f) Use of production management techniques	1	2	3	4	5	6	7
g) Our criteria for resource allocation generally reflect short-term considerations	1	2	3	4	5	6	7
h) Forecasting key indicators of performance	1	2	3	4	5	6	7
i) Constantly seeking new opportunities related to the present operations	1	2	3	4	5	6	7
j) Usually the first ones to introduce new brands or products in the market	1	2	3	4	5	6	7
k) Our operations can be generally described as high-risk	1	2	3	4	5	6	7
l) A tendency to support projects where the expected returns are certain	1	2	3	4	5	6	7

5. Leadership style

1) Participation: To what extent is decision-making at top levels in your firm characterized by participative, group or democratic decision-making, in relation to the following classes of decisions:

a) Product or service related decisions concerning level of operations, marketing strategy, research and development of new products or services, etc.:

No participation; the responsible top executives make the decisions using existing information	1	2	3	4	5	6	7	Decisions made by top management groups or committees after full discussion and attempt at reaching consensus - failing which, decisions are taken by majority vote

b) Capital budgeting decisions (selection and financing of long-term investments):

No participation; the responsible top executives make the decisions using existing information	1	2	3	4	5	6	7	Decisions made by top management groups or committees after full discussion and attempt at reaching consensus - failing which, decisions are taken by majority vote

c) Long-term strategy of growth, diversification, etc. and decisions related to changes in the firm's operating philosophy:

No participation; the responsible top executives make the decisions using existing information	1	2	3	4	5	6	7	Decisions made by top management groups or committees after full discussion and attempt at reaching consensus - failing which, decisions are taken by majority vote

2) Flexibility: An operating top management philosophy of:

a) A strong emphasis on holding fast to true and tried management principles despite any changes in business conditions	1	2	3	4	5	6	7	A strong emphasis on adapting freely to changing circumstances without too much concern for past practice

b) Tight control of most operations by means of sophisticated control and information systems	1	2	3	4	5	6	7	Loose, informal control; heavy dependence on informal relationships and norms of cooperation for getting work done

3) Coercion:

a) How far within your firm do you observe senior managers using force as a mode of resolving their disagreements over personal matters and corporate issues ("Might overcomes right"; "If you cannot make a man think as you do, make him do as you think")?

Seldom used	1	2	3	4	5	6	7	Used very often

b) In attempting to institute organizational changes, overcome the resistance of personnel to these changes, and get their required commitment, management issues orders and implicitly or explicitly warn personnel of serious consequences of resisting management orders.

Seldom used	1	2	3	4	5	6	7	Used very often

6. Decision-making style

Researchers have indicated that decision-making in organizations takes place in three distinct (but not necessarily mutually exclusive) modes or styles. Please indicate how closely each of the following modes resembles the way decisions get made at the top levels of your firm.

1) Mode A: Adaptive

Characterized by a cautious, pragmatic, one small step at a time adjustment to problems. Decisions are generally compromises between the conflicting demands of owners, unions, government, managers, customers, etc. They are made locally more often than centrally, and the primary concern is with stability and steady growth.

Little resemblance to style of top level decision-making in firm	1	2	3	4	5	6	7	Very great resemblance to style of top level decision-making in firm

2) Mode B: Entrepreneurial

Characterized by active search for big new opportunities; large, bold decisions despite the uncertainty of their outcomes; a charismatic decision-maker at the top wielding great power; rapid growth as the dominant organizational goal.

Little resemblance to style of top level decision-making in firm	1	2	3	4	5	6	7	Very great resemblance to style of top level decision-making in firm

3) Mode C: Planning

Characterized by systematic search for opportunities, as well as anticipation of problems; a systematic consideration of costs and benefits of alternatives; and a conscious attempt to integrate programs of action to achieve specified goals efficiently. The accent is on profit maximization, long-term planning, very careful screening of investments to minimize risks, and the extensive use of expertise and solid research before making decisions.

Little resemblance to style of top level decision-making in firm	1	2	3	4	5	6	7	Very great resemblance to style of top level decision-making in firm

7. Communication

1) An operating top management philosophy of:

Highly structured vertical channels of communication and a highly restricted access to important financial and operating information	1	2	3	4	5	6	7	Open channels of communication and important financial and operating information flowing quite freely throughout the organization

2) How often does your company use the following meetings?

	Seldom used ↓						Used very often ↓
Departmental meetings which are set up to allow members of the same department to engage in joint decision-making	1	2	3	4	5	6	7

8. Culture/Trust

8. 1 Chinese values

1) How important are the following factors in daily business transactions?

	Little importance ↓						Extreme importance ↓
a) Keeping one's face	1	2	3	4	5	6	7
b) Having respect for seniority	1	2	3	4	5	6	7
c) Loyalty to one's family	1	2	3	4	5	6	7
d) Loyalty to one's company	1	2	3	4	5	6	7

	Little importance ↓						Extreme importance ↓
e) Personal relations ("Guanxi")	1	2	3	4	5	6	7
f) Using strategies from classical Chinese warfare literature to succeed	1	2	3	4	5	6	7
g) Using strategies from Western management textbooks to succeed	1	2	3	4	5	6	7
h) Solving problems in teams, not alone	1	2	3	4	5	6	7
i) Using common sense and intuition, instead of complicated and theoretical reasoning to solve problems	1	2	3	4	5	6	7
j) Looking for integrative solutions to problems, not partial ones	1	2	3	4	5	6	7
k) Trust in the people you are doing business with	1	2	3	4	5	6	7
l) Collective orientation (i.e. belonging to a group, such as family, company, organizations etc.)	1	2	3	4	5	6	7
m) Taking risks	1	2	3	4	5	6	7

2) How far do you agree with the following statements?

	Completely disagree ↓						Completely agree ↓
a) "I trust members of my family more than outsiders, therefore I always try to keep business within my family"	1	2	3	4	5	6	7
b) "When dealing with outsiders, whenever possible I prefer to deal with foreigners, instead of with my fellow countrymen"	1	2	3	4	5	6	7
c) "I value the substance of the cooperation and do not distinguish between foreigners and fellow countrymen; the important thing is that the person I am dealing with is my friend and can be trusted"	1	2	3	4	5	6	7

8.2 Corporate culture

Consider the organization you work for as a whole. What set of values, what beliefs, what forms of behavior could be said to be typical of it? Please indicate the degree to which the following statements represent values hold by the organization. Please do not state your own values and preferences.

1) A good boss ...

	Does not represent values hold in our organization at all ↓						Exactly represents values hold in our organization ↓
a) ... is strong, decisive and firm but fair. He is protective, generous and indulgent to loyal subordinates.	1	2	3	4	5	6	7
b) ... is impersonal and correct, avoiding the exercise of authority for his own advantage. He demands from subordinates only that which is required by the formal system.	1	2	3	4	5	6	7
c) ... is egalitarian and influenceable in matters concerning the task. He uses his authority to obtain the resources needed to get on with the job.	1	2	3	4	5	6	7
d) ... is concerned and respectful of the personal needs and values of others. He provides satisfying and growth-stimulating work opportunities for subordinates.	1	2	3	4	5	6	7

2) A good subordinate ...

	Does not represent values hold in our organization at all ↓						Exactly represents values hold in our organization ↓
a) ... is hard-working, loyal to the interests of his superior, resourceful and trustworthy.	1	2	3	4	5	6	7
b) ... is responsible and reliable, meeting the duties and responsibilities of the job and avoiding actions which surprise or embarrass his superior.	1	2	3	4	5	6	7
c) ... is self-motivated to contribute his best to the task and is open to ideas and suggestions. Is willing to give the lead to others when they show greater expertise or ability.	1	2	3	4	5	6	7
d) ... is vitally interested in the development of his own potentialities and is open to learning and receiving help. Also respects the needs and values of others and is willing to give help and contribute to their development.	1	2	3	4	5	6	7

3) The organization treats the individual ...

a) ... as a trusted agent whose time and energy are at the disposal of those who run the organization.	1	2	3	4	5	6	7
b) ... on the basis that his time and energy are available through a contract which defines the rights and responsibilities of both sides.	1	2	3	4	5	6	7
c) ... as a co-worker who has committed his skills and abilities to the common cause.	1	2	3	4	5	6	7
d) ... as an interesting and talented person in his own right.	1	2	3	4	5	6	7

4) People are controlled and influenced by ...

a) ... the personal exercise of rewards, punishment or charisma.	1	2	3	4	5	6	7
b) ... impersonal exercise of economic and political power to enforce procedures and standards of work performance.	1	2	3	4	5	6	7
c) ... communication and discussion of task requirements motivating personal commitment to goal achievement, which leads to appropriate action.	1	2	3	4	5	6	7
d) ... intrinsic interest and enjoyment in the activities to be done; and/or concern and caring for the needs of the other people involved.	1	2	3	4	5	6	7

5) It is legitimate for one person to control another's activities ...

a) ... if he has more power and influence in the organization.	1	2	3	4	5	6	7
b) ... if his role prescribes that he is responsible for directing the other.	1	2	3	4	5	6	7
c) ... if he has more knowledge relevant to the task at hand.	1	2	3	4	5	6	7
d) ... if he is accepted by those he controls.	1	2	3	4	5	6	7

6) The basis for task assignment is ...

a) ... the personal needs and judgment of those who run the place.	1	2	3	4	5	6	7
b) ... the formal divisions of functions and responsibility in the system.	1	2	3	4	5	6	7
c) ... the resource and expertise requirements of the job to be done.	1	2	3	4	5	6	7
d) ... the personal wishes and needs for learning and growth of organization members.	1	2	3	4	5	6	7

9. Conflict

Three areas of a firm often have conflicts with one another: One is Marketing; another is Operations; and the third is R&D and design. Please rate the extent of conflict between pairs of these in your firm. If any item is irrelevant to your firm, please write "N. A." For manufacturing firms, Operations covers production-related activities.

	No conflicts ↓						Strong disagreement between personnel of two areas ↓
a) Marketing and Operations	1	2	3	4	5	6	7
b) R&D /Design and Marketing	1	2	3	4	5	6	7
c) Operations and R&D/Design	1	2	3	4	5	6	7

10. CEO Personality

Below are listed several statements that describe various things people do or try to do on their jobs. We would like to know which of these statements you feel most accurately describe *your own behavior* when you are at work. Please circle the number above the word which best describes your own actions. Remember: There are no right or wrong answers. Please answer all questions frankly.

1) I do my best work when my job assignments are fairly difficult.

1	2	3	4	5	6	7
Always	Almost always	Usually	Sometimes	Seldom	Almost never	Never

2) I try very hard to improve on my past performance at work.

1	2	3	4	5	6	7
Always	Almost always	Usually	Sometimes	Seldom	Almost never	Never

3) I take moderate risks and stick my neck out to get ahead at work.

1	2	3	4	5	6	7
Always	Almost always	Usually	Sometimes	Seldom	Almost never	Never

4) I try to avoid any added responsibility on my job.

1	2	3	4	5	6	7
Always	Almost always	Usually	Sometimes	Seldom	Almost never	Never

5) I try to perform better than my co-workers.

1	2	3	4	5	6	7
Always	Almost always	Usually	Sometimes	Seldom	Almost never	Never

11. Organizational Effectiveness

Compared to your industry's average, or, if yours is a very diversified firm, in relation to comparable firms, how do you compare on each of the following:

1) Long-run level of profitability

Very low	1	2	3	4	5	6	7	Very high

2) Annual growth rate of sales or revenues

Very low	1	2	3	4	5	6	7	Very high

3) Employee morale, job satisfaction, and commitment to firm's objectives

Very low	1	2	3	4	5	6	7	Very high

4) Financial strength (liquidity and ability to raise financial resources)

Very low	1	2	3	4	5	6	7	Very high

5) Public image and good-will

Very low	1	2	3	4	5	6	7	Very high

6) Stability of profitability:

a) What was the lowest (before tax) rate of return on net worth during the past 5 years? _____% (if the lowest rate was a loss, please indicate the rate on net worth with a minus sign)
(Method of calculation: Rate of return on net worth =Annual pre-tax profit X 100)
Net worth*

* Net worth = Shareholders' funds, or total assets minus total liabilities

b) What was the highest (before tax) rate of return on net worth during this period? _____% (if the lowest rate was a loss, please indicate the rate on net worth with a minus sign)

7) Growth: What was the average rate of growth of sales or revenues during the past 5 years? _____%
(Method of calculation: Add sales growth rates for each year from 1990 to 1995, then divide by 5)

12. Specialization

A function is specialized when at least one person performs that function and does not perform any other function. No account is taken of either (a) the specialist's status, or (b) whether an organization has many specialists or only one. For each of the following activities for which there is a specialist please mark "1", otherwise mark "0".

	No ↓	Existing ↓
a) Develop, legitimize and symbolize the organization's charter (e.g. public relations, advertising, etc.)	0	1
b) Dispose of, distribute and service the output (e.g. sales and service, customer complaints, etc.)	0	1
c) Transport outputs and resources from place to place	0	1
d) Acquire and allocate human resources (e.g. employment, etc.)	0	1
e) Develop and transform human resources (e.g. education and training)	0	1
f) Maintain human resources and promote their identification with the organization (e.g. welfare, medical, safety, corporate magazine, sports and social, etc.)	0	1
g) Obtain and control materials and equipment (e.g. buying, material control, stores, stock control, etc.)	0	1
h) Maintain and erect buildings and equipment (maintenance, works engineer etc.)	0	1
i) Record and control financial resources (e.g. accounts, costs, wages, etc.)	0	1
j) Control the workflow (e.g. planning, progressing, etc.)	0	1
k) Control the quality of materials, equipment, and outputs (e.g. inspection, testing, etc.)	0	1
l) Devise and assess ways of producing the output (e.g. work study, operational research, pricing, methods study etc.)	0	1
m) Devise new outputs, equipment, and processes	0	1

	No ↓	Existing ↓
n) Develop and operate administrative procedures (e.g. registry, filing, statistics, organization and methods etc.)	0	1
o) Deal with the legal and insurance requirements (e.g. legal issues, registration, insurance, licensing, etc.)	0	1
p) Acquire information on the operational field (market research)	0	1

13. Formalization

The degree of formalization of role-definition in the organization is given by (a) the number of specific role-defining documents that exist in the organization, and (b) in some cases, by the extent of their distribution or application.

a) Information booklets given to	0 None	1 Few employees	2 Many employees	3 All employees
b) Number of information booklets	0 None	1 One	2 Two	3 Three	4 Four or more
c) Organization chart given to	0 None	1 CEO only	2 CEO plus one other executive	3 CEO plus all/most department heads

	None ↓	Existing ↓
d) Written operating instructions	0	1
e) Written terms of reference of job description for direct workers	0	1
f) Written terms of reference or job description for line superordinates	0	1
g) Written terms of reference or job description for staff (staff assists top management in strategy and administration)	0	1
h) Written terms of reference or job description for CEO	0	1
i) Manual of work procedures	0	1
j) Written organizational policies	0	1
k) Workflow schedule or production program	0	1
l) Written research program or reports	0	1

14. Centralization

Which hierarchical level in your firm has the authority to make the following decisions? (0 = the level is above that of chief executive - this would be the board of directors or owner; 1 = the level is the chief executive; 2 = divisional or functional manager such as production or sales manager; 3 = sub-department head; 4 = first level supervisor; 5 = decision made by operatives at the shop level). Please circle the appropriate number.

Decisions concerning:	Above CEO ↓					Operative ↓
a) The number of workers required	0	1	2	3	4	5
b) Whether to employ a worker	0	1	2	3	4	5
c) Internal labor disputes	0	1	2	3	4	5
d) Overtime to be worked at shop level	0	1	2	3	4	5
e) Delivery dates and priority of orders	0	1	2	3	4	5

	Above CEO ↓					Operative ↓
f) Production plans to be worked on	0	1	2	3	4	5
g) Dismissal of a worker	0	1	2	3	4	5
h) Methods of personnel selection (e.g. employment criteria)	0	1	2	3	4	5
i) Method of work to be used (e.g. choice of TQM as management method)	0	1	2	3	4	5
j) Machinery or equipment to be used	0	1	2	3	4	5
k) Allocation of work among available workers	0	1	2	3	4	5

15. Technology

To what extent are each of the following techniques used in your firm?

1) "Custom" technology (production or fabrication of a single unit or few units of products or services to customer specifications or needs - e.g., missile prototypes, patient care in exclusive private clinics).

Not used at all or minimally used	1	2	3	4	5	6	7	Very extensively used: over 70% of value added by operations attributable to this

2) "Small batch, job shop" technology (creation of small batches of similar units, such as fashionable dresses, tools and dies).

Not used at all or minimally used	1	2	3	4	5	6	7	Very extensively used: over 70% of value added by operations attributable to this

3) "Large batch" technology (e.g., used in manufacturing large batches of drugs and chemicals, parts, counts of yarn; in university used for instructing large batches of students in required courses).

Not used at all or minimally used	1	2	3	4	5	6	7	Very extensively used: over 70% of value added by operations attributable to this

4) "Mass production" technology (e.g., used in mass production of cars and standard textiles).

Not used at all or minimally used	1	2	3	4	5	6	7	Very extensively used: over 70% of value added by operations attributable to this

5) "Continuous process" technology (e.g., used in oil refining and other automated industries, in which the output is highly standardized and mechanized, and is produced continuously rather than in batches or shifts).

Not used at all or minimally used	1	2	3	4	5	6	7	Very extensively used: over 70% of value added by operations attributable to this

6) "Service technology" used by firms to serve their widely distributed clientele through branches, dealers, etc. (e.g., used by banks, insurance companies, telephone companies, after-sales service in several consumer goods industries).

Not used at all or minimally used	1	2	3	4	5	6	7	Very extensively used: over 70% of value added by operations attributable to this

7) Automaticity mode and automaticity range:

a) Mode: What is the bulk of equipment used by the organization on its workflow?

0	1	2	3	4	5
Hand tools and manual machines	Powered machines and tools	Single-cycle automatics and self-feeding machines	Automatic: repeats cycle	Self-measuring and adjusting: feedback	Computer control: automatic cognition

b) Range: Please mark the highest scoring piece of equipment in terms of automaticity the organization uses.

0	1	2	3	4	5
Hand tools and manual machines	Powered machines and tools	Single-cycle automatics and self-feeding machines	Automatic: repeats cycle	Self-measuring and adjusting: feedback	Computer control: automatic cognition

16. Control

Please rate the extent to which the following control devices are used to gather information about the performance of your firm:

	Used rarely or for small part of operation ↓						Used frequently or throughout the firm ↓
a) A comprehensive management control and information system (the two systems both contain data on costs, products, etc.)	1	2	3	4	5	6	7
b) Use of cost centers (i.e. aggregate and allocate cost-generating units, such as departments or factory shops) for cost control	1	2	3	4	5	6	7
c) Use of profit centers (i.e. aggregate and allocate profit-generating units, such as departments or factory shops) for cost control	1	2	3	4	5	6	7
d) Quality control of operations by using sampling and other techniques	1	2	3	4	5	6	7
e) Cost control by fixing standard costs and analyzing variations	1	2	3	4	5	6	7
f) Formal appraisal of personnel	1	2	3	4	5	6	7
g) Internal auditing	1	2	3	4	5	6	7
h) Break-even analysis in making investment or pricing decisions	1	2	3	4	5	6	7
i) The computation of present values or internal rates of return for evaluating investments	1	2	3	4	5	6	7
j) Control of inventories, cash, etc. and scheduling of operations by means of mathematical techniques, like simulation, linear programming, etc.	1	2	3	4	5	6	7

17. Integration/Co-ordination

17.1 Structural liaison devices

In assuring the compatibility among decisions in one area (e.g., marketing) with those in other areas (e.g., production), to what extent are the following integrative mechanisms used?

	Used rarely ↓						Used very frequently ↓
a) Interdepartmental committees which are set up to allow departments to engage in joint-decision making	1	2	3	4	5	6	7
b) Task forces which are temporary bodies set up to facilitate interdepartmental collaboration on a specific project	1	2	3	4	5	6	7
c) Liaison personnel whose specific job it is to coordinate the efforts of several departments for purposes of a specific project	1	2	3	4	5	6	7

	Rare use of committees or infrequent informal collaboration ↓						Frequent use of committees and/or informal interdepartmal collaboration ↓
d) Product or service decisions concerning production, marketing and R&D strategies	1	2	3	4	5	6	7
e) Capital budgeting decisions - the selection and financing of long-term investments	1	2	3	4	5	6	7
f) Long-term strategies (of growth, diversification, etc.) and decisions related to changes in the firm's operating philosophy	1	2	3	4	5	6	7

17.2 Process liaison devices

In assuring the compatibility among decisions between departments (e.g., marketing and production) to what extent are the following integrative mechanisms used?

	Used rarely ↓						Used very frequently ↓
a) Planning - so that decisions are coordinated via some master plan	1	2	3	4	5	6	7
b) Bargaining among the heads of department	1	2	3	4	5	6	7

c) Each department makes decisions more or less on its own, without regard to other departments	1	2	3	4	5	6	7	There is a great deal of departmental interaction on most decisions
d) Often there is a lack of complementarity between the decisions of different departments	1	2	3	4	5	6	7	Decisions of the different departments are mutually reinforcing

18. Shape of Hierarchy

1) Number of sites: What is the number of operating sites (e.g., plants and branches) of your firm?_____

2) What is the proportion of managerial personnel to total personnel ?_____%

3) How many vertical levels are there in the organization? That is, count the number of levels in the longest line between direct worker and the chief executive (include both levels) in the production or service function? _____

4) To what extent are you contracting out the following functions to other companies?

	Performed entirely by company itself ↓						Completely contracted out ↓
a) Production (e.g., components etc.)	1	2	3	4	5	6	7
b) Assembly	1	2	3	4	5	6	7
c) Logistics/transport	1	2	3	4	5	6	7
d) R&D	1	2	3	4	5	6	7
e) Marketing/sales	1	2	3	4	5	6	7
f) Worker welfare	1	2	3	4	5	6	7
g) Human resource management	1	2	3	4	5	6	7
h) Security	1	2	3	4	5	6	7

	Performed entirely by company itself ↓						Completely contracted out ↓
i) Accounting/finance	1	2	3	4	5	6	7
j) Information processing	1	2	3	4	5	6	7
k) Administration	1	2	3	4	5	6	7

19. Environment

1) Please answer the following questions concerning the degree and speed of change for the industry that accounts for the largest percentage (%) of your sales (in other words, your principal industry). Unless otherwise stated, please circle the number in each scale that best approximates the actual conditions.

a) Our firms must rarely change its marketing practices to keep up with the market and competitors	1	2	3	4	5	6	7	Our firm must change its marketing practices frequently (e.g., semi-annually)
b) The rate at which products/services are getting obsolete is very slow (e.g., basic metals like copper)	1	2	3	4	5	6	7	The rate of obsolescence is very high as in fashion goods
c) Actions of competitors are quite easy to predict (as in some primary industries)	1	2	3	4	5	6	7	Actions of competitors are almost unpredictable (e.g., high-fashion goods)
d) Demand and consumer tastes are fairly easy to forecast (e.g., for milk companies)	1	2	3	4	5	6	7	Demand and consumer tastes are almost unpredictable (e.g., high-fashion goods)
e) The production/service technology is not subject to very much change and is well established (e.g., in steel production)	1	2	3	4	5	6	7	The modes of production/service change often in a major way (e.g., advanced electronic components)

2) What are the main constraints or bottlenecks affecting the growth of your firm? Please rate the extent to which each of the following operates to slow down your sales growth.

	Not important as constraint ↓						Very great constraint on growth ↓
a) Insufficient capital (e.g., inadequate retention of earnings, high interest rates)	1	2	3	4	5	6	7
b) Shortage of managerial talent (e.g., to manage new or expanded ventures)	1	2	3	4	5	6	7
c) Lack of investment or growth opportunities (e.g., due to stagnant markets)	1	2	3	4	5	6	7
d) Lack of cooperation of white collar employees (e.g., interdepartmental squabbles, low motivation to work)	1	2	3	4	5	6	7
e) Shortage of technical manpower (e.g., scientists, engineers, accountants, statisticians, etc.)	1	2	3	4	5	6	7
f) Government regulations (e.g., price control, control over expansion or diversification)	1	2	3	4	5	6	7
g) Resistance to changes needed for company growth on the part of managers (e.g., too many tradition-bound and conservative managers)	1	2	3	4	5	6	7
h) High inflation rate	1	2	3	4	5	6	7
i) Labor troubles (e.g., strike, slowdowns)	1	2	3	4	5	6	7
j) Insufficient infrastructure (e.g., transport, electricity)	1	2	3	4	5	6	7
k) Political instability	1	2	3	4	5	6	7

3) What effect has government legislation, regulations, or actions, related to the following areas, had on your firm? If any item is irrelevant or has had no effect, please circle "4". Government covers local, provincial, national, and where relevant, supra-national governments.

	Very negative effect ↓						Very positive effect ↓
a) Labor legislation and legislation covering working conditions	1	2	3	4	5	6	7
b) Anti-trust or anti-monopoly regulations	1	2	3	4	5	6	7
c) Regulations for protecting the environment from industrial wastes	1	2	3	4	5	6	7
d) Tariffs on imports/exports	1	2	3	4	5	6	7
e) Tax relief or subsidies	1	2	3	4	5	6	7
f) Export aid (e.g., the government provides export incentive policies)	1	2	3	4	5	6	7
g) Incentives for operations in designated areas	1	2	3	4	5	6	7
h) Special regulatory bodies or legislation for industry	1	2	3	4	5	6	7
i) Advertising and promotion regulation	1	2	3	4	5	6	7

Appendix H: Company questionnaire in Chinese

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企业调研表方法指南

(一) 该调研表应由企业总经理、厂长，或副总经理、副厂长亲自填写.

(二) 表中 "公司"是指您领导的单位，无论是某公司的部门，分支机构，还是独立的公司. 除非特殊说明，不然所有问题的回答都是针对此单位的运作、政策、 和环境.

(三) 大部分的问题采用标尺的模糊方法来衡量. 请您根据您的判断，圈划最接近您企业情况的数目. 如果需要作任何附加解释或说明，请随意注在相应的标尺下. 所有标尺问题都列有两个极端概念(1:代表左边的定义;7:代表右边的定义). 1和7之间代表两极间的不同程度. 答案只限选 一种. 请勿在阴影处填写任何字迹.

最低	1	2	3	4	5	6	7	最高

请勿填写此处　　选其中之一　　请勿填写此处

(四) 请认真答复全部问题，切勿留空题. 不然，将为其统计和数据分析带来很大问题. 填好此表后， 请仔细检查.

(五)服务类公司(如银行)请注意:在表中, 销售额=收入总额; 产品=服务, 制作或生产=该单位的主要产品(如银行). 如有题目是与贵公司经营范围无关的，请注明 "N.A." .

(六)请勿用铅笔填表.

非常感谢您的大力协助!

Kai-Alexander Schlevogt (师凯亚)
牛津大学管理系

1. 总经理个人统计

1) 年龄:_____

2) 性别:
a) 男
b) 女

3) 教育:

a) 初中	c) 技校	d) 大专	g) 硕士
b) 高中	d) 中专	e) 学士	h) 博士

3A) 如是高等教育，专业是什么？ _____

4) 您是否出访过至少一个西方发达国家，如美国, 加拿大, 西欧, 日本, 或澳大利亚？
a) 是
b) 否

4A) 如果是, 出访的主要目的是什么？

a) 学习	c) 商务考察	e) 其他:_____
b) 工作	d) 旅游	

4B) 如是“学习” 您去过哪个(些)国家学习？ _____

5) 职位:
a) 总经理
b) 其他: _____

5A) 如您不是总经理，您的责任包括:_____

6) 您已为公司工作多久？ _____ 年 _____ 月

7) 您已任此职多久？ _____ 年 _____ 月

2. 公司信息

1) 您的企业属于哪类公司？
a) 独立的企业
b) 某公司的下属
c) 某公司的分部

2) 贵公司的经营范围:_____

3) 大约年营业总额(人民币):_____

4) 大约雇员人数:_____

5) 公司已成立多少年？ _____

6) 贵公司的企业注册方式？

a) 无限	c) 股份
b) 有限	d) 合资

7) 贵公司的经济形式？

a) 国营	c) 三资 (独资, 合资, 合作)
b) 集体 (民办)	d) 私营

8) 股东成份(总100%):

a) 国营 _____ % 的股份　d) 家族成员 _____ % 的股份
b) 集体 _____ % 的股份　e) 其他本国私人投资 _____ % 的股份
c) 外商投资 _____ % 的股份

3. 目标

1) 成绩目标:

下列目标在贵公司的长期(即5年以上)发展和策略筹划中起何等重要的作用?

	不怎么重要						非常重要
a) 创造高于平均水平的利润	1	2	3	4	5	6	7
b) 创造高于平均水平的销售或收入增长率	1	2	3	4	5	6	7
c) 保持或保证高于平均水平的资金流动性和财政优势	1	2	3	4	5	6	7
d) 保持或保证高于平均水平的雇员信念，工作称心，和对公司目标的投入	1	2	3	4	5	6	7
e) 创造或保持一个完美的公众形象	1	2	3	4	5	6	7

2) 多种化经营和纵向环节一体化的方向

a) 公司领导的运作宗旨为:

集中在某相关产品或单一工业; 重点侧重确定公司工业领域并持续下去.	1	2	3	4	5	6	7	重点放在产品或服务的多种经营尽管如需承担进入非相关工业的风险.
绝对避免纵向结合.	1	2	3	4	5	6	7	明确的纵向一体化趋势, 如: 从获取 原材料, 加工设备, 到/或者购买批发和零售渠道.

b) 公司现有机构如何?

集中在某相关产品或单一工业; 重点侧重确定公司工业领域并持续下去.	1	2	3	4	5	6	7	重点放在产品或服务的多种经营尽管如需承担进入非相关工业的风险.
绝对避免纵向结合.	1	2	3	4	5	6	7	明确的纵向一体化体制, 如: 从获取 原材料, 加工设备, 到/或者购买批发和零售渠道.

3)贵公司最高级管理阶层对您主要产业的如下特点给予多少重视? 换言之，考虑到长远利润和公司 发展的影响，贵公司最高级管理阶层会把多少重点放在如下方面?

	不怎么重要						非常重要
a) 在公司主要产业中，涉及交货和售后服务方面的竞争	1	2	3	4	5	6	7
b) 革新成为新型的，或更先进的操作法	1	2	3	4	5	6	7
c) 在本行业中价格的竞争	1	2	3	4	5	6	7
d) 产品或服务的更新换代	1	2	3	4	5	6	7
e) 吸引技术人力的竞争	1	2	3	4	5	6	7
f) 在宣传，广告，销售，发行等方面的竞争	1	2	3	4	5	6	7
g) 在采购物资(如: 原材料)，零部件，仪器中的竞争	1	2	3	4	5	6	7
h) 在产品或服务种类和质量上的竞争	1	2	3	4	5	6	7

4. 策略

1) 贵公司最高管理层会把多少重点放在如下策略定向方面?

	不怎么重要						非常重要
a) 靠牺牲利润而获得市场份额	1	2	3	4	5	6	7
b) 靠降低价格而扩大市场份额	1	2	3	4	5	6	7
c) 当面临主要问题时，我们通常争取作全面分析	1	2	3	4	5	6	7
d) 信息系统辅助决策(信息系统即公司运作过程中的信息如成本，产品等)	1	2	3	4	5	6	7
e) 制作技术的重大改进	1	2	3	4	5	6	7
f) 采用生产管理技术	1	2	3	4	5	6	7
g) 在资源分配中，我们的准则通常为短期考虑	1	2	3	4	5	6	7
h) 预测操作中的关键指标	1	2	3	4	5	6	7
i) 不断寻找与现有业务有关的新机会	1	2	3	4	5	6	7
j) 通常在市场上作为首家公司推出新牌子或产品	1	2	3	4	5	6	7
k) 我们的运作一般可说是高风险的	1	2	3	4	5	6	7
l) 倾向扶植明确预期回报的项目	1	2	3	4	5	6	7

5. 领导作风

1)参与: 在何种程度上，公司有关下列方面的最高层决策是有群众民主参与决定的:

a) 生产或服务的决策中涉及到公司运作，市场决策，新产品/服务的革新研究等:

不参与; 最高级领导利用现有信息全权负责作出决定	1	2	3	4	5	6	7	先全体讨论并试图达成一致意见,最高领导班子/委员会作出最后决定.不然则多数表决

b) 投资决定 (选择和融资长远投资):

不参与; 最高级领导利用现有信息全权负责作出决定	1	2	3	4	5	6	7	先全体讨论并试图达成一致意见,最高领导班子/委员会作出最后决定.不然则多数表决

c) 长远发展规划，多种经营等，以及有关公司运作宗旨的改变:

不参与; 最高级领导利用现有信息全权负责作出决定	1	2	3	4	5	6	7	先全体讨论并试图达成一致意见,最高领导班子/委员会作出最后决定.不然则多数表决

2) 最高级管理灵活性的宗旨:

不管企业情况如何变化,重点仍强调明文规定的和已有经验的管理原则	1	2	3	4	5	6	7	不过多考虑以往实践，重点强调自由调节到变化的环境
使用高级先进的管理及信息系统来达到严格控制	1	2	3	4	5	6	7	松弛的非正规的控制; 着重依赖于非正规的关系, 且合作的准则在于要完成工作

3) 强制性:

a)您观察贵公司在何种程度上高级管理人员用强力作为解决个人和公司分歧的方式 (“强权战胜公理”； “不能使人想你所想，就使人做你所想”)。

很少使用	1	2	3	4	5	6	7	经常使用

b) 在试图实施机构改革，克服对改革的抵触情绪，以及唤起应负的责任感的过程中，管理支配公司秩序，进而对抵制管理条令的行为给予直接了当或含蓄的严重后果警告.

很少使用	1	2	3	4	5	6	7	经常使用

6. 决策风格

研究人员已指出决策在一机构中分为3种不同的模式或风格 (但彼此间未必相互排斥). 请指出贵公司上层管理的决策风格在下列方式中的接近程度.

1) 模式 A: 适应型

其特点为谨慎、实惠，一步一个脚印地就问题进行调整. 决定通常以在股东, 工会, 政府, 经理，及顾客等的需求与冲突间的妥协而形成. 这些决定经常由某部门作出而不是在中心机构，且基本上是关注于企业稳定和稳步发展方面的.

与本公司最上层决策风格基本无相似之处	1	2	3	4	5	6	7	与本公司最上层决策风格非常相近

2) 模式 B: 企业家型

其特点为主动寻找大而新的机会; 尽管对结果无把握也敢于作出大胆的重大决定; 有具备领导魅力的决策人在最上层行使权利; 公司的迅速发展成长是该机构的主导目标.

与本公司最上层决策风格基本无相似之处	1	2	3	4	5	6	7	与本公司最上层决策风格非常相近

3) 模式 C: 计划型

其特点为用系统研究的方法来寻找机会; 预示问题; 系统考虑所有选择的成本和利润; 有意识地策划协调不同项目的活动以便有效地达到预定目标. 此特征在于最大限度赢得利润。 长远规划并慎重审查投资以便最小程度上承担风险, 并在作出决定前先充分使用专家和可靠的研究.

与本公司最上层决策风格基本无相似之处	1	2	3	4	5	6	7	与本公司最上层决策风格非常相近

7. 交流

1)最上层业务管理的宗旨是:

结构严谨并有纵向交流的渠道，且对获得公司重要财政和操作方面信息严加限制.	1	2	3	4	5	6	7	敞开交流渠道并且将有关重要财政和操作方面的信息在整个企业范围内无限制地流通.

2) 贵公司召集多少次下列会议?

	很少召集 ↓						经常召集 ↓
部门内部的会议，其目的在于允许同一部门人员参与联合决定	1	2	3	4	5	6	7

8. 文化/信任

8.1 中国的价值观

1) 在日常商业交易中下列因素何等重要？

	不重要						非常重要
a)保面子	1	2	3	4	5	6	7
b) 尊重长辈	1	2	3	4	5	6	7
c) 对家庭的忠诚	1	2	3	4	5	6	7
d) 对公司的忠诚	1	2	3	4	5	6	7
e) 关系	1	2	3	4	5	6	7
f) 用中国传统兵法的策略取胜	1	2	3	4	5	6	7
g) 用西方管理教科书的策略取胜	1	2	3	4	5	6	7
h) 集体解决问题，而不是个人	1	2	3	4	5	6	7
i) 利用常识和直觉，而不是复杂的理论推理来解决问题	1	2	3	4	5	6	7
j) 寻求综合解决问题的方法，而不是局部	1	2	3	4	5	6	7
k) 信任与您作生意的人	1	2	3	4	5	6	7
l) 集体观念(即从属于某群体如：家庭，公司，组织等)	1	2	3	4	5	6	7
m) 承担风险	1	2	3	4	5	6	7

2) 您在何程度上同意如下观点？

	根本不同意						完全同意
a) "我信任家庭成员多于外人，所以总试图把我的生意限制在家庭范围内"	1	2	3	4	5	6	7
b)"与外人打交道时，只要有可能，我偏向与外国人打交道而不愿找本国人"	1	2	3	4	5	6	7
c) "重视合作内容，不分国外国内，只要是朋友便可信任"	1	2	3	4	5	6	7

8.2 企业文化

设想您所在的企业为一整体．什么样的价值观，什么样的信念，什么样的行为可称为有代表性的？请指出下列观点在何程度上代表贵公司的观念．请勿参加您的个人观点和偏向．

1) 一个优秀的上司 ...

	根本不代表本企业价值观念						完全代表本企业的价值观念
a) ... 是一个坚强的，有决断力的，且坚定但公平的人. 这个人应对忠实的下级 给予保护，并对其慷慨，宽宏大量	1	2	3	4	5	6	7
b) ... 是非感情用事的，且正直，避免用私权谋取个人利益. 此人对下级的要求 也不过是正规系统的要求	1	2	3	4	5	6	7
c) ...是平等的且就工作任务能听取别人意见．此人行使其权利来调动资源使工作完成	1	2	3	4	5	6	7
d) ... 关心和尊重他人的需求和价值观念，此人应能为下级提供工作满足感和创造促进下级得到个人发展的机会	1	2	3	4	5	6	7

2) 一个优秀的下级 ...

	根本不代表本企业价值观念						完全代表本企业的价值观念
a) ... 应努力工作，忠实其上级的利益, 机智并值得信任	1	2	3	4	5	6	7
b) ... 有责任感且值得信赖, 对工作胜任也负责, 且避免使上司意外或难堪	1	2	3	4	5	6	7
c) ...具有对工作尽全力的自我热情；对新想法，建议较开放；并情愿将领导权传给更 有学识或能力的人	1	2	3	4	5	6	7
d) ... 能有挖掘自我潜能的浓厚兴趣，而且愿意学习和接收帮助. 此人也尊重他人的需求和价值观并愿为帮助其发展而尽力	1	2	3	4	5	6	7

3) 公司对待个人 ...

a) ... 当作可信赖的力量，其时间和精力由公司的操作者来支配	1	2	3	4	5	6	7
b) ... 在有约定双方责任和权利的合同前提下, 此人的时间和精力由公司支配	1	2	3	4	5	6	7
c) ... 作为就共同事业投入其技能的合作者	1	2	3	4	5	6	7
d) ... 作为有自主权的有才之士	1	2	3	4	5	6	7

4) 雇员由如下因素所控制和影响 ...

a) ... 个人行使的奖励或惩罚或领导魅力	1	2	3	4	5	6	7
b) ... 按照成规行使政治经济权利以实施步骤和工作规范	1	2	3	4	5	6	7
c) ... 对任务要求的交流和讨论激发了个人为达到目标而投入的热情，从而带来相应适当的行动	1	2	3	4	5	6	7
d) ... 对应做活动本身的兴趣和乐趣,和/或关注和关心参与活动中他人的需求	1	2	3	4	5	6	7

5) 由一人控制另一人的活动是合理的 ...

a) ... 如果此人在公司有更大的权力和影响	1	2	3	4	5	6	7
b) ... 如果此人的角色指明其责任在于领导他人	1	2	3	4	5	6	7
c) ...如果此人更有与待作工作有关的学识	1	2	3	4	5	6	7
d) ... 如果此人被其所控制的人接收	1	2	3	4	5	6	7

6) 工作分配的依据是 ...

a) ... 掌权者的个人需要和意志	1	2	3	4	5	6	7
b) ... 在系统中从功能和责任上的正规分配	1	2	3	4	5	6	7
c) ... 待作工作对资源和专业人员的要求	1	2	3	4	5	6	7
d) ... 公司成员的个人愿望和其学习及提高的需求	1	2	3	4	5	6	7

9. 冲突

公司中通常有三个领域互相冲突:一是市场营销；二是操作业务;三为革新研究和设计.请圈划出贵公司在每两方面冲突的程度. 如哪方面与贵公司无关，请注明“无关“. 对制造业公司而言，操作业务包括与生产有关的活动.

	无冲突						两方面人员的 重大分歧
a)市场营销与操作业务	1	2	3	4	5	6	7
b) 革新研究和设计与市场营销	1	2	3	4	5	6	7
c) 操作业务与革新研究和设计	1	2	3	4	5	6	7

10. 总经理性格特征

下面列出几种人们在工作中做什么和试图做什么的陈述．我们希望知道哪些陈述您认为是最精确地描写了在工作中*您自己的行为*．请圈划最恰当描述您自己活动的词条上方．记住:
答案无对错之分．请您坦率回答全部问题．

1) 当接到任务非常难时，我竭尽全力．

总是	几乎总是	通常	有时	很少	几乎从不	从不

2) 我在工作中非常努力地试图不断完善我的工作表现．

总是	几乎总是	通常	有时	很少	几乎从不	从不

3) 我承担一般的风险且不怕在工作中为得领先而招惹麻烦．

总是	几乎总是	通常	有时	很少	几乎从不	从不

4) 我试图避免任何工作中的附加责任．

总是	几乎总是	通常	有时	很少	几乎从不	从不

5) 我试图表现得比我的同行好．

总是	几乎总是	通常	有时	很少	几乎从不	从不

11. 企业的实力

与同行相比(或者，如果贵公司是多种经营企业，比较类似企业), 您如何比较以下 各方面:

1) 长远的利润能力:

非常低	1	2	3	4	5	6	7	非常高

2) 年销售或收入总额的增长率:

非常低	1	2	3	4	5	6	7	非常高

3) 雇员的忠实，其工作的满足感, 以及对企业目标承担的义务:

非常低	1	2	3	4	5	6	7	非常高

4) 财政优势 (财政资源的周转和争取更多资金的能力):

非常低	1	2	3	4	5	6	7	非常高

5) 公众形象和公司信誉:

非常低	1	2	3	4	5	6	7	非常高

6) 获得利润的稳定程度:

a) 过去5年的(税前)最低净值利润率? _____% (如最低利润率是亏损, 请加负 “－ “号)
(净值利润率=税前年利润/净值X100; 净值=所有者权益(或股东资本，或资产总额)--负债总额)

b) 同期最高的(税前)净值利润率？_____% (如利润率是亏损, 请加负 “－ “号)

7) 增长: 贵公司在最近过去5年的平均销售或收入增长率是? _____%
(计算方法: 1990年至1995年的每年增长率累加，然后除以5)

12. 专业程度

各部门专业化程度: "已有" 指至少由一专人承担，该雇员不承担其他职责。在此不考虑: (a) 该专业人员的级别, 或 (b) 该部门只有一名还是有大量专业人员。否则填 "无"。

a) 建立和实施合理的公司章程 (如公共关系、广告部等等)	无	已有
b) 产品的处理、发行、和服务。(如销售和服务，顾客意见等等)	无	已有
c) 产品和原料的传输	无	已有
d) 人力资源的招收和分派 (如雇佣等等)	无	已有
e) 人力资源的发展和转移 (教育与培训)	无	已有
f) 人力资源维护及促使其与公司融为一体 (如福利，医疗, 安全, 公司通报, 体育和社交，等等)	无	已有
g) 物资和设备的采购和控制 (如购买, 物资控制, 储存, 库存控制, 等等)	无	已有
h) 维护和装配厂房和器材 (如维修, 基建工程, 等等)	无	已有
i) 财政资源的记录和控制 (如帐户, 成本费用, 工资, 等等)	无	已有
j) 工作流程的控制(如计，实施，等等)	无	已有
k) 控制原材料、器材、和产品的质量 (如监察、测试，等等)	无	已有
l) 设计与估量产品生产方式 (如工作效率的研究，运筹，定价，方法研究，等等)	无	已有
m) 新产品，器材，和流程的设计	无	已有
n) 建立和操作管理步骤 (注册，排档，统计，组织和方法)	无	已有
o) 处理法律和保险事宜 (如法律事项，登记，保险，许可证，等等)	无	已有
p) 获取运作方面的信息 (市场调查)	无	已有

13. 正规性

在公司内，岗位责任制的正规程度反映在: (a)公司内专门制定职则条例的数量 上，和(b)在一些情况下，这些条例被分发和应用的程度上。

a) 公司职责条例发至	无	少数雇员		多数雇员	所有雇员
b) 贵公司有多少种职责条例	无	一	二	三	四或以上
c) 机构示意图给至	无	只有总经理		总经理和另一高级官员	总经理和多数部门总管

d) 书面业务运作指南	无	已有
e) 基层人员职责的书面说明或参照	无	已有
f) 逐层上司职责的书面说明或参照	无	已有
g) 公司智囊团的职责书面说明或参照 (智囊团指辅助公司最高领导策划决策的机构)	无	已有
h) 总经理职责的书面说明或参照	无	已有
i) 工作规程手册	无	已有
j) 书面公司政策说明	无	已有
k) 工作流程日程安排，或生产进度表	无	已有
l) 书面研究大纲报告	无	已有

14. 集权制

在何等级上，贵公司授权决定下列问题？(0=高于总裁级 - 这里指着监委会或股东; 1=总裁级; 2=部门或专项经理，如生产或销售经理; 3=分部负责人; 4=基层领导; 5=车间业务人员).请圈划相应适当数字.

有关下列决定:	高于总裁级 ↓					车间业务人员 ↓
a) 所需工人数量	0	I	2	3	4	5
b) 是否雇佣一个工人	0	1	2	3	4	5
c) 工人内部争执	0	1	2	3	4	5
d) 车间加班量	0	1	2	3	4	5
e) 交货日期和定单缓急	0	1	2	3	4	5
f) 近期即行生产计划	0	1	2	3	4	5
g) 解雇工人	0	1	2	3	4	5
h) 人员选用方法（如雇佣条例)	0	1	2	3	4	5
i) 工作方法的选择 (如: 选择全面质量管理作为管理方法)	0	1	2	3	4	5
j) 机械和设备的选择	0	1	2	3	4	5
k) 现有工人中的工作分配	0	1	2	3	4	5

15. 技术

在何种程度上贵公司使用下列各种技术？

1) "定做" 工艺 (指针对客户的特殊需求制作或装配单一或少量产品或服务 - 如: 导弹原型, 特别医疗临床护理).

完全不或很少使用	1	2	3	4	5	6	7	大量使用: 占多于70% 的产值由此而得

2) "小批量, 小定额车间" 工艺 (生产小批量同类产品, 比如时装, 工具和染料).

完全不或很少使用	1	2	3	4	5	6	7	大量使用: 占多于70% 的产值由此而得

3) "大批量" 工艺(如: 在生产大量药品和化工产品,零部件,支纱,教授在大学中的公共 必修课).

完全不或很少使用	1	2	3	4	5	6	7	大量使用: 占多于70% 的产值由此而得

4) "大规模生产" 工艺 (如: 用于生产汽车和纺纱).

完全不或很少使用	1	2	3	4	5	6	7	大量使用: 占多于70% 的产值由此而得

5) "连续作业" 工艺 (如: 用于炼油和其他自动化生产，其中产品是非常机械而标准化的, 且是连续的并不是成批或轮班生产的).

完全不或很少使用	1	2	3	4	5	6	7	大量使用: 占多于70% 的产值由此而得

6) "服务技术"用于通过分支机构，交易商等渠道向广大客户提供服务. (如: 银行，保险公司，电话公司, 及在一些消费工业中的售后服务).

完全不或很少使用	1	2	3	4	5	6	7	大量使用: 占多于70% 的生产增值由此而得

7) 自动化主要方式和范围:

a) 主要方式: 在日常工作中，贵公司的大多数设备是什么?

手工工具和手动机器	电动机器和工具	单循环自动和自我进给机器	自动多循环系统	自动衡量和反馈调整	电脑人工智能

b) 极点: 请圈划贵公司应用设备自动程度最高的分数.

手工工具和手动机器	电动机器和工具	单循环自动和自我进给机器	自动多循环系统	自动衡量和反馈调整	电脑人工智能

16. 控制

请圈划在何等程度上贵公司使用下列控制措施来收集关于公司运作情况的信息:

	极少或很少部门在运作中使用						经常或全公司都使用
a) 综合管理控制系统和信息系统(两种系统均包括如成本，产品等的数据)	1	2	3	4	5	6	7
b) 用成本独立核算(指归集和分配费用的单位, 如某部门/车间) 作成本控制	1	2	3	4	5	6	7
c) 用利润独立核算(指归集和分配能创利的单位, 如某部门/车间)作成本控制	1	2	3	4	5	6	7
d) 用抽样和其他方式来控制操作质量	1	2	3	4	5	6	7
e) 用预算目标成本和分析变化量的方法来控制成本	1	2	3	4	5	6	7
f) 人员正式评估	1	2	3	4	5	6	7
g) 内部审计	1	2	3	4	5	6	7
h) 在投资和确定价格时作损益平衡分析	1	2	3	4	5	6	7
i) 计算现值或内部回收率来衡量投资	1	2	3	4	5	6	7
j)控制存货，现金等. 并应用象模拟，线性规划等数学方法来安排公司日程	1	2	3	4	5	6	7

17. 一体化与协调

17.1 结构协调手段

为协调不同部门(如: 营销，生产)的决定，您用何种一体化的方法?

	很少使用						经常使用
a) 建立跨部门委员会以便协调各部门作联合决定	1	2	3	4	5	6	7
b) 建立临时特别工作组以协调各部门间在某一项目的合作	1	2	3	4	5	6	7
c) 设置专职协调人员以协调多部门间在某一项目的共同努力	1	2	3	4	5	6	7
	极少用委员会或不经常并非正规的合作						经常使用委员会而且/或有部门间非正规的合作
d) 有关产品，营销，和革新研究策略方面的生产或服务决定	1	2	3	4	5	6	7
e) 投资决定 - 即选择和融资长期投资	1	2	3	4	5	6	7
f) 长远规划 (如关于发展, 多种经营等) 以及改变公司运作宗旨的一系列决定	1	2	3	4	5	6	7

17.2 步骤协调手段

为协调不同部门(如: 营销，生产)的决定，您用何种一体化的方法？

	很少使用						经常使用	
a) 计划 - 以便各项决定协调在一个总计划下	1	2	3	4	5	6	7	
b) 部门领导间的讨价	1	2	3	4	5	6	7	
c) 各部门或多或少只作各自的决定，而不考虑其他部门	1	2	3	4	5	6	7	在多数决定中存在部门间的相互影响
d) 不同部门在其决定中经常缺乏之间的互补性	1	2	3	4	5	6	7	不同部门间的决定使其相互加强实力

18. 等级形式

1) 公司地点的数量: 贵公司有多少操作地点 (如: 工厂和分支机构)_____

2) 管理人员占全体职工的比率是多少?_____%

3) 纵向跨度中公司机构分多少层？即在生产或服务职责上，公司从基层人员到最高领导的层次(包括这两层在内)是多少?_____

4) 到何程度上您将下列职能承包给其他公司?

	全部自己做						已全部承包出去
a) 生产 (如: 零部件，等)	1	2	3	4	5	6	7
b) 组装	1	2	3	4	5	6	7
c) 后勤/运输	1	2	3	4	5	6	7
d) 革新研究	1	2	3	4	5	6	7
e) 市场营销与销售	1	2	3	4	5	6	7
f) 后勤服务	1	2	3	4	5	6	7
g) 人事管理	1	2	3	4	5	6	7
h) 安全	1	2	3	4	5	6	7
i) 财会与金融	1	2	3	4	5	6	7
j) 信息处理	1	2	3	4	5	6	7
k) 行政管理	1	2	3	4	5	6	7

19. 商业环境

1) 请就占贵公司年销售总额的百分比 (%) 最高的产业 (即最主要产业)回答下列有关变化程度和速度方面的问题. 除特殊注明外，所有问题都请圈划相应最接近实际情况的数码.

a) 本公司基本上不需要为跟上市场和竞争对手而改变经销方式.	1	2	3	4	5	6	7	本公司必须不断改变经销方式. (如: 每半年)
b) 在本产品/服务中的废弃率很低. (例如: 类似铜的基本金属)	1	2	3	4	5	6	7	象时装等更新换代率及高的产品.

c) 竞争对手的活动是很容易预料的. (由于是在基本工业中)	1	2	3	4	5	6	7	竞争对手的活动是几乎无法预料的. (例如: 时装产品)
d) 市场需求和消费者的爱好是很容易预测的. (如: 牛奶公司)	1	2	3	4	5	6	7	市场需求和消费者的爱好是几乎无法预测的. (例如: 时装产品)
e) 该生产/服务的技术已是非常完善, 无从变化的了. (如: 炼钢业)	1	2	3	4	5	6	7	生产/服务的方式常发生根本的更新. (如: 高级电子零部件)

2) 压制或妨碍公司发展的主要因素是什么？请衡量下列各因素影响企业年销售额增长的程度:

	不是重要障碍 ↓						公司发展的极大障碍 ↓
a) 资金不足 (如: 利润留存不足, 高额利息)	1	2	3	4	5	6	7
b) 缺乏有才能的管理人士 (如: 在需要管理新的或扩大企业风险时)	1	2	3	4	5	6	7
c) 缺乏投资或发展机会 (如: 由于市场停滞)	1	2	3	4	5	6	7
d) 缺乏非体力工作者的合作 (部门间的争论, 工作热情低)	1	2	3	4	5	6	7
e) 技术人员不足 (如: 科学家, 工程师, 会计师, 统计员等)	1	2	3	4	5	6	7
f) 政府规章 (如: 价格控制, 对扩建和多种经营的控制)	1	2	3	4	5	6	7
g) 经理阶层对公司发展所需改变的抵触 (如: 过多传统和保守的经理)	1	2	3	4	5	6	7
h) 通货膨胀率高	1	2	3	4	5	6	7
i) 雇员问题 (如: 消极滞工、怠工)	1	2	3	4	5	6	7
j) 基础建设设施不足 (如: 交通, 电力等)	1	2	3	4	5	6	7
k) 政治不稳定因素	1	2	3	4	5	6	7

3) 在如下方面政府法规, 条文, 或行为对贵公司施加何种影响？如哪条是无关的, 或毫无影响请圈划4. 这里政府指地方, 省, 中央, 及有关跨国机构.

	非常消极的影响 ↓						非常积极的影响 ↓
a) 有关工作条件的劳动规章制度	1	2	3	4	5	6	7
b) 反拖拉斯或反垄断的规定	1	2	3	4	5	6	7
c) 有关防止工业废弃物对环境影响的规章	1	2	3	4	5	6	7
d) 进出口关税	1	2	3	4	5	6	7
e) 税收减缓或津贴	1	2	3	4	5	6	7
f) 出口辅助(如: 政府提供一些出口优待政策)	1	2	3	4	5	6	7
g) 在指定区域运作的优惠	1	2	3	4	5	6	7
h) 工业方面的特种法规和管理机构	1	2	3	4	5	6	7
i) 广告宣传规定	1	2	3	4	5	6	7

Appendix I: List of companies in pilot test

(a) Mailed questionnaires

1. Jin Peng Dye Chemical Factory, Tongling City
2. Hunan Computer, Vice President, Changsha, Hunan Province
3. Wearnes Greatwall Circuits, Chairman, Changsha City, Hunan Province

(b) Personal face-to-face interviews

1. BJ Huajia Group (CEO)
2. BJ The China National Symphony Orchester (Vice President)
3. BJ China Audio & Visual Products Evaluation & Manufacturing Center (CEO)
4. BJ China Radio International (Vice President)
5. BJ Journal of Metallurgy Publisher (CEO)
6. BJ Magazine Office of Shoemaking Technology (Chief Editor)
7. Fujian Ricemaking Technology Institute, Director (visiting Beijing)

Appendix J: List of companies in survey

1. BJ Meishanzi Garment Manufacturing Ltd
2. **BJ Industrial and Commercial Bank of China***
3. BJ Chemical Reagents Co.
4. BJ Dongdi-Hongxia Garmet Ltd.
5. BJ SDX Joint Publishing Co (San Lian Shudian)
6. BJ Rongbaozhai Art Shop
7. BJ Yililan Down Products Factory
8. BJ Rainbow Hotel
9. BJ Metallurgical Journal Office
10. BJ Changping Electrical Machinery Plant
11. BJ Chinese Entrepreneur Magazine Office
12. BJ China Tourism Magazine Office
13. BJ China Art Gallery
14. BJ The Commercial Press
15. BJ Fangshan Restaurant
16. Zhong Hua Book Co.
17. BJ China Performing Arts Agency
18. BJ China Youth Publishing House
19. Hua Shen Monthly Office
20. Bank of China Trust Consulting Co.
21. BJ Magazine Office of Shoemaking Technology
22. Shanghai He De Electronics Ltd.
23. Shanghai East-China Computer Ltd.
24. Shanghai WuTai Construction Material Factory (Group)
25. Shanghai Nanhui Chemicals Factory
26. BJ Tianhe Restaurant
27. BJ Computer (hardware/software) Development & Consulting Co.
28. BJ Trade Co.
29. BJ IT Development Co.
30. SH Chuanbei Enterprise Ltd. Electromechanical Device Branch
31. SH Sheng Ge Bao Int. Trade Co.
32. SH Yongfeng Sofa Furniture Factory
33. SH Huazhong Furniture Ltd.
34. SH Tobacco Group
35. SH Eagle Winner Trade Inc.
36. SH Meisheng Garment Ltd.
37. SH Haidi Supermarket Ltd.
38. SH Rongji Soup Restaurant
39. SH Hua Da Trading Ltd.
40. SH Ming Eagle Technology Ltd.
41. SH Songjiang Qiaoyou Packaging Material Factory
42. SH Hengyuan Electromechanical Equipment Manufacturing Ltd.
43. SH Fivestar Automobile Equipment Ltd.
44. SH Jiang Wan Chemical Machinery Factory
45. SH Ming Guang Int. Group/Ming Guang Bedsheets Mill

46.SH No.12 Cotton Mill
47.SH No. 1 Woollen Mill
48.SH Compressor Co.
49.SH Asia Pacific Agricultural Chemical Group
50.SH Chengli Trade Co.
51.SH Welding Electrode Corp. Ltd.
52.Zhonghua No.1 Cotton Spinning & Knitting Mill
53.SH Blower Works
54.SH Electrical Appliances Ltd.
55.SH Machine Tool & Tool Ltd.
56.SH General Chemical Reagent Works
57.SH Automotive Electric Works
58.SH Cotton Mill No.19
59.SH Xingcheng Mechanical Equipment Ltd.
60.SH Arts and Craft Imp/Exp
61.SH Lighting Fitting Factory
62.SH Embroidery Factory
63.SH Radio No.17 Factory
64.SH Pacific Weaving Mill
65.Qing Pu Xian Storage Co.
66.SH General Carpet Factory
67.Crane Motor Works
68.SH Combustile Engines Co.
69.SH Industrial Sewing Machines Co.
70.SH Clock Factory
71.SH Special Rivet Factory
72.SH Leather Chemical Works
73.SH Art Colour Factory
74.SH United Timber Ltd.
75.SH Qian Jin "Progress" College (Qian Jin Group)*
76.SH Meiqin Paper Industry Ltd
77.SH Zhongshen Real Estate Industry Co.
78.SH Xing Long Plastic Package Factory
79.SH Jiading Shenguang Plastic Factory
80.SH Huabao Decoration Material Factory
81.SH Jinyang Restaurant
82.SH Zhongxin Trade Ltd.
83.Eureka Data System Center
84.SH Orient Int. Plaza Development Co.
85.SH Brother and Sister Group Ltd.
86.SH Bosheng Property Development Co.
87.SH Xingzhou Real Estate Investment Consulting Ltd.
88.SH Zhongxin Electronic Technology Ltd.
89.SH Xiaochao Enterprise Ltd.
90.Beijing East Sun Electric Co.
91.Beijing Gillicham Int. Econonomic Consulting Co.
92.BJ Fortune City Hot Pot Seafood Restaurant

93.BJ T&S Electronic New Technology Co.
94.BJ Foreign Languages Printing House
95.BJ Miqi Toys Ltd.
96.BJ China Kangli Enterprises Co.
97.BJ Advanced Medical Equipment Co.
98.BJ Damei Textile Group
99.BJ Daoxiang Chun Food Co.
100.BJ Century Taxi Co.
101.BJ Pharmaceutical Factory Pill Branch
102.BJ Hua Xia Hotel
103.BJ Zhonghong Fruit & Vegetable Product Development Co.
104.BJ No.1 Paper Mill
105.BJ Weihua Fine Chemical Ltd. Beijing Branch
106.BJ Yu Yang Hotel
107.BJ Shark's Fins King Restaurant Ltd.
108.BJ Mandas Real Estate Development Co.
109.BJ Yimingyuan Computer Technology Ltd.
110.BJ Guanghua Dyeing and Weaving Mill
111.BJ Yidan Packaging Design Ltd.
112.BJ Zhonghai Property Development Ltd.
113.BJ Baoding Yumin Aluminium Products Group
114.BJ Liheng Co. Ltd.
115.BJ Shengmingyuan Health Product Research Institute Co.
116.BJ Sanpu Advertising, TV and Film Co.
117.BJ Love More Business Investment Consulting Co.
118.BJ Detianhou Trade Ltd.
119.BJ Yihao Culture and Art Co.
120.BJ Yide Enterprise Co.
121.BJ Guangdongda Trade Ltd.
122.Beijing Bohong Enterprise Co.
123.Computer & Electronic Equipment
124.Techology & Environmental Consulting

*** Used for additional case analysis (bold)**

Appendix K: Choice of computer program

Given that the application of structural equation modeling is still relatively new, a few comments should be made regarding the choice of software program chosen for the analysis. For the purpose of this structural equation analysis, AMOS 3.61 was used (Arbuckle 1989; 1994; 1996; 1997; Rigdon 1994; 1996; Wothke and Arbuckle 1996; Maruyama 1998). Although relatively new to the field, it has been applied in a fair number of studies (Prave and Baril 1993; Konrad and Brown 1993; Brill 1994; Keith et al. 1995; Keith et al. 1996; Wothke 1996; McGrew et al. 1997; Rosen 1998; Owens and Newbegin in press). It was originally used as a teaching device for structural equation modeling and has the following attractive features:

(a) It allows for stacked subgroup comparisons in one file using the same or different model specifications.

(b) In addition to the traditional Maximum Likelihood estimation method (ML), a bootstrapping (Normal-theory Monte-Carlo simulation) facility offers the opportunity to extract large numbers of random samples and replicate the model estimation procedures. This generates probability distributions for standard errors of parameters which can be compared to the ones obtained from ML. The parameter estimates themselves can also be compared to the ML results. It also computes standard errors for some parameters for which there is no formula of standard error, such as the multiple coefficient of determination and standardized coefficients. Standard errors can then be used to assess the significance of the parameters. Bootstrapping can also be employed for model comparisons. In case of distributional problems, i.e. violation of the multivariate assumptions of ML based techniques, the bootstrapping method can still be used. It is thus more robust in case of non-centrality of parameters. In more general terms, using bootstrapping, the ML *method* can be compared to other estimation methods to make sure that it is actually the most efficient method.

(c) Moreover, intercepts can be modeled in AMOS. It thus allows for *mean* or nested mean comparisons. This is an important feature for the comparison of companies from different subgroups.

(d) Further, due to its previous use as teaching device, it has a very well devised graphical interface.

(e) Finally, it can be used as a module for SPSS and thus allows for easy data transfer.

Appendix L: Detailed non-response analysis

Table 10-16 Non-response analysis for state enterprises

#	State	Location	Industry	Size	Reason for non-reponse
1	China National Salt Corporation	Beijing	Basic materials	250	Administrative unit, not company
2	Central News and Documentary Studio	Beijing	Media & Entertainment	200	CEO has no time
3	Bank of Communications	Shanghai	Diversified Financial Services	80,000	Foreign affairs office required monetary incentive
4	China Gas Supply Company	Shanghai	Basic materials	1,000	CEO has neither time nor interest
5	Beijing Plastic Co.	Beijing	Manufacturing	300	CEO out of town, vice president worries about his lack of authority to participate in interview
6	Sinopec International	Beijing	Basic materials	2,000	Company in structural change and therefore does not want to release data
7	China International Television Services Co.	Beijing	Miscellaneous services	n/a	Changed address (new address not registered in telephone directory)
8	China Timber Corporation	Beijing	Basic materials	1,500	Confidentiality reasons
9	Beijing New Star Wholesale and Retail Ltd.	Beijing	Miscellaneous services	80	Business closed down
10	Beijing Arts & Craft	Beijing	Consumer goods	800	Does not want to release information for competitive reasons
11	Shanghai Marble Stone Factory	Shanghai	Manufacturing	n/a	Changed address (new address not registered in telephone directory)
12	Fengxian Fertilizer Factory	Shanghai	Manufacturing	n/a	Changed business line (now transportation company)
13	Heng Shan Hotel	Shanghai	Miscellaneous services	800	Last minute cancellation, not possible to rearrange appointment with CEO
14	Shanghai Biochemical Pharmaceutical Factory	Shanghai	Manufacturing	136	Started interview, but could not complete, CEO promised to send questionnaire, but failed to do so
15	Yimin Food Multi-Processing Factory	Shanghai	Manufacturing	280	CEO accepted interview, but then asked me to buy a foreign-made TV for him as a precondition for answering the questions
			Average	7,279	
			Standard deviation	22,909	

Table 10-17 Non-response analysis for private enterprises

#	Private	Location	Industry	Size	Reason for non-reponse
1	Shanghai Silk Fashion Boutique	Shanghai	Miscellaneous services	50	"We have no interest in these kinds of things"
2	Shanghai International Intellectech Corporation	Shanghai	Miscellaneous services	100	Company policy restricts release of information
3	Belley Real Estate Consultants	Shanghai	Miscellaneous services	80	CEO inaccessible, vice-president has no authority to answer questionnaire
4	Yilufa Garment Co. Ltd.	Beijing	Consumer goods	150	CEO out of country, no vice presidents
5	Tianlun Property Development Ltd.	Beijing	Manufacturing	30	CEO not interested in academics, wants to do business
6	Beijing Intec Information Network Centre	Beijing	Miscellaneous services	40	Prerequisite for participation in research: Doing business together
7	China National Investment & Guarantee Group	Beijing	Diversified Financial Services	250	Confidentiality
8	Beijing Tian Jie Air Pollution Control Technology Co. Ltd.	Beijing	Manufacturing	60	Top management has no time ("Let's do it later ...")
9	Sino-American Shanghai MAX Food Co. Ltd.	Shanghai	Consumer goods	100	"Sorry, too busy"
10	Ai Ai Rosewood Furniture	Shanghai	Miscellaneous services	50	CEO on overseas vacation, no vice-president
11	Asia Pacific World-wide Mover Ltd.	Shanghai	Miscellaneous services	70	Accepted meeting, promised to finish questionnaire, but did not return despite follow-ups
12	J&A Securities Cor. Ltd.	Shanghai	Diversified Financial Services	200	Confidentiality
13	Nanyuanmeng Coffee Co.	Shanghai	Miscellaneous services	50	Required purchase of products as prerequisite for participation
14	Shenzhou Accounting Co.	Beijing	Diversified Financial Services	30	"Research irrelevant", CEO thinks company should not be target of research
15	Shanghai Pacific Rim Law Firm	Shanghai	Miscellaneous services	36	Managing Partners on business trips to other cities in order to close deals
16	Shanghai Sanying High Technology Architecture Ltd.	Shanghai	Miscellaneous services	24	CEO "not interested"
17	Shanghai North-South Steelparts Ltd.	Shanghai	Manufacturing	300	"Let's set up a joint venture first, and then I will answer the questionnaire"
18	Shanghai Tichang Decoration Engineering Ltd.	Shanghai	Manufacturing	n/a	CEO "busy"
			Average	95	
			Standard deviation	66	

Appendix M: Discussion of statistical choices for scale construction

1. Emphasis on Chinese cultural characteristics

Estimation method: The ML method was chosen here because this approach (as well as General Least Square) is a full information estimation method, as compared to Partial Least Square, which does not use the full information available. It has been shown that ML yields parameter estimates which are most efficient, as well as unbiased and consistent (Schumacker and Lomax 1996 p. 125).

Extraction method: Factor analysis, as compared to component analysis, tests the hypothesis that a certain number of latent factors exists which adequately account for the interrelationships of the variates, though not their full variation (Everitt and Dunn 1991 p. 254). It models random error and measures specific variance (Anderson and Gerbing 1988). It is the best estimate of the observed variables' covariance structure. Equally important is the fact that it allows for a test of the overall model fit and number of factors needed. It also yields the most efficient parameter estimates. It is chosen for "emphasis on Chinese cultural characteristics" because it is most useful for theory testing and development. It is thought that this merit outweighs the following disadvantages: (a) The amount of variance explained in observed variables is not necessarily maximized and not a primary concern, and (b) there is an inherent indeterminacy in the estimation of factor scores, both aspects making it less suitable for prediction and application. Having mentioned all these differences, it is important to note that in practice, both methods often show relatively similar results.

Number of extracted factors: As regards the number of factors to be extracted, there are at least two approaches: The first method excludes those factors whose Eigenvalues are less than the average, i.e. less than one if the components have been extracted from the correlation matrix. This rule was originally put forward by Kaiser (1958). In addition, Cattell (1965) suggested the examination of a plot of Eigenvalues against the number of common factors *i* and selecting as the number of components the value of *i* corresponding to an 'elbow' in the curve, i.e. the point where "large" Eigenvalues cease and "small" Eigenvalues begin. Such a diagram is generally known as a "scree" plot.

Rotation method: Using factor rotation, the factor loadings are transformed by post multiplying the loading matrix by an orthogonal vector. The result is a more easily interpretable solution, since a pattern of loadings is identified which Thurstone (1931) referred to as "simple structure". As a result, the observed variables fall into mutually exclusive groups whose loadings are high on single factors, perhaps moderate to low on a few factors and of negligible size on the remaining factors. The most common rotation approach uses the Varimax technique originally proposed by Kaiser (1958). The rational for its common use is the fact that it provides factors with a few large loadings and as many near-zero loadings as possible, accomplished by an iterative maximization of a quadratic function of the loadings.

2. Subcontracting

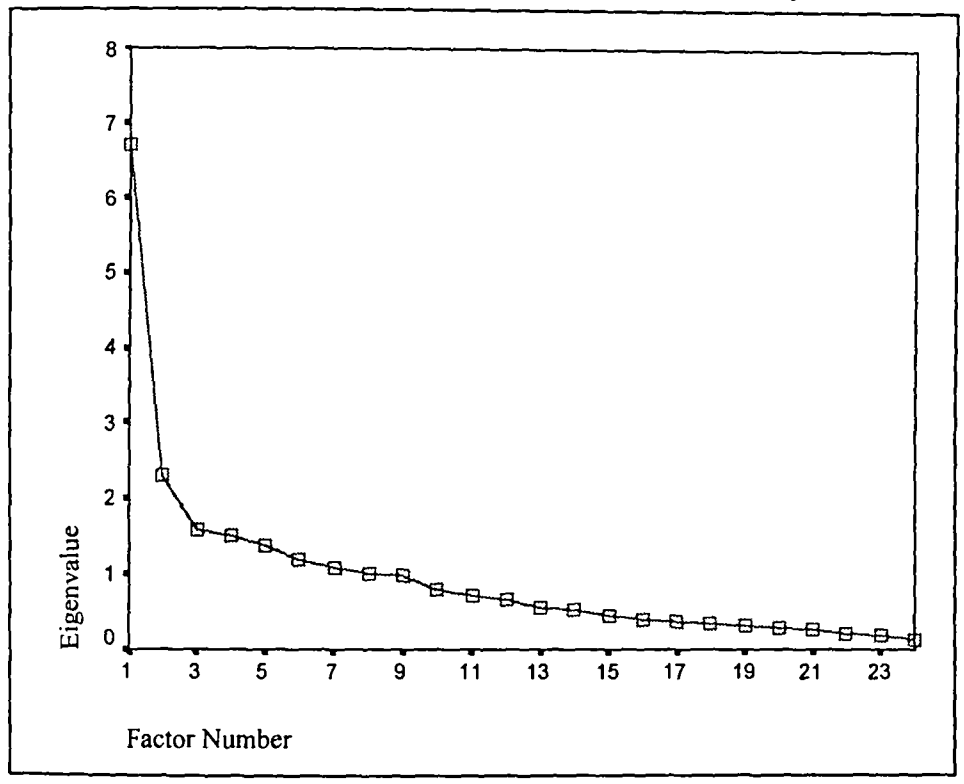
Extraction method: In principal component analysis, the variation of a set of multivariate data is described in terms of a set of uncorrelated variables each of which is a particular linear combination of the original variables. The components are computed in decreasing order of importance and the first principal component accounts for as much as possible of the variation in the original data. If the first few components extract most of the variation in the original data, they can be used to reduce the dimensionality of the original data with little loss of information, which will simplify later analysis (Everitt and Dunn 1991 p. 45). Since the method maximizes the variance explained in observed or latent variables, is allows for exact definitions of component scores and resulting exact prediction. However, it does not model random or measure-specific error (Hemmelgarn et al. 1995 p. 123) and does not allow to rigorously assess fit. The only measure of "fit" is the overall variance explained. To summarize, principal component analysis is thus a mere transformation of the data without making any assumptions about the form of the covariance matrix from which the data arises. It is best used for prediction and application.

Appendix N: Scale validation for corporate culture

The items for corporate culture were obtained from Handy's (1987) questionnaire. He claimed that the item set would measure four distinctive dimensions of corporate culture, i.e. power, role, task and personal culture. Handy used an ordinal scale which forced respondents to order their answers on multiple sets of four items, with each of the four items measuring one dimension. This procedure "guaranteed" that the four dimensions actually appeared when the results were added together. A more conservative approach was adopted here which used 7-point Likert scales for each item and thus left the respondent with an open choice. In addition, instead of scoring a new scale without prior validation, factor analysis was used. This tougher approach in terms of scaling and testing made it theoretically possible that the four dimensions would not manifest themselves.

To test this proposition, all corporate culture items, i.e. questionnaire sections 8.2.1-8.2.6 (*see* Questionnaire), were used as input for a Maximum Likelihood factor analysis. The extracted factors were then Varimax rotated. Factors were extracted for Eigenvalues greater than one in combination with the scree test. The scree plot is shown in Figure 10-1 below:

Figure 10-1 Scree plot for corporate culture factor analysis



Overall, there were *eight* factors which had Eigenvalues greater than one. This could mean that either corporate culture consists of more than four dimensions and Handy's theory has to be rejected or that the validity of the scale is doubtful. Inspection of factor loadings could not reveal the four dimensions either, i.e. there were no factors with consistently high loadings on one dimension and low on all the other three modes of corporate culture. Therefore, due to the apparent lack of validity, judged from a conservative standpoint, it was deemed necessary to exclude this scale from the quantitative analysis.

This analysis thus yielded some important findings regarding the measurement of corporate culture. Scales should not force the respondent to make choices which he would not make when allowed to answer freely. In addition, new scales have to be validated and cannot simply be scored without such prior analysis. Handy's measurement of corporate culture thus disguised its underlying psychometric problems by using the "forced" choice approach and not performing, for example, factor analysis to validate the scale.

Appendix O: Industry and geography structural profiles

Figure 10-2 Comparison of profiles for industrial (first row) and service companies (second row)

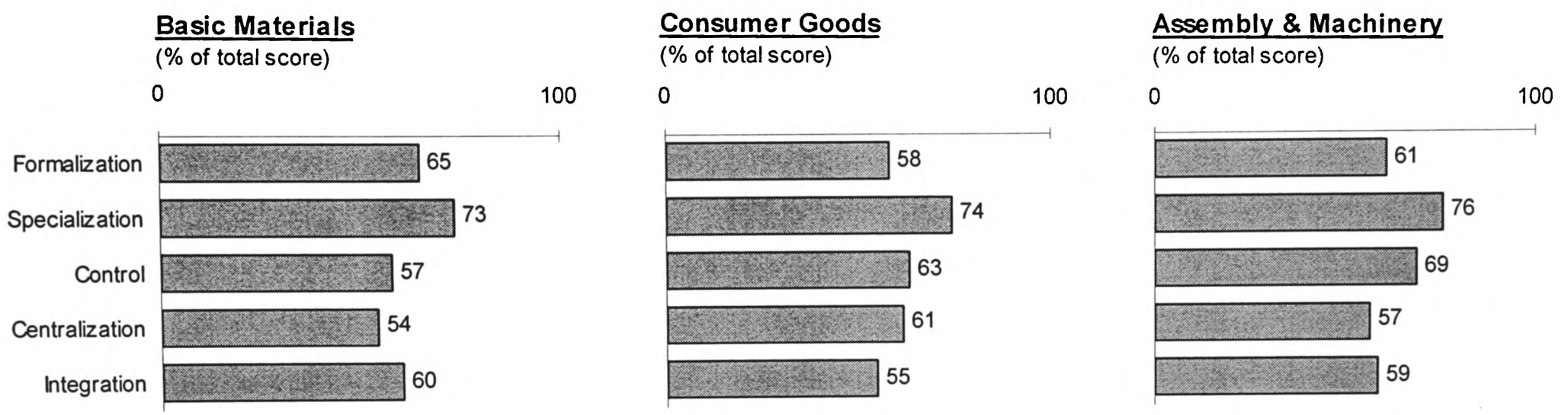


Figure 10-3 Managerial profiles for industry

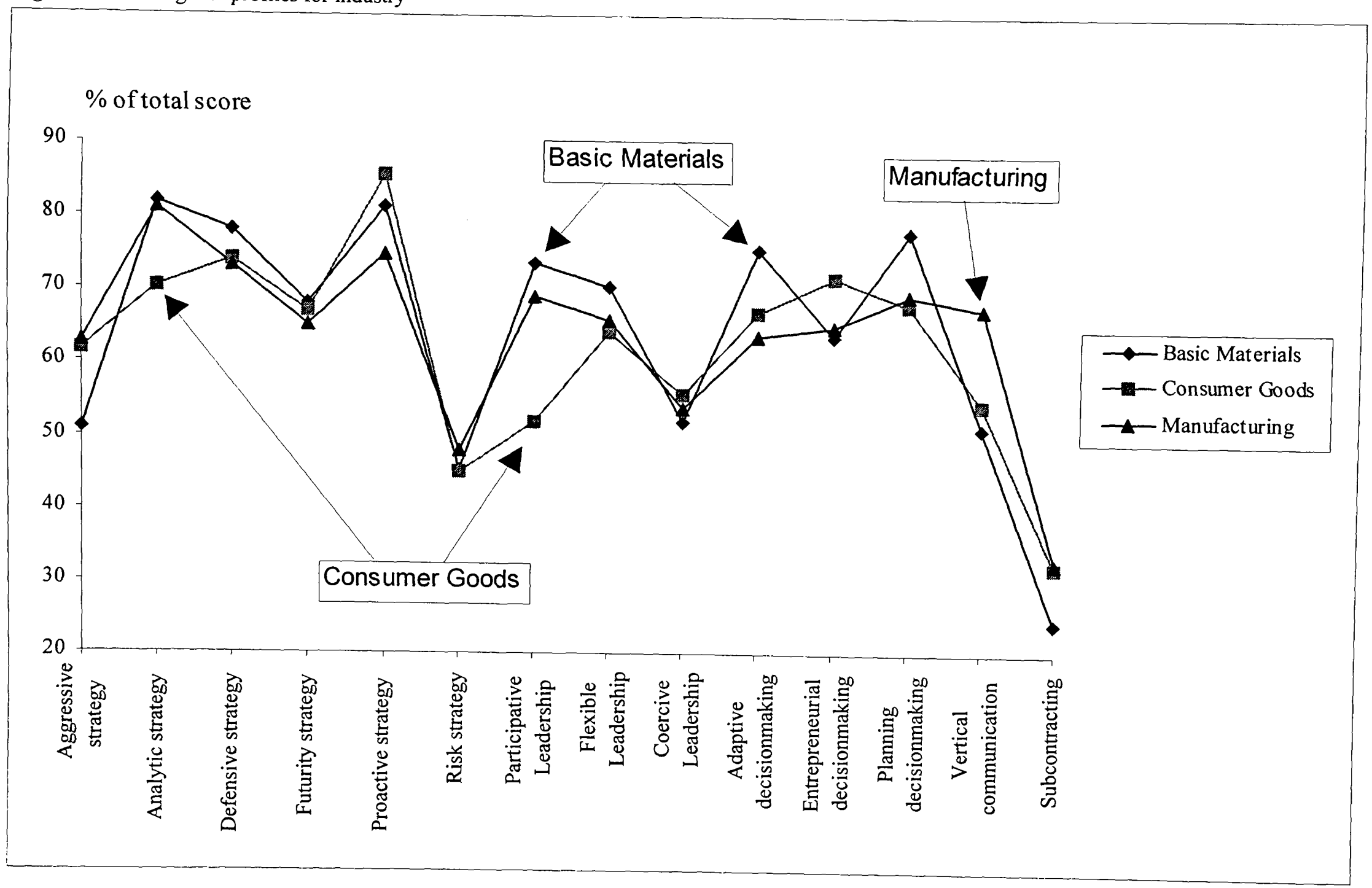


Figure 10-4 Managerial profiles for services

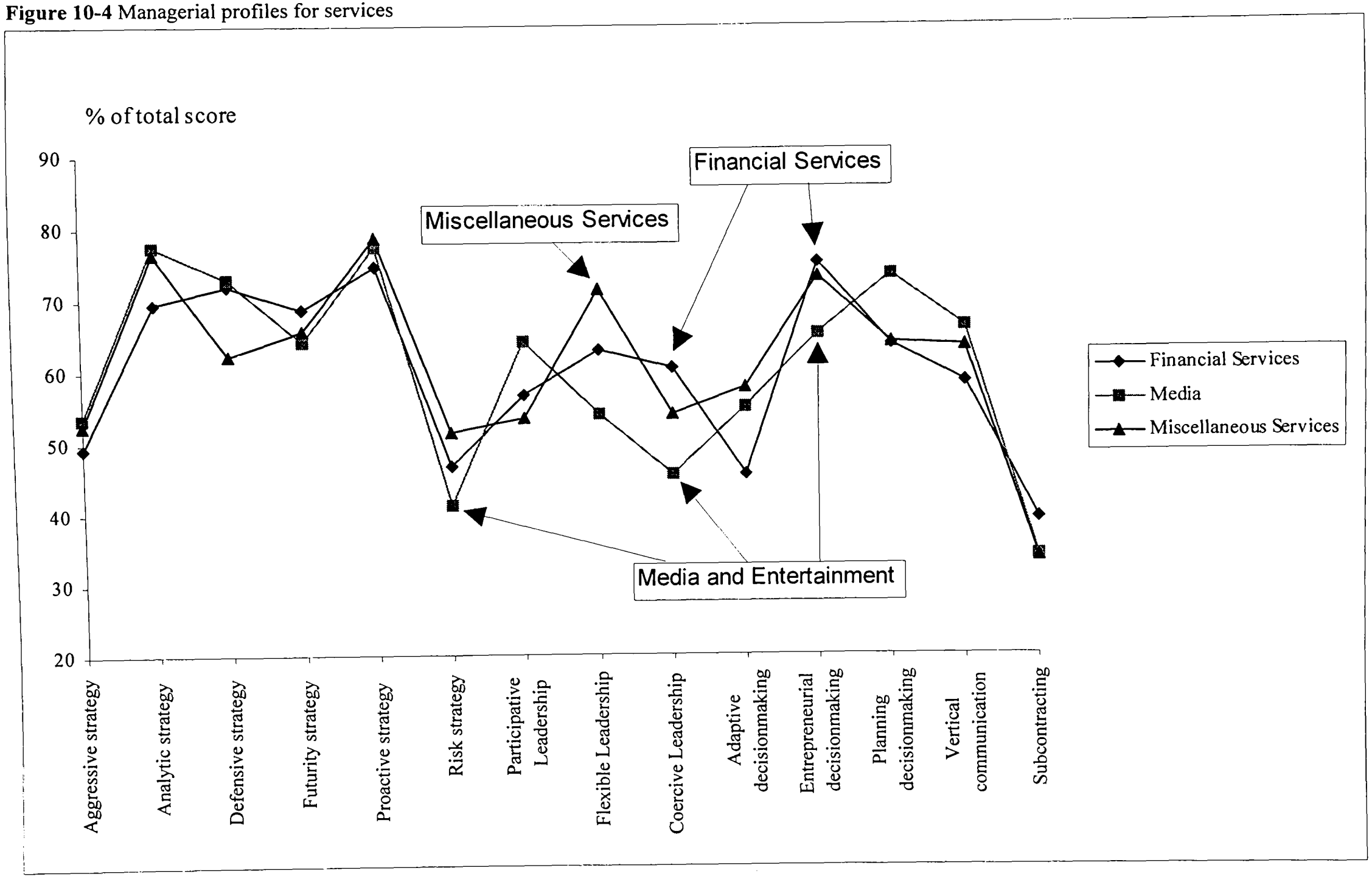


Figure 10-5 Comparison of managerial profiles for industry and service sector

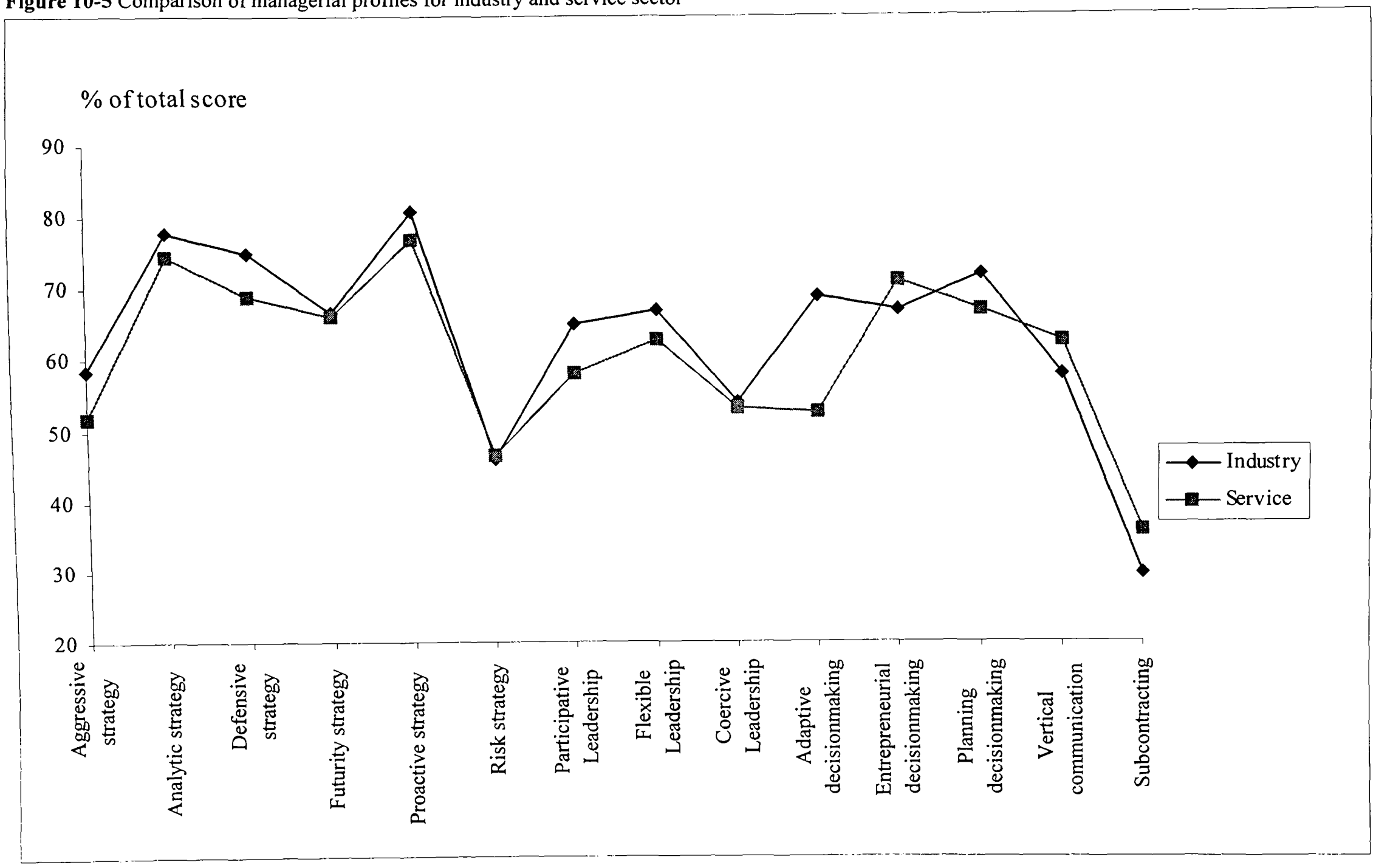


Figure 10-6 Comparison of structural profiles in North and South

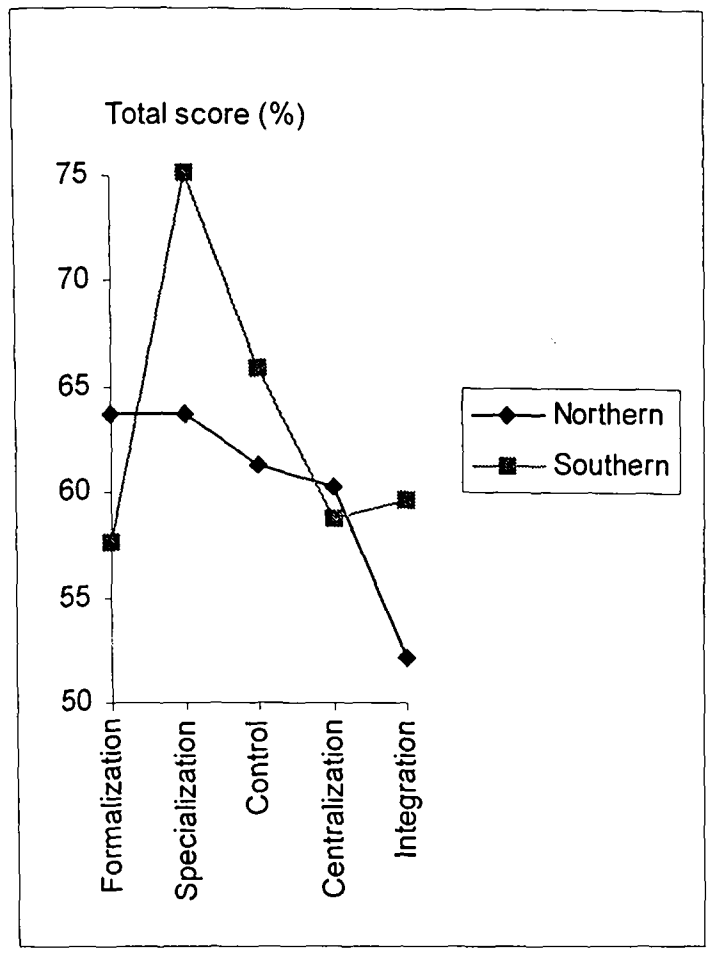


Figure 10-7 Comparison of specialist roles in companies located in the North and South of China

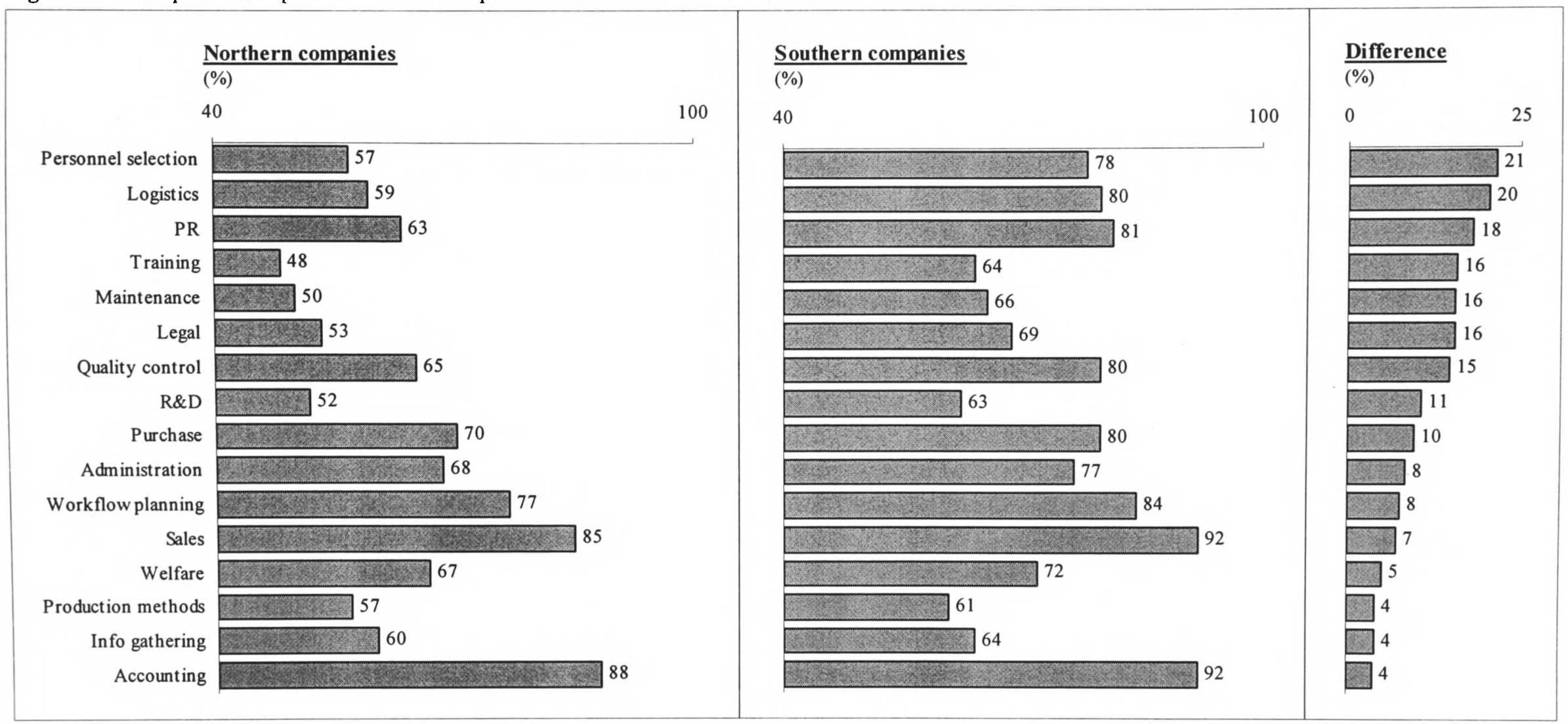
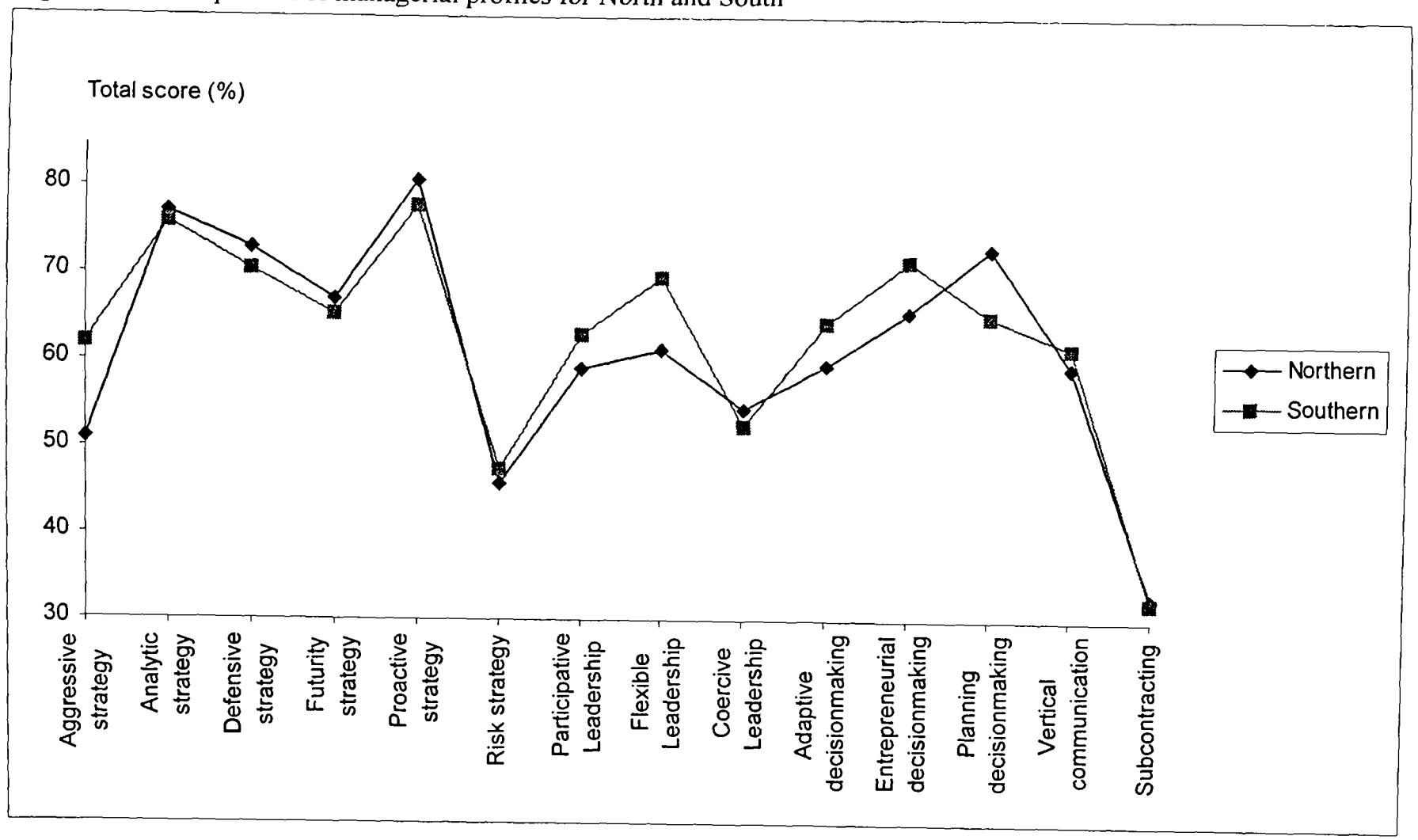


Figure 10-8 Comparison of managerial profiles for North and South



Appendix P: International mean comparisons

We mentioned in previous chapters that writers on *Nanyang* management often did not exactly clarify the benchmark compared to which the style was thought to be distinctive. Our main argument was that the private Chinese management style is different from the structure and management in state enterprises. Besides, in international terms, there is a lack of research which compares the mean levels of the different dimensions of private Chinese management to private companies from other Western countries (excluding Chinese overseas companies).[1] Therefore, in this study, after having identified a distinctive management model through comparisons with state enterprises and case illustrations, we will now move on to perform such an international comparison of mean structural scores between the private Chinese sample and private enterprises in other countries. Given that size could not be held constant, this comparison is highly exploratory in nature and does not allow for strong conclusions. Due to this exploratory character, we decided to place this analysis in this Appendix.

1. Overview of approach

To get some more evidence as to whether the structural choices of private enterprises are also distinctive from an international perspective, a cross-national analysis was performed. In general, in cross-national comparisons, organizational properties can be analyzed from two different angles. First, the *mean* scores on the dependent organizational variables can be compared across countries. Secondly, the *relationship* between context and organizational properties can be examined (Hickson et al. 1974a p. 5), both in terms of the direction of signs and absolute magnitude. In this section, we will present the findings of the mean comparisons. Given that there is a lack of comparative international data using Khandwalla's management scales, the cross-national analysis will focus on organizational structure. In Chapter 7, we presented the results of comparisons regarding the relationships between context and structure.

The Aston hypotheses on organizational structure have been tested in 14 countries in different geographic zones all over the globe. In our comparison, we will focus on one or two studies from each major geographic zone which, according to the members of the "Fourth Generation Aston Research Team" (Hickson and McMillan 1981b p. xvi), were considered representative and prominent studies. The selection of comparative Aston studies for the mean and correlation comparisons (chapter 7) is presented in Table 10-18 on the next page.

We used meta-analysis (Strodtbeck 1964; Donaldson 1986; Miller 1987) to compare the international studies with the mean structural scores of the private Chinese sample. As regards the mean comparisons, this meta-analysis is more comprehensive than previous studies which usually focused on only three studies at a time. To provide some methodological context for the following analysis, it is important to briefly review some important issues in meta-analysis.

---

[1] The same is true for international correlation comparison between context and organizational properties, the findings of which we reported in chapter 7.

Table 10-18 Overview of Aston studies for international comparisons

Geographic area	Country	Study
1. North America	US	Inkson *et al.* (1970)
	Canada	McMillan *et al.* (1973)
		Miller (1986)
		Clark (1990)*
2. UK	Britain	Inkson *et al.* (1970)
3. Continental Europe	Germany	Child *et al.* (1979)
4. Eastern Europe	Poland	Kuc *et al.* (1980)†
5. Middle East	Jordan	Ayoubi (1981)
5. Africa	Egypt	Badran *et al.*(1980) †
6. Asia-Pacific	India	Shenoy (1981)
	HK	Wong *et al. al.* (1994) ‡
	Japan	Horvath *et al.* (1976)

* Sample only includes companies in the Canadian textile industry.
† Sample focuses on state-owned enterprises
‡ Sample only includes multinational banks in Hong Kong

The goal of meta-analysis is the cumulation of knowledge across studies using quantitative methods (Miller 1987 p. 313). Overall, across studies, there are two sources of variations causing differences in the correlation between two variables (Hunter and Schmidt 1982 p. 47), i.e. statistical artifacts (Schmidt and Hunter 1981; Miller, Anderton and Conaty 1985) and moderator variables. The purpose of meta-analysis is to isolate variance across studies that is due to real moderator variables. Most of the issues related to artifacts in terms of different measures and samples, with the exception of the comparatively small size of Chinese private firms, could be overcome as will be shown below:

Measures: Most importantly, researchers used different versions of the Aston scales, such as the original version (Pugh et al. 1968) as well as the subsequently abbreviated schedule (Inkson, Pugh and Hickson 1970). Further, in many cases individual items were deleted. It took quite some "detective" work to rediscover the maximum scores for each scale. Based on the maximum scores the scales could be standardized to 100% allowing for international comparisons. Interestingly, other researchers, in their comparisons, did not readjust the scales. Instead they presented a relatively meaningless *unstandardized* comparison. In one example, when discussing the fact that the scores on specialization and formalization obtained in the study of Jordanese companies were strikingly lower than in similar studies, the researchers explained that one of the reason was "technical", i.e. they explained that "the revised scales, containing fewer items than the Aston standard scales, would lead to relatively lower scores" (Ayoubi 1981 p. 103). In more general terms, it was important to go back to the original sources, since some of the reported numbers from other studies were actually incorrect. In some cases, it was not possible to re-establish the maximum scores for individual scales. These scales were therefore not included in the analysis. In addition, some of these studies did not include all structural scales.

The following are studies which did not allow for comprehensive use of scales:

a) The Jordan study (Ayoubi 1981) eliminated items from the formalization scale. Given the fact that some of these were not bi-item and we did not know which items were deleted, it was therefore not possible to reconstruct this scale.

b) Miller and Droege's (1986) study used a recoding mechanism for the centralization scale which was not explained.

c) In the Egypt study (Badran and Hinings 1980), the maximum score for centralization could not be re-computed.

d) The German study (Child and Kieser 1979) did not include information on mean scores and could not be included in this section's analysis. It was, however, used for the correlation comparison.

e) The data for the Canadian study (McMillan et al. 1973) only included results on formalization and specialization. For centralization, Clark's (1990) mean scores were taken which were confined to the textile industry.

f) The Hong Kong study (Wong and Birnbaum-More 1994) only included multinational banks in its sample and was therefore not included in the mean comparison.

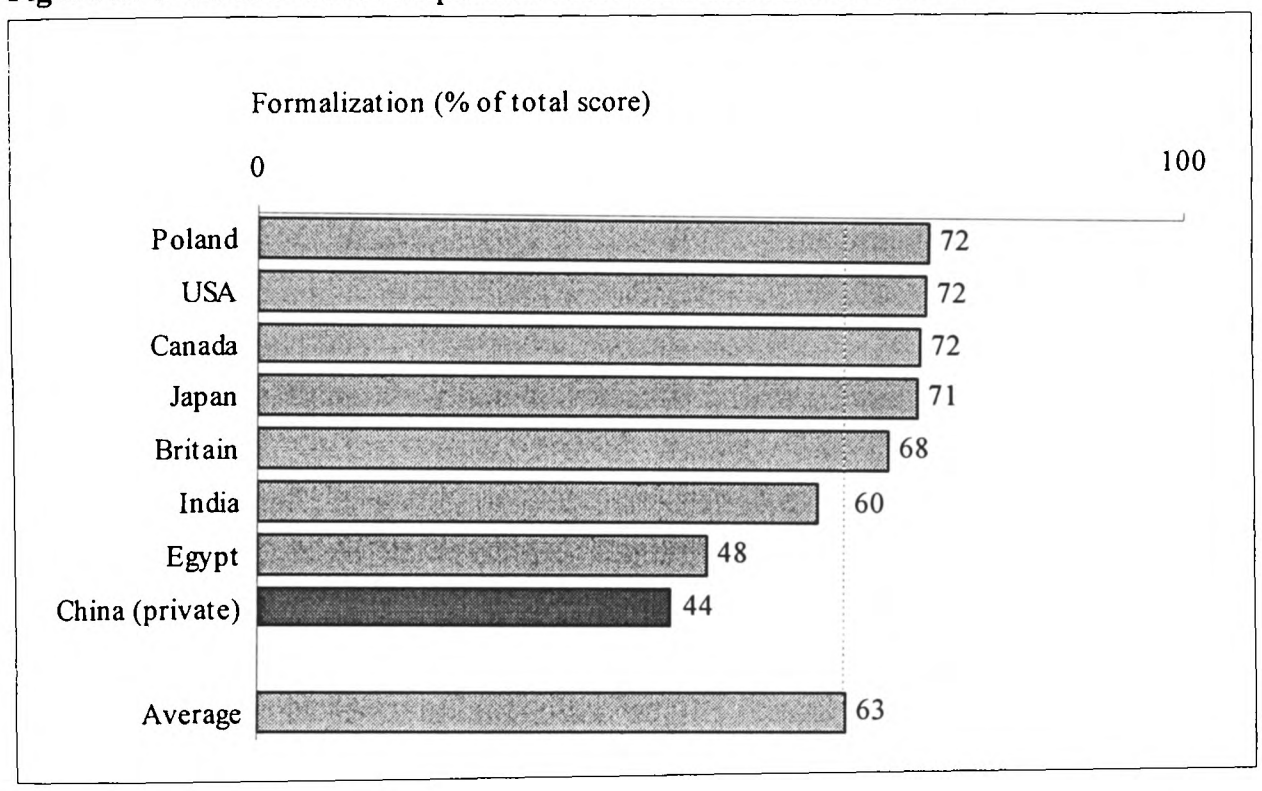
Sample: Hickson *et al.* (Hickson and McMillan 1981a p. 188) pointed out that no subsequent study has equaled the random sample of organizations of "most conceivable kinds" covered by the original Aston project (Pugh and Hickson 1976). However, the sample structures of the other international studies where comparable in terms of size (with the exception of Jordan) and focus on the manufacturing sector (Hickson and McMillan 1981a p. 188), thus excluding several potential artifacts. However, the average size of Chinese private firms was much smaller than that of other international companies. As mentioned above, the results are therefore exploratory in nature. Moreover, data was collected at different time intervals and we cannot tell with any degree of confidence whether and, if yes, how structure changed over time in the different countries. However, incidentally, this time difference might make the findings *more* comparable, given that the Western industrialized countries in these earlier periods might have been more comparable to the stage of economic development in which China is at the moment. In addition, previous Aston studies also compared data collected in different time periods. Apart from this, in some cases there were more than one study conducted in one country with slightly different mean results. Inclusion of only one sample in the comparison thus did not incorporate these relatively small differences. Finally, given that the sample size of several studies was relatively low, there was a potentially high standard error. Though we could accurately assess the probability of Type I error through significance tests, the probability of Type II errors, i.e. the probability of accepting the false null hypothesis of no mean differences, was therefore increased due to this lack of statistical power. As a consequence, a few still relatively large differences were not statistically significant.

2. Results

The results of the structural mean comparison are presented in Table 10-19 on the following page. In each case, the table presents the comparison of standardized mean scores between the private Chinese subgroup and the respective international sample. Most countries had predominantly private companies (except for Poland and Egypt) and therefore, in terms of ownership, were good comparisons to the Chinese private enterprises. To test the significance of mean differences, *t* test were computed. In cases where Levine's F statistic was significant, the hypothesis of equal variances was rejected and the *t* test for unequal variances was used. In all other cases, the *t* test for equal variances was computed. The statistical formulae used are reported in Appendix D.

The results relating to the international comparison of private Chinese and other international companies for the Aston *formalization* scale are presented in the structural profile (Figure 10-9) below:

Figure 10-9 International comparison of Aston formalization scores



The empirical results related to this comparison seem to support the notion of a distinctive Chinese management style. More specifically, compared to all other countries, Chinese private companies scored lowest on the formalization scale ($\bar{x}$=44%). As shown in Table 10-19, with the exception of Egypt, all mean differences between Chinese enterprises and other international companies were statistically significant with *t*-values ranging from -2.90 ($p<.01$) to -4.86 ($p<.001$). These findings show that Chinese private firms tend to be distinctive in their low degree of written procedures and formal rules. They tend to rely more on personal control by the owner-manager. However, once again, though these mean levels differ significantly, the reasons for this difference cannot be finally determined given that company size could not be held constant.

Table 10-19 Mean difference test for international comparison of Aston structural scales (Chinese private enterprises)

Country	Study	Formalization						Specialization					Centralization				
		N (n)	$\bar{x}$	s	Max	Score (%)	*t*	$\bar{x}$	s	Max	Score (%)	*t*	$\bar{x}$	s	Max	Score (%)	*t*
China (P)	Schlevogt, 1998	47	8.40	5.13	19	44	n/a	10.00	4.45	16	63	n/a	34.80	7.68	55	63	n/a
USA	Inkson *et al*, 1970	18	14.40	3.40	20	72*	-4.85•••	11.00	4.00	16	69	-0.83	n/a	n/a	n/a	n/a	n/a
Canada	McMillan *et al*, 1973	24	14.30	3.80	20	72*	-4.86•••	13.04	1.80	16	82*	-4.02•••	n/a	n/a	n/a	n/a	n/a
Canada (T)	Clark, 1990	47	20.00	8.70	38	53	-1.63	7.00	†	16	44	n/a	110.00	16.00	185	59*	1.57
Britain	Horvath, 1976	12	27.90	7.20	41	68	-2.90••	7.50	3.30	16	47	1.82	118.50	12.70	185	64*	-0.27
Poland	Kuc *et al.*, 1980	11	29.60	8.60	41	72	-3.21••	12.80	2.30	16	80*	-2.86••	172.60	16.40	185	93*	-8.63•••
Jordan	Ayoubi, 1981	34	n/a	n/a	n/a	n/a	n/a	4.03	3.33	13	31	5.20•••	93.03	8.41	130	72*	-3.53•••
Egypt	Badran, 1980	31	9.20	2.50	19	48*	-0.91	12.60	1.70	16	79*	-3.58•••	94.09	9.80	185	51*	5.46•••
India	Shenoy, 1981	11	34.30	5.80	57	60*	-3.12••	7.10	1.70	16	44*	3.42•••	n/a	n/a	n/a	n/a	n/a
Japan	Horvath, 1976	11	29.20	9.30	41	71	-3.07••	8.30	2.90	16	52	1.20	121.70	25.00	185	66*	-0.53

•$p < .05$; ••$p < .01$; •••$p < .001$ (two tailed).
* Levene's F test significant, therefore inequal variance *t*-test used
† Standard deviation not published

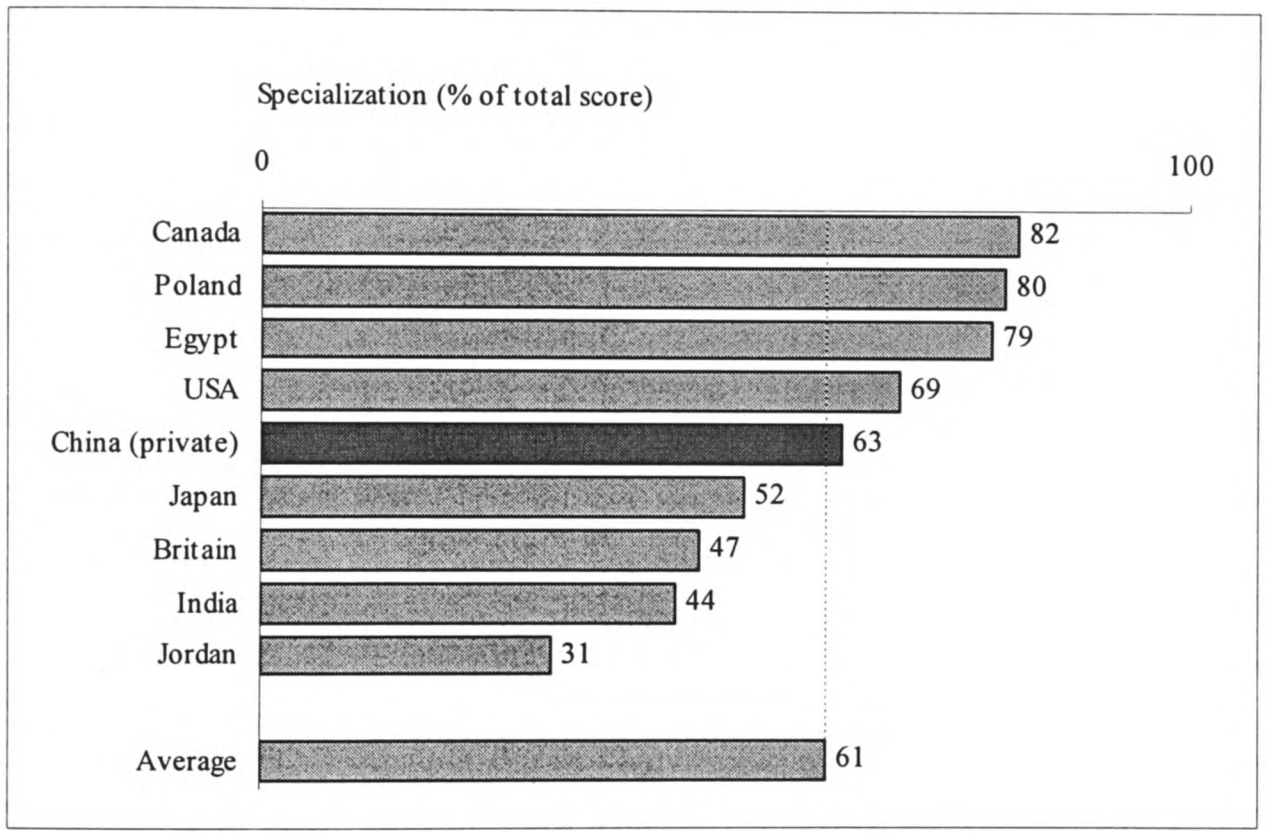
Where:

P	=	Private Chinese enterprise sub-sample
T	=	Textile industry only
N (n)	=	Total sample size (subgroup)
$\bar{x}$	=	Mean
s	=	Standard deviation
Max	=	Theoretical maximum score
Score	=	Mean score (=Mean/Max*100)
t	=	*t* statistic for mean difference (private Chinese sub-sample used for baseline comparison)
p	=	Significance of *t* statistic

It is interesting to note that the scores of private Chinese companies are close to the means of other developing countries, i.e. Egypt, India and, though not included in the formal comparison due to changes in the scale, Jordan, which was also reported to be low on formalization (Ayoubi 1981). In the case of Egypt, the researchers highlighted that they could not find any formalization of such things as research and production programs, concluding that these companies tended to resemble "personnel bureaucracies" (Badran and Hinings 1980 p. 127). In contrast, the more developed countries tended to score higher on the formalization scale, maybe reflecting their greater sophistication in terms of rules and procedures. The *standardized* scores also replicated the findings of McMillan *et al.* (McMillan et al. 1973 p. 43) who, using unstandardized scales, had emphasized that the US scores higher than Britain on formalization. The main difference was the fact that the British companies had fewer direct role-defining documents such as operating instructions, manuals of procedures, job descriptions, written policies, and production schedules.

Research findings with respect to the international comparison of *specialization* scores are presented in Figure 10-10 below:

Figure 10-10 International comparison of Aston specialization scores

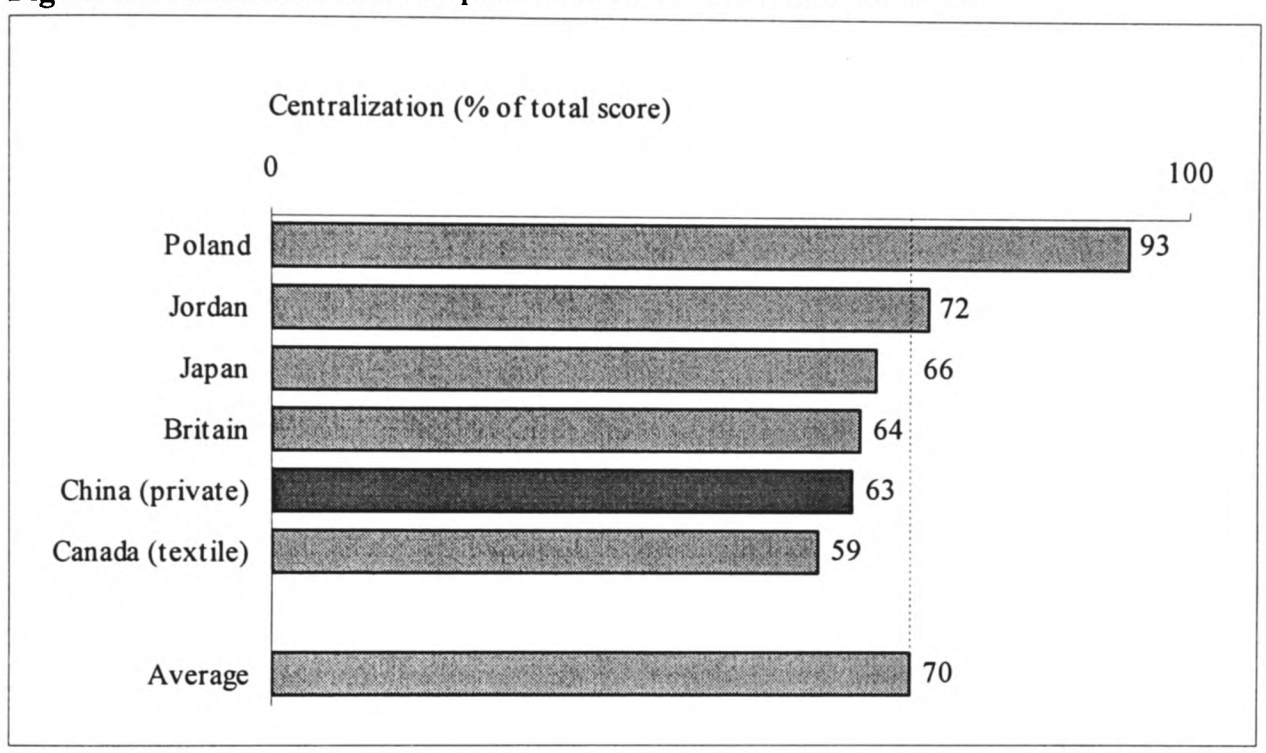


The results do not show a very distinctive low structural profile for Chinese private companies with respect to specialization. Private enterprises in China ($\bar{x}$=63%) are located somewhere in the middle between extreme cases such as Canada ($\bar{x}$=82%) and Jordan ($\bar{x}$=31%). With the exception of the US, Britain and Japan, all other mean differences were statistically significant with *t*-values ranging from -2.86 (p<.01) to 5.20 (p<.001). A possible explanation for the findings might be the fact that private Chinese entrepreneurs, though displaying a strong distaste for red tape, might still strive for some degree of professionalism. This might be a "loose coupling" external legitimization strategy to conform to the environment's expectation of solidity. They might try to attain this high level of expertise by employing a very limited number of specialists in the various sophisticated fields of management.

With respect to the other companies in the "ranking", in the Canadian case, the strong specialization was thought to be due to the complexity of the geographic market to be served, leading to particular strong scores on marketing and sales related activities (McMillan et al. 1973 p. 43). As far as Jordan is concerned, researchers pointed to the fact that industrial organizations in this country are relatively new forms of organizations in a traditional society in which, until recently, the dominant social organization was family and tribe. They are at the early stages of bureaucratization and thus showed comparatively low specialization scores (Ayoubi 1981 p. 103).

The empirical results of the international comparison of Aston *centralization* scores are presented in Figure 10-11 below:

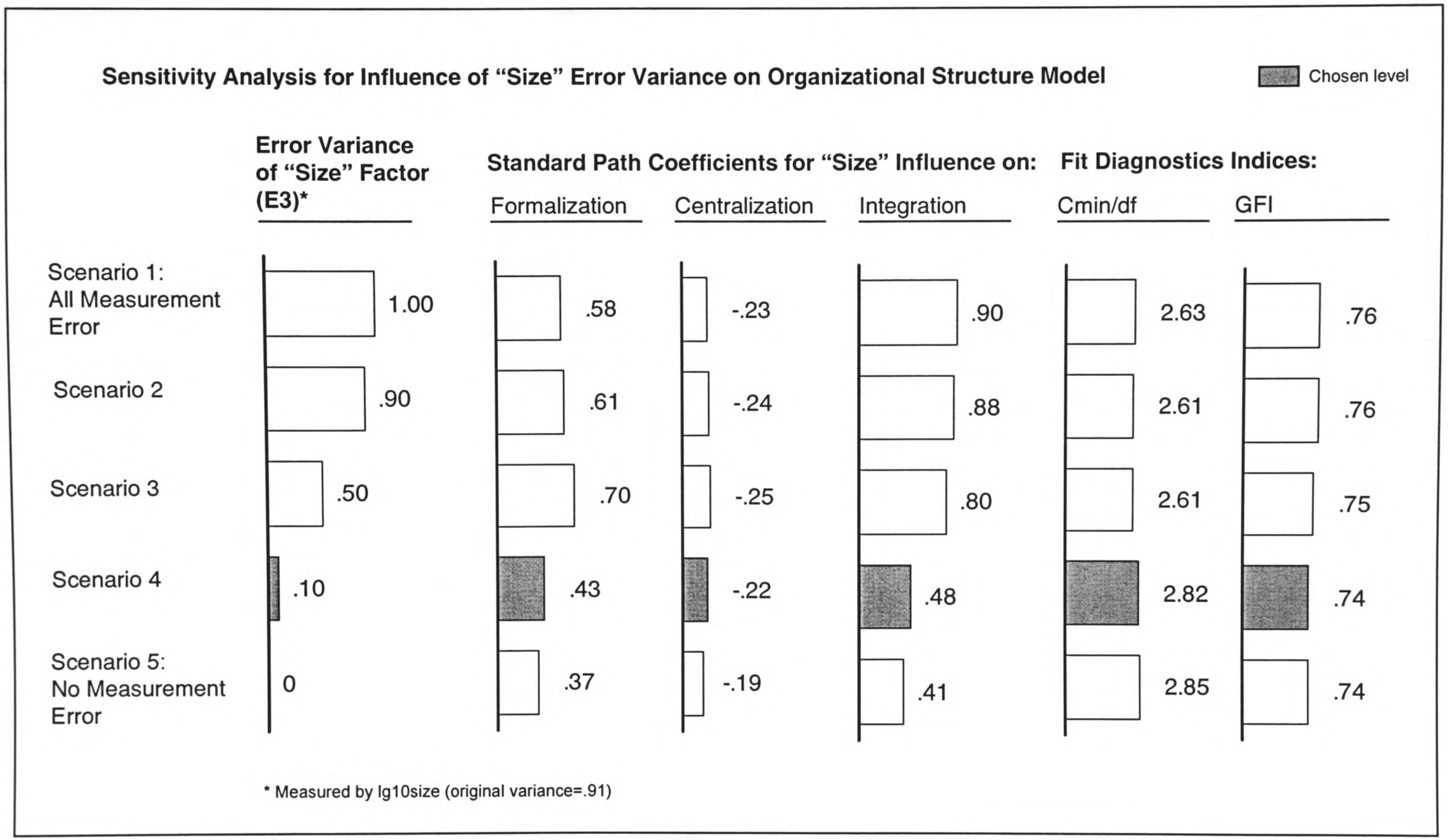
Figure 10-11 International comparison of Aston centralization scores



On the basis of this comparison, the distinctiveness of Chinese private enterprises in terms of centralization is once again less clear. Chinese private firms appeared to be somewhat more centralized than Canadian companies, but tended to delegate more authority to lower levels in the organization than British or Japanese companies. However, the mean differences with respect to these three countries were not statistically significant. There were two clear outliers of very centralized companies in this ranking, i.e. Poland and Jordan. These two mean differences were also statistically significant with *t*-values ranging from -3.53 ($p<.001$) to -8.63 ($p<.001$). Researchers pointed out that the high centralization of Polish companies was mainly due to the fact that at the time of the study, Poland was a socialist country with centralized planning. In Jordan, top managers were thought either not to have confidence in lower level staff or lack staff at lower levels with training adequate to enable them to make certain decisions themselves. The later explanation was also assumed for Indian companies which, although the centralization scale was adjusted and therefore not included in the above diagram, also tended to be highly centralized (Shenoy 1981).

In conclusion, as judged from an international perspective, the findings provide some tentative support for the distinctively low degree of formalization in Chinese private enterprises and in this respect correspond to previous theoretical discussions in the literature (Redding and Wong 1986; Redding 1990; Hickson and Pugh 1995 p. 171). Viewed from this international angle, we could not find clear support for the comparatively low degree of specialization and strong centralization of Chinese private enterprises. As mentioned before, final conclusions from international comparisons can only be made, when the size factor is held constant and various influencing factors of organizational structure are modeled in an international context. It would be interesting for a subsequent study to explore these issues in more detail.

Appendix Q: Sensitivity analysis for error variance



Appendix R: Data screening and measurement model assessment for SEMs

1. Organizational structure model

1.1. Test for multivariate normality assumptions

It was important to assess whether the assumptions of the Maximum Likelihood method (ML) were met.[1] Specifically, estimation using ML rely on the assumption that the observed variables follow a multivariate normal distribution (MVN). This means that the variables are normally distributed both from a univariate as well as a multivariate standpoint, which also implies that there are no univariate or multivariate outliers. Violation of this assumption might lead to severely biased standard errors yielding too many significant parameter results as a consequence of inflated *t*-ratios (Sharma, Durvasula and Dillon 1989), or erroneous chi-square statistics (Bollen 1989). In the later case, this would lead to a situation in which too many true models might be rejected (Hoyle 1995b p. 59). Hulland *et al.* (Hulland, Chow and Lam 1996 p. 185) point out that cases of non-multivariate normality can be handled in either of three ways: (a) other estimation procedures can be used (Bentler 1983), including bootstrapping (Bollen and Stine 1987); (b) the original data can be transformed into MNV distributions (Bollen 1989), or (c) larger samples have to be collected (Browne 1982).

Since non-normal distributions are characterized by skewness, i.e. a departure from symmetry, as well as kurtosis, i.e. divergence of the height of the probability density curve as compared to the normal distribution (Hoyle 1995b pp. 59-60), in the present research *univariate* normality of the observed variables was estimated by analyzing the measures of these higher order moments. Apart from assessing such univariate skewness and kurtosis coefficients, *multivariate* normality was assessed by a summary measure of the joint distribution, i.e. Mardia's multivariate coefficient of relative kurtosis (Mardia 1970; 1974). Tabachnick (1989 p. 73) recommends $\alpha<.001$ as conservative criterion to evaluate the significance of skewness and kurtosis coefficients with small to moderate samples.[2]

The results of the assessment of univariate and multivariate normality are presented in Table 10-20 on the next page. The findings show that some univariate coefficients as well as Mardia's joint kurtosis diagnostics were significant at the $\alpha<.001$ level.

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[1] It should be noted that many researchers do not use this precaution and "jump" into the analysis right away.

[2] Given that the standard errors for both skewness and kurtosis coefficients are functions, amongst other things, of the sample size, with large samples the null hypothesis of normality is likely to be rejected even when there are only minor deviations from the normal distribution. Tabachnick (1989 p. 74) points out that in large samples, a variable with significant skewness or kurtosis often does not deviate enough from normality to make a real difference in the analysis. In large samples, the actual *size* of the skewness and kurtosis coefficients (worse the farther from 0) is therefore more important than their significance levels.

Table 10-20 Assessment of univariate and multivariate normality for organizational structure model

Variable	Min	Max	Skewness	C.R.	Kurtosis	C.R.
lg10size	.70	5.75	.77	3.48•••	.39	.89
mstech	1.00	7.00	.63	2.85	-1.27	-2.89
uncert_1	3.00	21.00	-.16	-.72	-.33	-.74
uncert_2	2.00	14.00	.22	1.01	-.83	-1.89
nach_1	9.00	21.00	-.48	-2.19	.81	1.84
nach_2	6.00	14.00	.60	2.74	-.33	-.76
constr_1	4.00	28.00	.28	1.27	-.25	-.56
constr_3	3.00	21.00	.29	1.33	-.49	-1.12
constr_2	4.00	28.00	.19	.85	-.42	-.95
respect	2.00	14.00	-1.33	-6.03•••	1.28	2.91
collect	1.00	7.00	-1.59	-7.24•••	3.11	7.07•••
guanxi	1.00	7.00	-1.24	-5.65•••	1.75	3.98•••
formal	0.00	19.00	-.50	-2.27	-.82	-1.86
control	10.00	68.00	-.35	-1.60	.04	.10
spec	0.00	16.00	-.61	-2.77	-.72	-1.63
cent_1	5.00	20.00	-.33	-1.48	-.18	-.40
cent_3	3.00	14.00	-.23	-1.07	-.07	-.17
cent_2	0.00	18.00	-.70	-3.16	.22	.50
liastruc	6.00	42.00	-.02	-.08	-1.06	-2.40
liasdmg	4.00	26.00	-.72	-3.26	-.01	-.02
Multivariate kurtosis					35.70	6.70•••

•••p < .001 (C.R. > 3.38).
Where: C.R. = Critical ratio (comparable to *t*-ratio)

In addition, *outliers* might bias the results of structural equation models. As mentioned before, outliers are special cases of departures from normality. They are extreme observations which are quite different from the rest of the data. They can alter the observed covariance structure of the sample and seriously affect results in SEM. An analogy of this effect is fitting a regression line which in the presence of an outlier would change its slope significantly. Therefore, as, Schumacker *et al.* (Schumacker and Lomax 1996 p. 5) point out, outliers might bias the parameter estimates and associated standard errors, as well as fit indices.

To detect *univariate* outliers, for all variables which were used as input for the structural equation models, histograms were visually inspected and frequency distributions computed. In addition, box-and-whisker plots ("boxplots") were examined. They define outliers as values more than 1.5 box lengths[1] from the 25th and 75th quartile respectively. Stem-and-leaf plots were also analyzed which use the same rule for identifying outliers.[2]

[1] The length of the box (the difference between the values of the hinges) is called the "hspread" and corresponds to the interquartile range, i.e. 50% of cases have values within the box (SPSS Inc 1996 pp. 40-41).

[2] It should be mentioned that in the past, some data analysts identified outliers as values that were more than two or three standard deviations away from the mean. This approach produced accurate results for well-behaved data following a normal distribution. However, the boxplot and stem-and-leave rule is more general and works better across a spectrum of distributions from real world applications.

Based on visual inspection, the only variable which had one serious outlier was "company size". Outliers can be due either to coding errors or real observations. The "size" outlier was a real case, i.e. the large size of a Chinese service company, and was therefore retained. Due to the normal practice of log normalizing size (Schumacker and Lomax 1996 p. 6; Miller and Droege 1986), the resulting transformed scale was normally distributed.

Multivariate outliers are cases ("observations") that have an unusual pattern or combination of scores. Mahalanobis distances for each case from all other cases were computed to diagnose multivariate outliers. Mahalanobis distance is the proximity of a case to the centroid of the remaining cases. The centroid is the point created by the means of all variables. If a case has an unusual combination of scores, then those scores are weighted heavily in the equation and the Mahalanobis distance of the case from the rest of the cases is significant. As a very conservative criterion, multivariate outliers are cases whose probability estimate for the Mahalanobis distance is significant at the $p<.001$ level (Tabachnick and Fidell 1989 p. 69).

The 10 worst multivariate outliers are presented in Table 10-21. For example, the *p* column for case 85 shows that assuming normality the probability is .038 that the largest *d*-squared for all variables would exceed 48.94. Given that nine of the probabilities are not significant at the recommended α level, there is no evidence that these nine most unusual observations should be treated as outliers under the assumption of normality. However, there is one significant multivariate outlier, i.e. Shanghai Art Color Factory.

Table 10-21 Identification of multivariate outliers for organizational structure model

Case number*	Mahalanobis *d*-squared	*p*
85	48.94	.038
2	48.35	.001
73	45.01	.000•••†
119	39.02	.010
87	36.97	.016
7	36.37	.008
86	36.01	.003
102	33.67	.026
67	32.71	.037
105	32.61	.018

•••p < .001
*Observations farthest rom the centroid (Mahalanobis distance)
†Shanghai Art Colour Factory

In summary, there were some cases of significant skewness, kurtosis and multivariate outliers. However, even in cases of significant departures from normality, it is difficult to conclude whether a significant value for these measures is actually harmful in the context of the chosen estimation method (Arbuckle 1997 p. 239). As mentioned above, the coefficients are only very rough estimates and very sensitive to sample size effects. A departure from normality that is big enough to be significant could still be small enough to be harmless (Arbuckle 1997 p. 239). Therefore, in order to obtain a more accurate assessment, Amos' bootstrapping facility was used as an alternative parameter estimation procedure to find out how robust the chosen estimation method was against departures from normality. This involved testing the robustness of the computed standard errors and comparing them to the Maximum Likelihood values. If the ML estimation method were found not to be robust enough, bootstrapping results could always be used, since this method does not make any assumptions about normality.

A sample of n=500 bootstrap replications was estimated. No bootstrap samples were unused because of a singular covariance structure or because a solution was not found (Arbuckle 1997 p. 527). This indicated that there was no problem with using the bootstrapping method in our case. The results are presented in Table 10-22 on the next page. The findings show that the Maximum Likelihood method was very robust against violations of the normality assumption. First of all, the standard errors calculated by the bootstrapping method corresponded closely to the estimates from ML. Further, the standard error of the bootstrapping standard error, i.e. an empirical interval estimate for the standard error itself, was very small (<.01). In addition, the parameter estimates from both methods were almost identical. More specifically, "bias", which is the difference between the bootstrap parameter mean and the original estimate, was usually not greater than 0.4 percent points with a maximum of 0.9 percentage points. Even more importantly, standard errors for the bias estimates indicated that in all cases this bias was non-significant at a conservative $\alpha<.01$ level (C.R.<2.62, n=124). Only with respect to squared multiple correlations (SMC), ML estimates were significantly downward biased. Therefore, for this statistic, the more accurate bootstrap results will be reported in the tables. This has also the advantage that standard error estimates are available, which cannot be calculated using the ML method. These estimates can be used, for example, to construct confidence intervals for the SMC. In conclusion, the distribution of parameter estimates associated with the various traits was not wider than expected under normal distribution. This means that there were no distribution problems in the data and consequently no real effects on the parameter estimates (Arbuckle 1997 p. 529).

Table 10-22 Bootstrap standard errors for organizational structure model path coefficients

Independent variable	S.E.	S.E. (S.E.)	Mean	Bias	S. E. (Bias)	C.R.
Size						
Formalization	.097	.003	.423	-.009	.004	-2.25
Centralization	.127	.004	-.220	-.002	.006	-.33
Integration	.093	.003	.475	-.004	.004	-1.00
Technology						
Formalization	.093	.003	.208	.004	.004	1.00
Centralization	.123	.004	.009	.003	.006	.50
Integration	.102	.003	.202	-.001	.005	-.20
Uncertainty						
Formalization	.100	.003	-.069	-.001	.004	-.25
Centralization	.108	.003	-.015	-.001	.005	-.20
Integration	.089	.003	-.019	.001	.004	.25
Achievement need						
Formalization	.104	.003	.115	.007	.005	1.40
Centralization	.118	.004	.077	.003	.005	.60
Integration	.092	.003	-.131	-.004	.004	-1.00
Constraints						
Formalization	.079	.002	.057	-.003	.004	-.75
Centralization	.093	.003	-.129	.000	.004	.00
Integration	.086	.003	.109	.006	.004	1.50
Chinese characteristics						
Formalization	.079	.002	.018	-.003	.004	-.75
Centralization	.084	.003	.024	-.001	.004	-.25
Integration	.083	.003	.052	.000	.004	.00

Note: N=124

Where:

S.E. = Standard error
Mean = Bootstrap parameter estimate
C.R. = Critical Ratio (comparable to *t*-ratio)

2. Management practice model

2.1 Test for multivariate normality assumption

First, results showed that some univariate skewness and kurtosis coefficients were significant ($p<.001$), as was Mardia's joint kurtosis diagnostics (kurtosis=50.9, $p<.001$). Second, Mahalanobis distances revealed that overall there were five multivariate outliers ($p<.001$). Therefore, in order to assess how robust the chosen Maximum Likelihood method was against these departures from multivariate normality, Amos' bootstrapping facility was used.

The bootstrapping method could be successfully used. A sample of n=500 bootstrap replications was estimated. The findings showed that the Maximum Likelihood method was very robust against violations of the normality assumption. More specifically, the standard errors calculated by bootstrapping corresponded closely to the estimates from ML. Further the standard error of the bootstrapping standard error was very small (SE<.01). In addition, the parameter estimates from both methods were almost identical. "Bias" for standardized regression coefficients was usually not greater than 0.5 percent points with a maximum of 1.7 percentage points. Standard errors for the bias estimates indicated that in all cases this bias was non-significant at a conservative $\alpha<.01$ level (C.R.<2.62, n=124). Only in the case of squared multiple correlations, ML estimates were significantly downward biased. Therefore, for this statistic the more accurate bootstrap results will be reported in the tables. In conclusion, there were no distribution problems in the data and consequently no real effects on the parameter estimates (Arbuckle 1997 p. 529).

2.2 Evaluation of measurement model

Unidimensionality

Unidimensionality is demonstrated by internal and external consistency (Anderson and Gerbing 1982 p. 454). In a preliminary step, the correlation matrix (Table 10-23) on the following page was examined to check whether a) the indicators of the unobserved variable have high correlations among themselves (internal consistency) and b) whether the correlations of the indicators of the unobserved variable with the indicators of other unobserved variables in the model were relatively low (external consistency). The findings offered some support for this notion of unidimensionality. In most cases the intercorrelations among the items associated with the measures were stronger than their correlations with items representing other measures.[1] A more rigorous and confirmatory test in terms of an assessment of overall model fit (Hughes, Price and Marrs 1986 p. 133) was presented in the main section of the thesis.

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[1] Strictly speaking, in order to formally assess internal consistency, there have to be at least four measures of a construct (Spearman and Holzinger 1924). Therefore, the assessment of internal consistency in our case has to be regarded as informal.

Table 10-23 Pearson correlation matrix for managerial practice model

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
1. LG10SIZE	2.15	.96	1.00																					
2. MSTECH	3.01	2.38	.47	1.00																				
3. UNCERT_1	13.38	4.15	-.14	.01	1.00																			
4. UNCERT_2	7.89	3.23	-.24	-.09	.73	1.00																		
5. NACH_1	17.12	2.40	.01	-.04	.25	.29	1.00																	
6. NACH_2	9.89	1.99	.04	.11	.33	.32	.48	1.00																
7. CONSTR_1	13.94	5.55	.03	.22	-.04	-.08	-.21	-.05	1.00															
8. CONSTR_2	15.15	5.63	.11	.30	-.08	-.09	-.13	.03	.70	1.00														
9. CONSTR_3	11.05	4.45	.11	.18	-.05	-.16	-.18	-.09	.63	.64	1.00													
10. RESPECT	10.93	3.16	-.06	.08	.17	.18	.00	.05	.11	.04	.01	1.00												
11. COLLECT	5.77	1.34	.03	.09	.06	.01	.20	.10	.01	.10	.05	.25	1.00											
12. GUANXI	5.87	1.20	.05	.10	.32	.11	.14	.23	.08	.00	.15	.21	.17	1.00										
13. OPPORT	6.20	1.01	-.07	.09	.15	.20	.12	.13	.06	-.02	-.07	-.01	.21	.12	1.00									
14. NEWPROD	4.90	2.02	.13	.30	.06	.21	.05	-.12	.03	.20	.10	.08	.16	-.06	.24	1.00								
15. PRODPART	4.31	2.00	.30	.21	.02	-.09	-.03	-.02	.21	.22	.15	-.04	.06	.15	.00	.19	1.00							
16. FINPART	4.19	2.20	.32	.25	.02	-.07	-.09	-.08	.22	.31	.23	.03	.03	.10	-.07	.20	.73	1.00						
17. STRAPART	4.38	2.19	.37	.23	-.08	-.07	-.06	-.05	.23	.27	.19	.01	.05	-.04	.08	.18	.69	.81	1.00					
18. ADAPT	4.36	1.96	.05	.10	.01	-.06	-.12	-.22	.12	.17	.16	.13	.04	.02	.09	.19	.14	.15	.13	1.00				
19. HORCOM	4.39	1.92	.37	.32	-.18	-.14	.04	.09	.17	.25	.16	-.14	.16	-.03	.10	.21	.41	.38	.42	.22	1.00			
20. SUBCON_1	9.27	4.43	-.31	-.08	.19	.29	-.10	-.05	.06	-.04	-.01	.10	-.06	-.09	.11	-.10	-.16	-.05	-.11	.04	-.14	1.00		
21. SUBCON_2	8.37	4.67	-.25	-.03	.14	.19	-.04	.06	.04	.07	.01	.02	-.01	-.21	.00	.04	.01	.12	.03	-.01	.10	.69	1.00	
22. SUBCON_3	7.25	3.85	-.16	-.10	-.01	.07	-.02	-.02	.15	.23	.18	-.02	.01	-.22	-.09	.10	-.02	.06	-.04	.04	.06	.49	.63	1.00

Note: For a sample size of 124, a correlation plus or minus .18 is significant at the 5% level (both tails); +/- .24 is significant at the 1% level. A covariance matrix was used as model input for this model.

Convergent validity

Convergent validity (Campbell and Fiske 1959) was assessed by the significance of an indicator's loading on its posited underlying construct factor (Anderson 1987a p. 530). As shown in Table 10-25, all indicator loadings were highly significant with critical ratios associated with the indicators ranging from 2.39 ($p<.05$) to 14.23 ($p<.001$). These findings offered support for convergent validity of the items in each scale (Anderson and Gerbing 1988).

Discriminant validity

Discriminant validity was tested through a series of nested model comparisons. More specifically, the unconstrained baseline model was compared to a model with zero discriminant validity and another model with perfect discriminant validity. The results are reported in Table 10-24 below:

Table 10-24 Nested model test for discriminant validity in managerial practice model

	χ^2/df	*df*	$\Delta\chi^{2*}$	*p*	*df*
Model I (Baseline Unconstrained Structural Model)	2.23	154	n/a	n/a	n/a
Model II (Base w/ perfect correlation)	2.53	174	97.20•••	.00	20
Model III (Base w/zero correlation)	2.27	174	51.00•••	.00	20

Note: N=124
•p < .05; ••p < .01; •••p < .001
*Baseline comparison is Model I

The findings support discriminant validity of the constructs. The model which stipulated perfect correlation between the unobserved traits had a significantly higher chi-square value ($\Delta\chi^2$=97.20, *df*=20, $p<.001$) as compared to the unconstrained baseline model and therefore had to be rejected. The hypothesis of *perfect* discriminant validity was not supported, since the chi-square difference between the unconstrained general model and the constrained version with zero factor correlations was significant ($\Delta\chi^2$=51.00, *df*=20, $p<.001$). Finally, to fully satisfy the requirements for discriminant validity, the average variance extracted for each construct should be greater than the squared correlation between constructs (Segars 1997). Based on an analysis of the correlation matrix, the squared correlations, representing the shared variance among variables, were indeed found not to exceed the average variance extracted.

Reliability

Reliability was assessed by composite reliability and average variance extracted. The findings of this analysis are presented in Table 10-25 below:

Table 10-25 Measurement properties of managerial practices model

Construct and indicator	Standardized loading	Reliability	Variance extracted estimate
Constraints		0.83*	0.63
constr_1	1.00†	1.00	
constr_2	0.70•••	0.49	
constr_3	0.63•••	0.40	
Chinese culture characteristics		0.52*	0.36
respect	0.98†	0.96	
collect	0.26••	0.07	
guanxi	0.21•	0.04	
Achievement		0.73*	0.59
nach_1	0.96†	0.92	
nach_2	0.51•••	0.26	
Uncertainty		0.87*	0.77
uncert_1	1.00†	1.00	
uncert_2	0.74•••	0.55	
Proactive strategy		0.44*	0.31
opport	0.71†	0.50	
newprod	0.33•	0.11	
Participative leadership		0.90*	0.75
prodpart	0.93†	0.86	
finpart	0.85•••	0.72	
strapart	0.82•••	0.67	
Subcontracting		0.79*	0.58
subcon_1	1.00†	1.00	
subcon_2	0.69•••	0.48	
subcon_3	0.50•••	0.25	

Note: All *p* values based on unstandardized ML estimates. N=124.
•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38)
*Denotes composite reliabilities.
†Unstandardized regression weight constrained to unity for scaling purposes

The data show that the measures examined in this study in general were robust in terms of their internal consistency reliability as indexed by the composite reliability. More specifically, the results for composite reliability show that all standard scales except for emphasis on selected Chinese characteristics and proactive strategy exceeded the recommended .70 cut-off point. Selected characteristics of Chinese culture exceeded the .50 cut-off point recommended for basic, exploratory research (Nunnally 1967 p. 226). The relative low composite reliability for proactive strategy might be due to the fact that only two items were included in the model and thus the scale did not really belong to the domain-sampling category. Usually, an increase in the number of items tends to significantly increase composite reliability.

As regards average variance extracted, most scales, except for selected Chinese characteristics and proactive strategy, exceeded the recommended .50 cut-off point. This showed that in most cases, the amount of variance captured by the construct exceeded the variance due to random measurement error. The same reasons which were thought to have led to the overall lower composite reliability for both scales might apply in the case of average variance extracted as well.

The potential effect of common method variance on the study variables was tested using Harman's (1967) one factor test. After entering all the items into a Maximum Likelihood factor analysis with Varimax rotation, eight factors with Eigenvalues greater than one were extracted, which together accounted for 72.3% of the variance. The first factor explained only 18.2% of the variance. Since a single factor did not emerge and one general factor did not account for the majority of the variance in the study, a substantial amount of common method variance did not seem to be present (Podsakoff and Organ 1986).

3. Organizational effectiveness model

3.1 Test for multivariate assumption

Results revealed that there were several variables with significant univariate kurtosis and skewness ($p<.001$). Further, Mardia's (1970; 1974) coefficient of multivariate kurtosis was also significant (42.38, $p<.001$). The Mahalanobis *d*-squared diagnostics showed that there were no significant multivariate outliers ($p<.001$). Bootstrapping (Arbuckle 1997 p. 523) with a sample of n=500 bootstrap replications was used to test whether the Maximum Likelihood estimates were robust enough in the light of these minor violations of multivariate normality assumptions. The results in terms of bootstrap standard error and bias estimates indicated that the ML estimates were indeed sufficiently robust. The only exception was the estimate for the squared multiple correlation (SMC). As in other models, the Maximum Likelihood SMC estimates were significantly downwards biased. Therefore, in the presentation of findings, bootstrap estimates were reported for the SMC. In conclusion, there were no distribution problems in the data and consequently no real effects on the parameter estimates (Arbuckle 1997 p. 529).

3.2 Evaluation of measurement model

The results obtained from the assessment of the empirical model indicated that overall the measures showed relative high degrees of unidimensionality, construct validity and reliability.

Unidimensionality

As mentioned before, unidimensionality is demonstrated by internal and external consistency (Anderson and Gerbing 1982 p. 454). The findings from the analysis of the correlation matrix (Table 10-26) on the next page offered some support for this notion of unidimensionality. In this model, it was possible to formally test both internal and external consistency. It will be remembered that in order to assess internal consistency, there have to be at least four measures of a construct (Spearman and Holzinger 1924), which was the case for the organizational effectiveness construct. In most instances, there was a high correlation amongst items loading on the same factor. This supports the internal consistency rule. Besides, the intercorrelations among the items associated with the exogenous measures were usually stronger than their correlations with items representing other measures. These findings correspond to the external consistency rule (Gerbing and Anderson 1988 p. 187). It is important to note that it was only due to the presence of indicators from other scales that it was possible to assess the external consistency of the items that define the given scale. A model which only includes appropriate structure cannot assess this aspect of unidimensionality. A more rigorous and confirmatory test in terms of an assessment of overall model fit (Hughes, Price and Marrs 1986 p. 133) was presented in the main section.

Table 10-26 Pearson correlation matrix for organizational effectiveness model

Variable	Mean	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
1. LG10SIZE	2.15	.96	1.00																													
2. LG10SALE	7.25	1.03	.74	1.00																												
3. CONSTR_1	13.94	5.55	.03	-.08	1.00																											
4. CONSTR_2	15.15	5.63	.11	.06	.70	1.00																										
5. CONSTR_3	11.05	4.45	.11	-.02	.63	.64	1.00																									
6. REGULAT	38.70	9.00	.05	.09	-.15	-.06	-.16	1.00																								
7. FIRM_AGE	20.97	25.36	.49	.37	.11	.10	.09	.12	1.00																							
8. PRIVATE	1.49	.50	-.60	-.42	-.11	-.14	-.13	.03	-.63	1.00																						
9. INDIVID	3.65	2.47	-.61	-.46	-.02	-.08	-.07	-.08	-.62	.88	1.00																					
10. OPPORT	6.20	1.01	-.07	.02	.06	-.02	-.07	.13	.00	.03	.04	1.00																				
11. NEWPROD	4.90	2.02	.13	.14	.03	.20	.10	.06	.14	-.14	-.13	.24	1.00																			
12. CUTPRICE	4.09	1.82	-.06	.01	.13	.19	.13	-.08	-.02	.13	.19	-.14	.09	1.00																		
13. SACPROFI	3.85	1.66	-.06	.00	.13	.15	.21	-.16	-.09	.01	.07	-.16	-.01	.56	1.00																	
14. PRODPART	4.31	2.00	.30	.19	.21	.22	.15	-.06	.24	-.21	-.24	.00	.19	.00	-.03	1.00																
15. FINPART	4.19	2.20	.32	.19	.22	.31	.23	-.02	.31	-.31	-.32	-.07	.20	-.05	.02	.73	1.00															
16. STRAPART	4.38	2.19	.37	.22	.23	.27	.19	-.04	.30	-.32	-.30	.08	.18	-.03	.01	.69	.81	1.00														
17. PLANNING	4.85	1.88	.07	.10	.14	.24	.17	.10	.04	-.14	-.16	.20	.38	-.09	-.13	.11	.08	.07	1.00													
18. SUBCON_1	9.27	4.43	-.31	-.12	.06	-.04	-.01	.05	-.15	.14	.21	.11	-.10	.01	.08	-.16	-.05	-.11	-.07	1.00												
19. SUBCON_2	8.37	4.67	-.25	-.12	.04	.07	.01	.04	.01	-.05	-.02	.00	.04	-.08	.05	.01	.12	.03	-.01	.69	1.00											
20. SUBCON_3	7.25	3.85	-.16	-.10	.15	.23	.18	.03	-.11	.09	.07	-.09	.10	.07	.10	-.02	.06	-.04	.20	.49	.63	1.00										
21. ABROAD	1.64	.48	.51	.49	-.08	-.03	-.03	.15	.37	-.53	-.61	.00	.21	-.10	-.08	.10	.16	.20	.09	-.20	-.08	-.10	1.00									
22. EDUCAT	4.98	1.51	.17	.20	-.18	.00	.03	.09	.08	-.25	-.28	-.04	.11	-.11	-.02	-.06	-.09	-.07	-.01	-.08	-.01	.05	.36	1.00								
23. FIRMTIME	124.29	130.10	.54	.41	.08	.11	.09	.06	.58	-.54	-.49	-.07	.11	.00	.04	.07	.15	.18	.05	-.03	.03	-.03	.34	.12	1.00							
24. CEO_AGE	45.05	8.35	.45	.39	.13	.16	.12	.14	.45	-.50	-.46	.01	.14	-.09	-.11	.24	.38	.32	.08	.07	.10	-.01	.36	-.04	.53	1.00						
25. STRUCTUR	3.23	1.30	.07	.07	.03	.00	.03	-.04	.02	-.12	-.08	.00	-.07	.03	.18	.02	.07	.12	-.03	-.04	-.04	-.01	.08	.00	-.01	.03	1.00					
26. PROFIT	4.44	1.43	.06	.18	-.06	.02	-.03	.24	.18	-.03	-.12	.19	.23	-.04	.04	.14	.09	.07	.37	.05	.13	.19	.17	.11	.04	.13	.23	1.00				
27. REVENUES	4.61	1.45	.19	.27	-.05	.00	-.04	.19	.22	-.06	-.16	.17	.22	-.06	-.03	.15	.09	.14	.32	-.03	.02	.14	.20	.10	.07	.06	.12	.75	1.00			
28. MORALE	4.76	1.36	.09	.14	-.05	.00	-.07	.10	.15	-.09	-.16	.22	.18	-.19	-.04	.16	.16	.08	.22	.05	.09	.08	.09	.03	.01	.03	.02	.48	.52	1.00		
29. LIQUID	4.33	1.46	.13	.15	-.11	-.01	-.16	.15	.08	-.04	-.08	.12	.02	-.16	-.08	.14	.17	.08	.11	.08	.19	.07	.11	.01	.07	.14	.07	.46	.42	.42	1.00	
30. IMAGE	5.55	1.16	.34	.29	-.17	.06	-.13	.20	.29	-.34	-.40	.23	.22	-.02	-.09	.18	.18	.25	.27	-.11	.09	.02	.27	.10	.25	.25	-.06	.42	.46	.42	.39	1.00

Note: For a sample size of 124, a correlation plus or minus .18 is significant at the 5% level (both tails); +/- .24 is significant at the 1% level. Covariances used as model input.

Convergent validity

Convergent validity (Campbell and Fiske 1959) was supported by the significance of an indicator's loading on its posited underlying construct factor (Anderson 1987a p. 530; Anderson and Gerbing 1988). As shown in Table 10-27 on the following page, all indicator loading were highly significant ($p<.001$) with critical ratios ranging from 2.62 to 20.73. These findings provided support for the convergent validity of the items in each scale (Anderson and Gerbing 1988).

Discriminant validity

Discriminant validity was assessed by specifying a model in which all exogenous variables were allowed to freely correlate. Standard errors for all correlations were obtained through bootstrapping with 500 replications. Confidence intervals (95%) were constructed to test the hypothesis of perfect correlation between the variables. Since no confidence interval included unity, discriminant validity could be established. *Perfect* discriminant validity was assessed through a nested model analysis, comparing a baseline unconstrained model with a model for which all correlations were constrained to zero. Given that the chi-square difference was significant ($\Delta\chi^2=311.86$, $df=66$, $p<.001$) perfect discriminant validity had to be rejected. Finally, based on an examination of the correlation matrix, the squared correlations, representing the shared variance among variables, were found not to exceed the average variance extracted.

Reliability

The reliability of the constructs was analyzed by computing composite reliability and average variance extracted. The findings related to this analysis of the measurement model are reported in Table 10-27 on the next page. The data reveal that the measures examined in this study in general were robust in terms of their reliability as indexed by the composite reliability and average variance extracted. The results for composite reliability show that all standard scales, except for proactive strategy, exceeded the recommended .70 hurdle for scales used in applied research (Fornell and Larcker 1981). The composite reliability for management expertise, a new scale, exceeded the recommended .50 to .60 level for basic, exploratory research (Nunnally 1967 p. 226). As mentioned before, the relative low composite reliability for "proactive strategy" might be due to the fact that only two items were used. Thus, the scale did not really belong to the domain-sampling category. Usually, an increase in the number of items tends to significantly increase composite reliability.

The average variance extracted exceeded or approached within rounding error the suggested .50 level (Fornell and Larcker 1981) in all cases except for the proactive strategy scale mentioned above. The same reasons that were thought to have led to the overall lower composite reliability for proactiveness might apply in the case of average variance extracted as well.

Table 10-27 Measurement properties of organizational effectiveness model

Construct and indicator	Standardized loading	Reliability	Variance extracted
Constraints		0.83*	0.63
constr_1	1.00†	1.00	
constr_2	0.70•••	0.49	
constr_3	0.63•••	0.40	
Private		0.94*	0.89
private	1.00†	1.00	
individ	0.88•••	0.77	
Size		0.85*	0.75
lg10size	0.94†	0.88	
lg10sale	0.78•••	0.61	
Proactive strategy		0.44*	0.31
opport	0.71†	0.50	
newprod	0.34•••	0.12	
Price-cutting strategy		0.77*	0.64
cutprice	0.98†	0.96	
sacprofi	0.57•••	0.32	
Particpative leadership		0.86*	0.68
prodpart	0.99†	0.98	
finpart	0.75•••	0.56	
strapart	0.71•••	0.50	
Subcontracting		0.79*	0.58
subcon_1	1.00†	1.00	
subcon_2	0.70•••	0.49	
subcon_3	0.50•••	0.25	
Management expertise		0.64*	0.32
abroad	0.74†	0.55	
educat	0.32•••	0.10	
firmtime	0.57•••	0.32	
ceo_age	0.56•••	0.31	
Effectiveness		0.82*	0.49
profit	0.96†	0.92	
revenues	0.82•••	0.67	
morale	0.57•••	0.32	
liquid	0.52•••	0.27	
image	0.51•••	0.26	

Note: All *p* values based on unstandardized ML estimates; N=124.
•p < .05 (C.R. > 1.98); ••p < .01 (C.R. > 2.62); •••p < .001 (C.R. > 3.38).
*Denotes composite reliabilities; †Unstandardized path constrained to unity for scaling purposes

The potential effect of common method variance on the study variables was tested using Harman's (1967) one factor test. After entering all the items into a Maximum Likelihood factor analysis with Varimax rotation, nine factors with Eigenvalues greater than one were extracted, that together accounted for 70.5% of the variance. The first factor accounted for only 20.1% of the variance. Since a single factor did not emerge and one general factor did not explain the majority of the variance in the study, a substantial amount of common method variance was not evident (Podsakoff and Organ 1986).

Appendix S: Explanatory table of Chinese transcriptions

Explanation: In this research, many Chinese words were difficult to translate and, also given the respect for the indigenous culture and its terms, were therefore cited in their traditional pronunciation using *Hanyu Pinyin*.[1] This approach was preferred to providing the Chinese characters in the text, which might have slowed down the reading for non-Chinese speakers. For Chinese readers who might have difficulties in recognizing the character behind the transcriptions, Table 10-28 on the next page reports (a) the *Pinyin* transcriptions for terms and proper names (in capital letters), (b) the corresponding Chinese characters and (c) their translations.

[1] *Pinyin* is the official "Latin" transcription of Chinese characters and differs from the transcription adopted in Hong Kong and Taiwan. Since *Pinyin* is the transcription used by the majority of Chinese and given that the subjects of this research project were located in mainland China, *Pinyin* was adopted here, contrary to the use in some other English research literature on China.

Table 10-28 Explanatory table for Chinese Pinyin transcriptions

Pinyin	Chinese Characters	Translation
buwei	部委	Ministries and subordinated committees
chaguan	茶馆	Tea house
Chang Jiang	长江	Yangtze river
Chaoyang	朝阳	District in Beijing
chengshibanshichu	城市办事处	District sub-branch
chuxusuo	储蓄所	Saving office
daibiaojigou	代表机构	Representative office
danwei	单位	Work unit
Deng Xiao Ping	邓小平	Deng, Xiao Ping
diquzhongxinzhihang	地区中心支行	Prefectural central sub-branch
fenlichu	分理处	Branch business office
guanxi	关系	Personal relationships
Haidian	海淀	District in Beijing
haiwai huaqiao	海外华侨	Overseas Chinese (mainland usage)
hanyu pinyin	汉语拼音	Chinese Latin transcription
Huajia Qihua	华嘉企化	Huajia Qihua (company name)
jia	家	Family
jia zu	家族	Family lineage
Jingdezhen	景德镇	Jingdezhen City (South)
jizhenbanshichu	集镇办事处	Town business office
jun zi	君子	Gentleman
Kongzi	孔子	Confucius
li	礼	Politeness
linghuoyingbianxing	灵活应变性	Flexible reaction to change
Liu Shao Qi	刘少奇	Liu, Shao Qi (former Chinese *zhuxi*)
nanyang	南洋	Overseas Chinese
ningjuli	凝聚力	(Group) cohesiveness
Qin Shi Huang	秦始皇	First Chinese Emperor
quanzifushujigou	全资附属机构	Wholly-owned subsidiary
Renminbi (RMB) Yuan	人民币元	Chinese national currency
Shekou	蛇口	City close to Shenzhen (South)
shengjifenhang	省级分行	Provincial branch
Shi Kai Ya	师凯亚	Kai-Alexander Schlevogt
shifen(zhi)hang	市分(支)行	City branch (sub-branch)
sishuwujing	四书五经	The Four Books and the Five Classics
wan	完	End
Xi'An	西安	Xi'An City (North)
Xiang Gang	香港	Hong Kong
xianzhihang	县支行	County sub-branch
xiao	孝	Filial piety
Yansha	燕莎	Lufthansa (Chinese translation)
yijian xiang	意见箱	Suggestion box
yinbixing	隐蔽性	Secrecy
zhengce yinhang	政策银行	Policy bank
zhongguo guanli yishu	中国管理艺术	The art of Chinese management
zhuxi	主席	Nominal Head of State

Appendix T: Glossary

A/P ratio: A measure of the administrative density of an organization, i.e. the ratio of the number of line supervisors, managers, and staff personnel to the total number of employees (adapted from Pugh (1973 p. 46) and Pugh *et al.* (1976 p. 34)).

Association: The relationship between two or more variables.

Aston formalization: The extent to which rules, procedures, instructions, and communications are *written* (Pugh et al. 1968 p. 75, italics added).

Authority relation: One in which one party (the superior) has the right to direct the behavior of the other (the subordinate), at least within bounds, and to supervise, monitor, and punish or reward the subordinate (often used here synonymously the term "hierarchy").

Automaticity: The degree to which human attributes are performed by a machine (Amber and Amber 1962).

Bias: A systematic error in data collection.

Bounded rationality: The limitations on human mental abilities that prevent people from foreseeing all possible contingencies and calculating their optimal behavior. Bounded rationality may also include those limitations on human language that prevent perfect communication of those things that are known.

Bureaucracy: A multi-dimensional construct for the conceptualization of organizational structure comprising an organization's degree of (a) formalization, (b) complexity, and (c) its use of liaison devices.

Case study: A qualitative method of data collection (or a research design) concentrating on studying single cases.

Causal relationship: A relationship where one variable affects changes in another.

Causal research: A form of research aimed at establishing or testing causal relationships between variables.

Causality: The quality characterizing two variables between which there is a causal relationship.

Centralization: The degree to which the authority to make certain decisions which affect the organization is located at the top of the management hierarchy (adapted from Pugh (1973 p. 46)).

CEO need for achievement: A CEO's degree of striving to meet standards of excellence, to accomplish difficult tasks, and to achieve success. This need for achievement represents a way of life or a basic attitude toward it rather than a simple drive (McClelland et al. 1953; McClelland 1961).

CEO tenure: The number of years a CEO is working for the focal organization.

Chinese management: A particular way of setting objectives and directing resources towards the achievement of these objectives practiced by private Chinese firms at home and overseas which is characterized by (a) high degree of centralization, (b) low degree of bureaucracy, (c) strong entrepreneurship, (d) firm networks (e) emphasis on traditional Chinese family-based cultural values, and (f) choice of small organizational size.

Coding: The process of assigning symbols to elements of research instruments for the purpose of entering the data into computers.

Communality: A common factor variance; a measure of the degree to which variables vary together.

Communication: The sending of information (a message) and its receipt, sometimes involving subsequent feedback (Dawson 1992 p. 184). Information can flow in vertical or horizontal direction across an organization.

Complete contract: A hypothetical contract that describes what action is to be taken and payments made in every possible contingency.

Complexity: A multi-dimensional construct, comprising (a) vertical span of control, (b) lateral span of control, and (c) spatial dispersion (Hall 1991 p. 52). It can be measured by Aston → Configuration.

Concentrated ownership: Percentage of shares held by different groups of investors

Concept: A word that labels or classifies an object, event or experience.

Configuration: A multi-dimensional theoretical conceptualization of complexity suggested by the Aston researchers, including: (a) vertical (hierarchical) span, (b) the number of operating sites of the organization, and (c) the size of the administrative component - the A/P ratio (Miller and Droege 1986 p. 543).

Conflict: Disagreement on means and ends between individuals or groups of individuals with interests in a particular decision or action (adapted from Dawson (1992 p. 164)).

Constraints: Factors in an organization's task environment which limit its access to resources.

Construct validity: The degree to which a survey distinguishes between subjects which do and do not have certain characteristics. Measured by trait and nomological validity.

Content analysis: A method of studying the content of documents in order to establish their meaning.

Content validity: The type of validity that refers to the extent to which all possible aspects of a research topic are covered in a scale.

Contracts: Formally, contracts are legally enforceable promises. They may be oral or written, and they typically must involve obligations on each party - for example, to provide a good or service on the one hand, and to pay for it on the other. *See* → complete contract and → implicit contract.

Control question: A question employed to test the validity of the response given to another question.

Control: A procedure employed in experimental research with the purpose of hindering factors or variables from affecting in any way a certain variable.

Control: *see* → Management control.

Coordination: The design of organizational and administrative integrative systems put in place to achieve a state where the different activities of the value chain move together towards a common goal (*see* → liaison).

Core competence: The collective learning in the organization, especially related to how to coordinate diverse production skills and integrate multiple streams of technologies (Prahalad and Hamel 1994 p. 291).

Corporate culture: A set of shared beliefs and values, precedents, expectations, stories, routines, and procedures in a firm that help define that firm's way of doing things and serve as a guide to behavior for those within the firm.

Corporate strategy: The determination of the basic long-term goals and objectives of the enterprise, as well as the adoption of courses of action and the allocation of resources necessary for carrying out these goals (Chandler 1962 p. 13).

Correlation matrix: A matrix containing the values of the coefficient of correlation between the variables in question.

Correlation: A statistical measure of relationships between variables describing the presence, direction and degree of association between them.

Covariance: A measure of the degree of common variance between variables.

Critical success factors: The limited number of areas in which satisfactory results will ensure a successful competitive performance for a business unit (Hax and Majluf 1991 p. 406).

Cross-sectional study: A study containing units belonging to the same period of time (opposite to panel or trend studies).

Cross-validation: A method of ascertaining validity by checking groups of data against other groups of data from the same study.

Cumulative data: Frequencies established by adding low value scores to their next higher value.

Decision-making style (or process): The procedure which is employed by an organization to define organizational goals and programs of action to realize them. It involves the thoughts and actions associated with a sequence of choices as well as the choices themselves (Dawson 1992 p. 195).

Deduction: The process of establishing logical conclusions from general and abstract to specific and concrete phenomena.

Dependent variable: A variable that is explained or affected by another variable.

Depth interview: Unstandardized, roughly structured interview; also known as clinical interview.

Design: A plan; as a research design it contains all steps of the research process (examples: survey design, experimental design).

Dispersion: The degree to which elements of a distribution are spread away from the mean.

Diversification: *see* → horizontal integration.

Dominant coalition: The power center which makes the strategic choices in regard to the organization and its structure (Hall 1991 p. 103).

Dummy variable: An artificial variable.

Dyadic relationship: A form of inter-organizational relationship characterized by a pairwise relation between two companies (adapted from Hall (1991 p. 217)).

Economies of scale: The reduction in average cost that is achievable when a single product is made in large quantities.

Efficient: An allocation, contract, or organization is efficient if there is no feasible alternative that everyone finds to be at least as good and that at least one person strictly prefers.

Empiricism: A school of thought stressing the significance of experience as the source of all knowledge.

Enacted environment: The environment created by the human to which the system adapts (adapted from Weick (1969 p. 64)).

Environment: The collectivity of external individuals, groups and organizations linked to a focal organization and having an impact on it.

Environmental uncertainty: The level and unpredictability of change in demand, customer tastes, competitive behavior, technology, product obsolescence and sources of supply (adapted from Miller (1986 p. 545)).

Equifinality: The presence of several means available to reach a given end (adapted from Katz and Kahn (1966)).

Equivalence reliability: Reliability across indicators.

Ethnocentrism: The trend to see one's own culture as the center of life and its elements as the standards of evaluation of other cultures.

Face validity: Most casual measure of a survey's accuracy, usually assessed informally by non-experts.

Factor Analysis: A method of multivariate statistical analysis of variables.

Falsification: The process of disproving the validity of a hypothesis.

Fit: A match between contextual and structural factors which leads to an increase in performance.

Focused Interviews: Semi-structured interviews set to explore deeply a specific object or a certain point of the research topic.

Formalization: *see* → structuring of activities.

Functional specialization: The distribution of official duties among a number of positions (Pugh et al. 1968 pp. 72-73). It is measured by the number of discrete, identifiable functions performed by at least one, full-time specialist, who is a person who performs that function and no other (Pugh et al. 1963 p. 301).

Goal: *see* → organizational goal.

Hawthorne effect: An expectation effect; related to the respondents' knowledge of being observed.

Hierarchy: (1) An idealized arrangement of authority in which each person has only one boss and the organization has a single top officer. (2) A system of ranking employees.

Histogram: Graphic presentation of a distribution consisting of blocks equal to the values of the units of the distribution.

Horizontal communication: The lateral flow of information across a department.

Horizontal integration: (1) In antitrust economics, expansion of a firm by acquisition of or merger with competitors. (2) In business usage, an diversification into a related activity that does not involve vertical integration (adapted from Milgrom and Roberts (1992 p. 599)).

Hypothesis: An assumption, an educated guess, which can be tested.

Implicit contract: Shared understandings that are not legally enforceable but that the parties consider to be binding on their conduct to one another.

Independent variable: A variable that does not need to be explained by, or is not affected by, another variable.

Indicator: A directly observable trait used to empirically define a variable.

Individual interviews: Interviews with one person at a time.

Induction: The process of making conclusions from the specific and concrete to the general and abstract.

Inductive statistics: Inferential statistics.

Inferential statistics: The type of statistics that makes conclusions from data derived through sampling and projects them onto the population.

Instruments: Tools of research employed in the context of a methodology.

Integration: *see* → Organizational integration.

Intensive interview: A form of interviewing employing an unstructured and unstandardized approach, emphasizing informal questioning, looking for deep and accurate information and considering the needs and preferences of the interviewee.

Interaction effect: Changes in a variable caused by changes in another variable to which it is related.

Interdepartmental (standing) committees: Relatively *permanent* interdepartmental bodies set up to allow departments to engage in regular joint decision-making (adopted from Mintzberg (1993 p. 83)).

Inter-organizational network: A form of inter-organizational relationship consisting of all organizations in a population which are linked together by a specified type of relation (adapted from Aldrich (1979 p. 281)).

Inter-organizational relationship (IOR): The total of an organization's relationships with other organizations in its environment. It is composed of "a group of organizations formed in a temporary alliance for a limited purpose" (Aldrich 1979 p. 280). On a continuum of increasing integration they can be classified into (a) dyadic IOR, (b) inter-organizational set, and (c) inter-organizational network (adapted from Hall (1991 p. 217)).

Interview: A method of data collection that gathers information through oral questioning.

Interview guide: A set of questions and instructions used by the interviewer during interviewing.

Interviewer bias: Data distortion stemming from the presence and/or certain traits of the interviewer.

Items: Elements of a whole, e.g. of a scale or questionnaire. It can be a question, a statement, or stimulus, for which the opinion of the subjects is sought.

Key success factor: *see* → Critical success factor.

Lateral (horizontal) span of control: Chief executive's span of control, or the ratio of subordinates to first line supervisors (adapted from Pugh *et al.* (1976 p. 53)).

Leadership style: The approach used by a leader to stimulate patterning of behavior in some group and elicit the followers' voluntary compliance in a broad range of matters.

Leadership: The ability, based on the personal qualities and behavior of the leader, to stimulate patterning of behavior in some group and thus to elicit the followers' voluntary compliance in a broad range of matters (based on Gouldner (1950 p. 17) and Etzioni (1965 pp. 690-691)).

Liaison personnel: "Integrating managers" (Mintzberg 1993 p. 83)) whose specific job it is to coordinate the efforts of several departments for purposes of a specific project (adapted from Miller (1986 p. 559)).

Liaison: The integration of organizational activities through the use of → structural and → processual integrative devices (adapted from Miller (1986 p. 543)).

Likert scale: A scale introduced by Likert employing a set of response categories ranging from very positive to very negative, one of which the respondent has to choose.

Longitudinal studies: Studies using the same sample and the same techniques carried out more than once (also called panel studies).

Management control: Planning, co-ordinating, monitoring and providing feedback about progress in achieving the task of the organization (Eilon 1962).

Management: The coordination (signaling) and motivation (control) of resources towards predetermined goals.

Management model: The structural and managerial choices of a company.

Mass-production: The large-scale fabrication of many standard items (based on Woodward (1958; 1965). It represents a movement on a continuum from Woodward's custom to small-batch to large-batch to production line to continuous process technology (adapted from Miller (1986 p. 544)).

Mean: The average value.

Median: The value that divides an ordinally ranked distribution into two equal parts.

Methodology: The science of method; the theory of method.

Mode: The value, in a distribution, with the highest number of observations; the most frequent value.

Multivariate statistics: Statistical methods dealing with more than one variable.

Multiple correlation: A form of correlation between a dependent variable and a group of independent variables.

Multiple-choice question: A question with a set of given responses.

National culture: Set of values and beliefs hold amongst the members of a nation.

Need of achievement: *see* → CEO Need for achievement.

Nominal scales: Scales in which items can only be defined as equal or unequal/same or different.

Nomological: Being based on, related to or accepting law-like, generally valid standards; endeavoring to establish law-like statements.

Null hypothesis (H_0): A hypothesis that defines traits of a sample and on which hypothesis testing is based; H_0 states that differences in the samples are caused by chance or methodological procedures and that they have the same traits as the population.

Objectivity: The notion that the social scientist should exclude subjective influences from the research process.

Observation: A method of data collection which employs vision as the main medium of collection.

Official goals: The general purpose of the organization as put forth in the charter, annual reports, public statements by key executives and other authoritative announcements (Perrow 1961 p. 855).

Open interviews: Unstructured and unstandardized interviews.

Open-ended questions: Questions without given response options.

Operationalization: The process of translating abstract concepts into workable (operational) indicators.

Operative goals: The ends sought through the actual operating policies of the organization revealing what the organization actually is attempting to do, regardless of what the official goals state as aims (adapted from Perrow (1961 p. 855)).

Ordinal scales: Scales in which elements are arranged according to their relationship to each other (e.g. greater, smaller, older, etc.).

Organization age: The number of years an organization is existing since its founding.

Organization: Collectivities oriented to the pursuit of relatively specific goals and exhibiting relatively formalized social structures (Scott 1992 p. 23).

Organizational complexity: *see* → Complexity

Organizational effectiveness: The degree to which an organization achieves its stated purpose and objectives.

Organizational efficiency: The productivity with which inputs are transformed into outputs.

Organizational goal: The general purpose and ends which an organization strives to achieve, including → "Official goals" and → "Operative goals" (adopted from Perrow (1961 p. 855)).

Organizational integration: The degree to which structural and processual integrative devices are used in an organization.

Organizational performance: *see* → organizational effectiveness.

Organizational properties: The organizational structure and management practices of companies.

Organizational structure: The distributions, along various lines, of people among social positions that influence the role relations among these people (Blau 1974 p. 12).

Outlier: Extreme value in a distribution that lies outside the rest of the distribution.

Ownership structure: The existing distribution of shares of an organization among private, collective, state and foreign investors.

Paradigm: The underlying presuppositions and world view scientists have of their discipline. The image a disciple has of its subject matter.

Parameter: A numerical value of the population, displayed using Greek letters.

Partial correlation: A form of correlation computed under the assumption that all other important variables are held constant.

Participant observation: A form of observation in which the observer becomes a member of the group or a part of the situation he observes.

Path analysis: A statistical method employing multiple regression to study causal relationships in recursive models.

Personal interviews: A form of data collection in which the interviewer and interviewee communicate with each other in a face-to-face situation.

Pilot study: A complete replica of the main study employed in a fraction of the sample.

Positivism: A school of thought developed by Comte seeing reality as the sum of sense impressions, equating social sciences with natural sciences, employing a deductive logic and quantitative research methods, and assuming that life is regulated through natural laws, which social sciences have to uncover and document.

Pre-test: A small-scale test administered before the introduction of a study aiming at measuring the efficacy of one or more elements of the main study.

Processual integrative devices: The use of, for example, planning and bargaining, to ensure interdepartmental interaction and mutually reinforcing decisions between departments (adapted from Miller (1986 pp. 559-560)).

Product-moment correlation: A form of correlation measuring the relationship between interval-scaled variables.

Propositions: A set of logically interrelated concepts establishing some degree of regularity.

Qualitative methods: Methods of social research that employ no quantitative standards and techniques; based on theoretical and methodological principles of symbolic interactionism, hermeneutics, and ethnomethodology.

Quantitative methods: Methods employing quantitative theoretical and methodological principles, techniques and statistics.

Random sampling: A type of sampling employing the theory of probability as the basis of choice of respondents.

Range: A measure of dispersion describing the distance from the lowest to the highest value of the distribution.

Rating scale: An ordinal scale in which respondents assign values to a research object according to a set of response categories.

Real goals: *see* → operative goals.

Regression analysis: A method employed to study the relationship between variables, especially the extent to which a dependent variable is a function of one or more independent variables.

Reliability: Consistency; the quality of an instrument to produce the same results when employed under the same conditions.

Reliability tests: Tests designed to measure reliability (e.g. re-test, split-half test, parallel-test).

Representativeness: The attribute of a sample to reflect all relevant elements of the population, and so to represent the population in the research study.

Residual category: The response category in a set of responses that is intended to cover all unspecified answers (e.g. "other"); the set of influences that cannot be specified or controlled further.

Role specialization: The degree to which specialist roles exist *within* functional areas (Pugh et al. 1968 p. 73, italics added). It is measured by the specificity and narrowing down of the tasks assigned to any particular role (Pugh et al. 1963 p. 302) performed by an individual.

Rotation: A technique of rotating factors in factor analysis in order to determine the optimal matrix of factor loading.

Sample: A group of units chosen to be included in a study.

Sampling: A method of choosing samples.

Scaling: The process of construction of the scales commonly used to study attitudes and opinions.

Semantic differential: A scaling method which employs standardized pairs of concepts placed at the end of a seven-point continuum on which the respondents are expected to place their responses.

Shape of hierarchy: The number of levels in the organization's hierarchy and associated administrative density.

Size: The number of full-time employees of an organization.

Social capital: A set of resources rooted in relationships (Nahapiet and Ghoshal 1998 p. 243).

Spearman's rho (*r*): The coefficient of Spearman's correlation.

Specialization: The degree to which an organization's activities are divided into specialist roles (Pugh 1973 p. 46), i.e. the overall degree of → Functional specialization and → Role specialization.

Split-half method: Method of testing reliability by halving the data and comparing the correlation coefficients of the halves.

SPSS ("Statistical Programs for Social Scientists"): A popular method of statistical analysis by means of computers.

Spurious correlation: A correlation that does not hold when conditions change or another variable is introduced.

Standard deviation: The square root of the variance. A measure of → dispersion.

Standardization: The extent to which there are rules or definitions that purport to cover all circumstances and that apply invariably (Pugh et al. 1963 p. 303).

Standardized interview: A form of interview using strict content and procedures, ensuring uniformity in approaching the respondents and in collecting the data.

Statistics: Numerical values of a *sample* displayed using Latin letters (the opposite of parameters).

Strategic orientation: A composite measure describing the elements of a company's overall resource deployment pattern to achieve its stated objectives

Stratified sampling: A sampling technique in which the population is divided into strata and samples are taken from each stratum.

Structural integrative devices: The use of → Interdepartmental committees, → Task forces and → Liaison personnel to achieve compatibility among decisions in one area, as for example, R&D, with other areas, such as marketing (adapted from Miller (1986 p. 559)).

Structure: *see* → Organizational structure.

Structuring of activities: The degree to which the intended behavior of employees is overtly defined. A multi-dimensional construct of bureaucracy developed by Pugh *et al.* (Pugh et al. 1968 p. 85-86), including: (a) Aston standardization (Pugh et al. 1963 p. 303), (b) Aston formalization (Pugh et al. 1968 p. 75), and (c) Aston specialization (Pugh et al. 1968 pp. 72-73). Subsequently, "integration" was added as another dimension of bureaucracy.

Subcontracting: A particular form of → Inter-organizational relationships which is characterized by the outsouring of certain activities of the → value chain to other organizations with the objective of achieving a focus on → Core competencies and reduction in costs.

Survey: A method of data collection employing systematic and structured verbal or written questioning.

Task environment: That part of the total environment of management which is potentially relevant to the goal-setting and goal attainment of the focal organization (adapted from Dill (1958)).

Task force: Temporary body set up to facilitate interdepartmental collaboration on a specific project (Miller and Droege 1986 p. 559).

Technology: The means or processes used by the organization for changing inputs into outputs (adapted from Mintzberg (1993 p. 128)).

Tests of significance: A test aiming to ascertain whether an observed difference is statistically significant. Measures the degree to which differences in data are random or real, in order to decide whether H_0 has to be rejected (if differences are real) and the alternative hypothesis be accepted.

Theory: A set of logically and systematically interrelated propositions describing and explaining social phenomena.

Trait validity: The degree of convergent and discriminant validity.

Transaction: (1) An exchange involving goods, services, or money. (2) The largest unit of economic activity that cannot be further subdivided and performed by different people.

Transaction costs: Any activity which is engaged in to satisfy each party to an exchange that the value given and received is in accord with his expectations (Ouchi 1980 p. 130). They are the costs of carrying out a transaction or the opportunity costs incurred when an efficiency-enhancing transaction is not realized.

Triangulation: A research approach which employs more than one method of data collection and analysis.

Uncertainty: *see* → environmental uncertainty.

Validity: The ability to produce findings that are in agreement with theoretical or conceptual values. The capacity to measure what a method is intended to measure.

Value chain: The generic collection of an organization's strategically relevant individual primary and support activities representing the company's total revenue (adapted from Porter (1994 p. 169-171).

Variance: A measure of dispersion; the average distance of the elements of a distribution from the mean.

Vertical communication: The lateral flow of information in an organization up or down the hierarchy.

Vertical integration: Bringing two or more successive stages in production and distribution under common ownership and management (Milgrom and Roberts 1992 p. 605). *Upstream* (or backwards) integration moves in the direction of the focal organization's supply. *Downstream* (or forward) integration moves in the direction of distribution of the focal organization's products or services.

Vertical span of control: Number of job positions between the chief executive and the employees directly working on the output including both levels (adapted from Pugh *et al.* (1976 p. 53)).

Workflow integration: A measure of technology developed by the Aston researchers, defined as the degree of integration achieved in an organization's work process (Pugh 1973 p. 54).

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