

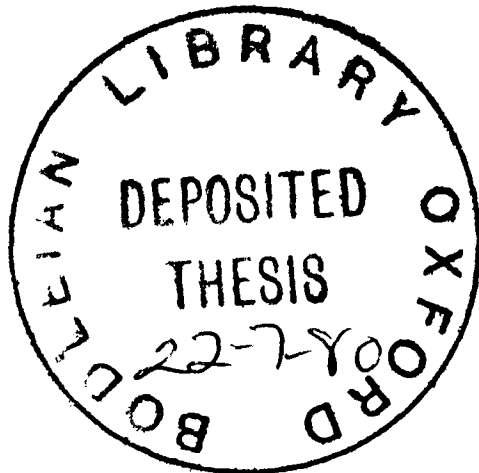
UNIVERSITY OF OXFORD

SAVINGS BEHAVIOUR AND SAVINGS MOBILIZATION  
IN DEVELOPING COUNTRIES:  
A COMPARATIVE ANALYSIS OF THE PHILIPPINES AND THAILAND

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by

HANS-PAUL BÜRKNER



St. Catherine's College  
Oxford

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## ABSTRACT

This study analyzes the mobilization of domestic resources in the Philippines and Thailand, with special emphasis on the financial sector. The analysis consists of three parts. In the first part, the development of the level of savings in both countries is evaluated and alternative savings theories are examined. For households, the most important savings sector, the official national income accounts estimate is compared with a flow-of-funds estimate based on data compiled from a multitude of sources. The estimation of alternative savings functions reveals that income and income distribution are the main determinants of the level of savings, while interest rates, inflation, foreign capital inflow and financial intermediation have only a small impact overall.

In the second part of the study, the performance of the Philippine and Thai financial systems with respect to savings mobilization is evaluated. The six main financial instruments, that is, deposits, deposit substitutes, long-term debt securities, corporate shares, life insurance and employee benefit funds are analyzed with respect to accessibility, liquidity, yield, risk, product variation and information. It is argued that weaknesses in the financial systems and lack of attractive financial instruments are mainly due to ill-conceived government regulations and insufficient initiative on the part of the private financial institutions.

In the third part of the analysis, the structure of personal savings and the factors that influence it are studied. In order to explain the allocation of surplus funds among various financial instruments, the portfolio selection approach is applied. This is the first such attempt for developing economies. The results suggest that the framework of expected utility maximization in the form of mean-variance analysis is not adequate to explain fully the choice behaviour of individual investors in the Philippines and Thailand.

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List of Abbreviations

฿ Baht - Thai Currency

₱ Peso - Philippine Currency

Journals and Newspapers:

AER American Economic Review

BDS Bangladesh Development Studies

BER Bangladesh Economic Review

BISI Bulletin of the International Statistical Institute

BIT Business In Thailand

BOECB Bank of England Quarterly Bulletin

BP Bangkok Post

BR Business Review (Thailand)

BT Business Times (Thailand)

CB Countryside Banking (The Philippines)

DE Daily Express (The Philippines)

EC Econometrica

EDCC Economic Development and Cultural Change

EJ Economic Journal

ER Economic Record

FD Finance and Development

FT Financial Times

IEJ Indian Economic Journal

IER International Economic Review

IMFSP International Monetary Fund, Staff Papers

JASA Journal of the American Statistical Association

JB Journal of Business

JDE Journal of Development Economics

JDS Journal of Development Studies

JEL Journal of Economic Literature

|        |                                                             |
|--------|-------------------------------------------------------------|
| JF     | Journal of Finance                                          |
| JFE    | Journal of Financial Economics                              |
| JIE    | Journal of International Economics                          |
| JMCB   | Journal of Money, Credit and Banking                        |
| JPE    | Journal of Political Economy                                |
| MB     | Monthly Bulletin of the Bank of Thailand                    |
| MS     | The Manchester School of Social and Economic Studies        |
| OBES   | Oxford Bulletin of Economics and Statistics                 |
| PFS    | Philippine Financial Statistics                             |
| PRBE   | Philippine Review of Business and Economics                 |
| RES    | Review of Economics and Statistics                          |
| REStud | Review of Economic Studies                                  |
| RIW    | Review of Income and Wealth                                 |
| SB     | Statistical Bulletin of the Central Bank of the Philippines |
| TI     | The Investor (Thailand)                                     |

Philippine Institutions:

|           |                                                                                       |
|-----------|---------------------------------------------------------------------------------------|
| BCS       | Bureau of Census and Statistics                                                       |
| CBP       | Central Bank of the Philippines                                                       |
| CBP, DER  | Central Bank of the Philippines, Department of<br>Economic Research                   |
| CBP, DFI  | Central Bank of the Philippines, Department of<br>Financial Intermediaries (Non-Bank) |
| CBP, SRO  | Central Bank of the Philippines, Supervisory<br>Reports Office                        |
| DBP       | Development Bank of the Philippines                                                   |
| GSIS      | Government Service Insurance System                                                   |
| LBP       | Land Bank of the Philippines                                                          |
| MSE       | Manila Stock Exchange                                                                 |
| MSEI      | Makati Stock Exchange                                                                 |
| NEC       | National Economic Council                                                             |
| NEDA      | National Economic and Development Authority (formerly<br>NEC)                         |
| NCSO      | National Census and Statistical Office                                                |
| OIC       | Office of the Insurance Commissioner                                                  |
| PDIC      | Philippine Deposit Insurance Corporation                                              |
| SEC, IRSD | Securities and Exchange Commission, Investment Research<br>and Statistics Department  |
| SSS       | Social Security System                                                                |

Thai Institutions:

|          |                                                                   |
|----------|-------------------------------------------------------------------|
| BOT      | Bank of Thailand                                                  |
| BOT, DER | Bank of Thailand, Department of Economic Research                 |
| GSB      | Government Savings Bank of Thailand                               |
| MC, OI   | Ministry of Commerce, Office of Insurance                         |
| NEDB     | National Economic and Social Development Board                    |
| NESDB    | National Economic and Social Development Board<br>(formerly NEDB) |

NSO        National Statistical Office

SET        Securities Exchange of Thailand

SET, DRP   Securities Exchange of Thailand, Department of  
             Research and Planning

TISCO     Thai Investment and Securities Company Limited

List of Symbols:

- AC - Change in the Rate of Inflation  $(dp/dt)/(dp/dt)_{-1}$
- $\dot{AP}$  - Two-Year Average of Percentage Change in GNP Deflator  
(GDP Deflator for Thailand)
- BO - Number of Bank Offices
- FI - Index of Private Financial Assets Outstanding with  
1950 as Base Year
- FY - Financial Assets Held by the Private Sector to Gross  
National Product (Gross Domestic Product for Thailand)
- $i_{TD}$  - Nominal Rate of Interest on Time Deposits
- IA - Ratio of Industrial to Agricultural Income
- IF - Financial Assets Held by the Private Sector with  
Financial Intermediaries
- IFY - Financial Assets Held by the Private Sector with  
Financial Intermediaries to Gross National Product  
(Gross Domestic Product for Thailand)
- $\dot{P}$  - Percentage Change in GNP Deflator (GDP Deflator for  
Thailand)
- PL - Ratio of Profit to Labour Income
- $r_{TD}$  - Real Rate of Interest on Time Deposits
- $R_{CB}$  - Expected Rate of Return on Corporate Bonds
- $R_{CS}$  - Expected Rate of Return on Corporate Shares
- $R_{DD}$  - Expected Rate of Return on Demand Deposits
- $R_{DS}$  - Expected Rate of Return on Deposit Substitutes
- $R_{GB}$  - Expected Rate of Return on Government Bonds
- $R_{OB}$  - Expected Rate of Return on Other Bonds
- $R_{SD}$  - Expected Rate of Return on Savings Deposits
- $R_{TD}$  - Expected Rate of Return on Time Deposits
- $S_F$  - Foreign Savings (Foreing Capital Inflow)
- $S_G$  - Gross Domestic Savings

|           |                                                                |
|-----------|----------------------------------------------------------------|
| $S_H$     | - Household Savings                                            |
| $S_P$     | - Personal Savings                                             |
| $T$       | - Total Taxes                                                  |
| $T_D$     | - Total Direct Taxes                                           |
| $T_{DH}$  | - Direct Taxes on Households                                   |
| $T_I$     | - Indirect Taxes                                               |
| $V_C$     | - Currency plus Demand Deposits                                |
| $V_{CC}$  | - Currency                                                     |
| $V_{CB}$  | - Corporate Bonds                                              |
| $V_{CS}$  | - Corporate Shares                                             |
| $V_{DD}$  | - Demand Deposits                                              |
| $V_{DS}$  | - Deposit Substitutes                                          |
| $V_{EBF}$ | - Employee Benefit Funds                                       |
| $V_{ED}$  | - Exogenous Deposits                                           |
| $V_{GB}$  | - Government Bonds                                             |
| $V_L$     | - Liquid Assets                                                |
| $V_{LI}$  | - Life Insurance                                               |
| $V_{LT}$  | - Long-Term Assets                                             |
| $V_{NL}$  | - Non-Liquid Assets                                            |
| $V_{OB}$  | - Other Bonds                                                  |
| $V_{OD}$  | - Other Deposits                                               |
| $V_{OS}$  | - Other Securities                                             |
| $V_{SD}$  | - Savings Deposits                                             |
| $V_{TD}$  | - Time Deposits                                                |
| $V_{TF}$  | - Trust Funds                                                  |
| $W_O$     | - Wealth                                                       |
| $X$       | - Export Earnings                                              |
| $Y_D$     | - Disposable Income                                            |
| $Y_G$     | - Gross National Product (Gross Domestic Product for Thailand) |

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## INTRODUCTION

### A. The Setting of the Problem

Numerous academic studies, development plans and government policies emphasize the importance of foreign resources for the development process, such as aid, loans and direct investments. These resources are substantial for various developing countries and have, in some instances, helped to increase the rate of growth. However, they cannot be a substitute for an improvement in domestic resource management, that is, a more effective mobilization and more efficient allocation of domestic funds.

The authorities in most developing countries have set out ambitious savings and investment targets, but in general they have failed to implement a viable strategy and to refine the means to achieve their objectives. In particular, the role of financial development in improving resource management has been neglected. This holds true also for economic studies. Despite the analyses of Gurley and Shaw, Patrick, Porter, Goldsmith, McKinnon and Shaw,<sup>1</sup>

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<sup>1</sup> John G. Gurley and Edward S. Shaw, Money in a Theory of Finance (Washington, D.C., The Brookings Institution, 1960); Hugh T. Patrick, 'Financial Development and Economic Growth in Underdeveloped Countries', EDCC, 14 (1965-66), 174-89; Richard C. Porter, 'The Promotion of the "Banking Habit" and Economic Development', JDS, 2 (1965-66), 346-66; Raymond W. Goldsmith, Financial Structure and Development (New Haven, Yale University Press, 1969); Ronald I. McKinnon, Money and Capital in Economic Development (Washington, D.C., The Brookings Institution, 1973); Edward S. Shaw, Financial Deepening in Economic Development (New York, Oxford University Press, 1973).

which have focussed on financial development and its interaction with 'real' development, a thorough understanding of the impact of financial intermediaries and financial markets on the mobilization and allocation process is still lacking.

Three aspects of domestic resource management have to be distinguished.

- (1) The saving-investment aspect, which refers to the size of funds that are mobilized and allocated and to the factors that determine the size of these funds.
- (2) The institutional aspect, which comprises the activities of financial institutions and monetary authorities to mobilize savings and to allocate credit. These activities find their expression mainly in the financial instruments that are offered to lenders and borrowers and the conditions under which the instruments are offered.
- (3) The portfolio aspect, which is concerned with the structure of the funds that are accumulated and the considerations that influence the choice behaviour of economic units. Savings can be on a voluntary, contractual or compulsory basis. They can occur in the form of short-term or long-term assets. They can flow directly to deficit units or indirectly through financial intermediaries. On the credit side, the portfolio aspect involves the flow of funds into different sectors or regions of the economy, to large enterprises or small scale industries.

Before an effective strategy of domestic resource management is developed, it is essential to analyze these three aspects and to identify possible areas for policy action.

B. The Objectives of the Study

This study concentrates on the mobilization of financial resources. It must be borne in mind that it deals only with one side of the problem. The mobilization and allocation of financial resources are equally important processes. Funds that have not been mobilized cannot be allocated, while successful mobilization efforts may be in vain, if funds are misallocated. Effective mobilization is a necessary condition for successful financial resource management, but it is not sufficient.

Gurley distinguishes four methods to mobilize resources:<sup>1</sup>

- (1) The financial technique, which involves a decentralized system of decision-making in which financial institutions intermediate between surplus units (savers) and deficit units (borrowers).
- (2) The centralizing technique, which can take various forms. Through central planning, surplus funds are pooled and then channelled to state enterprises. Furthermore, relative prices of both products and factors of production are fixed, so as to redirect surplus funds.

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<sup>1</sup> John G. Gurley, 'Financial Structures in Developing Economies', in: David Krivine (ed.), Fiscal and Monetary Problems in Developing States, Proceedings of the Third Rehovoth Conference (New York, Praeger Publishers, 1967), 99-116, pp. 104-5.

- (3) The fiscal technique, which is based on the imposition of taxes on individuals and business enterprises.
- (4) Inflation, brought about by an excess supply of money, which helps to finance government budget deficits and leads, at least initially, to a change in relative prices. This change, in turn, causes alterations in the incidence and size of surpluses and deficits.

The majority of developing countries have what is predominantly a decentralized economic system with rather limited central control. Decisions with respect to saving, investment, production and trade are taken by individual economic units rather than a single planning unit. This implies that, in the absence of financial self-sufficiency, a flow of funds has to be brought about between surplus and deficit units.

In many countries, neither the profits of public companies and the fixing of relative prices of products and factors of production, nor the taxes imposed on the private sector, are sufficient to finance government consumption and investment. Since, in addition, inflation is felt to have detrimental effects on the mobilization of resources rather than constituting a viable mobilization technique in itself,<sup>1</sup> the government, like many economic units in the private sector, often has to resort to financial intermediaries and financial markets to finance its deficits.

The above considerations indicate that the financial system plays a prominent role in domestic resource mobilization.

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<sup>1</sup> See, for example, Graeme S. Dorrance, 'The Effect of Inflation on Economic Development', IMFSP, 10 (1963), 1-47; Harry G. Johnson, 'Is Inflation a Retarding Factor in Economic Growth?' in: David Krivine (ed.) op.cit., 121-30.



The objectives of the analysis are threefold:

- (1) The first objective is to determine the level of domestic savings and to evaluate the relevance of various savings theories that have been formulated and tested mainly for developed countries. This aspect is called the demand side of savings mobilization, as it involves the demand for financial and tangible assets by economic units.

The appropriate strategy to mobilize savings varies with their level. Therefore, efficient mobilization depends crucially on having a fairly accurate account of the savings efforts made by the different sectors. In developing countries, the state of knowledge concerning the amount of domestic savings is highly unsatisfactory because of lack of data and poor methods of computation. In general, savings are derived as a residual and thus depend on the accuracy of the estimates with respect to income and expenditure which often leave much to be desired. A more sophisticated method of estimating savings follows the flow-of-funds approach, that is, subtracting the change in liabilities from the change in assets. In this study, the latter method is applied to estimate the savings of households. The household sector is of special importance, as it provides most of the surplus funds in the majority of developing countries.<sup>1</sup>

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<sup>1</sup> See, United Nations, Yearbook of National Accounts Statistics, 1977, Vol.1. In ten of the twenty-two developing countries, for which data are available, households represent the most important savings sector.



Various theories about the determinants of total domestic and household savings have been developed. Most of these focus on income as having the greatest impact on savings behaviour. Occasionally, other variables have been considered, such as interest rates, inflation, foreign capital inflow and financial intermediation. However, compared with the different income concepts, these are considered to be of only minor importance. If it is true that income is the dominant factor, this would imply that the level of savings is relatively independent of whatever decisions are taken by government authorities or by private financial institutions. This is a central issue in the analysis.

- (2) The second objective is to determine the performance of the financial system in its efforts to mobilize savings. This aspect is termed the supply side of savings mobilization. The activities of government authorities and financial institutions and the suitability of the financial instruments that are offered are analyzed.

Contrary to the standard theories, it is suggested that the financial system influences not only the structure of savings, but also its level, as it provides incentives for saving and means of saving.<sup>1</sup> The government, through the ministry of finance and the central bank, performs three important tasks: first, to maintain a sound financial system through the supervision and control of financial intermediaries

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<sup>1</sup> See, for example, Ronald I. McKinnon, *op. cit.*, in particular pp. 55-116.

and financial markets; second, to regulate the financial system, for example, by prescribing the premiums for life insurance policies; third, to develop the financial system by establishing new financial institutions or by initiating a capital market through the issue of bonds. The various private financial institutions do not only operate within the framework set by the government authorities, but further develop it themselves by offering new services, increasing their skills and adapting their instruments to the needs of the customer.

This study focusses on the financial instruments that are offered. What are the characteristics of these instruments and how do they have to be changed to make the mobilization efforts more effective? Would new instruments help to mobilize additional funds? These are some of the many questions that have to be dealt with on the supply side of savings mobilization.

- (3) The third objective is to specify the structure of personal savings and the factors that determine it. This aspect is defined as the allocation side of savings mobilization. It comprises a study of the choice behaviour of individual investors.

The structure of the financial resources that are mobilised, that is, their volatility, termstructure and direction, has an important bearing on the allocation of credit. The estimation of savings following the flow-of-funds approach provides the necessary data to undertake a structural analysis of people's savings behaviour.

In order to explain the allocation of surplus funds among the various financial instruments, several models have been suggested. The portfolio selection approach is the most important of these models. As yet it has not been applied to a developing country. The first such attempt is made in this analysis.

C. The Data Base

In order to achieve the objectives set out in the previous section, it would not be satisfactory to pursue a theoretical analysis supplemented with a few statistics to corroborate the theoretical findings. Rather, an empirical analysis is needed.

Ideally, one would like to analyze a broad range of countries with different experiences, so that the conclusions that are derived might reveal a general pattern of behaviour and performance. However, in order to provide the necessary depth in the analysis, only two countries, the Philippines and Thailand, are considered. The reasons for choosing these countries are several. Besides data and language considerations, their respective economic development processes served as the main criterion. On the one hand, the developments in the Philippines and Thailand are characterized by many differences. The most important differences and of special significance for this analysis are, first, the greater complexity of the financial system in the Philippines and, second, the passiveness that characterizes financial and monetary policy in Thailand,

in contrast to the manifold activities undertaken by the monetary authorities in the Philippines, in particular, with respect to mobilizing savings. On the other hand, the comparison is only viable, because the basic economic structures in the Philippines and Thailand are similar in many respects.<sup>1</sup> Both economies have about the same size of population and gross national product, and in both cases, the income distribution is very skewed. Hence, as of the mid-seventies, the average standard of living in the two countries is very similar. Both the Philippines and Thailand are characterized by open dualistic and market-oriented economies. Agriculture still represents the backbone, but at the same time, industry is steadily progressing. The unbalanced nature of development is felt not only with respect to income distribution, but also in an increasing concentration of economic activities in the Manila and Bangkok areas respectively, to the detriment of the rest of the country. Finally, it has to be noted that literacy rates in both countries are comparatively high - at about 70 per cent - which has important implications for the dissemination of information.

The analysis covers the period 1950 to 1977. In order to construct the time-series for personal savings and for the analysis of the portfolio behaviour of individual

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<sup>1</sup> For a detailed analysis of the various aspects of economic development in the Philippines and Thailand, see International Labour Office, Sharing in Development, A Programme of Employment, Equity and Growth for the Philippines (Geneva, ILO, 1974); The World Bank, The Philippines, Priorities and Prospects for Development (Washington, D.C., IBRD, 1976); Robert Ho and E.C. Chapman (eds.) Studies of Contemporary Thailand (Canberra, Australian National University, 1973); Prateep Sondysuvan (ed.), Finance, Trade and Economic Development in Thailand (Bangkok, Sompong Press, 1975).

investors, data and information have been collected from all major financial institutions in the Philippines and Thailand. There are some data, particularly for the 1950s, that have to be regarded with caution. Moreover, in various instances, the estimation process necessitated rather strict assumptions. Consequently, the estimates for several financial and tangible assets indicate no more than approximate magnitudes. The complete set of time-series for both stocks and flows, the data sources and the methods, by which the time-series are estimated, are presented in the statistical appendix.

D. The Structure of the Study

In Chapter II, the theoretical foundations of savings behaviour and savings mobilization are analyzed. First, the major theories of saving are reviewed and their relevance to developing countries investigated. In the second part of Chapter II, the literature on the role of financial development in the process of savings mobilization is surveyed. This is followed by the construction of a framework with which the impact of financial institutions on the mobilization process can be highlighted. Special attention is drawn to the financial instruments that are offered and to their features. Third, the portfolio selection approach, which represents the framework for the analysis of the choice among various savings instruments, is described. Within this framework, several models are presented that are employed to explain the choice behaviour of individual

investors in the context of a developing economy.

In Chapter III, a detailed account is given of the development of investment, domestic and foreign savings for the period 1950-1977 to determine the self-sufficiency of the two countries and the mobilization efforts needed in the future. For the most important savings sector - that is, households - alternative savings estimates are compared. Subsequently, the savings functions that have been specified in Chapter II are tested.

In Chapter IV, the policies of private financial institutions and monetary authorities with respect to savings mobilization are analyzed. Each financial asset is discussed in terms of accessibility, liquidity, yield, risk, product policy and information, to the extent that these items either have an important positive impact on the mobilization efforts or pose a constraint. Numerous cross-references indicate the interdependence of the markets for different financial instruments.

The allocation side of savings mobilization is analyzed empirically in Chapter V. After presenting the overall structure of personal savings, an attempt is made to explain the choice behaviour of individual investors with respect to financial instruments, applying the portfolio models laid out in Chapter II. Chapter VI summarizes the major conclusions.

CHAPTER II  
THE THEORETICAL FOUNDATIONS OF  
THE ANALYSIS OF SAVINGS BEHAVIOUR  
AND SAVINGS MOBILIZATION

A. Introduction

This chapter examines the theoretical framework for the analysis of savings behaviour and savings mobilization.

The three dimensions of savings mobilization, that is, the demand for savings instruments, the supply of such instruments by financial intermediaries and financial markets and the allocation of surplus funds among various savings instruments, are strongly interrelated, although they are not treated within a single model and although the methodology applied in analyzing them differs widely. The allocation of surplus funds among various savings instruments depends on the total amount of savings, and both demand and allocation are influenced by the supply of instruments and in turn influence the structure of the financial system.

In section B, the theories of domestic and household savings behaviour are reviewed, their applicability to developing countries is discussed and functions that can be tested with the available data are specified. Three categories of savings functions are distinguished: those which emphasize various income concepts, those which emphasize income distribution and those which emphasize monetary and financial developments.



Section C analyzes the supply side of savings mobilization. The role of government authorities, financial intermediaries and financial markets in the mobilization process is investigated. Special emphasis is given to the financial instruments that are offered, since these represent the main transmission mechanism through which the financial system influences people's savings behaviour. The introduction of the concept of a profile of financial instruments draws attention to those features of the instruments which determine their attractiveness.

The allocation of savings among various types of assets, financial as well as tangible, and the accumulation of liabilities are studied in section D. After discussing the decision-making process of individuals with respect to consumption and saving, and after specifying an objective function, which is supposed to form the basis for the allocation behaviour of individual investors, alternative portfolio models are presented. It is hypothesized that these models, which adhere to expected utility maximization in terms of mean-variance analysis, represent a convenient approximation of choice behaviour.



B. Theories of Domestic and Household Savings Behaviour

1. The Applicability of Standard Savings Theories to Developing Countries

Before the standard savings theories are reviewed, it is necessary to consider the problem of their applicability in the context of a developing economy.

Essentially, two groups of studies can be distinguished. The first applies the savings functions derived for developed economies rather indiscriminately to developing economies.<sup>1</sup> The second much smaller group questions the validity of the standard savings theories for developing countries. The latter studies emphasize that the large majority of the population in these countries are self-employed either in farming or in the small business sector, so that the dichotomy hypothesized between saving and investment and even between consumption and investment is often invalid.<sup>2</sup> Rather than analyzing consumption and saving separately, one must visualize them as part of a continuous production-consumption-saving-investment process. Surplus funds are largely reinvested immediately by purchasing land, cattle or equipment, irrespective of any more remunerative investment opportunities in financial institutions. Part of the savings take the form of labour time used to improve land or buildings. Moreover, living near or at times even below the subsistence

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<sup>1</sup> See, for example, K.L. Gupta, 'Personal Saving in Developing Countries: Further Evidence', ER, 46(1970), 243-49.

<sup>2</sup> Compare Mohiuddin Alamgir, 'Rural Savings and Investment in Developing Countries: Some Conceptual and Empirical Issues', BDS, 4 (1976), 1-48, pp. 2-7.

level implies that strict lines between consumption and investment are difficult to draw, as the intake of food might add to the production potential as much or even more than capital investment.<sup>1</sup>

This causes serious problems with respect to the measurement of savings, in particular rural savings, and suggests that in many cases the latter are underestimated. However, it does not dramatically alter the savings behaviour as conceived in the standard theories. The complementarity between savings and investment can easily be incorporated in these models, as is indicated by McKinnon's analysis, although more emphasis has to be given to the impact of interest rates on the level of savings.<sup>2</sup>

Other objections that have been raised concern the low level of income, constraints on the supply of savings instruments, low life expectancy, the extended family system and a greater uncertainty with respect to economic and political development, and consequently, a tendency towards short-term rather than long-term planning.

An examination of the distribution of savings by income group, and of the savings motives of people in developing countries, sheds substantial doubt on the validity of the above objections. Conspicuous consumption of the rich and under-estimation of savings of the poor notwithstanding, the

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<sup>1</sup> See *ibid.*, p.11.

<sup>2</sup> Ronald I. McKinnon, *op. cit.*, pp.123-9.

upper income and wealth groups are responsible for the bulk of any surplus that is generated by the household sector in many developing countries.<sup>1</sup> Many of their members have been educated in Europe and the United States and many others are in frequent contact with these cultures through travelling abroad, which has led to the acquisition of western habits. In addition, the increasingly sophisticated financial systems in many developing countries offer a broad range of financial instruments similar to that in developed countries to those who can afford it, so that institutional savings constraints are of little importance to the main savings groups. It should be noted, however, that although the saving by the majority of people in developing countries is comparatively small, it is not negligible and should certainly not be disregarded in any strategy to mobilize more savings.

The motives of saving of people in developing countries as expressed in various surveys suggest that the above objections, persuasive as they may be, are insufficient to invalidate the standard savings theories.<sup>2</sup> Savers in the Philippines, for example, emphasized emergencies, the future of the family and the children in particular, the education of children and planned purchases of goods as the major motives for saving. In Thailand, 'old age', emergencies, children's education and plans for the future featured most

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<sup>1</sup> See, for example, Montek S. Ahluwalia, 'Income Inequality: Some Dimensions of the Problem', in: Hollis Chenery et al. (eds.) Redistribution with Growth (London, Oxford University Press, 1974), 3-37, pp. 24-6.

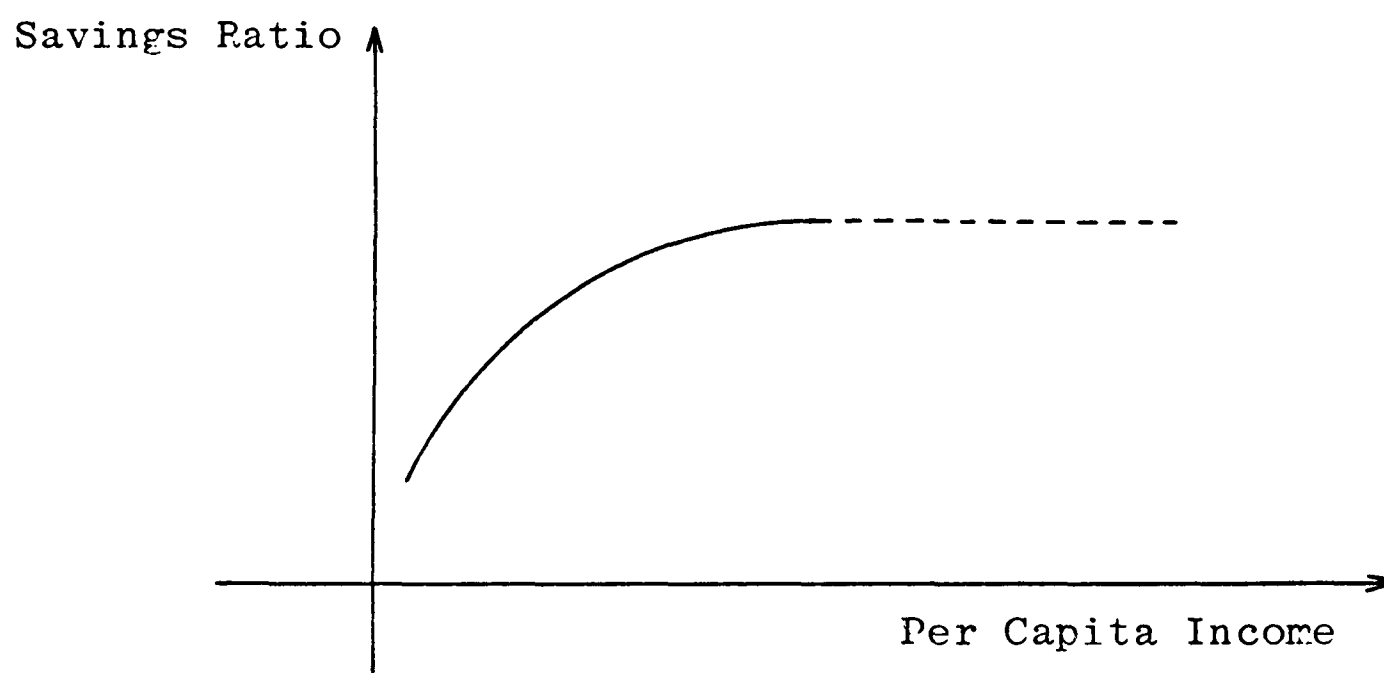
<sup>2</sup> See Consumer Pulse, 'Project Save, Attitude Preference Survey' (CBP, mimeo), p.28. The results for Thailand are taken from a survey which was conducted by the Bangkok Bank in 1975.

prominantly among savers. Overall, these motives do not differ significantly from those expressed in developed countries.

Therefore, it seems justifiable to assume that models which explain the savings behaviour in developed countries can also be useful to explain savings behaviour in many developing countries.

However, one important qualification has to be made. While the long-run savings ratio in developed countries is roughly constant, in developing countries an increase in the ratio, at least in the early stages of development, is often recorded. Cross-country analyses suggest the following function.<sup>1</sup>

Diagram 2.1. The Change in the Savings Ratio During the Process of Development




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<sup>1</sup> See Luis Landau, 'Savings Functions for Latin America', in: Hollis Chenery (ed.) Studies in Development Planning (Cambridge, Harvard University Press, 1971), 299-321, pp. 304-14.

The increase in the savings ratio has been explained by the many investment opportunities that arise after the process of economic development has started.<sup>1</sup> The production and marketing of many products become viable and in turn stimulate through forward and backward linkages other investment projects. Those surplus units which do not have own business enterprises can resort to financial intermediaries and financial markets, which offer a widening range of savings instruments. These opportunities enhance savings efforts that beforehand had been frustrated by the lack of remunerative outlets. After the full savings potential has been realized, the savings ratio levels off.

Other analyses have stressed the changes in income distribution.<sup>2</sup> During the early stages of development a redistribution of income in favour of profit earners or high income groups in general is noted, which, if they are the prime savers, leads to a rise in the savings ratio. Once the process of redistribution has been halted, the savings ratio stabilizes at a certain country-specific level. These aspects are considered in the analysis of savings determinants in sections B.3. and B.4. below.

## 2. The Income Approach

Various models that specify income as the main determinant of consumption and savings behaviour have been developed by Keynes, Duesenberry, Modigliani-Brumberg-Ando, Friedman and

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<sup>1</sup> See Albert O. Hirschman, The Strategy of Economic Development, (New Haven, Yale University Press, 1958), pp. 35-44.

<sup>2</sup> See Simon Kuznets, Modern Economic Growth (New Haven, Yale University Press, 1966), pp. 206-17 and 423-6.

others. In the following matrix, the different models are categorized according to the type of income variable used.

Diagram 2.2. A Categorization of the Main Income Hypotheses

|                             | Accumulated<br>Wealth | Past<br>Income | Current<br>Income | Future<br>Income | Social<br>Relationships |
|-----------------------------|-----------------------|----------------|-------------------|------------------|-------------------------|
| Absolute Income Hypothesis  |                       |                | X                 |                  |                         |
| Relative Income Hypothesis  |                       | X              | X                 |                  | X                       |
| Life-Cycle Hypothesis       |                       |                | X                 | X                |                         |
| Permanent Income Hypothesis |                       |                | X                 | X                |                         |
| Income Growth Hypothesis    | X                     |                |                   |                  |                         |

Whereas the absolute income hypothesis concentrates on current income, the non-Keynesian models extend the economic unit's decision-making horizon by adding a social and a time dimension. The relative income hypothesis introduces with its demonstration effect social relationships into the explanation of consumption and savings behaviour. In addition, Duesenberry emphasizes the importance of past experiences, represented by the ratio of current to past peak income.<sup>1</sup> Long-run income, or more precisely, the present value of the long-run income streams forms the basis of the life-cycle and the permanent income hypotheses. In response to both, Ball and Drake maintain that savers are shortsighted and adhere to a habit persistence view. They build their

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<sup>1</sup> Habit persistence effects are incorporated in various other models. See, for example, T.M. Brown, 'Habit Persistence and Lags in Consumer Behaviour', EC, 20(1952), 355-71.

model - in this study referred to as income growth hypothesis - on the idea of a proportional relationship between consumption and accumulated wealth.

The above categorization of the different income hypotheses follows the basic concepts, which they advance. In order to be empirically tractable, some of the models have been modified substantially and thereby lost - to some extent - their initial orientation. In the absence of information on future income, tests of the life-cycle and permanent income hypotheses have to rely on information on past periods. On the other hand, Ball and Drake, who emphasize habit persistence effects, introduce expectation effects into the savings function by deriving growth in income as the main determinant of the level of savings.

a. The Absolute Income Hypothesis

Keynes was the first who stated explicitly a direct relationship between consumption and income. In 'The General Theory' he argues on the basis of his 'fundamental psychological law': '. . . men are disposed, as a rule and on the average, to increase their consumption as their income increases, but not as much as the increase in their income'.<sup>1</sup> Consequently, the increase in savings is proportionally greater than that in income.

Keynes emphasizes 'precaution, foresight, calculation, improvement, independence, enterprise, pride and avarice'<sup>2</sup>

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<sup>1</sup> John Maynard Keynes, The General Theory of Employment, Interest and Money (London, Macmillan and Co., 1936) p.96.

<sup>2</sup> Ibid., p. 108.



as major motives for saving. This list of motives explains why Keynes speaks of a psychological law. Despite cultural differences between various countries, in particular between developed and developing ones, these saving motives are certainly also relevant for the behaviour of people in developing countries, although they probably carry different weights in different cultural and economic settings.

Although Keynes also considers past habits and the stock of wealth as determinants of consumption behaviour, in most specifications of the absolute income hypothesis all variables but current income are ignored.<sup>1</sup> Various models have been suggested to formulate the absolute income hypothesis. The most commonly used model postulates a stable linear relationship between savings and income:

$$1.1. \quad S_t = a_1 + b_1 Y_t + u_t$$

where S represents savings and Y income,

with  $a > 0$  and  $0 < b_1 < 1$ .

Houthakker rejects the hypothesis that the average propensity exceeds the marginal propensity to save, implied in the above model, and suggests instead that savings increase in proportion to income:<sup>2</sup>

$$1.2. \quad S_t = b_2 Y_t + u_t$$

with  $0 < b_2 < 1$ .

In the empirical analysis, both models will be tested.

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<sup>1</sup> Ibid., p. 97.

<sup>2</sup> See H.S. Houthakker, 'On Some Determinants of Saving in Developed and Under-Developed Countries' in: E.A.G. Robinson (ed.) Problems in Economic Development (London, Macmillan and Co., 1965), 212-224, p. 215.



b. The Relative Income Hypothesis

Duesenberry<sup>1</sup> derives the relative income hypothesis after rejecting two fundamental assumptions of the absolute income hypothesis, namely

- (1) that the consumption behaviour of every individual is independent of that of every other individual, and
- (2) that consumption relations are reversible in time, that is, a decline in income will result in a decline in consumption that in absolute terms is equal to the rise in consumption due to a rise in income.

Duesenberry argues instead that 'for any given relative income distribution, the percentage of income saved by a family will tend to be a unique, invariant and increasing function of its percentile position in the income distribution'.<sup>2</sup> The demonstration effect represents the theoretical basis for the interdependence of individuals' consumption and savings behaviour. Through the frequent contact with superior consumption goods, people will become dissatisfied with the goods consumed so far. The behaviour of friends and neighbours is a yardstick for one's own behaviour. They provide the channel through which the demonstration effect is most powerful. A higher standard of living, as exemplified through superior consumption patterns, becomes an end in itself and a social objective that forms people's behaviour.<sup>3</sup>

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<sup>1</sup> James S. Duesenberry, Income, Saving and the Theory of Consumer Behavior (Cambridge, Harvard University Press, 1962), p.1.

<sup>2</sup> Ibid., p.3.

<sup>3</sup> Ibid., p. 28.

Instead of the assumption of reversibility, Duesenberry postulates a habit persistence effect.<sup>1</sup> In addition to the absolute and the relative level of income, people take past levels of income into consideration when deciding on the amount of consumption and saving. In economic recessions, when incomes decline, they will not reduce their expenditure accordingly, but orientate it at the relative size of current to past peak income, so that

$$2.1. \quad S_t/Y_t = a_1 + b_1 Y_t/Y_0$$

where  $Y_0$  represents past peak income,

with  $b_1 > 0$ .

The habit persistence effect is of particular relevance to the behaviour of low income households in developing countries because a large part of them lives near or even below the subsistence level. Therefore, the maintenance of past levels of consumption in the case of a decline in income becomes a matter of survival. At times, people even have to borrow money to purchase food.

In the empirical analysis, only the habit persistence effect is considered. In order to render the relative income hypothesis comparable with the other income hypotheses, a modified specification of 2.1. is tested. The ratio of current to past peak income is reversed. Furthermore, past period's income is substituted for past peak income, since in the countries under consideration both have been identical except in three instances. Taking account of these modifications, the following savings function is specified:

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<sup>1</sup> Ibid., pp. 3-4.

$$2.2. \quad S_t = a_2 Y_t + b_2 Y_t - 1$$

with  $a_2 > 0$  and  $b_2 < 0$ .

It has to be emphasized that function 2.2. can only be regarded as a rough approximation of the relative income hypothesis, as it does not allow for the hypotheses incorporated in Duesenberry's model that the short-run marginal propensity to save varies with the ratio of current to past peak income and that the long-run marginal propensity varies with the rate of growth of income.

### c. The Life-Cycle Hypothesis

The life-cycle hypothesis suggests that the planning horizon of an individual decision-making unit covers his whole life-time.<sup>1</sup> It is based on the idea of maximizing life-time utility

$$3.1. \quad U = U(c_0, \dots, c_t, \dots, c_T)$$

subject to the budget constraint

$$3.2. \quad \sum_{t=0}^T \frac{y_t}{(1+r)^t} = \sum_{t=0}^T \frac{c_t}{(1+r)^t}$$

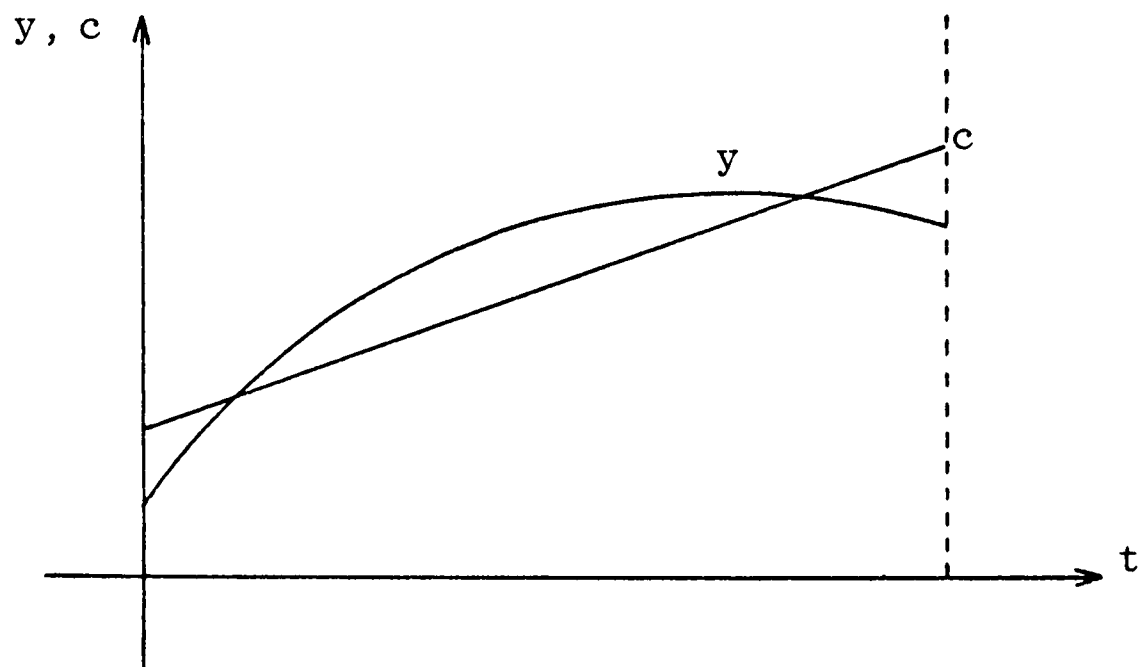
This constraint demands the present value of lifetime consumption to be equal to the present value of lifetime income, excluding the possibility of leaving either debts or assets after death. In diagram 2.3., the income and consumption scheme of a 'representative' individual is sketched.<sup>2</sup>

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<sup>1</sup> See Franco Modigliani and Richard Brumberg, 'Utility Analysis and Consumption Function: An Interpretation of Cross Section Data', in: K. Kurihara (ed.) Post-Keynesian Economics (New Brunswick, Rutgers University Press, 1954), pp. 388-436.

<sup>2</sup> The diagram is taken from William H. Branson, Macroeconomic Theory and Policy (New York, Harper and Row, 1972) p. 177.

Diagram 2.3. Life-Time Income and Consumption



It is assumed that income is low at the beginning and at the end of the life-span and comparatively high during the middle of the life-span. Through borrowing in the initial years, investing surplus funds while earning a high income and dissaving when income declines in later periods, the individual is able to smooth out the consumption stream, which can be constant or slightly increasing.

Assuming homogeneity of the utility function with respect to consumption at different points in time, the constraint maximization process leads to the following basic consumption function:

$$3.3. \quad c_t^T = q_t^T PV_t^T$$

where  $c_t^T$  represents total consumption of an individual of age  $T$ ;  $q_t^T$  is a proportionality factor which depends on the form of the utility function, the rate of return and the age of the individual; and  $PV_t^T$  stands for the present value of the individual's total resources.

In order to derive an aggregate consumption function, which is empirically tractable, certain modifications have to be made.<sup>1</sup>

The present value of total resources is disaggregated into

$$3.4. \text{PV}_t^T = a_{t-1}^T + y_{Lt}^T + \sum_{r=T+1}^N \frac{y_{Lt}^{eTr}}{(1+r_t)^{r-T}}$$

where  $a_{t-1}^T$  represents previous period's networth,  $y_{Lt}^T$  current labour income and  $y_{Lt}^{eT}$  expected labour income. The latter can be defined as

$$3.5. y_{Lt}^{eT} = \frac{1}{N-T} \sum_{r=T+1}^N \frac{y_{Lt}^{eTr}}{(1+r_t)^{r-T}}$$

so that 3.3. can be reformulated to read as follows:

$$3.6. c_t^T = q_t^T y_{Lt}^T + q_t^T (N-T) y_{Lt}^{eT} + q_t^T a_{t-1}^T$$

Aggregating consumption within and over age groups finally yields

$$3.7. C_t = a_1 y_{Lt} + a_2 y_{Lt}^e + a_3 A_{t-1}$$

If expected labour income is proportional to current labour income, 3.7. can be reduced to

$$3.8. C_t = a Y_{Lt} + b A_{t-1}$$

Because of limited data availability last period's networth will be approximated by last period's stock of financial assets. It is hoped that this will not bias the empirical results.

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<sup>1</sup> See Alberto Ando and Franco Modigliani, 'The "Life Cycle" Hypothesis of Saving: Aggregate Implications and Tests', AER, 53(1963), 55-73.

d. The Permanent Income Hypothesis

Like the life-cycle hypothesis, Friedman's permanent income hypothesis entails long-run planning with respect to consumption and saving.<sup>1</sup> It also follows the framework of constrained utility maximization, but specifies the main determinant of consumption behaviour, that is, the present value of total resources differently.

The permanent income hypothesis rests on three fundamental assumptions:<sup>2</sup>

- (1) Income and consumption can be disaggregated into a permanent and a transitory component.

$$4.1. Y = Y_p + Y_T$$

$$4.2. C = C_p + C_T$$

where permanent income is defined as the product of the present value of the individuals's wealth, both human and non-human, and the rate of return.

$$4.3. Y_p = r PV$$

- (2) The second hypothesis postulates that permanent consumption is a function of permanent income.

$$4.4. C_p = k(r, w, u)Y_p$$

where  $k$  depends on

- (a)  $r$ , the rate of interest at which the individual can save and borrow;
- (b)  $w$ , the relative size of human (non-property) to non-human (property) income; and
- (c)  $u$ , the individual's taste and preferences.

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<sup>1</sup> Milton Friedman, A Theory of the Consumption Function (Princeton, Princeton University Press for the National Bureau of Economic Research, 1957), in particular, pp.21-5.

<sup>2</sup> Ibid., pp. 25-31.

- (3) The transitory and permanent components of income and consumption are assumed to be independent of each other so that

$$4.5. \rho_{Y_T Y_P} = \rho_{C_P C_T} = \rho_{Y_T C_T} = 0$$

Consumption, therefore, depends systematically on the anticipated income stream over the individual's planning horizon. The deviation of actual from permanent income is due, but not systematically related, to random changes in income ( $Y_T$ ). According to Friedman, transitory income is largely saved rather than consumed, so that one would expect the marginal propensity to save out of  $Y_T$  to be one or near one.<sup>1</sup>

Since permanent income is an unobservable magnitude, various proxy variables have been constructed. Friedman himself suggests a weighted average of present and past income of the last seventeen years, where the weights decline exponentially. The Koyck transformation allows one to simplify this rather cumbersome approximation procedure and to derive an easily testable version of the permanent income hypothesis.<sup>2</sup> If permanent income can be defined as

$$4.6. Y_{Pt} = \sum_i \lambda^i Y_{t-i}$$

then 4.7.  $C_t = k Y_{Pt}$  becomes

$$4.8. C_t = k \sum_i \lambda^{i+1} Y_{t-i}$$

and 4.9.  $C_{t-1} = k \sum_i \lambda^{i+1} Y_{t-i-1}$

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<sup>1</sup> Ibid., pp. 27-30.

<sup>2</sup> See L.M. Koyck, Distributed Lags and Investment Analysis (Amsterdam, North Holland Publishing Company, 1954) pp. 19-22. It should be noted that the application of Koyck's transformation involves various econometric problems. See, for example, Phoebus J. Dhrymes, Distributed Lags: Problems of Estimation and Formulation (San Francisco, Holden-Day, 1971).



The subtraction of 4.9. from 4.8. renders

$$4.10. C_t = k Y_{pt} + \lambda C_{t-1}$$

or in the case of savings

$$4.11. S_t = (1-k)Y_t - \lambda Y_{t-1} + \lambda S_{t-1}$$

In empirical analyses of savings behaviour in developing countries, an alternative specification of the permanent income hypothesis has been very popular.<sup>1</sup> Friend and Taubmann follow an asset adjustment approach to derive savings as a linear function of permanent and transitory income.<sup>2</sup> On a priori grounds neither specification can be regarded as preferable. In this analysis, function 4.1. is applied, since it enables a better comparison of the performance of the permanent income hypothesis with the other income hypotheses.

#### e. The Income Growth Hypothesis

Ball and Drake criticize the life-cycle and permanent income hypotheses for imposing 'upon the individual consumer a rigorous course of intertemporal utility maximization, simple to assert, but difficult to execute'.<sup>3</sup> Alternatively, they develop a model that assumes individuals to be 'on average' short-sighted, because of the uncertainty that leads to large errors in expectations concerning the future.<sup>4</sup> The accumulation of assets is regarded as largely due to a

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<sup>1</sup> See, for example, Jeffrey G. Williamson, 'Personal Saving in Developing Countries: An Intertemporal Cross-Section from Asia', ER, 44(1968), 194-209, pp. 196-7.

<sup>2</sup> See Irwin Friend and Paul Taubmann, 'The Aggregate Propensity to Save: Some Concepts and their Application to International Data', RES, 48(1966), 113-123. For a further assessment of this model, see section III.D.1.

<sup>3</sup> R.J. Ball and Pamela S. Drake, 'The Relationship Between Aggregate Consumption and Wealth', IER, 5(1964)63-81, p. 63.

<sup>4</sup> Ibid., pp. 64-9.



precautionary motive, rather than as part of a life-time consumption plan.

The individual's utility is determined by the volume of consumption goods  $C_t$  and the stock of wealth  $W_t$  which is measured in terms of consumption goods.

$$5.1. U_t = f(C_t, W_t)$$

Under the assumption that the utility function (5.1) is homogeneous of degree one, its maximization subjection to the budget constraint

$$5.2. Y_t = C_t + W_t - W_{t-1}$$

renders the optimal relation between wealth and consumption to be proportional, that is,

$$5.3. W_t = kC_t$$

The problems of aggregating individual functions is ignored, so that 5.3. also represents the macro-relationship.

Substituting 5.3. into 5.2. leads to a consumption function of the form

$$5.4. C_t = (1 - s)Y_t + sC_{t-1}$$

$$\text{with } s = k/(1 + k).$$

The above model implies the following savings function:

$$5.5. S_t = s(\Delta Y_t + S_{t-1})$$

Although Ball and Drake stress that individuals are short-sighted, they introduce expectation effects into their model similar to those found in the permanent income hypothesis, by deriving income growth as a determinant of savings behaviour. While a small increase in income is likely to be consumed entirely, a large increase, in particular if it occurs over longer periods, influences the expectations of economic units and has a positive impact on savings behaviour.

It should be noted that the frameworks of the relative income, permanent income and life-cycle hypotheses also allow the derivation of growth of income as a determinant of savings.<sup>1</sup>

### 3. Incorporating Income Distribution into the Analysis of Savings Behaviour

So far, income has been treated as an aggregate, without giving consideration to its components and their impact on the level of savings. As people in different income groups or different social settings have different savings propensities, a changing income distribution will affect the total amount of savings as well as the savings ratio. In the following sections, income is disaggregated to determine to what extent savings behaviour can be explained further by incorporating income distribution into the analysis.

Four types of income distribution can be distinguished, although they overlap to some extent, since the same groups represent the major subsets of the income strata, functional income groups and sectors that are considered.

- (1) Personal income distribution refers to different income strata.
- (2) Functional income distribution involves the disaggregation of total income according to its source, for example, employees' compensation, income out of unincorporated business and property income.

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<sup>1</sup> See, for example, M.J.C. Surrey, 'Saving, Growth and the Consumption Function', OBES, 36(1974), 125-142.

(3) Sectoral income distribution can have several meanings.

One might undertake a disaggregation of the economy into industry and agriculture, or alternatively into the government, the corporate and the household sector.

(4) In so far as regional income distribution signifies the urban-rural dichotomy, it overlaps to a great extent with the distribution of income between industry and agriculture.

Only functional and sectoral income distribution are considered, because the available data only allow the testing of their impact on the level of savings.

a. Functional Income Distribution

The argument that the savings propensities out of labour and non-labour income are different, dates back to Ricardo and Marx. Indeed, savings out of labour income were neglected, because wages were regarded to be too low to allow for more than subsistence consumption.<sup>1</sup> This view has been reiterated for developing countries, for example, by Lewis, who asserts that 'practically all saving is done by people who receive profits or rents'.<sup>2</sup> Consequently, savings become a function of non-labour alone. This hypothesis is rejected in most savings studies. Labour as well as non-labour income are incorporated in the analyses of the impact of

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<sup>1</sup> See H.S. Houthakker, 'An International Comparison of Personal Savings', BISI, 38(1960), 55-69, p. 56.

<sup>2</sup> See W. Arthur Lewis, 'Economic Development with Unlimited Supplies of Labour', MS, 22(1954), 139-191, p. 157.

functional income distribution on the level of savings.

However, it is usually maintained that the marginal propensity to save out of non-labour income exceeds that out of labour income.<sup>1</sup>

Several explanations have been suggested as to why profit earners in developing countries, in particular entrepreneurs, should have a higher savings propensity than wage and salary earners.<sup>2</sup>

- (1) Entrepreneurs manage a depreciating stock of capital.
- (2) They possess a greater knowledge of capital market operations and therefore find more investment opportunities available and accessible to them.
- (3) They have a preference for internal finance so as to retain control over their business enterprises.
- (4) Their internal rate of return may be greater than that offered by the imperfect capital markets.
- (5) The greater instability of profit income implies a large transitory income component which in turn implies a higher savings ratio of profit earners compared with that of wage earners.

Following Klein,<sup>3</sup> functional distribution of income is incorporated in the savings function through the ratio of non-labour to labour income.

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<sup>1</sup> See, for example, Nicholas Kaldor, 'Alternative Theories of Distribution', REStud, 23(1955/56), 83-100, p. 95.

<sup>2</sup> See Allen C. Kelly and Jeffrey G. Williamson, 'Household Savings Behaviour in the Developing Economies: The Indonesian Case', EDCC, 16(1968/69) 385-403, pp. 389-90. The effect of personal income distribution is not considered.

<sup>3</sup> See Lawrence R. Klein, 'A Post War Quarterly Model: Description and Application', in: Models of Income Determination Studies in Income and Wealth, Vol. 28 (Princeton, Princeton University Press for NBER, 1964) 11-57, p. 16.

It is hypothesized that

$$1.1. S_t = a + b Y_t + c (P_t/L_t) + u_t$$

with  $c > 0$ ,

where  $(P_t/L_t)$  represents the ratio of non-labour to labour income.

Although an increasing proportion of the population draws income from different sources, and although one has to assume that households decide on the allocation of their total income between consumption and saving simultaneously rather than separately for different income components, the distinction between non-labour and labour income seems still meaningful, since the majority of households depend largely on one of the sources.

#### b. Sectoral Income Distribution

First, the economy is disaggregated into agriculture and industry. Economic development has long been associated with industrialization. The dual economy models of Lewis<sup>1</sup> and Fei/Ranis<sup>2</sup> provided the basis for the argument that resources have to be shifted from the agricultural to the industrial sector, if the take-off into self-sustained growth is to be achieved.

The increase in the savings ratio represents a central issue in this argument.<sup>3</sup> It is suggested that domestic savings are largely those of urban entrepreneurs, with little

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<sup>1</sup> W. Arthur Lewis, op. cit.

<sup>2</sup> John C.H. Fei and Gustav Ranis, Development of the Labour Surplus Economy (Homewood, Richard D. Irwin, 1964).

<sup>3</sup> W. Arthur Lewis, Development Planning (London, George Allen and Unwin Ltd., 1966), pp. 117-21.

being contributed by farmers. An expansion of the industrial sector relative to the agricultural sector is therefore regarded as a main precondition for a rise in the savings ratio, which is essential for the funding of the many investment projects to be implemented in the course of development.

The impression that savings out of agricultural income are negligible, however, might be due to a serious underestimation of this item, since investment by farmers in the form of cattle, land improvement, machinery or stocks of grain is difficult to assess. A careful distinction between expenditure for consumption and for investment purposes is needed before any conclusions can be drawn with respect to the relative importance of agricultural and industrial savings. It also has to be borne in mind that through the manipulation of internal terms of trade and the external exchange rate, which are often biased against the agricultural and in favour of the industrial sector, funds are mobilized that do not enter the figures on the total amount of agricultural savings.

Since data on the savings behaviour of farmers and urban entrepreneurs are not available, it is not possible to estimate their respective marginal propensities to save directly and thereby to determine the effect of a redistribution of income from the agricultural to the industrial sector on domestic savings. Instead, the impact of sectoral income distribution between industry and agriculture is estimated through the introduction of the ratio of industrial to agricultural

income into the savings function.

$$2.1. S_t = a_1 + b_1 Y_t + c_1 (IN_t/AG_t) + u_{1t}$$

with  $c_1 > 0$ ,

where  $IN_t/AG_t$  represents the ratio of industrial to agricultural income.

The second disaggregation of the economy is of the government and the private sectors. In the discussion on the determinants of the level of domestic savings, much attention has focussed on the possible effects of transferring income from households and corporations to the government sector through increased taxation. The effect of such a transfer on the level of savings depends on the impact of increased revenue on government saving and of a decline in income on private saving.

It is argued that the marginal propensity of the government sector to consume out of revenue is very high and in many developing countries higher than that of the private sector, so that a redistribution of income from the latter to the former leads to a decline in total domestic savings.<sup>1</sup> This phenomenon has been called 'Please-Effect'. In order to test the applicability of the above argument, the following savings functions are specified.

$$2.2. S_{Gt} = a_2 + b_2 Y_{Gt} + c_2 T_t + u_{2t}$$

with  $c_2 \lesseqgtr 0$ , and

$$2.3. S_{Ht} = a_3 + b_3 Y_{Ht} + c_3 T_{Ht} + u_{3t}$$

with  $c_3 < 0$ ,

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<sup>1</sup> See Stanley Please, 'Savings Through Taxation - Reality or Mirage', FD, 4(1967), No. 1, 24-32, in particular p. 26.



where  $S_G$  represents gross domestic savings,  
 $S_H$  household savings,  
 $Y_G$  gross domestic income,  
 $Y_H$  household income,  
 $T$  total taxes, and  
 $T_H$  taxes imposed on households.

Two problems have to be borne in mind in the appraisal of the impact of increased taxation on domestic savings. First, the data usually available on government savings often give a misleading impression of the actual savings and investment efforts. Expenditure on education, for example, is categorized as current expenditure, although it leads to an increase in human capital, while the outlay for the construction of the presidential palace falls under investment expenditure and thereby under government savings.<sup>1</sup> Similar problems arise, of course, with respect to private savings.

Second, the impact of taxation on savings depends crucially on the tax structure and the incidence of the various taxes. In developing countries, indirect taxes represent the most important proportion of the total volume of taxes, while direct taxes are of minor importance. Assuming that domestic savings are largely due to high-income households and corporations, an increase in direct taxes will have a more adverse effect on private savings than an increase in indirect taxes that is equal in size. Moreover, one would expect an increase in direct taxes to be recognized more clearly as a reduction in income than an increase in

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<sup>1</sup> See Raymond F. Mikesell and James E. Zinser, 'The Nature of the Savings Function in Developing Countries: A Survey of the Theoretical and Empirical Literature', JEL, 11(1973), 1-26, p. 16.



indirect taxes. Therefore,

$$2.4. S_{Gt} = a_4 + b_4 Y_{Gt} + c_4 T_{It} + d_4 T_{Dt} + u_{4t}$$

with  $c_4, d_4 \geq 0$ , and  $|c_4| \geq |d_4|$ ,

$$2.5. S_{Ht} = a_5 + b_5 Y_{Ht} + c_5 T_{It} + d_5 T_{DHt} + u_{5t}$$

with  $c_5, d_5 < 0$ , and  $|c_5| < |d_5|$ ,

where  $T_I$  represents indirect taxes,

$T_D$  total direct taxes, and

$T_{DH}$  direct taxes imposed on households.

The above discussion indicates that general statements on the relationship between the level of savings and taxes, as have been made by Please, need qualification.

#### 4. Financial and Monetary Determinants of Savings Behaviour

It is useful to divide the determinants of consumption and savings behaviour into three groups: those that determine the ability to save, those that enhance the willingness to save and those that increase the opportunity to save.<sup>1</sup>

The standard savings theories concentrate on the ability to save, represented by factors like income and wealth. So far, the monetary and financial determinants of savings behaviour that belong to the latter two groups have been given only minor consideration. Interest rates, inflation and capital inflow are likely to influence the willingness to save, although inflation might also be regarded as a factor which reduces the ability to save, while foreign capital inflow could provide savings opportunities that did

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<sup>1</sup> See U Tun Wai, Financial Intermediaries and National Savings in Developing Countries (New York, Praeger Publishers, 1972), pp. 85-98.

not exist prior to the inflow. Financial intermediation is regarded as a major determinant of the opportunity to save. The complete set of savings functions incorporating financial and monetary variables is presented at the end of this section.

a. Interest Rates

Classical economists stressed the importance of the interest rate as the major determinant of the level of saving. It was regarded as a reward for waiting to use income for expenditure purposes. A higher rate of return means a higher reward for postponing consumption and increased saving.<sup>1</sup> Unlike in the Keynesian theory, it was assumed that the interest rate level determines the equilibrium between saving and investment.

Chandavarkar, Khatkate, McKinnon and Shaw<sup>2</sup> have recently revived the idea of interest rates and interest rate changes as major instruments in the mobilization of savings. In particular, they have emphasized the distortions in the money and capital markets in the developing countries created by government interventions, as, for example, through the imposition of deposit and loan interest rate ceilings, which

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<sup>1</sup> See, Alfred Marshall, Principles of Economics, 3rd ed. (London, Macmillan and Co., 1930), pp. 230-36.

<sup>2</sup> Anand G. Chandavarkar, 'Some Aspects of Interest Rate Policies in Less Developed Economies, the Experience of Selected Asian Countries', IMFSP, 18(1971), 48-112; Deena R. Khatkate, 'Analytic Basis for the Working of Monetary Policy in Less Developed Countries', IMFSP, 19(1972) 553-58; Ronald I. McKinnon, op. cit.; Edward S. Shaw, op. cit.

are often substantially below the equilibrium rate. If the maximum interest rate that is allowed on financial assets, such as deposits or deposit substitutes, falls below the equilibrium rate either through government intervention or through inflation, the level of funds that are mobilized will remain below the potential level.<sup>1</sup> A financial reform, involving among other measures the removal of any ceilings on interest rates is therefore demanded by McKinnon and Shaw.<sup>2</sup>

Although in South Korea, Taiwan and Indonesia interest rate policy proved to be a powerful mobilization instrument, the impact of interest rate changes on savings behaviour in developing countries is generally far from clear. It is argued that only large increases in the level of interest rates will provide sufficient incentive to increase the level of savings.<sup>3</sup>

The hypothesis that an increase in interest rates has a positive impact on savings is based on the implicit assumption that the substitution effect of interest rate changes between present and future consumption dominates the income effect.<sup>4</sup> In the alternative case, a higher interest rate will induce surplus units to reduce their savings, as the planned future consumption level can be maintained while increasing present income. The latter alternative assumes in the extreme that individuals are target savers.

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<sup>1</sup> See, for example, Edward S. Shaw, op. cit., pp. 113-48.

<sup>2</sup> See *ibid.* and Ronald I. McKinnon, op. cit., pp. 102-16.

<sup>3</sup> See U Tun Wai, op. cit., p. 75.

<sup>4</sup> For a detailed analysis of the impact of interest rate changes on savings, see Colin Wright, 'Saving and the Rate of Interest', in: Arnold C. Harberger and Martin J. Bailey (eds.) The Taxation of Income from Capital (Washington, D.C., The Brookings Institution, 1969), 275-95.

Other authors have pointed out that an increase in the interest rate level will have a negative influence on savings behaviour, since in developing countries savings and investment processes are highly interrelated. Because capital markets in these economies are imperfect and do not offer sufficient investment outlets for surplus funds, a large part of savings is used by the saver himself. Higher interest rates render investment projects more costly in case external finance is needed, and they may thus discourage savers whose objective is to accumulate funds for their own projects.<sup>1</sup> However, McKinnon uses the same assumption of imperfect capital markets and surplus funds that are meant for self-finance, only to arrive at the opposite conclusion. He bases his arguments on the hypothesis of complementarity between money and physical capital. Low or even negative real rates of interest will lead to a decline in the real stock of money and this will in turn frustrate investment efforts.<sup>2</sup>

Finally, interest rate changes might only lead to a change in the structure of savings rather than in the absolute level. Funds that were previously invested in the unorganized capital markets or in tangible assets might after an increase in the rates of interest flow into the organized capital market. As this could lead to a more effective use of savings, the interest rate level represents an important instrument in the savings mobilization process, although its impact may not be felt on the level of savings.

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<sup>1</sup> See Jeffrey G. Williamson, *op. cit.*, p. 198.

<sup>2</sup> See Ronald I McKinnon, *op. cit.*, pp. 55-67. His hypothesis is discussed in greater detail in section C.2.a. of this chapter.

The importance of interest rates for savings behaviour will be discussed again in the analysis of the structure of financial assets. It will be hypothesized that the structure of interest rates represents the main determinant of the structure of savings in financial assets.<sup>1</sup>

b. Inflation

In neither theoretical nor empirical analyses have any definite conclusions been reached concerning the impact of inflation on consumption and savings behaviour. Commonly, three main transmission mechanisms are distinguished: the wealth effect, the income distribution effect and the expectation effect.

The wealth effect is based on the assumption that surplus units are target savers, that is, they want to attain a certain stock of wealth. An increase in the price level reduces the stock of assets held and thereby induces the decision-making units to increase savings until the desired level of assets is reached.<sup>2</sup>

In some studies, emphasis is given to liquid assets rather than total assets.<sup>3</sup> It is hypothesized that liquid assets are held in a relatively constant proportion to income, either for precautionary or transaction motives or because they play an important role in the realization of expenditure plans. Therefore, savers will respond to a decline in the level of liquid assets due to an increase in the price level by adjusting their expenditure downwards.

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<sup>1</sup> See section D of this chapter.

<sup>2</sup> See, for example, Romesh K. Diwan, 'The Effect of Prices on Savings', EDCC, 16(1967/68), 430-35, p. 430.

<sup>3</sup> See, for example, J.C. Townend, 'The Personal Savings Ratio', BOEQB, 16(1976), 53-73, pp. 55-6.

However, in periods of persistent high inflation the holding of liquid assets might become very costly and, according to some authors, under such conditions savers are more likely to reduce their holdings rather than to restore them to the initial level.<sup>1</sup>

In several analyses, inflation is specifically regarded as a method of mobilising savings.<sup>2</sup> A change in income distribution acts as the transmission mechanism through which an increase in the price level is supposed to exert a positive influence on savings. For example, if inflation is not accompanied by nominal wage increases that match the increase in prices, income is redistributed from groups with a low savings propensity (workers) to those with a high savings propensity (entrepreneurs), so that the overall level of savings will increase.

Two objections are raised against the above argument. First the implied assumption of money illusion might be valid at the beginning of an inflationary process that is preceded by a rather long period of stability. However, it is unlikely that people will not anticipate inflation, once they have grown accustomed to it.<sup>3</sup> Second, even if a change in income distribution can be brought about by increases in the price level, the extent of inflation necessary to raise the savings ratio appreciably is very large.<sup>4</sup>

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<sup>1</sup> See, for example, Angus Deaton, 'Involuntary Savings through Unanticipated Inflation', AER, 67(1977), 899-910, p. 908.

<sup>2</sup> See, for example, A.P. Thirlwall, 'Inflation and Savings Ratio Across Countries', JDS, 10 (1973/74), 154-74, pp.170-1.

<sup>3</sup> See Harry G. Johnson, op. cit., p. 125.

<sup>4</sup> See Alan Woodfield and John McDonald, 'On the Relation Between Savings, Distribution and Inflation', JDS, 14(1978)357-65, p.357, and A.P. Thirlwall, 'Comments on the Relation Between Savings, Distribution and Inflation', JDS, 14(1978), 366-74, pp. 366-7.

Inflation can also involve a redistribution of income from holders of money balances to the monetary authorities that issue money. This is commonly referred to as 'the inflation tax'. If the public sector has a higher propensity to save than the private one, the level of savings will increase initially. By reducing their real money balances, shortening payment periods and holding inventories instead of cash, people will be able, however, to evade the tax, at least to some extent.<sup>1</sup> The decline of the financial sector that this development implies makes the inflation tax a very costly method of savings mobilization.

So far, the discussion centred on the effect of price level changes in savings behaviour. In addition, current and past periods' inflation will induce people to form expectations about future price level changes, which will influence the level and pattern of expenditure. If households expect inflation to persist or even to increase, expenditures on durable goods and services are likely to be made earlier than planned, and consequently savings will decline.<sup>2</sup>

Moreover, inflation affects the expected rate of return on financial assets. Unless financial instruments are offered that promise positive real rates of return, savers will ultimately prefer investment in tangible assets. Surplus units who do not have the opportunity to invest funds in their own business projects might conceivably lower their savings rates. Disintermediation, resorting to self-finance and misallocation of funds are the long-term consequences.<sup>3</sup>

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<sup>1</sup> See Harry G. Johnson, *op. cit.*, pp. 125-6.

<sup>2</sup> See Angus Deaton, *op. cit.*, p. 909.

<sup>3</sup> See Ronald I McKinnon, *op. cit.*, pp. 68-88.



c. Foreign Capital Inflow

Despite the continued demands by developing countries for foreign capital in form of grants, loans and direct investment to further their economic development, its impact on domestic savings and the development process in general is far from clear.<sup>1</sup>

It is useful to analyze the relationship between foreign capital inflow and domestic savings in the wider context of foreign exchange availability and its importance for economic development.<sup>2</sup> Domestic investment depends to a great extent on the ability to import foreign machinery, intermediate goods and raw materials, so that the availability of foreign exchange represents a necessary condition for investment. Under the assumption that savings behaviour is determined partly by the extent of investment opportunities, foreign exchange funds have a stimulating effect on savings, as they increase the ability to realize investment projects.

Following the above argument, export earnings (X) have an unambiguous positive impact on savings, that is  $dS/dX > 0$ . The export sector has a further positive impact on the level of domestic savings independent of the foreign exchange effect, since taxes on various export products provide an important source of government revenue in many developing countries.<sup>3</sup>

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1 For a brief survey, see Mohiuddin Alamgir, 'Foreign Capital Inflow, Saving and Economic Growth - A Case Study of Bangladesh', BER, 2(1974), 577-98, pp. 577-8.

2 See Hollis B. Chenery and Peter Eckstein, 'Development Alternatives for Latin America', JPE, 78(1970), 966-1006, p. 975.

3 See Alfred Maizels, Exports and Economic Growth in Developing Countries (Cambridge, Mass., Harvard University Press, 1968) p. 58. Maizels also suggests that the export sector has a higher savings propensity than the rest of the economy. Since there are no convincing theoretical arguments for this hypothesis, it is not investigated here.



Foreign capital inflow that is unrelated to exports has two possible direct effects. First, government institutions and private economic units might relax their savings efforts when more foreign resources become available. Thus, foreign capital inflow may serve as a substitute for domestic savings. Second, it can enhance saving by enlarging the number of investment opportunities through the provision of foreign exchange. The combined substitution and foreign exchange effects determine the overall impact of foreign capital inflow on domestic savings.

Under the assumption that foreign capital inflow ( $S_F$ ) has a positive impact on domestic income,  $dY/dS_F > 0$ , the direct effect of foreign capital inflow on domestic savings,  $dS/dS_F$ , is to be supplemented by an indirect effect,  $dS/dY \times dY/dS_F$ , operating through the increase in income.<sup>1</sup> The incorporation of such indirect effects into the analysis would necessitate an elaborate econometric system. The single equation model that will be tested can therefore only approximate the relationship between savings and foreign capital inflow.

#### d. Financial Intermediation

The relationship between financial intermediation and savings will be discussed in detail in the analysis of the supply side of savings mobilization. In this section, the major hypotheses are discussed only briefly and savings functions specified that will be tested later.

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<sup>1</sup> Several studies suggest that foreign capital inflow has a negative impact on domestic growth. See, for example, K.B. Griffin and J.L. Enos, 'Foreign Assistance: Objectives and Consequences', EDCC, 18(1969/70), 313-327.

Financial intermediation is one of the factors that increase the opportunity to save.<sup>1</sup> While it is true that in developing countries a large proportion of households are self-employed and therefore tend to invest any surplus funds in their own business ventures, the proportion of households that cannot resort to the self-use of surplus funds is increasing. Through financial instruments financial institutions offer investment opportunities to the latter group, which should lead to an increase in the overall level of saving, even if wage and salary earners do not represent high saving classes.

Financial intermediation can equally enhance the savings of those economic units which use their surplus funds for their own investment purposes. Assuming that the hypothesis of complementarity between money and physical capital holds true, and that investments are not completely divisible so that projects can only be realized after a certain amount of funds is accumulated, financial institutions offer more efficient and more secure investment outlets for these funds. They thereby prevent the misallocation of funds and enhance the investment efforts of the self-employed.<sup>2</sup> This is also achieved by providing external financial resources, so that investment efforts are less likely to be frustrated by a lack of own funds. This increased prospect of being able to realize certain projects could in turn lead to an increase in savings efforts.

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<sup>1</sup> See U Tun Wai, *op. cit.*, pp. 85-7.

<sup>2</sup> See Ronald I McKinnon, *op. cit.*, pp. 55-67.

Financial institutions and financial markets can further stimulate savings efforts by offering financial instruments that are designed to meet the needs of households, for example, by offering instruments that encourage savings for housing or education.

While so far it has been emphasized that financial intermediaries provide an increasing number of investment opportunities to surplus units and thereby enhance the thrift habit, it must not be overlooked that the expansion of the financial system also implies a widening range of credit facilities. This allows some economic entities, in particular those which are part of a conglomerate of financial and non-financial institutions, to meet their financial requirements by borrowing instead of having to increase their own savings efforts. The possibility of a negative effect of increasing financial intermediation on the level of savings cannot be excluded.

Financial intermediation can be represented alternatively by the number of bank offices (BO), the stock of financial assets held by the private sector with financial intermediaries (IF) and the ratio of these assets to gross national product (IFY). Other specifications of financial intermediation are discussed later in connection with the evaluation of previous empirical analyses of savings behaviour in the Philippines and Thailand.<sup>1</sup>

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<sup>1</sup> See section III.D.2.

e. The Set of Savings Functions Incorporating Financial and Monetary Variables

In order to determine to what extent financial and monetary variables explain the variation in the level of savings in addition to what is explained by the variation in the level of income, they are incorporated in the absolute income hypothesis. The savings functions to be estimated are specified as follows:

$$1.1. S_t = a_1 + b_1 Y_t + c_1 r_t + u_{1t}$$

with  $c_1 \geq 0$ ,

where  $r$  represents the interest rate level.

$$1.2. S_t = a_2 + b_2 Y_t + c_2 P_t + d_2 P_t^e + u_{2t}$$

with  $c_2 > 0$  and  $d_2 < 0$ ,

where  $P$  represents inflation and

$p^e$  expected inflation.

$$1.3. S_t = a_3 + b_3 Y_t + c_3 S_{Ft} + d_3 X_t + u_{3t}$$

with  $c_3 \geq 0$  and  $d_3 > 0$ ,

where  $S_F$  represents foreign capital inflow and

$X$  export earnings.

$$1.4. S_t = a_4 + b_4 Y_t + c_4 BO_t + u_{4t}$$

$$1.5. S_t = a_5 + b_5 Y_t + c_5 IF_t + u_{5t}$$

$$1.6. S_t = a_6 + b_6 Y_t + c_6 IFY_t + u_{6t}$$

with  $c_4, c_5, c_6 \geq 0$ ,

where  $BO$  represents the number of bank offices,

$IF$  the stock of financial assets held by

the private sector with financial

intermediaries, and

$IFY$  the ratio of  $IF$  to gross national product.

C. The Interaction of Monetary Authorities, Financial Intermediaries and Financial Markets in Determining the Supply of Savings Instruments

1. The Threefold Impact of Financial Development on Savings Mobilization

Financial intermediation has been introduced in section B as one of the determinants of the level of domestic savings. In this section, the issue is taken up again and is discussed in the wider context of financial development viewed from the supply side of savings mobilization. Financial development is defined as the proliferation and sophistication of the financial system, that is, the increase in the number of institutions and the diversification of instruments and services offered.

Most of the savings theories presented leave little scope for policy. Although in reality the demand for and the supply of savings instruments are interdependent and mutually reinforce each other, it is usually assumed that savings are determined by the level of income and income distribution and that little can be done by an active policy of either public authorities or private financial institutions. This view is particularly widespread among the decision-making units in developing countries, who stress continuously the low level of income which supposedly frustrates any mobilization efforts.

Contrary to this belief, it is maintained in this analysis that the supply of savings instruments does influence the level of savings by determining to what extent the ability and willingness to save is translated into actual savings.

While the data for many developing countries indicate that savings rates ultimately tend to increase with rising per capita income, this is of little comfort to those in charge of financing domestic investment. Substantial increases in savings and investment are needed in the short run. At the same level of per capita income, different savings rates are realized in different countries. The opportunities and incentives provided for saving can be of great importance and might make the difference between a mediocre and a good savings performance.

The demand for savings instruments, which has been analyzed in the previous section, indicates only partly the needs of savers. It is the task of the financial institutions and public authorities to identify the entire range of needs, to satisfy them as far as possible by adapting their policies accordingly and to create additional incentives for saving.

It is suggested that 'intermediary techniques tend to raise the level of saving ...'<sup>1</sup> There are essentially five arguments to substantiate this suggestion:<sup>2</sup>

(1) Prior to the availability of financial instruments there can be no separation between savers and investors. Each economic unit has to self-finance its own investment projects. Those units without their own investment opportunities have to resort to the purchase of tangible assets, such as consumer durables and gold. Farmers who accumulate funds for

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<sup>1</sup> John G. Gurley and Edward S. Shaw, op. cit., p. 195.

<sup>2</sup> See *ibid.*, pp. 195-7, and Raymond W. Goldsmith, op. cit., pp. 391-401.

future investment often tend to save in the form of stocks of crops. This can be very wasteful as insufficient storage facilities often lead to the loss of a great part of these stocks. Similarly, owners of business enterprises have to find assets that serve as intermediate investment outlets to accumulate funds for the ultimate projects.

The introduction of currency and primary securities, such as loans, bonds or equities which enable a flow of funds between ultimate savers and ultimate investors, represents the first stage in the process that allows the separation of savers and investors. The availability of indirect securities, such as deposits, deposit substitutes or life insurance policies, enlarges further the number of investment opportunities, which in itself can have a stimulating effect on savings behaviour.

(2) Some financial instruments provide a positive yield, exceeding that of holding tangible assets. This should present another incentive to increase the rate of saving.

(3) While during the early stages of financial development primary securities prevail in the portfolios, indirect securities gain in importance with the spread of the banking system. To the majority of savers the latter are more readily acceptable since their terms, like denomination and liquidity, do not have to meet exactly the, at times, widely differing needs of savers and investors, as in the case of primary securities. Indirect securities facilitate the process of saving and are able to absorb even very small amounts of money.



In addition, various indirect securities carry special characteristics which are geared towards specific savings motives, for example, educational trust plans to ensure a college education for the daughter or the son, or life insurance to provide means of living after the death of the head of household.

(4) The last argument comprises also a dynamic dimension. Financial institutions become increasingly sophisticated and offer a widening and diversifying range of financial instruments that can match the changing needs of surplus units with respect to accessibility, liquidity, yield and risk. The accommodation of changing needs should tend to increase the amount of saving further.

(5) The implementation of many projects for which an individual has saved is only made possible because financial intermediaries and financial markets provide external finance in addition to the internally accumulated funds. Without external finance the savings efforts by the individuals might have been in vain.

However, financial development will only help to raise the level of savings, if the introduction of securities does not lead simply to a substitution of savings in currency and tangible assets and if the introduction of more sophisticated financial instruments does not lead to a substitution of the less sophisticated ones. Financial instruments vary substantially with respect to liquidity, yield, risk and many other features. Many instruments are offered to meet special needs of surplus units. This renders the various financial instruments rather imperfect substitutes.



Financial development also plays an important role in the process of savings mobilization through its impact on the structure of savings.<sup>1</sup> Before the establishment of financial institutions and organized financial markets, surplus funds were invested only in tangible assets and primary securities, which were issued in fragmented capital markets with widely differing interest rates that inadequately reflected the scarcity of capital. Thus, part of the surplus funds were misallocated, which in turn led to a misallocation of real resources.

Modern financial institutions and organized financial markets bring about a more efficient allocation of funds among potential investments, since they are able to discriminate more effectively between economically viable and unviable projects. A change in the structure of savings towards primary securities, which are channelled through the organized markets, and towards indirect securities, therefore implies that better use is made of the savings that are mobilized.

Finally, financial development can induce a more equal distribution of the benefits derived from the returns on capital investment.<sup>2</sup> Before the introduction of financial instruments only those savers who were able to invest their surpluses in their own business received a return on their funds, while many others who were confined to currency were

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<sup>1</sup> The influence of financial development on the structure of savings is examined further in the analysis of the portfolio behaviour of individual investors. See Chapter V.

<sup>2</sup> See U Tun Wai, *op. cit.*, p. 32.

not rewarded for their savings efforts. This tended to increase the inequality of income and wealth distribution. Through the availability of primary and indirect securities, all surplus units are able to participate in the returns on investment projects financed by financial institutions, provided that a positive real rate of interest is offered on the securities.

## 2. Alternative Approaches to Increase the Impact of Financial Development on Savings Mobilization

### a. Financial Reform

McKinnon and Shaw regard the poor results of savings mobilization in many developing countries as a consequence of financial repression.<sup>1</sup> Financial repression is seen as part of a larger scheme of repression, which manifests itself in the external sector through tariffs, quotas, import licences, export subsidies and 'false' exchange rates. It is evident in fiscal policy through tax concessions and ill-defined and discriminating regulations. Probably its predominance is greatest in the market for financial assets. Ceilings on deposit and loan interest rates are a major reason that the scarcity of capital is not adequately reflected in its price, and they often act as an instrument to cheaply finance government deficits. Inflation further aggravates the problem, often leading to negative real rates of interest. Subsidized credits and selective credit

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<sup>1</sup> See Ronald I. McKinnon, *op. cit.*, in particular pp. 22-36, 68-88, and Edward S. Shaw, *op. cit.*, in particular pp. 80-112.

controls cause the misallocation of financial and, in turn, real resources. Moreover, taxes which discriminate against income derived from financial assets have been imposed.<sup>1</sup>

In order to increase the savings ratio and thereby enhance the investment and growth process, McKinnon and Shaw prescribe a financial reform, or in other words a liberalization. They demand monetary stability so as to restore people's confidence in money. Real rates of interest on deposits and loans are to be raised to mobilize more financial resources and to discriminate more efficiently between alternative investment purposes. Liberalization also extends to fiscal policy and the external sector.<sup>2</sup>

The financial reform approach rests on the hypothesis of complementarity between money and physical capital: 'The demand for stocks of cash balances and physical capital are complementary over a range where the conduit effect dominates the compensating-asset effect'.<sup>3</sup>

Under the assumptions that investments are not perfectly divisible and that external funds cannot be obtained to finance the whole project, the prospective investor has to accumulate capital before he can implement his investment plans. The capital to be accumulated can take either the form of tangible assets or that of cash balances. The higher the rate of interest on financial instruments, the more financial assets will be accumulated. An increasing ratio

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<sup>1</sup> See Edward S. Shaw, op. cit., pp. 90-91.

<sup>2</sup> See Ronald I McKinnon, op. cit., in particular pp. 89-129, and Edward S. Shaw, op. cit., in particular pp. 113-48.

<sup>3</sup> See Ronald I McKinnon, op. cit., p. 67.

of financial to tangible assets in the intermediate investment fund will also make it easier to obtain external finance, since the banks will regard the borrower with more financial assets as posing a lesser risk.

Since the increased preference for financial assets, due to the higher rates of interest, leads to a reduction of the opportunity cost of saving, the saving and investment ratios of the economic units under consideration will rise. This reinforces the complementarity between physical and financial capital.

If market forces prevailed, the demand for financial assets would equal the supply at a certain interest rate  $r_0$ .<sup>1</sup> The imposition of an interest rate ceiling  $r_1 < r_0$  leads to a situation where the supply of financial assets is insufficient to meet the demand. A rise in the price level and the failure to adjust the interest rate ceiling upwards induces a further decline in the investment in financial assets. Surplus units who are able to invest in their own business projects will do so to a lesser extent because of the complementarity effect. The other savers will either resort to the unorganized money and capital market or they will increase their consumption.

The concept of financial reform has received wide attention and much praise, but also sharp criticism. In particular, the interest elasticity of the volume of savings is regarded with overt scepticism. It is emphasized that people living at the subsistence level will hardly be able to give

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<sup>1</sup> See Edward S. Shaw, op. cit., pp. 81-7.

up, for example, ten per cent of their present consumption to achieve an additional three per cent of income in the future.<sup>1</sup> This argument, however, overlooks that generally savings come from relatively well-off households which can afford to curtail consumption for the sake of future income.

Rather, the critique must focus on the impact of interest rates on investment. High interest rates might not perform their allocative function as efficiently as expected, on account of 'myopia, internality and traditional risk-avoidance'<sup>2</sup> on the part of the entrepreneur. Some entrepreneurs, who depend on external funds to finance their projects, give up their investment plans because of the prohibitive interest rates on loans. At the same time, they lessen their efforts to generate internal funds, as they see no possibility to finance their investments completely through own savings.

McKinnon and Shaw base their concept by and large on the development of South Korea, where after an interest rate reform during the sixties, the level of savings rose dramatically. However, even the applicability of the financial reform approach to South Korea is disputed.<sup>3</sup> It is argued that the effect of liberalization on the growth of real output, on inflation and on the increase in the money stock is exaggerated. Furthermore, McKinnon and Shaw fail to point out that the availability of subsidized loans and the large inflow of foreign capital fostered to a great extent the industrial

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<sup>1</sup> See Edwin P. Reubens, Book Review of Ronald I. McKinnon, op. cit., JEL, 12(1974), 500-501, p. 501.

<sup>2</sup> See *ibid.*

<sup>3</sup> See *ibid.*

expansion. Nevertheless, it must be acknowledged that the financial reform approach has led to a new interest in the financial development of developing countries and its role in domestic resource management.

b. The Financial System as a Leading Sector.

The leading-sector approach emphasizes among other aspects the importance of a wider distribution of financial institutions in order to enhance people's savings efforts. Patrick suggests that financial institutions and the supply of their services should be created in advance of the demand for them. He contrasts this with the demand-following view, which regards the establishment of financial institutions solely as in response to the demand by savers and investors.<sup>1</sup>

The mere establishment of financial institutions is seen as conducive to an increase in the rate of accumulation, an improvement in the allocation of investments and a more efficient distribution of financial and tangible wealth. 'New access to such supply-leading funds may in itself have substantial, favourable expectational and psychological effects on entrepreneurs'.<sup>2</sup> Presumably, this must also hold true for savers, if the propensity to save is to rise as suggested.

Patrick himself does not present any empirical evidence for his hypothesis. A case study on the economic development of Hong Kong intended to confirm the leading-sector approach can do so only to a limited extent, since the funds that the

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<sup>1</sup> See Hugh T. Patrick, *op. cit.*, pp. 174-5.

<sup>2</sup> *Ibid.*, p. 176.

financial institutions in Hong Kong have mobilized were to a great extent attracted from overseas.<sup>1</sup> A generalization of this country's experience is therefore hardly possible.

Contrary to Patrick, Porter takes a rather sceptical view towards an expansion of financial institutions ahead of demand.<sup>2</sup> He concedes that an institution-elasticity of savings might exist, as have already been claimed earlier by Lewis: 'Experience shows that the amount of savings depends partly on how widespread these facilities are; if they are pushed right under the individual's nose, [...], people save more than if the nearest savings institution is some distance away'.<sup>3</sup> However, deposits could simply replace other forms of saving instead of stimulating a higher propensity to save. The yield, risk and liquidity features of the deposits might not be attractive. In addition, bank offices represent a costly investment which, at times, do not outweigh the benefits that are due to the additional funds which are mobilized. A simple multiplication of savings institutions will therefore not be sufficient. This is also stressed in an analysis of the Indonesian case, in which the 'excessive proliferation of banking institutions, resulting in considerable duplication of lending functions and credit extension with little co-ordinated monetary control', is sharply criticized.<sup>4</sup>

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<sup>1</sup> See D.W. Stammer, 'Financial Development and Economic Growth in Underdeveloped Countries', EDCC, 20 (1971/72), 318-325.

<sup>2</sup> See Richard C. Porter, op. cit., in particular pp. 349-52.

<sup>3</sup> W. Arthur Lewis, The Theory of Economic Growth (London, George Allen and Unwin Ltd., 1955), p. 229.

<sup>4</sup> Douglas S. Paauw, Financing Economic Development, The Indonesian Case (Glencoe, The Free Press, 1960), p. 134.



Porter, therefore, envisions a successful and meaningful expansion of financial institutions only in connection with internal structural changes. For example, postal savings institutions could be introduced instead of the more expensive bank offices.<sup>1</sup> Furthermore, financial intermediaries and financial markets have to expand their range of services to satisfy the different needs of surplus and deficit units.

### 3. The Financial Instrument Approach

#### a. An Attempt to Integrate the Alternative Approaches to Increase the Impact of Financial Development on Savings Mobilization

Both the financial reform and the leading sector approach are rather impressionistic and so far lack sound empirical evidence. In their analysis of the impact of financial development on savings mobilisation, they consider only part of the many aspects involved.

First, they concentrate on one group of financial instruments only, namely deposits. Although these instruments play a major role in the portfolio of individual investors, it is necessary to include bonds, corporate shares, life insurance and employee benefit funds in the investigation. The latter instruments are of great potential importance for the development process, because they provide the long-term funds needed to finance projects with long gestation periods.

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<sup>1</sup> See Richard C. Porter, op. cit., p. 351.



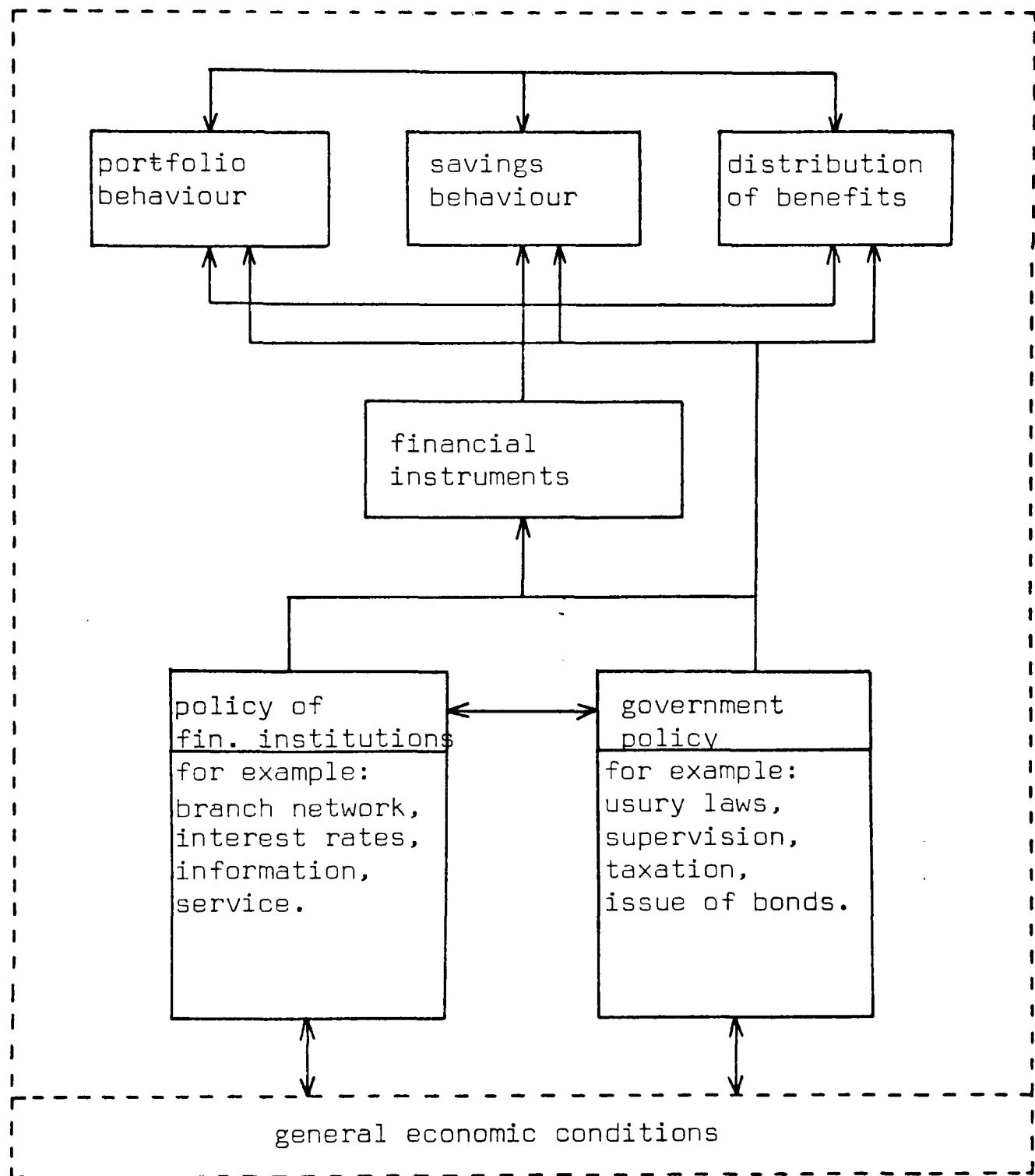
Second, despite the fact that financial instruments are characterized by a broad range of features, the financial reform approach emphasizes yield only, while the leading-sector approach disregards all features but accessibility. In addition to these two features, the surplus unit will take liquidity, risk, product variation and the available information into consideration, when it decides in what form to save. If the needs of savers are to be met, all relevant features must be shaped accordingly.

Third, the two approaches stress either the government sector or private financial institutions, while analyzing the impact of financial development on savings mobilization. Although it is correct to point out the repressive nature of government regulations, it must not be overlooked that a liberal, market-oriented policy by the monetary authorities and the ministry of finance is not sufficient to render the financial system sensitive to the needs of lenders and borrowers. Often, quasi-monopolistic policies by commercial banks or life insurance companies, for example, the prescription of minimum loan rates by the bankers association, are equally repressive. The policy of both government and private financial institutions and their interaction have to be evaluated.

In order to determine the role of financial development in the process of savings mobilization, it is necessary to take into consideration the complete range of financial instruments, the set of features that characterizes them and the policies of all the relevant decision-making units. These are incorporated in the general framework of the financial

instrument approach illustrated in Diagram 2.4.

Diagram 2.4. The Impact of Financial Institutions and Government Authorities on Savings Mobilization



The savings potential that can ultimately be realized is determined by the general economic conditions, like the standard of living, income distribution or investment opportunities. In the short-run, the financial institutions and the government authorities, which shape the role of financial intermediation in the process of savings mobilization, have to operate within the limits set by the economic conditions.

In the long-run, efficient resource mobilization and effective resource allocation lead to an improvement in the economic conditions and thereby enlarge the savings potential.

The main channel through which the policy of financial institutions and government authorities exert their impact on savings and portfolio behaviour and the distribution of benefits from investment are the financial instruments that are offered and their features. Lack of attractive instruments will induce surplus units to invest their funds in the unorganized capital markets or in tangible assets. This impedes the intersectoral flow of funds and thereby might retard development. There are, of course, other means of influencing savings and portfolio behaviour and the distribution of benefits from investment. For example, taxation affects the amount of private savings and their allocation between various savings instruments. However, most measures taken by financial institutions and government authorities change the set of financial instruments offered and consequently affect people's behaviour.

The policies of financial institutions and government authorities are strongly interrelated. The latter not only affect the activities of the former through supervision, regulations and at times enlargement of the financial system. By offering treasury bills, government bonds, employee benefit funds and by introducing laws on social security, the government sector also competes directly with private financial institutions. On the other hand, the government relies to a great extent on financial institutions to absorb

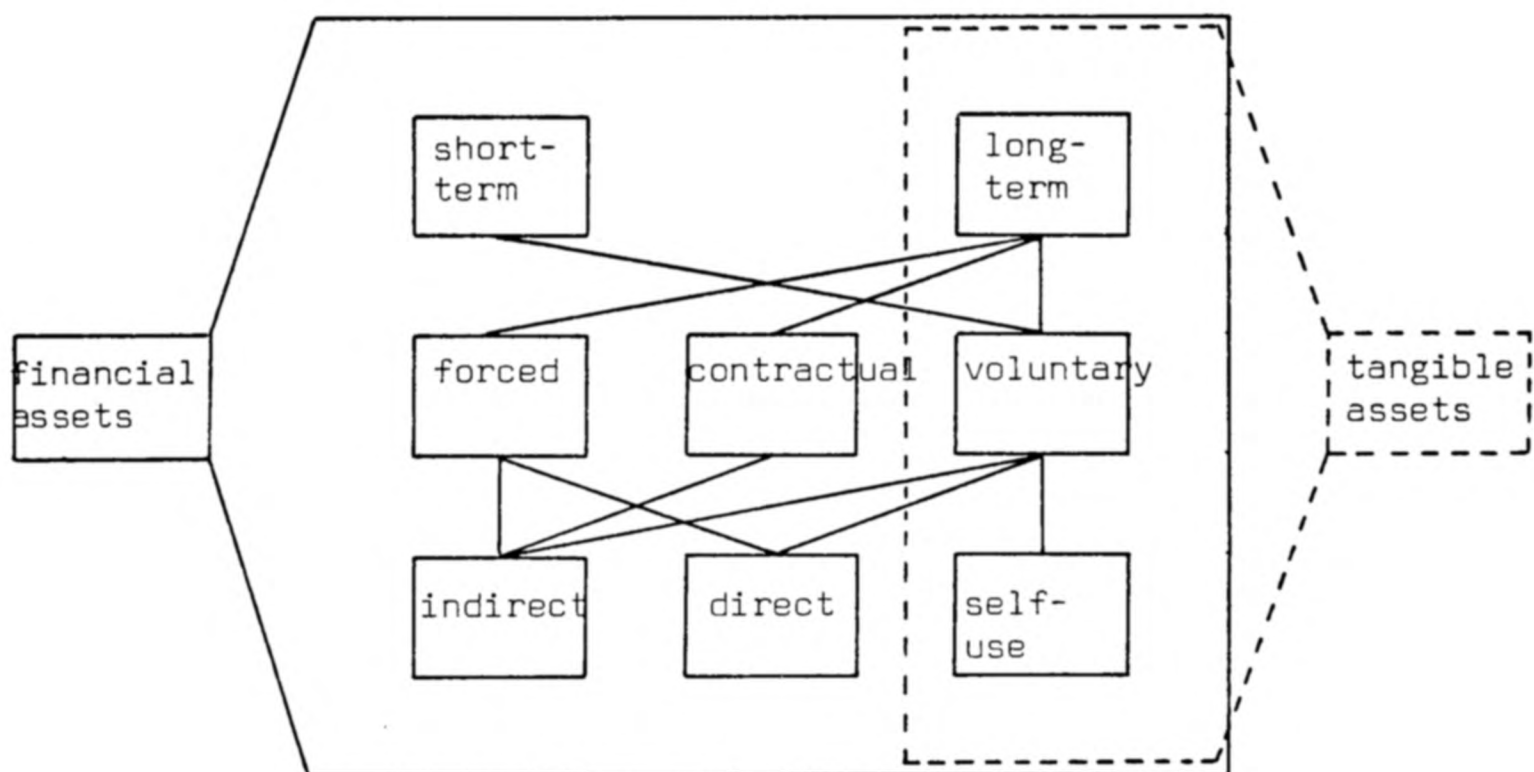
the financial instruments it issues and to market these instruments to the general public.

In the following sections, the various financial instruments and their features are discussed in greater detail.

#### b. The Different Types of Savings Instruments

Savings can take the form of financial and tangible assets. There are various criteria according to which the financial assets can be categorized: the willingness to save, the destination of the flow of funds and the term structure of the funds saved.

Diagram 2.5. A Typology of Savings Instruments



Following the criterion of 'willingness to save' one has to distinguish voluntary, contractual and forced saving. While voluntary savings can be meant for self-use or can take the form of direct and indirect funds, forced savings

comprise only the latter two forms. Contractual savings are made up solely of indirect funds. Voluntary savings can be short-term as well as long-term. Contractual and forced savings generally take the form of long-term assets.

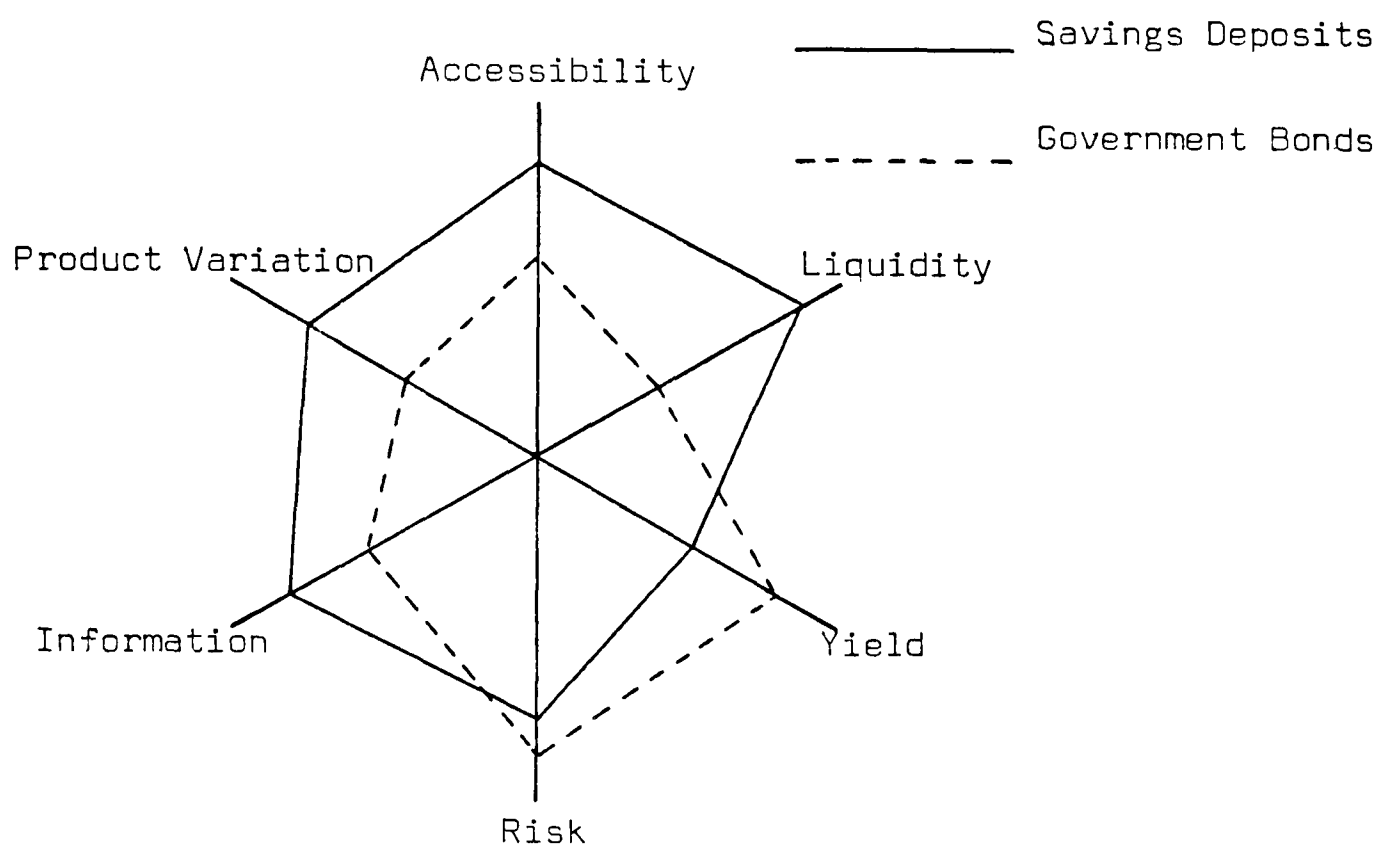
The form which savings take has important implications for the allocation and investment process. Contractual and forced savings represent a more stable and more reliable source of funds. They are, therefore, of great importance for the financing of long-term projects, unless the roll-over of short-term credits can be assured by financial institutions.

The destination of the flow of savings partly determines the regional and sectoral balance of the process of development. Since most financial intermediaries cater almost exclusively to urban investors, a predominance of indirect savings can imply that rural areas are starved of funds, so that the necessary investments in agriculture are not undertaken. Similarly, if banks provide credits largely to the trading sector, industrialization efforts might be frustrated, or at least hindered.

#### c. The Profile of Financial Instruments

A major precondition for a successful strategy to mobilize savings is the identification of the type and characteristics of savings instruments in which savers would like to invest, so as to see the fulfilment of their needs with respect to yield, risk, or liquidity. These needs should form the basis for shaping the financial instruments that are to be offered by financial institutions and in financial markets.

Diagram 2.6. The Profile of Financial Instruments



The profile of financial instruments contains the six basic characteristics of any financial instrument.<sup>1</sup> Each characteristic comprises a bundle of sub-characteristics. It either serves as an incentive to purchase a particular instrument or represents a constraint that prevents the instrument from being more in demand.

From the above profile, it might be concluded that savings deposits are more attractive than government bonds, because of their greater accessibility and greater liquidity and because of the availability of more information and the existence of a greater variety of savings deposits. However, such a conclusion would only be valid if one assumes that savers adhere to a cardinalistic point of view, that is, evaluate different financial instruments by comparing their respective profile area. In this analysis, the profile

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<sup>1</sup> In the analysis of portfolio behaviour, only two of these characteristics, namely yield and risk, are taken into consideration in order to derive demand equations that are empirically tractable. See section D.4 of this chapter.

serves merely as an illustration of those features which determine the attraction of financial instruments and which therefore have to be taken into consideration by the financial institutions in their strategy to mobilize savings. The financial reform approach with its emphasis on yield is incorporated in the profile, as is the leading sector approach that focusses on accessibility.

In the following, the different characteristics are appraised in detail:

(1) Accessibility refers to the ability of surplus units to purchase a financial instrument and the ease with which they can do so, given a specific amount they intend to invest.

It has five dimensions:

(a) Supply

Certain types of financial instruments are not offered, or are offered only in limited quantities, irrespective of demand. This holds true, for example, for corporate shares which, in many developing countries, are only seldom offered in the capital market, as families want to retain full control over their business and are unwilling to reveal any information.

(b) Space

The spatial dimension refers to the regional spread of financial institutions. Although it is impossible to push a branch of a bank or life insurance company 'right under the nose of every saver' or every potential saver, it should be ensured that they find a savings outlet in their vicinity.

(c) Time

Hours of operation must be convenient to customers.



(d) Denomination

The purchase of any financial instrument demands a minimum amount of investment. Although, for example, deposits with low balances may be rather costly for financial institutions to administer, most of them will eventually grow. If the minimum deposit is set too high, many small amounts will never be deposited with any financial institution, and savings efforts might be frustrated right from the start.

(e) Procedure

Accessibility also depends on the ease or awkwardness of acquiring a financial instrument. Filling out numerous forms, cumbersome identification processes and lengthy waiting will deter potential savers, in particular since many still find financial institutions rather unpleasant places to visit.

(2) Liquidity is concerned with the ability of the investors to resell their financial instruments or to withdraw money from accounts whenever needed. In the case of deposits, it depends largely on the procedures laid out by the banks. For direct securities, active secondary markets are needed, which in turn depend on the overall supply of the respective instruments and the number of participants in the market.

(3) Yield represents the feature of financial instruments that is most widely analyzed in the economic literature. It involves not only the nominal interest rate that is offered, but also additional benefits, inflation, transaction costs and any taxes that are imposed on the income derived from financial instruments.



(4) Risk refers to the various uncertainties involved in investing in financial instruments. The bank at which one holds a savings deposit can go bankrupt, a company will not honour its promissory notes or the value of the corporation shares one has bought declines sharply.

(5) Product Variation Since financial instruments should be tailored to the needs of savers and since the needs vary widely between different groups of savers, different types of the same kind of instrument must be offered so as to accommodate them. This can mean not only time deposits or government bonds with a wide range of maturities, but also deposit schemes that incorporate insurance or credit features.

(6) The objective of information policy is to bring about awareness, interest, desire and action on part of the surplus unit with respect to the financial instruments. Savers are to be informed about the existence and the characteristics of a financial instrument, either through personal or impersonal channels. In particular, in developing countries, where a large part of the population has never been in contact with financial institutions and their services, information that explains their operation and the instruments they offer is of utmost importance to overcome ignorance, suspicion and to instil confidence.

The above characteristics of the financial instruments are jointly determined by the financial institutions and the government authorities. Often, financial entrepreneurship and government regulations move in different directions. Innovative banking practices can be easily frustrated by government interventions, as is pointed out in the financial

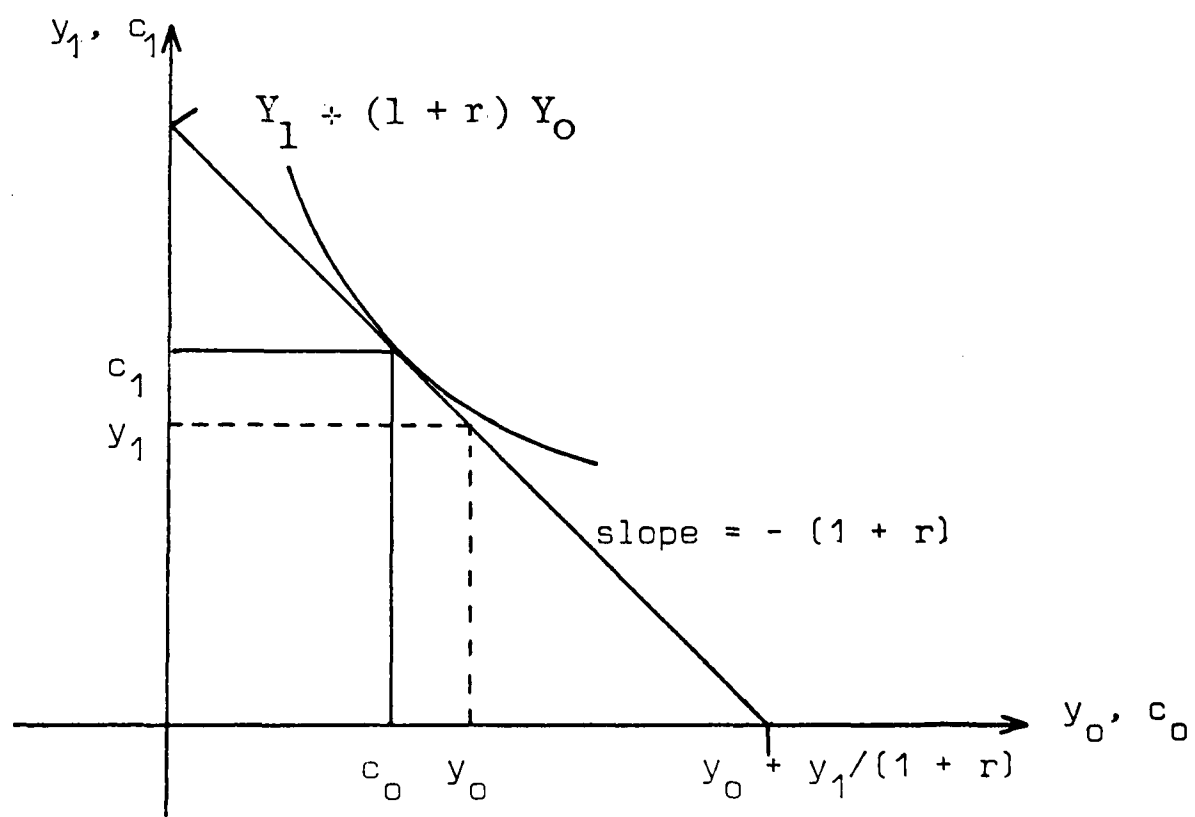
reform approach. Similarly, liberal government regulations are insufficient to bring about effective savings mobilization, if the financial institutions are not capable or willing to offer attractive instruments and services. Innovative efforts in the same direction have to be made by both sides.

D. The Portfolio Behaviour of Individual Investors

1. The Decision-Making Process Concerning Consumption and Investment

According to the life-cycle hypothesis, an individual investor decides on the allocation of his income and accumulated networth between consumption and investment simultaneously, so as to maximize his life-time utility.

Diagram 2.7. The Allocation of Income Between Consumption and Investment



In Diagram 2.7. the two-period case is presented under the assumption that no wealth has been accumulated prior to period 0. The individual receives income  $y_0$  and  $y_1$  in the two periods respectively and intends to maximize his utility  $U(c_1, c_2)$  subject to the borrowing-lending constraint:

$$c_0 + \frac{c_1}{1+r} = y_0 + \frac{y_1}{1+r}$$

If the individual can lend or borrow money at the interest rate  $r$ , he can consume more or less than his period income. In the above example, the decision-making unit prefers to consume less than  $y_0$  during the current period ( $c_0 < y_0$ ) and consequently more than  $y_1$  during period 1 ( $c_1 > y_1$ ).

In the multi-period case, the individual decides on the value of the goods and services he wants to consume in each period and simultaneously on the amount of income that is saved, the acquisition of liabilities and the use of the net worth he has accumulated, so as to bring about the desired spread of consumption over his whole life-time. If various modes of investment and borrowing exist, the decision-making process becomes even more difficult, since the form of saving and borrowing and the composition of total networth have to be determined simultaneously with the amount that is to be saved and borrowed.

However, such a simultaneous decision-making process is far too complex in view of a highly uncertain future. In addition, consumption needs take priority over savings decisions. It is therefore argued that individuals attribute different importance to the goods and services they consume and to the assets they acquire, as these fulfil needs of different urgency.<sup>1</sup>

One might envision a hierarchy in the allocation process. First, the individual decides on the consumption of non-durable

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<sup>1</sup> See, for example, Edward M. Gramlich and David T. Hulett, 'The Demand for and Supply of Savings Deposits', in: Edward M. Gramlich and Dwight M. Jaffee (eds.) Savings Deposits, Mortgages and Housing (Lexington, Mass., Lexington Books, 1972), 13-62, p. 15.

goods and services which satisfy basic needs. The second-order decisions involve the accumulation of liabilities and the investment in tangible assets. It is assumed that loans are taken up largely to finance the purchase of tangible assets. Furthermore, tangible assets are ranked above financial assets, since the former might be regarded as a more desirable form of investment. For example, investment in own business enterprises provides the individual with direct control over his assets, whereas investment in financial assets mostly implies handing over the control to a third party that is trusted only to a certain extent. Finally, the individual decides on the allocation of the remaining resources between various financial assets.

The following analysis is based on the idea of a hierarchy in the allocation process. It is assumed that first- and second-order decisions have already been taken so that the investment in financial assets is left to be decided upon. The models that are presented concentrate on the allocation process on the third level. This is in accordance with most empirical applications of the portfolio selection theory.<sup>1</sup> The decision-making process with respect to the allocation of funds between different forms of financial assets is discussed in section D.6.

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<sup>1</sup> See, for example, Franco Modigliani, 'The Dynamics of Portfolio Adjustment and the Flow of Savings through Financial Intermediaries', in: Edward M. Gramlich and Dwight M. Jaffee (eds.) op. cit., 63-102.

## 2. Portfolio Behaviour Under Uncertainty

There are four sources of uncertainty inherent in the allocation process, which the individual investor has to deal with in his pursuit of optimality:

- (1) The risk of default, which characterizes practically all financial instruments with the possible exception of government securities.
- (2) Income uncertainty, which has to be dealt with in the case of assets with variable returns, such as corporate shares. It is also present, when the individual investor plans his asset holdings, for example, for a five year period, but because of market constraints has to invest successively in financial instruments of one year maturity. After the initial one year period his income becomes uncertain, as market conditions and consequently rates of return change.
- (3) Inflation, which further enhances income uncertainty.
- (4) Capital Uncertainty, which the investor has to face in the case of financial instruments, such as shares or bonds, that can depreciate or appreciate in value.

## 3. The Objective Function

The application of any model which is supposed to describe adequately the behaviour of individual investors, rests on its ability to capture their objectives and preferences involved in the allocation process. The choice behaviour of individuals with respect to financial assets has been treated either in the framework of expected utility maximization<sup>1</sup> or of the

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<sup>1</sup> See Harry M. Markowitz, Portfolio Selection (New Haven, Yale University Press, 1959); James Tobin, 'Liquidity Preference as a Behaviour Towards Risk', *REStud*, 25 (1957/58), 65-86.

linear expenditure system following the traditional demand theory.<sup>1</sup> Both approaches lead empirically to identical results, given certain assumptions concerning the underlying utility function.<sup>2</sup> For computational reasons, expected utility maximization is applied in this analysis.

Von Neumann and Morgenstern developed the axiomatic basis of utility theory in the presence of risk.<sup>3</sup> According to them, an individual's preference ordering is consistent, if it fulfils the axioms laid out, namely completeness, continuity and independence. In this case, the preference ordering can be represented by a utility function which is unique up to a positive linear transformation. In a situation of risk, the objective of utility maximization can then be reformulated in terms of expected utility maximization.

It is assumed that the preferences of the investor may be characterized by a utility function with the following properties:

- (1)  $U'(X) > 0$ , that is, marginal utility is positive;
- (2)  $U''(X) < 0$ , that is, marginal utility is diminishing, which implies that the individual investor is risk averse; and
- (3)  $\lim_{X \rightarrow 0} U(X)$  and  $\lim_{X \rightarrow \infty} U(X)$  exist and are bounded from below and above so as to avoid the St. Petersburg Paradox.

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<sup>1</sup> See, for example, Saito Mitsuo, 'Household Flow-of-Funds Equations: Specification and Estimation', JMCB, 9(1977), 1-20.

<sup>2</sup> Alternatively, the safety-first criterion might be applied. See A.D. Roy, 'Safety First and the Holding of Assets', EC, 20(1952), 431-49; Shinji Kataoka, 'A Stochastic Programming Model', EC, 31(1963), 181-96.

<sup>3</sup> See John von Neumann and Oskar Morgenstern, Theory of Games and Economic Behaviour (Princeton, Princeton University Press, 1947).



In order to derive the asset demand equations, expected utility,  $E[U(W)]$ , is maximized subject to the constraints (1) that the sum of all assets must add up to the total portfolio size,

$$I'V = W_0$$

where  $I'$  represents an appropriate summation vector,  $V$  the  $n \times 1$  vector of assets included in the portfolio and  $W_0$  total initial wealth, and

(2) that the size of the individual assets must not be negative

$$V_i \geq 0 \text{ for all } V_i.$$

The model of expected utility maximization will be developed further in the following sections.

First, however, doubts which have been raised with respect to the applicability of the theory of portfolio selection in developing countries, particularly for individual investors, have to be dealt with.

The following arguments have been advanced:<sup>1</sup>

- (1) While the development process implies constant changes, the choice behaviour is generally treated in a static framework of given income, wealth and risk.

The problems involved in using a static framework do not only apply to the estimation of the choice behaviour of investors in developing countries, but equally to that of investors in developed countries. A dynamic framework would certainly be more applicable but is empirically not tractable. Models that derive

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<sup>1</sup> See A. Vasudevan, 'The Portfolio Approach: Its Relevance to Underdeveloped Countries', IEJ, 16(1969), 520-31, in particular pp. 528-30.



conditions under which optimal multi-period portfolio behavior is myopic are discussed later.<sup>1</sup>

- (2) Changes in per capita income will bring about changes in the level of savings, irrespective of the rate of interest and the level of real wealth.

In this argument the demand side and the allocation side of savings mobilization are confused. Portfolio selection theory does not deal with the overall level of savings but with the composition of wealth or increase in wealth.

- (3) The financial system in developing countries is far from developed and accordingly few financial assets are available to investors. Furthermore, tangible assets, for example, land, houses, cattle or jewellery, are often more important than financial assets, so that a portfolio analysis which concentrates on the latter assets misses major decisions in the allocation process.

It is certainly true that in many developing countries the range of financial assets available to investors is limited and that their financial system lacks sophistication. However, this does not prevent the application of portfolio theory, since investors decide upon their assets within the limits set by the system. The increasing proliferation and sophistication of the financial system, which continuously open new opportunities, are taken into consideration by modifying the demand equations that are derived.<sup>2</sup>

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<sup>1</sup> See section D.8.b of this chapter.

<sup>2</sup> See section V.c.3.

The question of the relevant capital account has already been discussed in section D.1. Tangible assets are excluded from the portfolio because of lack of data. Given the necessary data, their inclusion would not pose any problems. While interpreting the results yielded by the empirical analyses, the exclusion of tangible assets must be borne in mind.

- (4) Commodity price changes bring about changes in the individual's consumption expenditure and consequently lead to a change in the level of saving.

Again, the problem of determining the structure of savings is not separated from that of determining the level of savings. Furthermore, in a portfolio model that incorporates tangible assets, commodity price changes would certainly be taken into consideration.

- (5) Finally, interest rates are in general not market-oriented, but are most often determined by monetary authorities.

In the models which are presented, it is hypothesized that the investor decides on his portfolio according to the rates of return and risks of the different assets irrespective of the factors that determine the rates of return. For example, the decline of the relative rate of interest on savings deposits, whether it is due to the policy of the financial intermediaries or to the imposition of a ceiling by the central bank, is likely to lead to an outflow of funds from this type of asset.

None of the above objections is sufficient to impair the applicability of portfolio selection theory in form of expected utility maximization to the choice behaviour in developing countries. Although certain modifications of the framework are desirable, for example, the incorporation of the proliferation and sophistication of the financial system in developing countries, they do not alter the basic model. As has been pointed out in the discussion on the applicability of the standard savings theories to developing economies, the decision-making units whose behaviour is analyzed can be expected to behave similarly to their counterparts in developed economies, since through education and travel they have adopted western values, and since most of the investment opportunities found in industrialized countries are also open to them.

#### 4. Expected Utility Maximization in Terms of Mean-Variance Analysis

In order to enable an empirical application of the expected utility criterion, it is necessary to reduce the number of parameters that have to be estimated. Commonly, this is done by assuming that expected rate of return and risk are the two main factors which determine the portfolio choice, where the expected return is represented by the mean of the probability distribution of the rate of return, and risk by the variance of the probability distribution.

However, the reduction of expected utility analysis to mean-variance analysis is only possible under certain

conditions. The exchange between Borch,<sup>1</sup> Feldstein<sup>2</sup> and Tobin<sup>3</sup> emphasizes that either

- (1) the investor's utility functions has to be quadratic,
- or
- (2) the asset rates of return have to be joint normally distributed.

Both conditions are very restrictive and do not correspond closely to actual investment situations.

The quadratic utility function implies increasing absolute risk aversion,<sup>4</sup> which on empirical grounds has to be rejected. One would expect investors to lower their risk aversion with increasing wealth, while investors with declining wealth should behave more risk averse, since losses have to be borne by a dwindling portfolio.

The assumption of normality with respect to the rates of return ignores the possibility of asymmetry and skewness in the probability distribution of the rates of return.<sup>5</sup> For investors these features of the probability distribution are presumably of great significance, since lower than expected returns have more important consequences (at worse illiquidity) than higher than expected returns. Therefore the decision-making unit will have to fear the former more than he will look forward to the latter. Most authors reject the notion of normally distributed rates of return.<sup>6</sup>

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<sup>1</sup> K. Borch, 'A Note on Uncertainty and Indifference Curves', REStud, 36(1969), 1-4.

<sup>2</sup> Martin S. Feldstein, 'Mean-Variance Analysis in the Theory of Liquidity Preference and Portfolio Selection', REStud, 36(1969), 5-12.

<sup>3</sup> James Tobin, 'Comment on Borch and Feldstein', REStud, 26(1969), 13-14.

<sup>4</sup> See John R. Hicks, 'Liquidity', EJ 72(1962), 787-802, p.802.

<sup>5</sup> Ibid., p. 793-4.

<sup>6</sup> See, for example, Paul H. Cootner (ed.) The Random Character of Stock Market Prices, revised ed. (Cambridge, Mass., M.I.T. University Press 1967). in particular, pp. 180-97.

Expected utility can, however, be reduced to mean-variance analysis irrespective of any assumptions concerning the exact nature of the utility function of the decision-making unit or that of the probability distribution of the rates of return, if the risk taken by the investor is small compared with his total wealth (including human wealth).<sup>1</sup> Under such circumstances, mean-variance analysis represents a good approximation of the true general solution. The proof of this theorem is based on a Taylor series expansion of the decision-making unit's utility function, which should be non-polynomial for a risk averter. Terms beyond the second moment can be ignored, if the Taylor series converges rapidly.

In the case of individual investors, the assumption of small risk relative to total wealth is not without basis, since, as will be shown later in greater detail, their portfolio comprises predominantly short-term financial instruments as well as contractual and compulsory savings assets that are controlled, directly or indirectly, by government supervisory bodies.

## 5. The Form and the Argument of the Utility Function

The subset of utility functions that enable a reduction

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<sup>1</sup> See Paul A. Samuelson, 'The Fundamental Approximation Theorem of Portfolio Analysis in Terms of Means, Variances and Higher Moments', *REStud*, 37(1970), 537-42; S.C. Tsiang, 'The Rationale of the Mean Standard Deviation Analysis, Skewness Preference, and the Demand for Money', *AER*, 62(1972), 354-71. In addition, it is assumed that the utility function is continuous and differentiable.

of expected utility to mean-variance analysis leaves much to be desired. All utility functions are at best approximations of the investor's preferences.

In the countries under consideration, no data are available on the rate of return on non-choice set assets.<sup>1</sup> Therefore the models to be tested are based on the negative exponential utility functions, since its application yields asset demand equations, which do not incorporate the expected rates of return on non-choice set assets as explanatory variables.

The argument of the utility function can be represented either by end of period wealth or by portfolio rate of return. While the former is often regarded as the most suitable argument for models involving the investment behaviour of individuals, the latter seems to refer more closely to actual portfolio selection decision-making. In the models that are presented, end of period wealth is used as the argument of the utility function. This enables the derivation of absolute values of assets as solutions of the demand equations,

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<sup>1</sup> Non-choice set assets are defined in the following section.

rather than shares of assets in the portfolio, which would be the case with portfolio rate of return as the argument of the utility function.

6. The Decision-Making Process with respect to the Allocation of Investable Funds by Individuals: An Extension

Initially, the investment decisions of the individual have been separated from those involving his consumption. In addition, the decisions concerning the accumulation of liabilities and the investment in tangible assets are assumed to precede those concerning the investment in financial assets. The latter form the core of the following analysis.

The financial assets are to be subdivided further in order to allow for the different features of different subsets. In various models, liquid assets are separated from non-liquid assets, with the analysis concentrating on the former only.<sup>1</sup> Furthermore, liquid assets can be subdivided into those that result from transaction motives and those that result from speculative or 'pure' portfolio motives. The demand for the former financial assets depends on the level of income or expenditure, and that for the latter on the degree of risk aversion.

Neither of these approaches is followed here. Models separating liquid from non-liquid assets and disregarding the latter are likely to misrepresent the portfolio behaviour

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<sup>1</sup> See, for example, James S. Duesenberry, 'The Portfolio Approach to the Demand for Money and Other Assets', RES, 45(1963), S9-S31, pp. S16-S23.



of individual investors. For example, the participation in an employee benefit fund, which represents a non-liquid asset, ensures that certain funds are available after retirement. Therefore, one would expect the investor to behave differently, compared with the case where no funds are invested this way, and expenditure after retirement has to be met entirely out of alternative savings sources.<sup>1</sup>

The division of the demand for liquid assets into one arising out of transaction and speculative motives is equally unsatisfactory, at least in the economies of developing countries, since currency, the main 'transaction asset', also represents an important 'saving asset'. Indeed, it is the first financial asset with which people become familiar. In many areas, the use of financial instruments such as deposits or bonds, is still unpopular because of lack of accessibility and/or difficulties to overcome people's suspicion and ignorance with respect to financial institutions. Therefore, large amounts of cash are hidden in all kinds of odd places for times of need. Under these circumstances, there can be no meaningful distinction between liquid assets due to transaction motives and those due to speculative motives. Consequently, currency should not be excluded from the portfolio.

Instead, a framework will be used that distinguishes between choice set and non-choice set assets.<sup>2</sup> The investor

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<sup>1</sup> See, for example, Martin Feldstein and Anthony Pellechio, 'Social Security and Household Wealth Accumulation: New Microeconomic Evidence', RES, 61(1979), 361-8.

<sup>2</sup> See Anthony S. Courakis, 'Clearing Bank Asset Choice Behaviour: A Mean Variance Treatment', OBES, 36(1974), 173-201.



can freely determine his stock of choice set assets, subject, of course, to the conditions in the financial markets.

With respect to non-choice set assets, he is bound by past decisions and institutional arrangements that do not allow him to adjust his stock of such assets in whatever way he wants, as is the case for life insurance and employee benefit funds. What constitutes choice set and non-choice set assets, is discussed in greater detail when the models are applied to individual investors in the Philippines and Thailand.

The distinction between choice set and non-choice set assets is similar to that between liquid and non-liquid assets. However, the allocation of funds among choice set assets will be based on the explicit consideration of the whole portfolio, rather than disregarding non-choice set assets.

Three models are contrasted.<sup>1</sup> The first one assumes that the investor disregards non-choice set assets in his investment decisions, whereas in the second model these assets are included in the decision-making process. The third model goes a step further in that not only are the non-choice set assets taken into consideration but also the intra-period changes in these assets, as anticipated by the investor.

## 7. Alternative Specifications of Portfolio Behaviour

### a. Model I.

Model I concentrates on the portfolio behaviour with respect to choice set assets. It is not inconceivable that

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<sup>1</sup> The derivation of the following models is based on Anthony S. Courakis, 'Clearing Bank Asset Choice Behaviour: op. cit., and 'In Search of an Explanation of Clearing Bank Portfolio Behaviour' (Oxford, Brasenose College, mimeo, 1976).

the investor decides on the allocation of the choice set assets only, ignoring the composition of the rest of his portfolio, that is, the non-choice assets, since the latter are not under his direct control.

The decision-making unit is assumed to have a negative exponential utility function

$$1.1. \quad U(W_1) = a - ce^{-bW_1}$$

with  $a \geq 0$ ,  $b > 0$  and  $c > 0$ .

Its portfolio includes  $n_1$  types of choice set assets, being denoted by the  $n_1 \times 1$  vector  $V_1$ . The  $1 \times n_1$  vector  $m_1$  represents the actual rates of return on the different types of assets during the period under consideration.

The balance sheet constraint subject to which the investor is supposed to maximize his expected wealth is given by

$$1.2. \quad I_1' V_1 = W_m = W_0 - I_2' V_2$$

with  $I_1'$  and  $I_2'$  being appropriate summation vectors, and  $W_m$  being initial wealth comprising choice set assets only, which is equivalent to the difference between total initial wealth  $W_0$  and the amount held in non-choice set assets  $I_2' V_2$ .

End of period wealth is denoted by

$$1.3. \quad W_1 = (I_1' + m_1') V_1$$

The following expected returns and variance-covariance matrix describe the distribution of the rates of return  $m_1$ :

$$1.4. \quad E(m_1') = \hat{m}_1'$$

$$1.5. \quad \text{Cov}(m_1, m_1') = E[(m_1 - \hat{m}_1)(m_1' - \hat{m}_1')] = S_{11}$$

Assuming the rates of return to be normally distributed and defining

$$1.6. \quad E(I'_1 + m'_1) = Y'_1$$

the objective function, that is, expected utility of wealth, can be formulated as follows:

$$1.7. \quad E[U(W_1)] = Y'_1 V_1 - \frac{1}{2} b V'_1 S_{11} V_1$$

Maximizing 1.7. subject to the balance sheet constraint 1.2. yields the following asset demand equations:

$$1.8. \quad V_1 = \frac{1}{b} G Y_1 - B I'_2 V_2 + B W_0$$

with

$$1.9. \quad G = S_{11}^{-1} - \frac{S_{11}^{-1} I_1 I'_1 S_{11}^{-1}}{I'_1 S_{11}^{-1} I_1}$$

and

$$1.10. \quad B = \frac{S_{11}^{-1} I_1}{I'_1 S_{11}^{-1} I_1}$$

It can be shown that

- (1)  $G$  is symmetric,
- (2) all row and column sums of  $G$  are zero,
- (3) all diagonal elements of  $G$  are positive, and consequently the sum of the off-diagonal elements of  $G$  and their row and column sums are negative, and
- (4) the elements of  $B$  add up to unity.

From the properties of  $G$  it follows that

- (1) a unit change in the rate of a choice set asset  $V_a$  brings about a change in the demand for another choice set asset  $V_b$  that is equal to the change in the demand for  $V_a$  brought about by a unit change in the rate of  $V_b$ . Furthermore, the property of symmetry implies that a proportional increase in the rates on all choice set assets does not affect the demand for the different choice set assets.

- (2) the wealth constraints are met at all times.
- (3) a unit change in the rate of  $V_a$  brings about a positive change in the demand for  $V_a$ , assuming that the other rates remain constant.

The property of B ensures that a change in the amount of non-choice set assets  $I_2'V_2$  or total initial wealth  $W_0$  brings about changes in the demand for the different choice set assets, which add up to the total amount of the initial change.

In addition to the symmetry and adding up constraints, Model I incorporates the hypothesis that the demand for choice set assets is independent of the composition of non-choice set assets.

#### b. Model II

Model II enlarges the decision-making process of the investor to include choice set as well as non-choice set assets, but not intra-period changes in the latter. The investor either assumes that such changes will not occur, or simply ignores them.

The  $n \times 1$  vector  $V$  represents all  $n$  types of assets that are included in the portfolio. The  $1 \times n$  vector  $m$  comprises the rates of return of the different assets. The division of assets into choice set and non-choice set items is incorporated into the model by partitioning the vector  $V$  into a  $n_1 \times 1$  vector of choice set assets  $V_1$  and a  $n_2 \times 1$  vector of non-choice set assets  $V_2$ . Furthermore, the vector of rates of return  $m$  is partitioned into the  $1 \times n_1$  vector  $m_1$  and the  $1 \times n_2$  vector  $m_2$ , denoting the rates of return on choice set and non-choice set assets respectively.

Terminal wealth is defined by

$$2.1. \quad W = W_1 + W_2 = (I' + m')V = (I'_1 + m'_1)V_1 + (I'_2 + m'_2)V_2$$

The matrix of expected returns and the variance-covariance matrix are similarly partitioned to become

$$2.2. \quad E(m') = \hat{m}' = [\hat{m}'_1 \quad \hat{m}'_2]$$

$$2.3. \quad \text{Cov}(m, m') = E[(m - \hat{m})(m' - \hat{m}')] = S = \begin{bmatrix} S_{11} & \cdots & S_{12} \\ \vdots & \ddots & \vdots \\ S_{21} & \cdots & S_{22} \end{bmatrix}$$

Assuming a negative exponential utility function, the objective function can then be written as

$$2.4. \quad E[U(W)] = E[U(W_1 + W_2)] = [Y'_1 \quad Y'_2] \begin{bmatrix} V_1 \\ \vdots \\ V_2 \end{bmatrix} - \frac{1}{2}b [V'_1 \quad V'_2] \begin{bmatrix} S_{11} & \cdots & S_{12} \\ \vdots & \ddots & \vdots \\ S_{21} & \cdots & S_{22} \end{bmatrix} \begin{bmatrix} V_1 \\ \vdots \\ V_2 \end{bmatrix}$$

Maximizing 2.4. subject to the balance sheet constraint 1.2. renders as solution for  $V_1$

$$2.5. \quad V_1 = \frac{1}{b} GY_1 - HV_2 + BW_0$$

with

$$2.6. \quad H = GS_{12} + BI'_2$$

G and B are defined as in the previous model.

The extension of the decision-making process to include non-choice set assets has important implications for the asset demand equations. In Model II, the demand for choice set assets depends explicitly on the composition of non-choice set assets.

### c. Model III

In the third model, non-choice set assets as well as intra-period changes in these assets anticipated by the investor are explicitly taken into consideration. It is

assumed that the intra-period change  $\Delta V_2$  is envisioned by the investor to take place at one specific point in time. If  $p=1 \dots u$  denotes the number of alternative portfolios  $V_1$  chosen by the decision-making unit and  $q = 1 \dots t$  the number of alternative adjustments  $\Delta V_1$ , its allocation problem can be described by a  $p \times q$  matrix which shows the possible adjustments  $\Delta V_1$  as a reaction to  $\Delta V_2$ , given an initial choice for  $V_1$ .

Diagram 2.8. The Decision-Making Matrix Involving Choice  
Set Assets and their Intra-Period Changes

|          | $\Delta V_{11}$ | $\Delta V_{12}$ |  | $\Delta V_{1t}$ |
|----------|-----------------|-----------------|--|-----------------|
| $V_{11}$ |                 |                 |  |                 |
| $V_{12}$ |                 |                 |  |                 |
|          |                 |                 |  |                 |
| $V_{1u}$ |                 |                 |  |                 |

End of period wealth is then described by

3.1.

$$W_{pq} = (I'_1 + m'_1)V_{1,p} + (I'_2 + m'_2)V_2 + (I'_1 + r'_1)\Delta V_{1,q} + (I'_2 + r'_2)\Delta V_2$$

The above specification implies different rates of return for the initial stock of assets and the respective intra-period changes, which is plausible, since the conditions in the financial markets change so that consequently  $\Delta V_1$  and  $\Delta V_2$

will entail different yields,  $r_1$  and  $r_2$  respectively.

The investor has to find the combination of  $V_{1,p}$  and  $\Delta V_{1,q}$  which enables the maximization of the expected value of end of period wealth.

The balance sheet constraint is extended to

$$3.2. \begin{cases} I_1' V_1 + I_2' V_2 = W_0 \\ I_1' \Delta V_1 + I_2' \Delta V_2 = \Delta W_0 \end{cases}$$

with  $I_1'$  and  $I_2'$  again representing appropriate summation vectors.

In an intermediate step it is assumed that the investor decides on  $\Delta V_1$  with  $V_1$ ,  $V_2$  and  $\Delta V_2$  being given. He chooses  $\Delta V_1$  so as to maximize

$$3.3. E[U(W)] = (Y_1' V_1 + Y_2' V_2 + P_1' \Delta V_1 + P_2' \Delta V_2) - \frac{1}{2} b E[(e_1' V_1 + e_2' V_2 + a_1' \Delta V_1 + a_2' \Delta V_2)^2]$$

with

$$3.4. e_j = m_j - E(m_j)$$

$$3.5. a_j = r_j - E(r_j)$$

$$3.6. P_j = 1 + E(r_j)$$

subject to the balance sheet constraint 3.2., which results in the following set of flow equations:

$$3.7. \Delta V_1 = \frac{1}{b} \bar{G} P_1 - \bar{G} Q_{11} V_1 - \bar{G} Q_{12} V_2 - \bar{H} \Delta V_2 + \bar{B} \Delta W_0$$

with

$$3.8. Q_{11} = E(e_1 a_1'), Q_{12} = Q_{21} = E(e_1 a_2') = E(a_2 e_1')$$

$$3.9. R_{11} = E(a_1 a_1'), R_{12} = R_{21} = E(a_1 a_2') = E(a_2 a_1')$$

$$3.10. \bar{G} = R_{11}^{-1} - \frac{R_{11}^{-1} I_1 I_1' R_{11}^{-1}}{I_1' R_{11}^{-1} I_1}$$



$$3.11. \quad \bar{B} = \frac{R_{11}^{-1} I_1}{I_1' R_{11}^{-1} I_1}$$

$$3.12. \quad \bar{H} = \bar{G}R_{12} + \bar{B}I_2'$$

After substituting 3.7. into 3.1. expected utility is defined as follows:

$$\begin{aligned} 3.13. \quad E[U(W)] = & [Y_1'V_1 + Y_2'V_2 + \frac{1}{b} P_1'\bar{G}P_1 - P_1'\bar{G}Q_{11}V_1 \\ & - P_1'\bar{G}Q_{12}V_2 - P_1'\bar{H}\Delta V_2 + P_1'\bar{B}\Delta W_0 + P_2'\Delta V_2] \\ & - \frac{1}{2}b E[(e_1'V_1 + e_2'V_2 + \frac{1}{b} a_1'\bar{G}P_1 - a_1'\bar{G}Q_{11}V_1 \\ & - a_1'\bar{G}Q_{12}V_2 - a_1'\bar{H}\Delta V_2 + a_1'\bar{B}\Delta W_0 + a_2'\Delta V_2)^2] \end{aligned}$$

Maximizing 3.13. subject to 3.2. yields the final set of asset demand equations

$$3.14. \quad V_1 = \frac{1}{b} M_1 Y_1 - \frac{1}{b} M_2 P_1 - M_3 V_2 - M_4 \Delta V_2 - M_5 \Delta W_0 + NW_0$$

with

$$3.15. \quad X = E(a_1'\bar{G}a_1)$$

$$3.16. \quad A = (1 - X)^2 S_{11}$$

$$3.17. \quad M_1 = A^{-1} - \frac{A^{-1} I_1 I_1^{-1} A^{-1}}{I_1' A^{-1} I_1}$$

$$3.18. \quad M_2 = M_1(2 - X)Q_{11}\bar{G}$$

$$3.19. \quad M_3 = M_1(1 - X)^2 S_{12} + NI_2'$$

$$3.20. \quad M_4 = M_1(1 - X)(Q_{12} - Q_{11}\bar{H})$$

$$3.21. \quad M_5 = M_1(1 - X)Q_{11}\bar{B}$$

$$3.22. \quad N = \frac{A^{-1} I_1}{I_1' A^{-1} I_1}$$



The properties of  $M_1$  are identical to those of  $G$ . In addition

- (1)  $M_2$  is assymmetric, unless it is a scalar multiple of  $M_1$ ,
- (2) all row and column sums of  $M_2$  are zero,
- (3) all column sums of  $M_3$  are equal to unity,
- (4) all column sums of  $M_4$  are equal to zero,
- (5) the elements of  $M_5$  add up to zero,
- (6) the elements of  $N$  add up to unity.

Since the properties of  $M_1$  are identical to those of  $G$ , the effect of a unit change in the rate of a choice set asset  $V_a$  is analogous to that in Model I and Model II.

Initially, it has been assumed that expected total period returns  $Y_1$  and expected intra-period returns  $P_1$  do differ, that is,  $E(e_1 e_1') \neq E(a_1 a_1')$ . Under this assumption  $M_2$  is assymmetric, so that the change in the demand for the choice set asset  $V_a$  brought about by a unit change in the intra-period rate of the choice set asset  $V_b$  is not identical to the effect of a change in the intra-period rate of  $V_a$  on the demand for  $V_b$ . However, the empirical analysis necessitates the approximation of both  $Y_1$  and  $P_1$  by a scalar multiple of  $R_i$ , where  $R_i$  represents actual rates of return, so that  $M_2$  becomes a scalar multiple of  $M_1$  and thereby symmetric.

The properties of  $M_3$ ,  $M_4$ ,  $M_5$  and  $N$  ensure that the wealth constraints are met at all times.

## 8. Several Problems in the Specification of Portfolio Models

### a. Aggregation

The data that are used in the empirical analysis refer to aggregates with respect to the decision-making units as

well as to the financial assets. The models which have been derived, however, are based on the behaviour of individuals and consider only individual financial assets.

Usually, this problem is ignored altogether, assuming that the group of investors is an individual decision-making unit and that the aggregates of assets are individual assets. Another way of circumventing the aggregation problem is taken by assuming that the group of decision-making units and the groups of assets are homogeneous. In the case of investors, homogeneity means identical endowments of wealth, unless a negative exponential utility function is assumed, identical interest rate expectations, attitudes towards risk and perceived variance-covariance matrices of rates of return, which are all rather strong assumptions. With respect to the groups of financial assets, homogeneity implies identical rates of return and the impression of identical riskiness to the investors of each asset within the group.

Since aggregate data are the only information available on the portfolio behaviour of individual investors in the Philippines and Thailand, the problem of aggregation has to be left unresolved in this analysis.

#### b. Single-Period versus Multi-Period Planning Horizons

The models presented in section C adhere to a one-period maximization framework, although one would ideally expect a decision-making unit to plan its portfolio over several periods, if not his whole life time, as is suggested in the life-cycle hypothesis.

In addition to doubts whether investors actually follow such a complex multi-period optimization scheme, it is for empirical reasons that single-period models are preferred. In a multi-period framework the decision-making unit must form expectations over all periods concerning the rates of return and the variance of the rates of return for all assets that are included or might be included in the future in the portfolio. Further problems arise in the case of serially correlated rates of return and transaction costs. The inclusion of such complexities renders the portfolio models empirically inapplicable. In order to avoid these problems, models have been developed according to which multi-period behaviour can be treated in a one-period optimization framework, that is, models where myopic behaviour is optimal.

The first approach to myopic multi-period behaviour is based on portfolio sequences.<sup>1</sup> The investor decides at the end of each period how to change his portfolio, depending on the outcome of the previous period. Such behaviour is quite plausible, since with time, the resultant information will influence the choice behaviour. Moreover, the outcome of each period might affect the objectives of the investor in terms of target wealth. The investor contrasts alternative investment sequences, in particular, their expected return and their risk, and then chooses the one most in accordance with his objective function. The multi-period optimization problem can be reduced to a single-period one, if asset rates

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<sup>1</sup> See James Tobin, 'The Theory of Portfolio Selection', in: F.H. Hahn and F.P.R. Brechling (eds.) The Theory of Interest Rates, Proceeding of a Conference held by the International Economic Association (London, Macmillan and Co., 1965), 3-51, pp. 37-47.

of return are statistically independent, if the probability distributions of the rates of return are constant over time, and if the utility function is either lognormal in wealth or a power utility function.<sup>1</sup> Stationary sequences, that is, portfolios with constant asset proportions, are efficient under the above assumptions.

In reality, rates of return are serially correlated and the probability distributions vary over time. Furthermore, taking investment opportunities of latter periods into consideration only when one has arrived at the beginning of the particular period, hardly leads to optimal multi-period behaviour.<sup>2</sup>

Continuous time models represent an alternative approach to analyze multi-period portfolio behaviour within a manageable framework.<sup>3</sup> It is assumed that the number of holding periods becomes infinite. The investor changes his portfolio continuously, so that risks tend to zero. Asset rates of return are supposed to be serially independent. In addition, the assumption is made that the prices of assets are continuously distributed in order to rule out sudden increases or decreases in prices. If this is so, portfolio behaviour can be modelled in terms of means and variance in a single-period framework, without taking recourse to the quadratic utility function or the normal distribution of rates of return. However, because of

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<sup>1</sup> See Jan Mossin, 'Optimal Multiperiod Portfolio Policies', JB, 41(1968), 215-29, p. 228.

<sup>2</sup> Ibid., p. 223.

<sup>3</sup> See, for example, Robert C. Merton, 'Lifetime Portfolio Selection Under Uncertainty: The Continuous-Time Case', RES, 51(1969), 247-57, and J.S. Fleming, 'Portfolio Choice and Liquidity Preference: A Continuous-Time Treatment', in: Harry G. Johnson and A.R. Nobay (eds.) Issues in Monetary Economics (London, Oxford University Press, 1974), 137-50.

transaction costs and indivisibilities of assets, the assumption that holding periods tend to be infinitely short is hardly realistic.

In the absence of a multi-period framework that can be tested with the existing data, the discrete-time models suggested must suffice.

c. Equilibrium Stock Models versus Stock Adjustment Models

The asset demand equations specified in Models I, II and III imply that desired stocks coincide with actual stocks. Differences between the two might be due to transaction costs or illiquidity of a certain asset, so that the decision-making unit fails to adjust his portfolio in the period under consideration. However, if the optimum adjustment process follows along the frontier defined by the equilibrium model, differences between actual and desired stocks are accounted for. Such an assumption does not seem more arbitrary than any artificial adjustment process.

### CHAPTER III

#### THE DEVELOPMENT OF DOMESTIC, HOUSEHOLD AND PERSONAL SAVINGS AND THEIR DETERMINANTS:

#### THE DEMAND SIDE OF SAVINGS MOBILIZATION

##### A. Introduction

The results of the empirical analysis of the demand side of savings mobilization are presented in this chapter. So far, only a very few studies of savings behaviour in the Philippines and Thailand have been undertaken, despite the importance of savings for the process of economic development. Numerous targets are set in the countries' development plans. However, these are seldom evaluated on the basis of the actual development of the level of domestic savings.

In section B, the development of domestic investment and savings in the Philippines and Thailand is traced and the extent to which domestic and foreign savings finance the volume of investment is examined. In addition, the relative importance of the different components of domestic savings, that is, household, corporate and government savings, are compared and structural changes are studied.

Section C contrasts alternative estimates of personal and household savings,<sup>1</sup> which in the Philippines and Thailand account for most of the domestic savings and therefore deserve

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<sup>1</sup> The concept of household savings is broader than that of personal savings, in that the former includes the savings of unincorporated business enterprises. The differences between the two estimates are discussed in detail in section C.1 of this chapter.

special attention. While the data on household savings are taken from the national income accounts, the amount of personal savings is estimated on the basis of a flow-of-funds approach. This represents the first attempt for Thailand and the second attempt for the Philippines<sup>1</sup> to develop a time-series of personal (or household) savings by compiling data from a multitude of sources on the change in the various financial and tangible assets of individual investors. Unlike the national income accounts estimates, those constructed on the basis of the flow-of-funds approach enable the analysis of the underlying pattern of the development of savings. Erratic movements in the level of personal savings can now be traced to increases and decreases in the stock of specific financial or tangible assets or to the change in the stock of liabilities.

Section D starts with the note on the necessary procedures for the evaluation of savings functions. This is followed by a survey of previous empirical analysis of savings functions in the Philippines and Thailand. The few analyses that have been undertaken are based on time-series comprising periods of less than fifteen years. The results therefore are not very meaningful. Furthermore, no attempt has been made to discriminate between different savings hypotheses.

The tests in this analysis represent a substantial improvement on the earlier ones. The data base is extended

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<sup>1</sup> The first attempt was made by Richard W. Hooley, Savings in the Philippines: 1951-1960 (Quezon City, Institute of Economic Development and Research, University of the Philippines, 1963). In latter years, this estimate has been extended and substantiated particularly with respect to tangible assets. See Richard W. Hooley and Honorata A. Moreno, 'A Study of Financial Flows in the Philippines, 1948-1965' (Quezon City, School of Economics, University of the Philippines, forthcoming).



to cover almost three decades. Time-series of domestic, household and personal savings are used to evaluate people's savings behaviour. Moreover, the presentation of the results enables a clear discrimination between the explanatory power of the alternative theories.



B. The Pattern of Development of Investment, Domestic and Foreign Savings, 1950-1977

Although high investment and savings rates are not sufficient conditions for a satisfactory growth performance, let alone development, much attention has focussed on them. They can indeed be quite misleading, if in addition to the amount of aggregate investment and savings, their structure and thereby their adequacy to the economy is not taken into consideration. Nevertheless, investment and savings rates are not only emphasized in domestic development plans, but also in analyses by international economic organizations, such as the International Monetary Fund or the World Bank.

In the long-term development plan for the Philippines up to the year 2000, the ratio of gross domestic capital formation to gross national product is targeted to rise from 31.2 per cent in 1978 to 35 per cent in 2000.<sup>1</sup> The fact that between 1975 and 1977 the ratio exceeded 30 per cent does not necessarily imply that the target will be realized with ease, as the achievements in these years are exceptional (see Diagram 3.1, p.109). The investment ratio displayed a slight upward movement during the fifties and early sixties, from about 12 per cent in 1952 to 18 per cent in 1962. Large investments in the intermediate goods industry, such as steel, chemicals and cement, led to an upsurge of the ratio to more than 20 per cent during the late sixties.<sup>2</sup> Because

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<sup>1</sup> See Republic of the Philippines, NEDA, Long-Term and Five Year (1978-82) Development Plans, Draft Summary (Manila, NEDA, 1977), 2-3.

<sup>2</sup> See The World Bank, op. cit., p. 307.

of excess capacity and the increase in the cost of imported capital goods after the devaluation in 1970, the investment climate considerably deteriorated up to 1973. In recent years, booming export markets and ambitious government infrastructure projects induced the investment ratio to leap over 30 per cent. It remains to be seen, whether this record can be maintained or improved in the future.

The ambitious objective set forward in the development plan, which has been reiterated in a recent World Bank report on the Philippines,<sup>1</sup> necessitates great efforts with respect to savings mobilization, if too heavy a reliance on foreign capital is to be avoided. Until 1967, investment was largely financed by domestic savings (see Diagram 3.1, p.109). Foreign capital inflow remained rather small in relation to gross national product. Since then, however, gross domestic capital formation has exceeded gross domestic savings, except in 1972 and 1973. The investment-saving gap has widened substantially since 1975 and has had to be bridged by large amounts of foreign capital. In order to prevent a further deterioration in the situation, the development plan envisages a rise in the savings ratio to 27 per cent in 1978, 30 per cent in 1985 and 34 per cent in 2000, which would ultimately close the gap.<sup>2</sup> However, the plan fails to specify the measures that are to be taken by government authorities and the financial system to further enhance the thrift habit.

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<sup>1</sup> Ibid., pp. 306-7.

<sup>2</sup> See Republic of the Philippines, NEDA, op. cit., 2-4.

The 1977-1981 development plan for Thailand sets out far less ambitious objectives.<sup>1</sup> The ratio of gross domestic capital formation to gross domestic product for 1981 is expected to be in line with that in 1971 (22.6 per cent) and in 1976 (23.7 per cent). In view of the performance of the last ten years (see Diagram 3.2, p.109), this is well within the capabilities of the Thai economy. From a low of 10.5 per cent in 1957, the ratio of gross domestic capital formation to gross domestic product has increased to over 26 per cent in 1969, reinforcing and being reinforced by the buoyant economy during that period. Thereafter, the ratio remained at about 25 per cent, the 20.5 per cent in 1972 being an exception. This stagnation was due to a mixture of external (the end of the Vietnam War, rising prices for imported capital goods, unsatisfactory export performance) and internal reasons (overcapacity in the industry and political uncertainty).

Although the gross savings ratio has continuously exceeded 18 per cent since 1960 and displays a long-run upward movement, in many years this proved insufficient to finance the volume of investment (see Diagram 3.2., p.109). Unlike the Philippines, Thailand could rely on a substantial foreign capital inflow, which has been greater than 2 per cent of gross domestic product in most years, irrespective of the investment-savings gap. Since 1973, when the savings ratio reached a record 27.6 per cent, it has, however, declined sharply. If the investment level is to be sustained at the prevailing level and the dependence on foreign capital is

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<sup>1</sup> See Government of Thailand, NESDB, The Fourth National Economic and Social Development Plan (1977-1981) (Bangkok, NESDB, undated), p.61.

not to be increased, efforts to mobilize domestic savings have to be greatly increased.

The average investment and savings ratios for the last three decades indicate a long-run upward trend in both countries.

Table 3.1. Gross Investment and Savings Ratios (per cent), 1950-1977

| Period  | The Philippines |           |           | Thailand  |           |           |
|---------|-----------------|-----------|-----------|-----------|-----------|-----------|
|         | $I_G/Y_G$       | $S_G/Y_G$ | $S_F/Y_G$ | $I_G/Y_G$ | $S_G/Y_G$ | $S_F/Y_G$ |
| 1950-59 | 15.54           | 15.72     | 0.98      | 14.37     | 14.69     | 1.33      |
| 1960-69 | 19.68           | 19.48     | 1.39      | 20.79     | 20.64     | 2.81      |
| 1970-77 | 25.57           | 24.04     | 2.74      | 24.63     | 23.30     | 2.10      |

Definitions:  $I_G$  - Gross Domestic Capital Formation  
 $S_G$  - Gross Domestic Savings  
 $S_F$  - Foreign Capital Inflow  
 $Y_G$  - Gross National Product (GDP for Thailand)

Source: See Statistical Appendix, B.4 and C.4.

The increase in the long-run savings ratios is in contrast to the experience of developed countries. Although the income hypotheses by Duesenberry, Modigliani et al. and Friedman have been conceptualized above all to explain the long-run constancy in the savings ratio in the United States, they can also explain a rising savings ratio. The argument of the life-cycle hypothesis, for example, would run as follows: In the case of income growth, the stock of savings relative to current income is reduced. In the framework of the life-cycle hypothesis, this implies that older households dissave at a lower rate, so that the overall savings ratio increases.<sup>1</sup> It is questionable, however,

<sup>1</sup> See Thomas Mayor, Permanent Income, Wealth and Consumption (Berkeley, University of California Press, 1972) p.31.

whether this explanation is relevant in the context of developing countries. Rather, it has to be assumed that income growth, in particular if it is rapid, enhances the thrift habit of all households, since consumption needs are more easily satisfied and since the growth process increases the number of investment opportunities.

The analysis of the various savings functions in Chapter II has suggested that there are many possible variables which could influence savings behaviour. However, it does not seem feasible on an a priori basis to determine those economic developments which, in addition to the rise in national or per capita income, have led to the increase in the total amount of savings and the savings rates. It is worth noting that in the Philippines, investment, domestic and foreign savings rates have simultaneously risen sharply since 1972, suggesting a positive impact of foreign capital inflow on savings via a foreign exchange effect on investment (see Diagram 3.1, p.109). A detailed analysis of the determinants is undertaken in section D of this chapter.

A structural analysis of net domestic savings reveals the dominant role of the household sector in the financing of domestic investment in both countries (see Table 3.2, p.110). It accounted for more than 60 per cent of net domestic savings in all but five years in the Philippines and all but three years in Thailand. The consistently high proportion

of household savings represents a striking feature of the two economies for the period compared with most other developing countries.<sup>1</sup>

In Thailand, the U-shaped pattern of development in the share of household savings is matched by a reverse trend in the share of government savings. The latter increased up to 1958, but showed a decline during the sixties and seventies. The growing role that government savings played during the fifties has been due to the strategy of economic nationalism that the government pursued between 1951 and 1958.<sup>2</sup> It encouraged numerous investment projects through the establishment of semi-public companies. The strategy was abandoned in the late fifties, because most of the projects proved to be unviable and had led to the misallocation of funds. Consequently, government savings declined in importance.

In the Philippines, government savings have been overall of lesser importance than in Thailand. Between 1950 and 1977, its share developed in two rather distinct cycles, with peaks in 1957 and 1973 and troughs in 1965 and 1977. The decline in the share during the sixties can be attributed to the deceleration in income growth and the resulting stagnation in the tax-income ratio. Major tax reforms in the early seventies, however, enabled the government to increase its

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<sup>1</sup> Compare U Tun Wai, *op. cit.*, pp. 159-66.

<sup>2</sup> See Ammar Siamwalla, 'Stability, Growth and Distribution in the Economy', in: Prateep Sondysuvan (ed.) *op. cit.*, 25-48, pp. 34-5.

share greatly. Large tax collections due to a tax amnesty in 1973 led to a shift of funds from the private to the government sector. In subsequent years, the tax drive did not persist and the share of government savings declined considerably.

In both countries, corporate savings have played only a minor role during all but a few years. During the sixties, high rates of return on equity led many Philippine corporations to reinvest their profits. The share of corporate savings rose from 11.4 per cent (1950-59) to 17.7 per cent (1960-69). The tax drive of the government during the seventies initially caused a large drop in corporate savings, as has been the case for household savings. The data for 1976 and 1977 indicate that corporate savings could recuperate after the government's initiative lost its impetus.

Similarly, in Thailand the development of the share of corporate savings has to be seen in direct relationship to that of government savings. The establishment of highly inefficient semi-public companies hampered the development of private corporations and their savings. Only after the semi-public companies were dismantled, did corporate savings increase their - till then - marginal share.



Diagram 3.1. Gross Domestic Capital Formation, Gross Domestic and Foreign Savings as Per Cent of GNP, The Philippines, 1950-1977

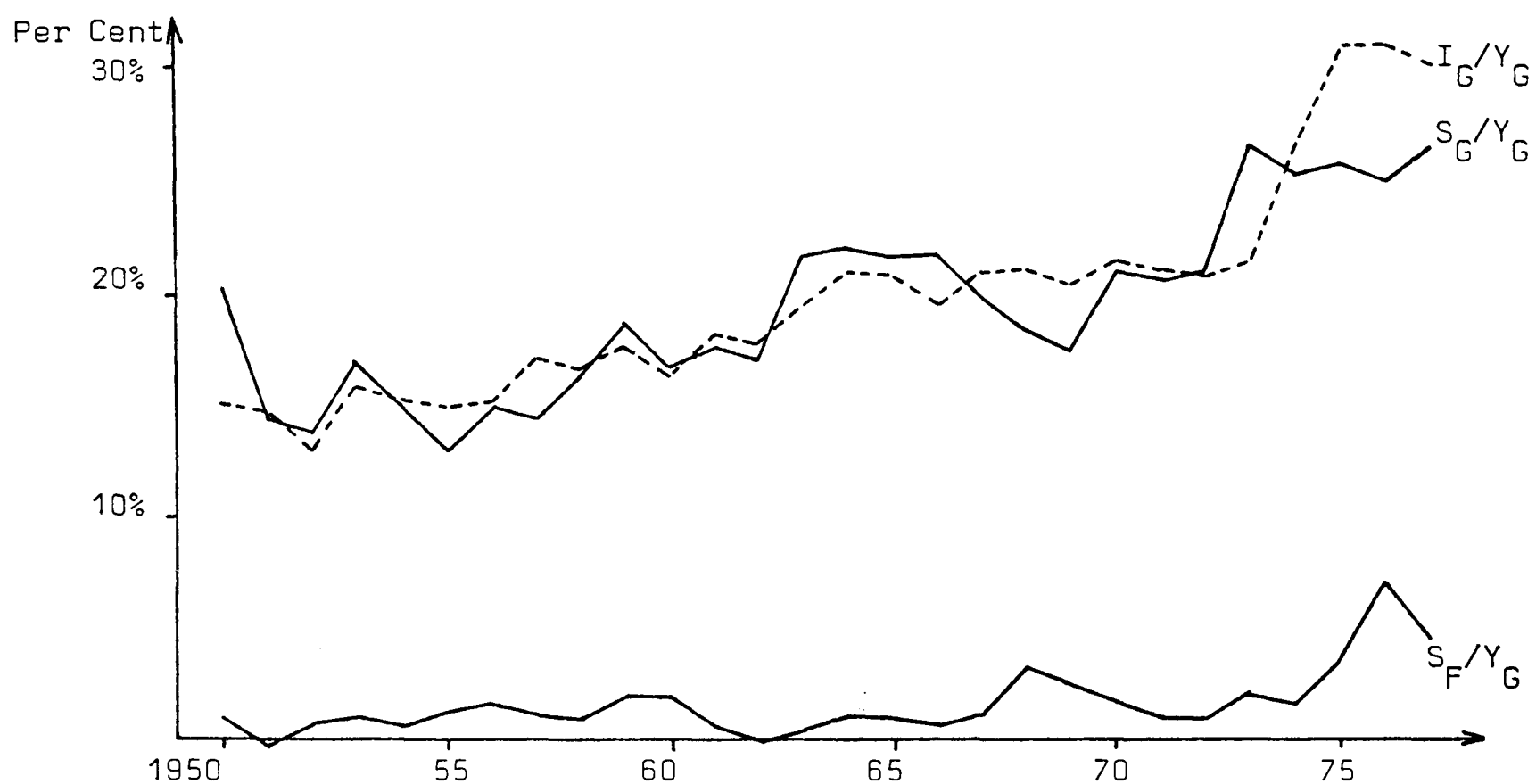
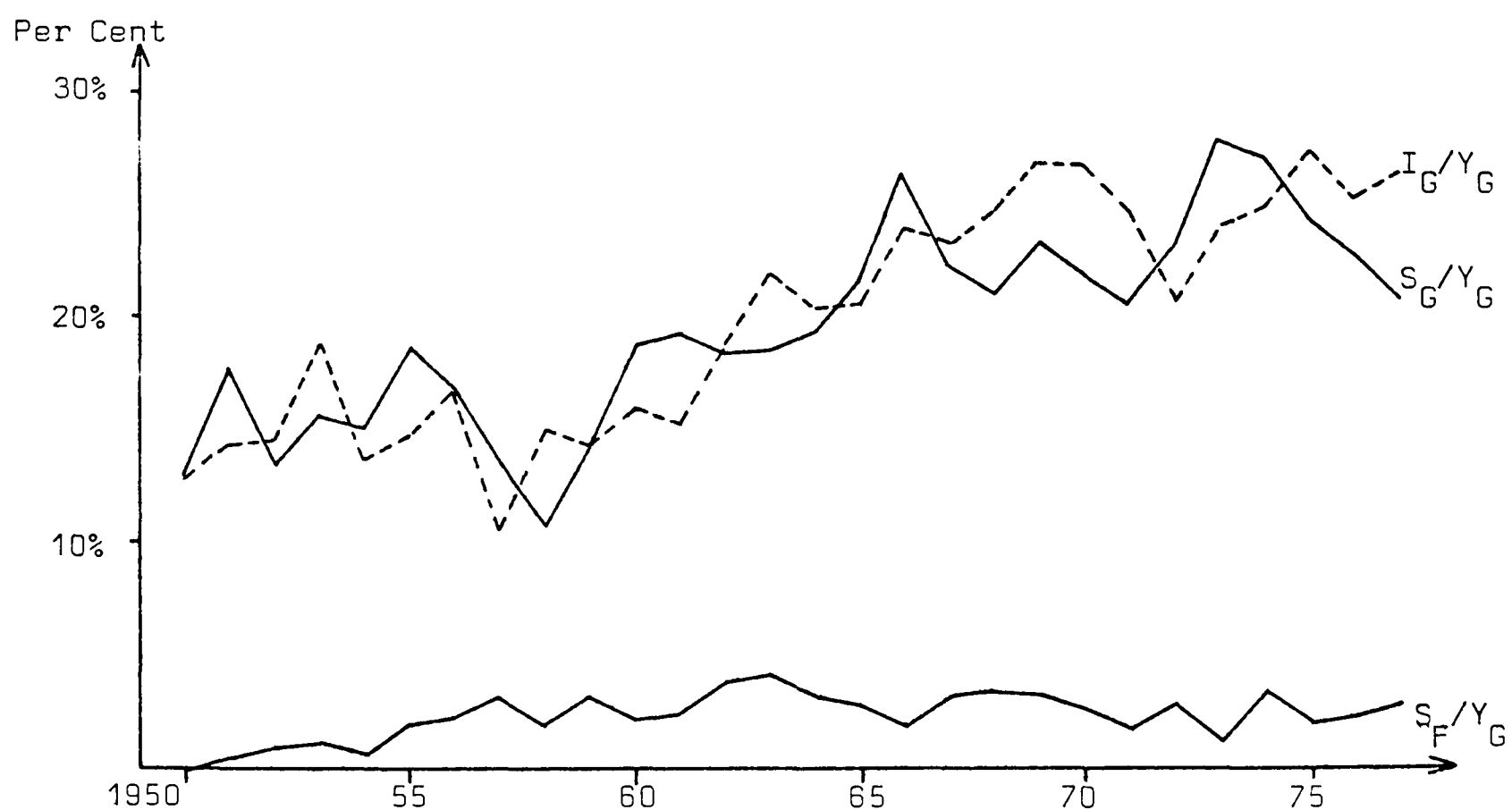


Diagram 3.2. Gross Domestic Capital Formation, Gross Domestic and Foreign Savings as Per Cent of GDP, Thailand, 1950-1977



Source: See Statistical Appendix, B.4. and C.4.



Table 3.2. The Structure of Net Domestic Savings, 1950-1977 (per cent)

| Year | The Philippines |      |       | Thailand |      |       |
|------|-----------------|------|-------|----------|------|-------|
|      | SH              | SC   | SG    | SH       | SC   | SG    |
| 1950 | 97.2            | 3.9  | - 1.0 | 99.8     | 10.4 | -10.3 |
| 1951 | 81.6            | 9.1  | 9.4   | 94.4     | 6.6  | - 0.9 |
| 1952 | 63.2            | 14.9 | 21.8  | 79.8     | 8.6  | 11.7  |
| 1953 | 78.5            | 11.3 | 10.1  | 76.9     | 6.4  | 16.7  |
| 1954 | 77.4            | 10.4 | 12.3  | 71.3     | 8.9  | 19.9  |
| 1955 | 65.0            | 16.3 | 18.7  | 80.0     | 4.5  | 15.5  |
| 1956 | 64.8            | 13.5 | 21.7  | 66.6     | 4.7  | 28.7  |
| 1957 | 62.5            | 12.1 | 25.4  | 56.3     | 5.7  | 38.1  |
| 1958 | 75.6            | 10.2 | 14.2  | 51.2     | 6.4  | 42.5  |
| 1959 | 73.3            | 12.5 | 14.2  | 55.8     | 5.0  | 39.2  |
| 1960 | 69.0            | 11.4 | 19.7  | 73.1     | 5.1  | 21.9  |
| 1961 | 71.5            | 11.4 | 17.1  | 73.8     | 5.8  | 20.4  |
| 1962 | 58.2            | 23.0 | 18.9  | 68.8     | 7.2  | 24.0  |
| 1963 | 70.6            | 16.7 | 12.7  | 64.1     | 8.7  | 27.2  |
| 1964 | 70.6            | 16.5 | 12.9  | 62.1     | 12.1 | 25.8  |
| 1965 | 82.8            | 11.1 | 6.1   | 68.9     | 9.2  | 21.9  |
| 1966 | 75.9            | 17.9 | 6.2   | 74.3     | 8.4  | 17.2  |
| 1967 | 69.3            | 20.2 | 10.5  | 62.1     | 12.8 | 25.0  |
| 1968 | 61.4            | 26.4 | 12.2  | 60.0     | 15.5 | 24.6  |
| 1969 | 70.3            | 21.9 | 7.8   | 68.1     | 11.5 | 20.4  |
| 1970 | 57.5            | 22.5 | 19.9  | 72.2     | 12.7 | 15.1  |
| 1971 | 64.5            | 11.5 | 24.0  | 72.9     | 16.8 | 10.3  |
| 1972 | 71.9            | 13.3 | 14.8  | 77.2     | 14.3 | 8.5   |
| 1973 | 55.7            | 11.7 | 32.7  | 82.2     | 9.3  | 8.5   |
| 1974 | 56.5            | 14.7 | 28.8  | 67.4     | 11.7 | 20.9  |
| 1975 | 57.0            | 17.7 | 25.3  | 76.3     | 10.1 | 13.6  |
| 1976 | 67.2            | 20.5 | 12.3  | 82.9     | 10.6 | 6.5   |
| 1977 | 68.5            | 19.6 | 11.9  | 70.9     | 13.9 | 15.2  |

Definitions: SH - Household Savings  
SC - Corporate Savings  
SG - Government Savings

Source: See Statistical Appendix, B.4. and C.4.

C. Two Approaches to the Estimation of Household and Personal Savings

1. The National Income Accounts versus the Flow-of-Funds Approach

An alternative estimate to that included in the national income accounts has been undertaken for households — the most important savings sector. This was felt to be necessary not only to picture more precisely the total volume of household savings but also to enable an analysis of the structure of household savings.

The estimates presented differ in two respects from those in the national income accounts. First, households are defined differently. There are conceptual as well as empirical reasons for this. In general, households are defined so as to include individuals, partnerships, co-operatives and non-profit institutions, such as associations, foundations or monasteries. In this analysis, co-operatives and non-profit institutions have been excluded, since their activities are not directly linked to those of what one might call family households, and since their savings pattern, like their objectives differ from those of the latter economic units.

The economic activities of partnerships and family households, on the other hand, are closely linked, which renders a separation of both rather difficult and not necessarily desirable. Partnerships represent the most important form of organization of family businesses in the Philippines and Thailand. Nevertheless, savings of partnerships had to be excluded, since the data available

did not allow the separation of partnerships for incorporated business, particularly in Thailand. It is felt, however, that the exclusion of partnerships does not introduce serious errors into the estimates, as far as volume is concerned. Existing data on demand, saving and time deposits, as well as loans extended by various financial institutions in the Philippines enable a separation of partnerships and incorporated business. From these, it can be concluded that the financial assets that would have to be added are approximately offset by financial liabilities. The total volume of savings would remain unchanged although gross financial assets would appear somewhat more important compared with tangible assets.

In order to account for the different definition of households, the estimate from the national income accounts will be referred to as household savings, while the estimate based on the flow-of-funds approach will be termed personal savings.

The second reason for differences between the estimates made for this study and those in the national income accounts is due to the concept applied in the construction of the time-series. While the savings of the household sector in the national income accounts are based on data of income and expenditure, personal savings are estimated by compiling data and information on financial assets, financial debt and tangible assets of individuals. The following items are included in the flow-of-funds approach:

(1) Change in Financial Assets

- 1.1 Currency
- 1.2 Demand Deposits (local and foreign currency)
- 1.3 Savings Deposits (local and foreign currency)
- 1.4 Time Deposits (local and foreign currency)
- 1.5 Other Deposits
- 1.6 Deposit Substitutes
- 1.7 Treasury Bills
- 1.8 Corporate Bonds
- 1.9 Government Bonds
- 1.10 Other Bonds
- 1.11 Corporate Shares
- 1.12 Shares of Mutual Funds
- 1.13 Life Insurance Reserves
- 1.14 Trust Funds
- 1.15 Employee Benefit Funds

(2) Change in Financial Liabilities

- 2.1 Private Debt - Banks
- 2.2 Private Debt - 'Non'-Banks
- 2.3 Private Debt - Finance and Investment Institutions
- 2.4 Private Debt - Insurance Companies

(3) Net Change in Financial Assets = Change in Financial Assets - Change in Financial Liabilities

(4) Change in Tangible Assets

- 4.1 Investment in Unincorporated Business
- 4.2 Investment in Residential Construction
- 4.3 Consumer Durables

(5) Personal Savings = Net Change in Financial Assets + Change in Tangible Assets

The exact details of the construction of the time-series for 1950 to 1977 of the above items are given in the statistical appendix. Needless to say, the quality of the estimates varies substantially between the different time-series and also within individual time-series, the data for the 1950s being particularly unreliable. While the data on some items can be regarded only as a rough estimate, the information on others is accurate to the last million Pesos or Baht.

In addition to the problem of data quality that of completeness has to be considered. The exclusion of partnerships has already been discussed. Furthermore, because of the lack of data no transactions in the unorganized financial markets are included. These involve rotating credit societies, moneylenders and probably the majority of households in the Philippines and Thailand either as lenders or borrowers. Households invest part of their savings by extending loans to relatives and friends, who in turn incur financial debt at the same time. Since most participants in the unorganized financial markets are individuals, rather than business enterprises or financial institutions, the total amount of financial savings in the unorganized market is approximately equal to the total amount of financial liabilities, so that the amount of net financial savings is not biased by the exclusion of these transactions. However, the structure of personal savings is affected, as gross financial assets are underestimated compared with tangible assets.

Similarly, the estimation of personal savings in the form of tangible assets is incomplete. Included are only investment in unincorporated business registered with the Securities and Exchange Commission in the Philippines or the Ministry of Commerce in Thailand, investment in residential construction and the purchase of consumer durables.

The inclusion of consumer durables is a major point of contention. Goldsmith argues persuasively that they should be included in savings estimates in order to preserve the link between accumulated savings and national wealth which comprises producer as well as consumer durables.<sup>1</sup> Furthermore, 'many consumer durables, e.g. passenger cars, are now as essential to the functioning of the economy as some structures and producer durables, [...]. Their financing is therefore an integral part of the savings process'.<sup>2</sup>

Because of lack of appropriate data, the estimates of personal savings do not include jewellery, land and investments in unincorporated business enterprises that are not formally registered with the Securities Exchange Commission in the Philippines or the Ministry of Commerce in Thailand as capital increases. The exclusion of investments by farmers in the form of cattle, machinery and stocks is of even greater consequence. It leads to a further underestimation of the total amount of personal savings and introduces another bias into the savings structure. Although the latter bias is in

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<sup>1</sup> Raymond W. Goldsmith, A Study of Savings in the United States (Princeton, Princeton University Press, 1955) Vol. 1, p. 26.

<sup>2</sup> Ibid.

the opposite direction of that discussed above, it cannot be concluded that both simply offset each other. Rather, it enhances the difficulties in interpreting the estimates. These caveats have to be borne in mind during the following analyses.

## 2. Contrasting Alternative Estimates of Household and Personal Savings

Two time-series of household and personal savings are available for Thailand and three for the Philippines. In addition to the estimate in the national income accounts and the flow-of-funds estimate by the author, a time-series based on a flow-of-funds approach has been constructed for the household sector of the latter country by Hooley and Moreno.<sup>1</sup> This third time-series covers the period 1949 to 1965.

All time-series show an overall upward trend, which is not surprising in view of the rise of disposable income.<sup>2</sup> However, with respect to year-to-year changes the various estimates frequently display opposite patterns. Particularly striking are the deviations of the time-series constructed by Hooley and Moreno for the Philippines from those of the national income accounts and the author's flow-of-funds estimates. An evaluation of the relevance of the erratic movements in their estimate will have to be postponed until their data sources and methods of construction have been published.

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<sup>1</sup> Richard W. Hooley and Honorata A. Moreno, *op. cit.*, pp.371-2.

<sup>2</sup> *Ibid.*, and Statistical Appendix, B.2., B.4., C.2. and C.4.



Although for some years the national income accounts and the author's estimates differ quite substantially, the development of savings they reveal is very similar. In the Philippines, the national income accounts estimate is consistently lower than the flow-of-funds estimate, except for four years. Substantial increases and decreases are reflected in both series. To a lesser extent, this holds true also for the estimates made for Thailand. However, the national income accounts estimate exceeds the flow-of-funds estimate during eighteen out of the twenty-eight years, which suggests that the official estimate is on the high side.

In order to determine more clearly the compatibility of the various estimates, the correlation coefficients between the respective savings rates have been computed.

Table 3.3. The Correlation between Various Estimates of Household and Personal Savings Ratios

|                        | The Philippines                                                                                                                                                                                                 |           | Thailand  |           |
|------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|
|                        | $S_H/Y_D$                                                                                                                                                                                                       | $S_P/Y_D$ | $S_H/Y_D$ | $S_P/Y_D$ |
| $S_{HM}/Y_D$ (1950-65) | 0.151                                                                                                                                                                                                           | -0.027    | -         | -         |
| $S_P/Y_D$ (1950-65)    | 0.650                                                                                                                                                                                                           | 1.000     | -         | -         |
| $S_P/Y_D$ (1950-77)    | 0.588                                                                                                                                                                                                           | 1.000     | 0.514     | 1.000     |
| Definitions:           | $S_H$ - Household Savings (national income accounts estimate)<br>$S_{HM}$ - Household Savings (estimate by Hooley and Moreno)<br>$S_P$ - Personal Savings (flow-of-funds estimate)<br>$Y_D$ - Disposable Income |           |           |           |
| Source:                | See Statistical Appendix, B.2., B.4., C.2. and C.4., and Richard W. Hooley and Honorata A. Moreno, op. cit., pp. 371-2.                                                                                         |           |           |           |



The correlation coefficients confirm the earlier impression. The coefficients between the national income accounts estimate and the author's flow-of-funds estimate are positive and significant at the 1 per cent level. On the other hand, the hypothesis that the correlation coefficient between the estimate by Hooley and Moreno and the other estimates is zero cannot be rejected at any reasonable level of significance.

The manifold increase in the level of household and personal savings between 1950 and 1977 is also reflected in a substantial rise in the respective savings ratios, which is again in contrast to the experience of developed countries. In the Philippines, the average personal savings ratio increased by about four percentage points between the fifties and seventies, whereas in Thailand it gained almost six percentage points over the same period.<sup>1</sup>

Table 3.4. Household and Personal Savings Ratios(per cent), 1950-1977

| Period  | The Philippines |           | Thailand  |           |
|---------|-----------------|-----------|-----------|-----------|
|         | $S_H/Y_D$       | $S_P/Y_D$ | $S_H/Y_D$ | $S_P/Y_D$ |
| 1950-59 | 9.69            | 10.79     | 10.53     | 8.79      |
| 1960-69 | 10.64           | 12.33     | 13.10     | 12.04     |
| 1970-77 | 11.67           | 14.92     | 15.11     | 14.70     |

Definitions:  $S_H$  - Households Savings  
 $S_P$  - Personal Savings  
 $Y_D$  - Disposable Income

Source: See Statistical Appendix, B.2., B.4., C.2. and C.4.

<sup>1</sup> In the absence of a consistent time-series of personal income, household income is used to compute both savings ratios.

The rise in the savings ratios was not distributed evenly over the twenty years. Rather, in both countries the ratios show a very erratic behaviour (see Diagram 3.3 and 3.4, p.122 ). As in the case of domestic savings, it does not appear possible to suggest a priori a set of factors that determined the development of the household and personal savings ratios. Since, however, the flow-of-funds estimate is based on estimates of the savings in various financial and tangible assets, it is possible to attribute year-to-year changes in the savings ratios to changes in the preferences for particular savings instruments, which in turn provide greater insight in people's savings behaviour. This advantage of the flow-of-funds estimate is exemplified for several years which, in the Philippines and Thailand, have been characterized by interesting developments of household and personal savings.

In 1968, both the national accounts and flow-of-funds estimates indicate that savings of households and individuals declined sharply in the Philippines. The time-series underlying the latter estimate show that the decline cannot be attributed to changes in the savings behaviour with respect to tangible assets, as savings in tangible assets continued to rise. Instead, there was a sharp decline in savings through financial intermediaries, aggravated by a large increase in the total amount of private debt outstanding which had more than doubled within two years.

As a second example for the Philippines, the year 1974 is chosen, which appears to have brought only a small change

in savings behaviour compared with 1973, since the household and personal savings ratios remained almost constant. Indeed, quite dramatic changes have occurred. Within the group of financial assets, individual investors preferred currency, demand deposits and deposit substitutes over savings and time deposits. After several years of stagnation, corporate shares again attracted large funds in 1974. Furthermore, savings in tangible assets increased sharply. However, the increase in savings in financial and tangible assets was approximately offset by a strong upsurge in private debt. The 33.5 per cent inflation which prevailed during 1974 (as against 14.0 per cent in 1973) provides the main explanation for the changes in the pattern of personal savings. It induced people to invest in tangibles and in short-term rather than long-term assets and to incur debt on a wide scale.

In Thailand, the years 1966 and 1973 to 1977 are of special interest. In 1966, the personal savings ratio rose sharply and the household savings ratio even more so. The time-series for personal savings in financial assets indicate a large increase in savings in currency, saving and time deposits as well as corporate shares, whereas savings in tangible assets moved up only slightly. The difference in the increase in household and personal savings can probably be attributed to the fact that the latter include only a limited number of tangible assets. Other tangible assets which are not taken into consideration in the flow-of-funds estimate, such as agricultural machinery or unregistered

capital investment in unincorporated business, could very well have accounted for the larger increase in household savings.

Between 1973 and 1977, household savings not only declined relative to disposable income, but also in absolute terms. Managers of various financial institutions who were interviewed regarded the decline described by the official national accounts data with overt scepticism, because savings in deposit, deposit substitutes and life insurance had risen sharply during the period. The latter developments seemed to cast doubt on the stated decline in savings. However, the change in private debt is easily forgotten. Since 1972, credits to individuals have increased manifold and have more than offset the increase in savings in financial and tangible assets. With the flow-of-funds estimate it is thus possible to reconcile seemingly contradictory developments.

Diagram 3.3. Household and Personal Savings as Per Cent of Disposable Income, The Philippines 1950-1977

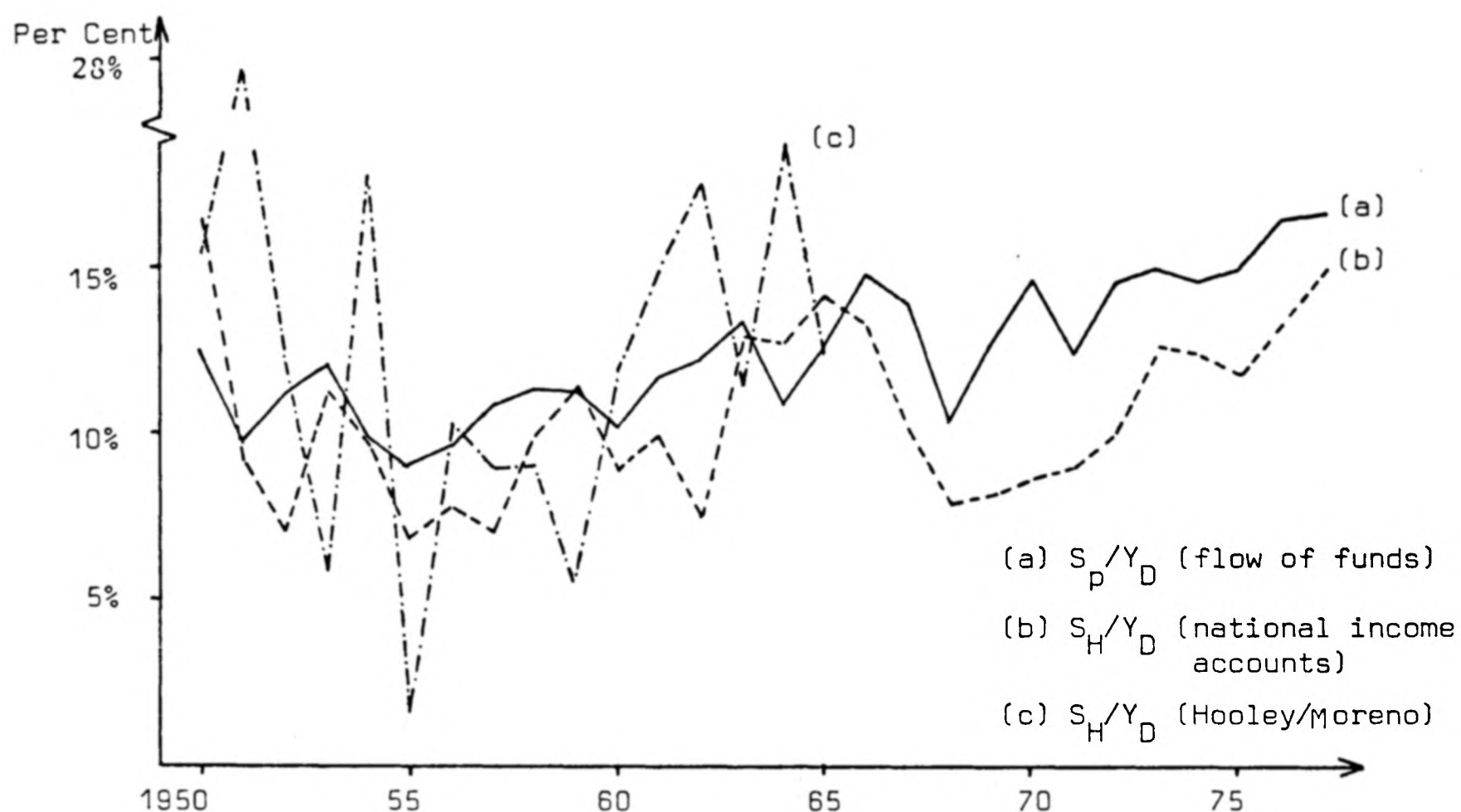
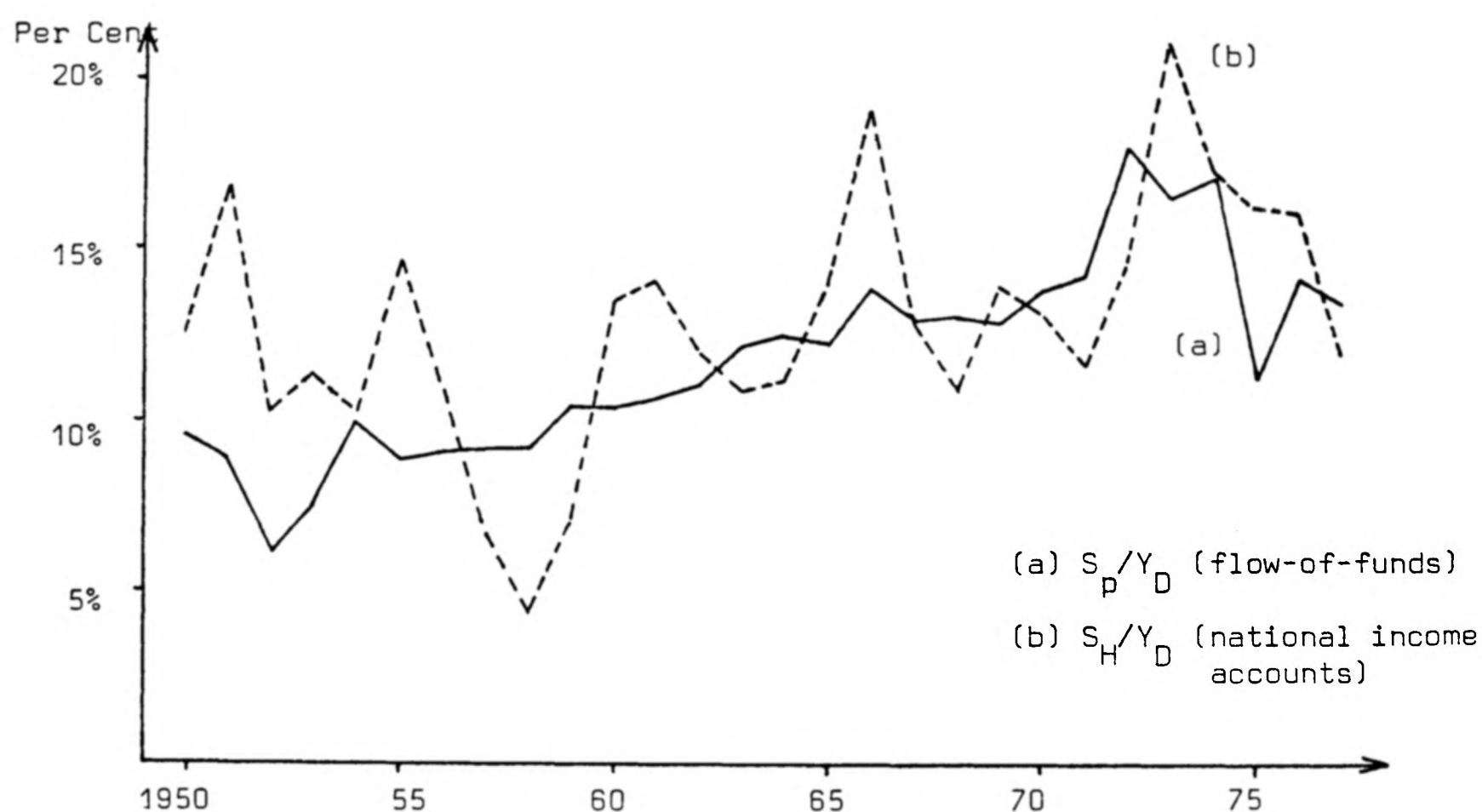


Diagram 3.4. Household and Personal Savings as Per Cent of Disposable Income, Thailand 1950-1977



Source: See Statistical Appendix, B.2., B.4., C.2. and C.4., and Richard W. Hooley and Honorata A. Moreno, op. cit. pp. 371-2.

D. Tests of Savings Theories with Time-Series Data

1. A Note on the Evaluation of Different Savings Functions

The first caveat with respect to the empirical analysis of savings theories concerns the proliferation of conflicting results in economic journals and monographs. Certain economists have made it their preoccupation to present estimates that seemingly contradict the findings in other analyses.<sup>1</sup> However, they do so not by examining critically the evidence provided by previous results, that is, demonstrating that their own results are superior or that the other contain faults, but simply by relying on different data sets, studying different time periods or applying different methods of estimation. In general, earlier results are ignored or only taken into consideration in so far as they corroborate the findings of the respective author. The new tests are regarded as sufficient evidence to accept or reject the theories that are examined, irrespective of what has been found previously.<sup>2</sup> In order not to add to the prevailing confusion, it is essential that previous results are properly evaluated. For the Philippines and Thailand this is done in the following section.

Second, criteria have to be established so as to be able to discriminate between various savings theories. It is not sufficient to point out statistically significant coefficients and high coefficients of determination, since they yield little information concerning the comparative

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<sup>1</sup> See, for example, Kanhanya L. Gupta, op. cit.

<sup>2</sup> This is also emphasized by Thomas Mayor, op. cit., p.6.

efficiency of savings functions. To ensure the comparability of the different savings functions this analysis is separated into two parts. In the first part, the different income hypotheses are nested within a general framework. On the basis of the latter, the hypotheses are confronted and their ability to explain the variation in total domestic, household and personal savings is evaluated.<sup>1</sup>

In the second part, functions that comprise variables in addition to aggregate income are tested. These 'other' variables are introduced separately into the savings function that represents the absolute income hypothesis. The latter is used as a yardstick in order to determine to what extent the addition of 'other' variables enhances the explanatory power of the basic income model. The standard error of estimation is applied as the criterion for evaluating the different hypotheses. In view of the presence of multicollinearity, the statistical significance of the independent variables is regarded as of only secondary importance. Furthermore, estimates are presented for gross domestic savings as well as household and personal savings. This enables an evaluation of the applicability of the various hypotheses that are based on individual behaviour to domestic savings in general and the study of the deviations between domestic, household and personal savings behaviour.

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<sup>1</sup> For an application of nested tests, see Anthony S. Courakis, 'Serial Correlation and a Bank of England Study of the Demand for Money: An Exercise in Measurement without Theory', EJ, 88(1978), 537-48; Anthony S. Courakis, 'On Unicorns and Other Such Creatures: The Case of the German Central Bank Money Stock' (Oxford, Brasenose College, mimeo, 1978); James E.H. Davidson et al., 'Econometric Modelling of the Aggregate Time-Series Relationship between Consumers' Expenditure and Income in the United Kingdom', EJ, 88(1978), 661-92.



Third, the empirical analysis must account for the characteristics of the data. For example, autocorrelation must be eliminated as far as possible.

## 2. A Survey of Time-Series Analyses of Savings Behaviour in the Philippines and Thailand

Few time-series analyses have been undertaken to investigate the savings behaviour in the Philippines and Thailand. The paucity of data can explain this only to a certain extent, since acceptable time-series now extend over almost three decades. Rather, one has to attribute the lack of analyses to insufficient interest in the problem of savings mobilization, particularly in Thailand.

This survey follows the order in which the various savings theories have been discussed in Chapter II.

Hooley was the first to apply the absolute income hypothesis to Philippine data.<sup>1</sup> For the period 1951 to 1960, the regression analysis yielded a marginal propensity to save out of disposable income of 0.22. The estimates by Williamson, who used national income accounts data instead of own savings estimates and who extended the time period to fifteen years, are largely in line with the results of Hooley.<sup>2</sup> Williamson found a marginal propensity to save out of disposable income of 0.31 and out of personal income of 0.29. In both cases, the constant term is negative and statistically significant, which would confirm the Keynesian hypothesis that

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<sup>1</sup> Richard W. Hooley, *op. cit.*, p.54.

<sup>2</sup> Jeffrey G. Williamson, *op. cit.*, p. 200.



the long-run marginal propensity to save exceeds the long-run average propensity.

The introduction of non-labour income as an explanatory variable, rather than disposable or personal income, yielded a substantially higher marginal propensity to save, namely 0.48.<sup>1</sup> Williamson concludes from this and similar results for other Asian countries that income distribution has a powerful impact on savings behaviour. At least for the Philippines, such a conclusion is not valid as indeed no data on functional income distribution exists for the time period under his investigation. According to his data, the share of wage and salary income in total personal income amounted to 0.440 for all years except 1955 to 1958. For the latter years a share of 0.439 is given.<sup>2</sup> Hence, the marginal propensity to save out of non-labour (or labour) income is simply a multiple of the marginal propensity to save out of personal income. No economic significance can be attributed to it.

Finally, in his attempt to evaluate different income hypotheses, Williamson tested Friend and Taubmann's specification of the permanent income hypothesis.<sup>3</sup> Permanent income is approximated by a three-year moving average and transitory income as the difference between current and permanent income.

The adjusted coefficient of determination indicates that the permanent income hypothesis provides a more powerful explanation of savings behaviour in the Philippines than the

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<sup>1</sup> Ibid., p. 203.

<sup>2</sup> Ibid., p. 199.

<sup>3</sup> Ibid., p. 205.

absolute income hypothesis. As expected, the marginal propensity to save out of transitory income is substantially higher than that out of permanent income. Only the latter is statistically significant.

However, these results can hardly be regarded as evidence in favour of the permanent income hypothesis, since the specification of permanent income by a three-year moving average is widely rejected. First, it assumes that savers attribute equal weight to the income of the last three years, although one would expect the amount of income further in the past to be regarded of lesser importance in people's perception of permanent income.<sup>1</sup> Second, if permanent income is to be specified by an exponentially declining lag function, as suggested by Friedman, the income of previous periods should carry smaller weights than the current period's income. The application of a three-year moving average then implies that part of the 'true' permanent income is included in the transitory income computed by Williamson.<sup>2</sup>

The only estimates of savings functions for Thailand known to the author are included in a study by Leeahtam.<sup>3</sup> Instead of aggregate values he used annual percentage changes as the relevant observations. His time-series cover the period 1962 to 1975.

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<sup>1</sup> See Prem S. Laumas and Gurcharan S. Laumas, 'On How to Calculate Permanent Income', RIW, 18(1972), 435-8, p. 436.

<sup>2</sup> See Thomas Mayor, *op. cit.*, pp. 136-7.

<sup>3</sup> Pisit Leeahtam, 'A Financial Plan for the Fourth Five-Year Development Plan of Thailand (1977-1981)' (Rotterdam, Erasmus Universiteit Rotterdam, Faculteit der Economische Wetenschappen, mimeo, 1977). Consumption functions for Thailand have been estimated as part of whole economy models. Moreover, there might be tests of various savings theories in unpublished theses and Thai publications, which the author could not take into consideration because of language problems.

The regression analysis indicates a strong positive relationship between gross domestic product and household as well as total domestic savings. An increase in gross domestic product by one per cent led to an increase in household savings by 3.34 per cent and in total domestic savings by 3.18 per cent. This yields marginal propensities to save out of gross domestic product of 0.38 and 0.50 respectively, which are rather high in international perspective.<sup>1</sup>

Leeahtam incorporated an analysis of the impact of sectoral income distribution on the level of savings by including total tax revenue in the household savings function. He found that an increase in tax revenue by one per cent induced a 1.51 decline in household savings. A negative influence of personal income tax on household savings could not be substantiated.<sup>2</sup>

Williamson also analyzed the importance of the price level, price expectations and real rates of interest for savings behaviour in the Philippines.<sup>3</sup> The introduction of an interest rate variable, which Williamson failed to identify clearly,<sup>4</sup> increased the explanatory power of the absolute as well as of the permanent income hypothesis. In both cases, the coefficient of the real rate of interest is negative, though insignificant.

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<sup>1</sup> Ibid, p. 17.

<sup>2</sup> Ibid.

<sup>3</sup> Jeffrey G. Williamson, op. cit., pp. 206-8.

<sup>4</sup> Presumably Williamson used the discount rate, since this is the only interest rate given for the Philippines in International Financial Statistics, which he cites as his source of data. Williamson derived the real rate of interest by subtracting from the discount rate (?) the rate of increase in the consumer price index.

Adding the consumer price index and the change in the index, which is supposed to represent price expectations, to disposable income as independent variables, improved substantially the explanatory power. Both coefficients are positive, though not significant at the 5 per cent level. The use of past changes in the price index to represent price expectations, however, appears inappropriate, since expectations can hardly be based on changes in absolute terms. For example, an increase in the price index by 5 points during a year implies an inflation of 10 per cent per annum if the index has risen from 50 to 55, but an inflation of only 2 per cent per annum if the index has increased from 250 to 255. Therefore a standardization in the form of inflation rates seems necessary.

As in the case of the Philippines, the coefficient of the interest rate variable is insignificant in Thailand, according to Leeahtam's study.<sup>1</sup> In the same analysis, the importance of price level changes for the behaviour of Thai savers is investigated. The results, however, have to be treated with some caution. Leeahtam regarded the price increases during the period under investigation as insignificant and the consumer price index as suspect because of its method of construction, and therefore he did not deflate the various time-series. On the other hand, his analysis indicates a significant negative impact of a change in the price index on the change in household and total domestic savings.<sup>2</sup>

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<sup>1</sup> See Pisit Leeahtam, op. cit., pp. 9 and 13.

<sup>2</sup> Ibid., p. 13.

If, as suggested earlier, the price index is suspect, its use as an exogenous variable would not have been advisable.

Weiskopf tested the impact of foreign capital inflow on domestic savings within a two-gap model.<sup>1</sup> Unlike Chenery and Eckstein,<sup>2</sup> he expects foreign financial resources to have at best no effect on savings. This, to follow his argument, can only happen if foreign funds do not act as a substitute for domestic savings. Otherwise, they will influence domestic savings negatively. Weiskopf presumably disregards any foreign exchange effect. For the Philippines, he found exports to exert a positive and significant influence on savings, while that of foreign capital inflow is negative, but insignificant.<sup>3</sup> His analysis, however, is based on only ten observations, which leaves him just six degrees of freedom, as his function comprises three explanatory variables plus a constant term. Therefore his results are not very meaningful.

Finally, in both countries the impact of the process of financial intermediation on savings behaviour has been analyzed.<sup>4</sup> Hooley tested a savings function for the Philippines that includes disposable income and the ratio of savings in financial assets to savings in tangible assets.

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<sup>1</sup> Thomas E. Weiskopf, 'The Impact of Foreign Capital Inflow on Domestic Savings in Underdeveloped Countries ', JIE, 2(1972), 25-38.

<sup>2</sup> Hollis B. Chenery and Peter Eckstein, op. cit., p. 975.

<sup>3</sup> Thomas E. Weiskopf, op. cit., p. 36.

<sup>4</sup> U Tun Wai, op. cit., focusses on the influence of financial intermediation on savings. However, instead of presenting the complete functions that he estimated, he only lists either regression coefficients or coefficients of determination. It is felt that this is not sufficient to evaluate properly his findings.

as independent variables.<sup>1</sup> According to him, the introduction of the latter variable considerably reduced the variation in household savings that was left unexplained by disposable income.

This result is not surprising, since savers increasingly preferred financial assets over tangible assets during the period Hooley investigated.<sup>2</sup> It cannot be taken as evidence of a significant influence of the process of financial intermediation on the level of savings. The ratio of savings in financial assets to savings in tangible assets describes changes in the allocation behaviour of savers, but not an increasing proliferation and sophistication of financial intermediaries.

Following McKinnon's hypothesis, Leeahtam used the money supply variable to represent financial intermediation.<sup>3</sup> The coefficients which the regression analyses yielded for household and total domestic savings are positive, but insignificant at the 5 per cent level. Moreover, the introduction of money supply did not increase the explanatory power of the basic savings functions that include income, the price level and total tax revenue in the case of household savings and income and the price level in the case of total domestic savings.

The money supply, however, comprises only part of the financial assets that are channelled through financial intermediaries. Because of the increasing importance of deposit substitutes during the seventies, it is necessary to

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<sup>1</sup> Richard W. Hooley, op. cit., p. 56.

<sup>2</sup> Ibid., p. 58.

<sup>3</sup> Pisit Leeahtam, op. cit., pp. 13 and 15.

expand the range of assets that are taken into consideration so as to describe financial intermediation comprehensively. Various alternative proxy variables to represent this process, which seem more appropriate, have been introduced in Chapter II.

All the analyses that have been considered are based on a very limited number of observations. Therefore the results have to be treated with great caution. In addition to an expansion of the data base, it is necessary, above all, to discriminate more effectively between the different hypotheses. This is done in the following sections.

### 3. The Explanatory Power of Different Income Hypotheses

#### a. Nesting the Different Income Hypotheses within a General Framework.

In order to compare the relative performance of the different income hypotheses and various specifications thereof, they are embedded in a general framework represented by function (1) (see p.134). Thus, it is possible to apply nested tests.

The Keynesian absolute income hypothesis is represented by function (3). In addition, the version suggested by Houthakker (2) is tested. The latter implies that the long-run average propensity to save equals the long-run marginal propensity, whereas, because of the constant term, it is hypothesized in function (3) that the average propensity exceeds the marginal propensity to save.

The modified version of the habit persistence effect, which has been developed as part of the relative income



hypothesis, is specified in function (4). Alternative specifications have been advanced by Modigliani<sup>1</sup> and Brown.<sup>2</sup> Modigliani introduced a constant term in addition to current and past period's income (function 5). Brown argued that the habit persistence effect is not correctly represented by past period's or past peak income. Rather, the inertia of consumers which is emphasized in the relative income hypothesis has to be expressed by past consumption behaviour. Thus, Brown included past period's or past peak consumption in the consumption function. In the case of savings, Brown's hypothesis is specified through function (6).

Function (7) represents the permanent income hypothesis after having applied Koyk's transformation. The income growth hypothesis is found in function (8). Zellner et al.<sup>3</sup> have formulated function (9) so as to be able to discriminate between expectation and habit persistence effects. Their model is essentially an expansion of the permanent income hypothesis. Through the inclusion of  $C_{t-2}$ , Zellner et al. sought to represent the habit persistence effect. For the purpose of testing the corresponding savings function,  $C_{t-2}$  is disaggregated into  $Y_{t-2}$  and  $S_{t-2}$ .

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<sup>1</sup> Franco Modigliani, 'Fluctuations in the Savings-Income Ratio: A Problem in Economic Forecasting', in: Studies in Income and Wealth, Vol. 11 (New York, NBER, 1949), 371-441, pp. 379-84.

<sup>2</sup> T.M. Brown, op. cit., pp. 359-60.

<sup>3</sup> A. Zellner, D.S. Huang and L.C. Chau, 'Further Analysis of the Short-Run Consumption Function with Emphasis on the Role of Liquid Assets', EC, 33(1965), 571-81, pp. 571-3.



$$(1) S_t = a_1 + a_2 Y_t + a_3 Y_{t-1} + a_4 Y_{t-2} + a_5 S_{t-1} + a_6 S_{t-2} + u_1$$

$$(2) S_t = a_2 Y_t + u_2$$

$$\text{with } a_1 = a_3 = a_4 = a_5 = a_6$$

$$(3) S_t = a_1 + a_2 Y_t + u_3$$

$$\text{with } a_3 = a_4 = a_5 = a_6 = 0$$

$$(4) S_t = a_2 Y_t + a_3 Y_{t-1} + u_4$$

$$\text{with } a_1 = a_4 = a_5 = a_6 = 0$$

$$(5) S_t = a_1 + a_2 Y_t + a_3 Y_{t-1} + u_5$$

$$\text{with } a_4 = a_5 = a_6 = 0$$

$$(6) S_t = a_1 + a_2 Y_t + a_3 Y_{t-1} + a_5 S_{t-1} + u_6$$

$$\text{with } a_4 = a_6 = 0$$

$$(7) S_t = a_2 Y_t + a_3 Y_{t-1} + a_5 S_{t-1} + u_7$$

$$\text{with } a_1 = a_4 = a_6 = 0$$

$$(8) S_t = a_2 Y_t + a_3 Y_{t-1} + a_5 S_{t-1} + u_8$$

$$\text{with } a_1 = a_4 = a_6 = 0$$

$$\text{and } a_2 = -a_3 = a_5$$

$$(9) S_t = a_2 Y_t + a_3 Y_{t-1} + a_4 Y_{t-2} + a_5 S_{t-1} + a_6 S_{t-2} + u_9$$

$$\text{with } a_1 = 0$$

$S_t$  and  $Y_t$  represent savings and income respectively. The subscript  $t$  signifies time-periods.

An alternative general framework that includes labour income ( $Y_{Lt}$ ) and last period's wealth ( $W_{t-1}$ ) in addition to the above variables is tested for Thailand. This enables the evaluation of the performance of the life-cycle hypothesis, as specified by Ando and Modigliani, compared with that of the other income hypotheses.

The various functions are estimated by applying the full information maximum likelihood method.<sup>1</sup> The probability of acceptance of each hypothesis is derived from the chi-square value of the likelihood ratio.<sup>2</sup> The number of degrees of freedom is given by the difference in the number of free coefficients estimated in the respective functions.

b. Empirical Results

Under the assumption that function (1) describes accurately the general model of savings behaviour in the Philippines and Thailand, the alternative income hypotheses can be evaluated on the basis of their probabilities of acceptance. This enables one to draw certain conclusions about the savings decisions of the surplus units in the two countries.

Let the absolute income hypothesis, which features most prominently in the empirical analyses of savings behaviour, be the yardstick to evaluate the other hypotheses. The absolute income hypothesis is represented in this analysis by the Keynesian model and the specification suggested by Houthakker. The estimation process yields very similar marginal propensities to save in the Philippines and Thailand. According to model (3) (see Tables 3.5 to 3.10, pp. 142-7 ), the marginal propensities to save are 0.304 and 0.263 respectively in the case of domestic savings, 0.149 and 0.175

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<sup>1</sup> See C.R. Wymer, 'Computer Programs: RESIMUL Manual' (Version: October 1972, mimeo).

<sup>2</sup> See H. Theil, Introduction to Econometrics (Englewood Cliffs, Prentice-Hall, 1978), pp. 179-84.

respectively in the case of household savings and 0.186 and 0.165 respectively in the case of personal savings.<sup>1</sup>

In both the Philippines and Thailand, the model by Keynes performs better than the Houthakker model. The former renders consistently higher probabilities of acceptance. The constant term in the Keynesian model is negative and significant at the 5 per cent level of significance in all six functions. Therefore the hypothesis that the average propensity to save increases as the level of income rises cannot be rejected. The existence of proportionality between saving and income, which has been found for many other developing countries,<sup>2</sup> cannot be confirmed.

While the absolute income hypothesis concentrates on current income, the habit persistence models by Duesenberry, Modigliani and Brown extend the decision-making horizon of the surplus unit into the past. The incorporation of the constant term that distinguishes the model of Modigliani from the modified version of the relative income hypothesis leads again to an increase in the probability of acceptance. In all functions, the constant term is significant at the 5 per cent level. This underlines the earlier finding that the average propensity to save increases with income (see functions (4) and (5)).

The model of Brown (see function (6)), who suggested that habit persistence effects are not adequately reflected by past period's income but should instead be approximated by past consumption (or savings) behaviour, yields a higher probability of acceptance than Modigliani's model (5), with

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<sup>1</sup> The data sources underlying the regression analysis are to be found in the Statistical Appendix, B.2., B.4., C.2. and C.4.

<sup>2</sup> See Raymond F. Mikesell and James E. Zinser, op. cit., pp. 4-6.

the notable exception of personal savings in both countries. In the latter two cases, the coefficients of last period's level of savings are not significant at the 5 per cent level, whereas in the other four functions the coefficients are significantly different from zero. It thus appears that individual investors, who are the relevant decision-making units with respect to personal savings react immediately to changes in income and adjust their level of savings accordingly. Contrary to this, incorporated and unincorporated business enterprises and government entities, whose inclusion distinguishes domestic and household savings from personal savings, seem to react more slowly to income changes and orientate their savings decisions at their previous level of savings.

A comparison of the most appropriate habit persistence model with the Keynesian absolute income hypothesis shows that the former outperforms the latter in the case of domestic and household savings but not in the case of personal savings. This suggests that the savings behaviour of institutional surplus units (business enterprises and government entities) in the Philippines and Thailand is determined not only by present income but also by past income and past savings decisions. Non-institutional surplus units are more apt to base their savings decisions on present income rather than on past income and savings.

Like the extension of the decision-making units' horizon into the past, the 'implicit extension' into the future leads to an improvement in the probability of acceptance compared with the absolute income hypothesis, with the exception of personal savings in both countries.<sup>1</sup> The performance of the

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<sup>1</sup> As noted earlier, in the absence of information on future income, information on past income and past savings is used to represent long-term planning effects. Therefore the statements about the decision-making horizon of savers have to be treated with caution.

permanent income hypothesis of Friedman and the income growth model of Ball and Drake, which incorporate what one might call planning or expectation effects, indicates that savers in the Philippines and Thailand are not as shortsighted as is generally suggested for economic units in developing countries and do indeed adhere to a long-run planning horizon in their decision-making process with respect to saving and consumption.

In all functions denoting the permanent income hypothesis, the explanatory variables have the right sign. However, in two cases (see function (7), Tables 3.5 and 3.9) the long-run marginal propensity to save out of income appears to be negative, since the absolute value of the coefficient of last period's income exceeds that of the coefficient of current period's income. A closer inspection of the two coefficients reveals that they are not significantly different at the 5 per cent level of significance. Constraining the two coefficients to be equal improves the probability of acceptance in the case of domestic savings in the Philippines (see function (7) and (8), Table 3.5.).

For Thailand, the life-cycle hypothesis, as specified by Ando and Modigliani, is tested in addition to the permanent income and the income growth hypotheses to evaluate the adequacy of a long-run planning horizon. Embedded in an extended general framework, neither of the three models reaches a probability of acceptance above 0.001 in the case of domestic and household savings. But the chi-square value of the likelihood ratio indicates that the permanent income and the income growth hypotheses perform substantially

better than the life-cycle hypothesis.<sup>1</sup>

In the case of personal savings, the life-cycle hypothesis reaches a probability of acceptance of between 0.001 and 0.005, which is equal to that of the permanent income hypothesis, but lower than that of the Keynesian model. However, it has to be borne in mind that the specification of the life-cycle hypothesis tested in this analysis is very crude and that, because of data constraints, wealth is approximated by financial wealth, which might affect the performance of the model.

$$S_p = 0.261 Y_L + 0.146 W_{t-1}$$

(3.86)                      (2.74)

$$SE = 2004.9 \chi^2(6) = 21.325 \quad 0.001 < p < 0.005$$

The marginal propensities to save out of labour income ( $Y_L$ ) and last period's wealth ( $W_{t-1}$ ) are both positive and significant at the 5 per cent level of significance.

Contrasting the performance of the models incorporating habit persistence effects and those incorporating planning effects yields different results for the Philippines and Thailand. In the former country, the model of Brown is superior to that of Friedman and that of Ball and Drake. Apparently, habit persistence effects are more important than planning effects in the decision-making process of surplus units in the Philippines' investors. However, in the case of personal savings, the impact of present income dominates both habit persistence and planning effects.

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<sup>1</sup> These estimates are not presented in the study.

The incorporation of planning as well as habit persistence effects, as is done in the hybrid model by Zellner et al. (function (9)), does not lead to an increase in the probability of acceptance compared with Brown's model in the case of domestic and household savings and the Keynesian model in the case of personal savings.

In Thailand, the income growth and the permanent income hypotheses perform better than the habit persistence model by Brown in the case of domestic and household savings respectively, lending support to the idea that institutional surplus units adhere to a long-term planning horizon. In the case of personal savings, the habit persistence models (5) and (6) are superior to the permanent income and income growth models; but both types of models are inferior to the Keynesian model.

The evaluation of the performance of the model derived by Zellner et al. leads to a reversal of the earlier conclusions with respect to household and personal savings. In both cases, the hybrid model which combines habit persistence and planning effects is found to achieve the highest probability of acceptance. This indicates that the relevant economic units incorporate into their savings decisions past habits as well as income expectations.

Overall, the analysis suggests that, in the Philippines, surplus units base their decisions primarily on current income and past savings behaviour, while in Thailand the decision-making horizon of savers extends into the future as well as into the past. However, the conclusions concerning



planning and habit persistence effects can only be tentative. The dilemma to separate both effects on the basis of information on past behaviour is particularly evident in the model of Brown and Friedman. While the former is a habit persistence model, the latter is suggested to represent expectation and planning effects, although both differ only with respect to the constant term, that is, the assumption with respect to the long-run constancy of the savings ratio. Aggregate time-series are not sufficient to enable a final evaluation of the different income hypotheses.

#### 4. Extension of the Absolute Income Hypothesis

In order to determine to what extent variables other than income influence savings behaviour, these should be added to the general framework in which the various income hypotheses have been embedded. However, this approach has not been followed, since it would have involved the estimation of savings functions with seven explanatory variables (plus a constant term) on the basis of only twenty-six observations. Instead, the variables denoting income distribution and financial and monetary developments are incorporated into the absolute income hypothesis, which represents the most widely applied model.

All variables are expressed in real terms.<sup>1</sup> The use of deflated variables eliminates any spurious correlation that is introduced by the increase in prices. Generally, the

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<sup>1</sup> The data sources underlying the regression analysis are to be found in the Statistical Appendix.



Table 3.5. The Relative Performance of Different Income Hypotheses with respect to Gross Domestic Savings:

| The Philippines |                   |                   |                  |                  |                 |        |                           |
|-----------------|-------------------|-------------------|------------------|------------------|-----------------|--------|---------------------------|
| Function $a_o$  | $Y_t$             | $Y_{t-1}$         | $Y_{t-2}$        | $S_{t-1}$        | $S_{t-2}$       | SE     | $\chi^2(n)$               |
|                 |                   |                   |                  |                  |                 |        | Probability of Acceptance |
| (2)             | 0.223<br>(30.10)  |                   |                  |                  |                 | 1241.2 | 51.877 (5)                |
| (3)             | -2867.8<br>(8.27) | 0.304<br>(28.82)  |                  |                  |                 | 651.4  | 18.351 (4)                |
| (4)             | 1.360<br>(2.83)   | -1.205<br>(2.37)  |                  |                  |                 | 1125.9 | 46.810 (4)                |
| (5)             | -2687.4<br>(8.55) | 0.975<br>(3.89)   | -0.716<br>(2.68) |                  |                 | 576.6  | 12.010 (3)                |
| (6)             | -1287.4<br>(2.93) | 0.950<br>(4.77)   | -0.848<br>(3.94) | 0.535<br>(3.88)  |                 | 458.8  | 0.124 (2)                 |
| (7)             | 0.995<br>(4.34)   | -1.007<br>(4.19)  |                  | 0.867<br>(9.57)  |                 | 529.3  | 7.558 (3)                 |
| (8)             | 0.854<br>(70.80)  | -0.854<br>(70.80) |                  | 0.854<br>(70.80) |                 | 533.8  | 8.001 (5)                 |
| (9)             | 0.984<br>(4.30)   | -1.138<br>(3.11)  | 0.146<br>(0.52)  | 0.858<br>(4.75)  | 0.040<br>(0.22) | 524.0  | 7.033 (1)                 |

Remarks: The figures in parentheses are t-ratios.

Table 3.6. The Relative Performance of Different Income Hypotheses with respect to Household Savings:  
The Philippines

| Function | $a_0$             | $Y_t$            | $Y_{t-1}$         | $Y_{t-2}$        | $S_{t-1}$        | $S_{t-2}$        | SE    | $\chi^2(n)$ | Probability of Acceptance |
|----------|-------------------|------------------|-------------------|------------------|------------------|------------------|-------|-------------|---------------------------|
| (2)      |                   | 0.113<br>(24.39) |                   |                  |                  |                  | 624.3 | 25.379 (5)  | $p < 0.001$               |
| (3)      | -1009.3<br>(3.27) | 0.149<br>(12.74) |                   |                  |                  |                  | 525.7 | 16.439 (4)  | $0.001 < p < 0.005$       |
| (4)      |                   | 0.434<br>(1.58)  | -0.338<br>(1.17)  |                  |                  |                  | 608.5 | 24.049 (4)  | $p < 0.001$               |
| (5)      | - 976.0<br>(3.20) | 0.390<br>(1.67)  | -0.254<br>(1.03)  |                  |                  |                  | 515.2 | 15.394 (3)  | $0.001 < p < 0.005$       |
| (6)      | - 487.9<br>(1.86) | 0.408<br>(2.27)  | -0.367<br>(1.91)  |                  | 0.689<br>(4.21)  |                  | 397.4 | 1.893 (2)   | $0.30 < p < 0.50$         |
| (7)      |                   | 0.429<br>(2.25)  | -0.422<br>(2.09)  |                  | 0.824<br>(5.27)  |                  | 423.1 | 5.148 (3)   | $0.10 < p < 0.20$         |
| (8)      |                   | 0.735<br>(34.51) | -0.735<br>(34.51) |                  | 0.735<br>(34.51) |                  | 446.0 | 7.895 (5)   | $0.10 < p < 0.20$         |
| (9)      |                   | 0.512<br>(2.64)  | -0.397<br>(1.54)  | -0.106<br>(0.50) | 0.932<br>(4.76)  | -0.235<br>(1.14) | 407.6 | 3.217 (1)   | $0.05 < p < 0.10$         |

Table 3.7. The Relative Performance of Different Income Hypotheses with respect to Personal Savings:  
The Philippines

| Function | $a_o$             | $Y_t$            | $Y_{t-1}$         | $Y_{t-2}$        | $S_{t-1}$        | $S_{t-2}$       | SE    | $\chi^2(n)$ | Probability of Acceptance |
|----------|-------------------|------------------|-------------------|------------------|------------------|-----------------|-------|-------------|---------------------------|
| (2)      |                   | 0.138<br>(34.28) |                   |                  |                  |                 | 542.8 | 37.549 (5)  | $p < 0.001$               |
| (3)      | -1322.5<br>(7.12) | 0.186<br>(26.35) |                   |                  |                  |                 | 316.2 | 9.440 (4)   | $0.05 < p < 0.10$         |
| (4)      |                   | 0.320<br>( 1.32) | -0.192<br>(0.75)  |                  |                  |                 | 537.0 | 36.990 (4)  | $p < 0.001$               |
| (5)      | -1312.0<br>(7.06) | 0.261<br>( 1.84) | -0.079<br>(0.53)  |                  |                  |                 | 314.5 | 9.161 (3)   | $0.025 < p < 0.05$        |
| (6)      | -1052.1<br>(3.60) | 0.242<br>( 1.73) | -0.100<br>(0.68)  |                  | 0.228<br>(1.13)  |                 | 307.0 | 7.909 (2)   | $0.01 < p < 0.02$         |
| (7)      |                   | 0.212<br>( 1.24) | -0.185<br>(1.04)  |                  | 0.795<br>(5.21)  |                 | 375.6 | 18.405 (3)  | $p < 0.001$               |
| (8)      |                   | 0.771<br>(41.74) | -0.771<br>(41.74) |                  | 0.771<br>(41.74) |                 | 447.4 | 27.494 (5)  | $p < 0.001$               |
| (9)      |                   | 0.244<br>( 1.28) | 0.031<br>( 0.14)  | -0.264<br>(1.47) | 0.705<br>(3.71)  | 0.109<br>(0.45) | 359.9 | 16.173 (1)  | $p < 0.001$               |

Table 3.8. The Relative Performance of Different Income Hypotheses with respect to Gross Domestic Savings:

| Thailand |                   |                  |                   |                 |                  |                  |        |             |                           |
|----------|-------------------|------------------|-------------------|-----------------|------------------|------------------|--------|-------------|---------------------------|
| Function | $a_0$             | $Y_t$            | $Y_{t-1}$         | $Y_{t-2}$       | $S_{t-1}$        | $S_{t-2}$        | SE     | $\chi^2(n)$ | Probability of Acceptance |
| (2)      |                   | 0.223<br>(35.34) |                   |                 |                  |                  | 3806.3 | 45.143 (5)  | $p < 0.001$               |
| (3)      | -5359.3<br>(4.33) | 0.263<br>(25.15) |                   |                 |                  |                  | 2901.9 | 31.036 (4)  | $p < 0.001$               |
| (4)      |                   | 0.756<br>( 2.61) | -0.572<br>(1.84)  |                 |                  |                  | 3580.3 | 41.959 (4)  | $p < 0.001$               |
| (5)      | -5045.9<br>(4.25) | 0.647<br>( 2.89) | -0.414<br>(1.71)  |                 |                  |                  | 2751.0 | 28.259 (3)  | $p < 0.001$               |
| (6)      | -1212.5<br>(0.80) | 0.720<br>( 3.81) | -0.661<br>(3.07)  |                 | 0.614<br>(3.34)  |                  | 2302.0 | 18.994 (2)  | $p < 0.001$               |
| (7)      |                   | 0.744<br>( 3.95) | -0.722<br>(3.55)  |                 | 0.725<br>(5.95)  |                  | 2330.1 | 19.623 (3)  | $p < 0.001$               |
| (8)      |                   | 0.802<br>(57.54) | -0.802<br>(57.54) |                 | 0.802<br>(57.54) |                  | 2352.9 | 20.130 (5)  | $0.001 < p < 0.005$       |
| (9)      |                   | 0.803<br>( 4.53) | -0.949<br>(4.02)  | 0.194<br>(0.86) | 1.098<br>(6.32)  | -0.477<br>(2.95) | 2010.1 | 11.942 (1)  | $p < 0.001$               |

Table 3.9. The Relative Performance of Different Income Hypotheses with respect to Household Savings:  
Thailand

| Function | $a_0$             | $Y_t$            | $Y_{t-1}$         | $Y_{t-2}$       | $S_{t-1}$        | $S_{t-2}$        | SE     | $\chi^2(n)$ | Probability of Acceptance |
|----------|-------------------|------------------|-------------------|-----------------|------------------|------------------|--------|-------------|---------------------------|
| (2)      |                   | 0.143<br>(22.75) |                   |                 |                  |                  | 3050.4 | 43.417 (5)  | $p < 0.001$               |
| (3)      | -3296.1<br>(2.76) | 0.175<br>(13.88) |                   |                 |                  |                  | 2682.5 | 36.734 (4)  | $p < 0.001$               |
| (4)      |                   | 0.807<br>( 4.70) | -0.708<br>(3.86)  |                 |                  |                  | 2431.1 | 31.617 (4)  | $p < 0.001$               |
| (5)      | -2772.1<br>(2.92) | 0.772<br>( 5.17) | -0.643<br>(4.01)  |                 |                  |                  | 2108.8 | 24.222 (3)  | $p < 0.001$               |
| (6)      | - 17.2<br>(0.02)  | 1.002<br>( 8.72) | -1.016<br>(7.52)  |                 | 0.682<br>(5.09)  |                  | 1492.2 | 6.236 (2)   | $0.025 < p < 0.050$       |
| (7)      |                   | 1.002<br>( 9.15) | -1.017<br>(8.34)  |                 | 0.684<br>(6.56)  |                  | 1492.2 | 6.237 (3)   | $0.05 < p < 0.10$         |
| (8)      |                   | 0.717<br>(41.38) | -0.717<br>(41.38) |                 | 0.717<br>(41.38) |                  | 1706.1 | 13.203 (5)  | $0.020 < p < 0.025$       |
| (9)      |                   | 0.993<br>( 8.85) | -1.085<br>( 5.32) | 0.098<br>(0.41) | 0.847<br>(4.55)  | -0.277<br>(1.67) | 1360.9 | 1.446 (1)   | $0.20 < p < 0.25$         |

Table 3.10. The Relative Performance of Different Income Hypotheses with respect to Personal Savings:  
Thailand

| Function | $a_o$             | $Y_t$            | $Y_{t-1}$         | $Y_{t-2}$        | $S_{t-1}$        | $S_{t-2}$       | SE     | $\chi^2(n)$ | Probability of Acceptance |
|----------|-------------------|------------------|-------------------|------------------|------------------|-----------------|--------|-------------|---------------------------|
| (2)      |                   | 0.136<br>(29.00) |                   |                  |                  |                 | 2266.0 | 23.244 (5)  | $p < 0.001$               |
| (3)      | -3101.4<br>(3.85) | 0.165<br>(19.48) |                   |                  |                  |                 | 1807.6 | 11.493 (4)  | $0.020 < p < 0.025$       |
| (4)      |                   | 0.240<br>( 1.51) | -0.111<br>(0.66)  |                  |                  |                 | 2247.5 | 22.818 (4)  | $p < 0.001$               |
| (5)      | -3069.3<br>(3.78) | 0.202<br>( 1.58) | -0.039<br>(0.29)  |                  |                  |                 | 1804.8 | 11.411 (3)  | $0.005 < p < 0.010$       |
| (6)      | -2347.7<br>(2.22) | 0.178<br>( 1.40) | -0.051<br>(0.38)  |                  | 0.212<br>(1.04)  |                 | 1768.7 | 10.360 (2)  | $0.005 < p < 0.010$       |
| (7)      |                   | 0.162<br>( 1.17) | -0.098<br>(0.67)  |                  | 0.513<br>(3.05)  |                 | 1929.1 | 14.876 (3)  | $0.001 < p < 0.005$       |
| (8)      |                   | 0.696<br>(25.79) | -0.696<br>(25.79) |                  | 0.696<br>(25.79) |                 | 2537.6 | 29.133 (5)  | $p < 0.001$               |
| (9)      |                   | 0.352<br>( 2.84) | 0.204<br>(1.51)   | -0.533<br>(3.87) | 0.332<br>(2.16)  | 0.142<br>(0.90) | 1502.7 | 1.886 (1)   | $0.10 < p < 0.20$         |

consumer price index is used for deflation in the analysis of consumption behaviour. In the analysis of savings behaviour, the GNP deflator (GDP deflator for Thai data) seems more appropriate, since savings comprise financial assets, capital goods and in the case of personal savings also consumer durables.

Despite its various drawbacks, the ordinary least squares method is applied. Autocorrelation is accounted for by the Cochran-Orcutt iteration process.<sup>1</sup>

a. Functional Income Distribution

Because of limited data availability, an investigation of the impact of functional income distribution on savings behaviour is undertaken for Thailand only. The ratio of profit to labour income (PL) is introduced into the savings functions to represent functional income distribution.

No trend can be detected in the development of the ratio of profit to labour income between 1950 and 1977.<sup>2</sup> Rather, it developed in cycles with peaks in 1952, 1955, 1961, 1966 and 1973. Except for 1952, the peak years in the ratio coincide with those in the gross domestic and household savings ratio, suggesting that a rise of profit income relative to labour income leads to an increase in savings, as has been hypothesized in the theoretical analysis.

This is substantiated by the regression analysis (see Tables 3.11 to 3.13 , pp.156-8 ). It is found that an increase in the ratio of profit to labour income has a

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<sup>1</sup> D. Cochrane and G.H. Orcutt, 'Application of Least Squares Regressions to Relationships Containing Autocorrelated Error Terms', JASA, 44(1949), 32-61.

<sup>2</sup> See Government of Thailand, NESDB, National Income of Thailand, various issues.



significant positive impact on the level of gross domestic and household savings. The inclusion of the ratio into the savings functions results in a substantial reduction in the standard error of estimate, underlining the importance of functional income distribution in the determination of savings behaviour.

In the case of personal savings, the hypothesis that an increase of profit income relative to labour income leads to an increase in the level of savings has to be rejected. An alternative model of the functional income distribution hypothesis specifying personal savings as a function of profit (PRO) and of labour income (LAB), however, reveals that the marginal propensities to save out of both types of income do differ.

$$S_p = -3424.2 + 0.243 \text{ PRO} - 0.006 \text{ LAB}$$

$$(2.94) \quad (2.45) \quad (0.03)$$

$$\bar{R}^2 = 0.934 \quad F = 184.5 \quad SE = 1874.7 \quad DW = 2.026$$

The marginal propensity to save out of profit income is significantly positive, whereas that out of labour income is not significantly different from zero at any acceptable significance level. This would corroborate the classical hypothesis that saving out of labour income is negligible. However, the earlier finding that fluctuations in the ratio of profit to labour income do not affect the level of personal savings suggests that the pattern of saving out of both types of income is unstable.

The difference in the impact of the ratio of profit to labour income on household and personal savings finds its explanation in the different composition of the groups of decision-making units that account for both. Savings by



unincorporated business enterprises that are included in household, but not in personal, savings are made solely out of profit income, so that an increase in the profit-labour income ratio will necessarily have a larger impact on household savings than on personal savings.

b. Sectoral Income Distribution

ba. Industrial versus Agricultural Income

In this analysis, sectoral income distribution with respect to industry and agriculture is denoted by the ratio of industrial to agricultural income (IA).

In the Philippines, the ratio did not show a continuous upward trend during the last three decades as one might expect, following the experience of most other developing countries. Rather, after having risen from 0.60 in 1950 to 0.88 in 1961, it declined again until 1971 to reach 0.74. Since then it has increased continuously to 0.91 in 1977.<sup>1</sup>

The incorporation of the ratio of industrial to agricultural income into the savings functions describing the behaviour of surplus units in the Philippines leads to a considerable reduction in the standard error of estimation. The empirical analysis confirms the basic assumption of the dualistic growth models, namely that a relative shift of resources from the agricultural to the industrial sector will enhance domestic saving (see Tables 3.11 to 3.13, pp.156-8 ). An increase in industrial relative to agricultural income is

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<sup>1</sup> See Republic of the Philippines, 'The National Income Accounts of the Philippines' (NEDA, mimeo).

found to have a significant positive impact on the level of domestic, household and personal savings (the coefficient of the ratio is not significantly different from zero at the 5 per cent level in the case of domestic savings).

In Thailand, the ratio of industrial to agricultural income displayed a rising trend between 1950 and 1977, a decline during several years notwithstanding, in particular in 1960, 1966 and 1973.<sup>1</sup> These are exactly those years during which the gross domestic and the household savings ratio rose sharply. This suggests that the hypothesis underlying the dualistic growth models cannot be confirmed for Thailand, as indeed the regression analysis shows. As in the case of functional income distribution, the inclusion of the ratio of industrial to agricultural income adds substantially to the explanatory power of the absolute income hypothesis, in so far as domestic and household savings are concerned. The levels of both are significantly negatively affected by a rise in the ratio.

The result for Thailand is not as surprising as it may seem, since the performance of the agricultural sector determines to a great extent not only aggregate income growth but also the amount of profit income, export earnings and government revenue, although its share in gross domestic product has declined from 45 per cent in 1950 to 28 per cent in 1977.

Personal savings behaviour differs again from that of households. The ratio of industrial to agricultural income

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<sup>1</sup> See Government of Thailand, NESDB, op. cit.

has no significant impact on the level of personal savings. The significant negative impact of the ratio on household savings compared with the insignificant impact on personal savings is to be attributed to the construction of both time-series. An increase in agricultural income relative to industrial income presumably leads to an increase in savings by farmers relative to those by non-farmers. This increase, however, affects only the level of household savings because the concept of household savings accounts for savings in tangible assets accumulated by farmers, such as machinery, non-residential construction and land, whereas the concept of personal savings does not include these items.

bb. Government versus Private Income

The amount of direct ( $T_D$ ) and indirect taxes ( $T_I$ ) has risen substantially in the Philippines and Thailand between 1950 and 1977. In both countries, government revenue depends mainly on excise, that is, indirect taxes, while the taxes imposed on the income of individuals and corporations are of much lesser importance. However, it is the latter form of tax that is most likely to influence people's savings behaviour. First, it is clearly recognized as a reduction of income, and second, direct taxes are paid by high income households only, which account for most of domestic savings.

As in the case of functional income distribution and sectoral income distribution with respect to industry and agriculture, in Thailand the inclusion of taxation leads to

a considerable reduction in the standard error of estimation in the savings functions with domestic and household savings as the dependent variables (see Tables 3.11 to 3.13, pp. 156-8). The hypotheses concerning the effect of taxes on savings are confirmed by the empirical analysis. In the case of domestic savings, total taxes (T) have a negative, though insignificant impact. The positive effect of an increase in taxes on government savings<sup>1</sup> is more than offset by the negative effect on private savings. This is underlined by the analysis of household savings. An increase in the amount of taxes to be paid by households ( $T_H$ ), that is, indirect taxes ( $T_I$ ) and personal income taxes ( $T_{DH}$ ), leads to a sharp decline in household savings.<sup>2</sup>

Disaggregating total taxes into indirect and direct taxes also yields the expected results. The negative impact of the latter form of taxation exceeds by far the effect of indirect taxes on domestic savings. The analysis suggests that an increase of direct taxes by one Baht leads to a reduction of domestic savings by 8.9 Baht. Since in general an increase in taxes should not lead to a reduction in savings by a larger amount, this result is not acceptable. However, one must bear in mind that in Thailand the amount

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<sup>1</sup> The empirical analysis yields the following relationship between government savings ( $S_{GOV}$ ) and total taxes (T):

$$S_{GOV} = 952.2 + 0.138 T$$

(1.43) (3.27)

$$\bar{R}^2 = 0.528 \quad F = 30.0 \quad SE = 1059.1 \quad DW = 1.794$$

<sup>2</sup> In this section, household income, which includes personal income taxes, is used instead of disposable income in order to make the savings functions relating to household and personal savings directly comparable with the function relating to gross domestic savings.

of direct taxes that are paid by households is very small, so that in the regression analysis one is faced with problems of scale which could not be eliminated. The size of the coefficient is therefore not to be taken at face value. Similarly, in the case of household savings, direct taxes have a much larger negative impact on the level of savings than indirect taxes, both effects being significant at the 5 per cent level. The coefficient pertaining to direct taxes is again to be treated with caution.

Business taxes and export and import duties make up the bulk not only of indirect taxes but of taxes in general. These affect mainly business enterprises so that one would expect corporate and household savings to be adversely affected by an increase in indirect of total taxes, while such an increase will have little or no impact on the level of personal taxes. Again, this is confirmed by the empirical results. The coefficients of total personal taxes and indirect taxes are not significantly different from zero at the 5 per cent level, but the impact of direct taxes is significantly negative.

In the case of the Philippines, the incorporation of taxes yields a sizeable reduction in the standard error of estimate in the case of domestic savings only. The fact that an increase in total taxes as well as indirect and direct taxes leads to a significant positive increase in domestic savings suggests a negative *Pleasant-Effect*, that is, the government's marginal propensity to save out of revenue is higher than the marginal propensity to save of the private sector, leading to an overall positive effect of an increase

in taxes on domestic savings. The analysis of the relationship between taxes and government and household savings respectively confirms this.

$$S_{\text{GOV}} = \begin{matrix} -337.4 \\ (1.41) \end{matrix} + \begin{matrix} 0.304 \\ (5.15) \end{matrix} T$$

$$\bar{R}^2 = 0.745 \quad F = 76.4 \quad SE = 324.8 \quad DW = 1.718$$

An increase in taxes has a significant positive effect on government savings, while it does not significantly affect households savings (see functions (3) and (4), p.157).

### c. Interest Rates

In both the Philippines and Thailand, deposit as well as loan rates have been, and to a great extent still are, subject to government regulations. However, with respect to the latter financial institutions have professed of much greater ingenuity in circumventing any ceilings and have also done so much more frequently. Therefore it is difficult to identify an interest rate that is representative for lenders and borrowers alike.

Among the interest rates that are available, the time-deposit rate seems most appropriate. In Thailand, time deposits represent the most important savings instrument. Banks have responded to changes in the demand for and supply of financial resources by adjusting the time deposit rate accordingly, as is evident in the fluctuations of the effective average rate offered to depositors.<sup>1</sup> Although in the Philippines savings deposits are more important than time deposits, the rate on time deposits is preferred, since it is negotiable

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<sup>1</sup> See Statistical Appendix, A.3.

Table 3.11. The Impact of Income Distribution on Gross Domestic Savings

| The Philippines |                                                                                     | $\bar{R}^2$ | F      | SE     | DW    |
|-----------------|-------------------------------------------------------------------------------------|-------------|--------|--------|-------|
| (1)             | $S_G = -3233.2 + 0.315 Y_G$<br>(5.27) (17.74)                                       | 0.979       | 1230.8 | 552.5  | 2.004 |
| (2)             | $S_G = -7856.3 + 0.306 Y_G + 5928.6 IA$<br>(3.25) (16.64) (1.96)                    | 0.982       | 686.9  | 523.7  | 2.252 |
| (3)             | $S_G = -1643.0 + 0.129 Y_G + 1.221 T$<br>(3.03) (3.01) (4.49)                       | 0.988       | 1092.3 | 416.6  | 1.678 |
| (4)             | $S_G = -1695.7 + 0.134 Y_G + 1.153 T_I + 1.294 T_D$<br>(2.93) (2.85) (3.10) (3.36)  | 0.988       | 700.1  | 424.9  | 1.679 |
| Thailand        |                                                                                     |             |        |        |       |
| (5)             | $S_G = -4268.0 + 0.251 Y_G$<br>(1.83) (13.53)                                       | 0.969       | 809.5  | 2627.7 | 1.301 |
| (6)             | $S_G = -39979.9 + 0.272 Y_G + 14005.3 PL$<br>(5.41) (12.95) (5.34)                  | 0.985       | 833.7  | 1845.7 | 1.541 |
| (7)             | $S_G = 11118.6 + 0.312 Y_G - 32336.4 IA$<br>(2.11) (9.52) (5.26)                    | 0.984       | 781.5  | 1905.6 | 1.864 |
| (8)             | $S_G = -5044.4 + 0.354 Y_G - 0.755 T$<br>(2.01) (4.08) (1.22)                       | 0.970       | 413.6  | 2602.0 | 1.263 |
| (9)             | $S_G = -12168.6 + 0.505 Y_G - 0.298 T_I - 8.884 T_D$<br>(4.10) (5.85) (0.55) (3.53) | 0.979       | 392.7  | 2190.4 | 1.229 |



Table 3.12. The Impact of Income Distribution on Household Savings

| The Philippines |                                                                                          | $\bar{R}^2$ | F     | SE     | DW    |
|-----------------|------------------------------------------------------------------------------------------|-------------|-------|--------|-------|
| (1)             | $S_H = -1789.7 + 0.179 Y_D$<br>(2.69) (7.63)                                             | 0.915       | 281.4 | 422.5  | 1.647 |
| (2)             | $S_H = -6151.0 + 0.155 Y_D + 6021.9 IA$<br>(3.53) (8.46) (2.75)                          | 0.932       | 179.5 | 377.9  | 1.890 |
| (3)             | $S_H = -1530.2 + 0.155 Y_H + 0.103 T_H$<br>(1.83) (2.38) (0.29)                          | 0.912       | 135.9 | 430.0  | 1.638 |
| (4)             | $S_H = -1497.6 + 0.151 Y_H + 0.101 T_I + 0.307 T_{DH}$<br>(1.59) (2.01) (0.28) (0.24)    | 0.908       | 86.9  | 439.0  | 1.645 |
| Thailand        |                                                                                          |             |       |        |       |
| (5)             | $S_H = -2815.5 + 0.169 Y_D$<br>(1.70) (9.78)                                             | 0.882       | 196.3 | 2689.4 | 1.604 |
| (6)             | $S_H = -41983.6 + 0.209 Y_D + 14900.4 PL$<br>(5.85) (13.95) (5.54)                       | 0.946       | 229.0 | 1822.4 | 1.650 |
| (7)             | $S_H = -12340.2 + 0.287 Y_D - 38899.8 IA$<br>(3.07) (9.11) (7.82)                        | 0.958       | 298.7 | 1605.2 | 2.202 |
| (8)             | $S_H = -4740.4 + 0.467 Y_H - 1.912 T_H$<br>(2.46) (6.41) (4.30)                          | 0.927       | 167.2 | 2113.3 | 1.394 |
| (9)             | $S_H = -8590.6 + 0.615 Y_H - 1.454 T_I - 16.494 T_{DH}$<br>(5.29) (10.19) (4.37) ( 5.47) | 0.963       | 224.3 | 1516.7 | 1.528 |



Table 3.13. The Impact of Income Distribution on Personal Savings

| The Philippines |                                                                                       | $\bar{R}^2$ | F     | SE     | DW    |
|-----------------|---------------------------------------------------------------------------------------|-------------|-------|--------|-------|
| (1)             | $S_P = -1342.9 + 0.187 Y_D$<br>(5.57) (20.53)                                         | 0.966       | 741.8 | 315.9  | 1.925 |
| (2)             | $S_P = -6007.3 + 0.184 Y_D + 5659.3 IA$<br>(4.40) (11.86) (3.37)                      | 0.973       | 465.0 | 283.2  | 2.230 |
| (3)             | $S_P = -741.0 + 0.122 Y_H + 0.344 T_H$<br>(2.48) (4.11) (1.99)                        | 0.978       | 584.5 | 253.3  | 1.947 |
| (4)             | $S_P = -697.7 + 0.118 Y_H + 0.352 T_I + 0.460 T_{DH}$<br>(1.61) (2.78) (1.93) (0.51)  | 0.966       | 250.5 | 314.3  | 1.947 |
| Thailand        |                                                                                       |             |       |        |       |
| (5)             | $S_P = -2983.7 + 0.163 Y_D$<br>(3.05) (15.86)                                         | 0.939       | 399.4 | 1804.3 | 1.995 |
| (6)             | $S_P = -3465.9 + 0.164 Y_D + 183.6 PL$<br>(0.49) (12.76) (0.07)                       | 0.936       | 191.7 | 1841.3 | 1.997 |
| (7)             | $S_P = -2391.2 + 0.170 Y_D - 1731.2 IA$<br>(1.20) (7.99) (0.34)                       | 0.936       | 192.7 | 1837.1 | 2.015 |
| (8)             | $S_P = -2640.5 + 0.124 Y_H + 0.231 T_H$<br>(2.35) (1.96) (0.59)                       | 0.937       | 193.1 | 1835.1 | 1.971 |
| (9)             | $S_P = -4658.7 + 0.199 Y_H + 0.555 T_I - 8.237 T_{DH}$<br>(3.19) (3.01) (1.49) (2.50) | 0.948       | 158.8 | 1663.3 | 1.916 |

to some extent and thereby reflects the scarcity of funds much better than the rate of savings deposits. The latter has lagged behind the general interest rate level for many years. Contrary to this, the upward trend of the time deposit rate represents the overall trend in the money and capital markets in both countries.<sup>1</sup>

On the basis of the differences between the standard error of estimation of the absolute income hypothesis and its extended version, one cannot reject, for either country, the hypothesis that the level of interest rates represents an important determinant of the level of savings, in particular personal savings (see Tables 3.14 to 3.16, pp. 165-7).

The results for the Philippines necessitate the differentiation between personal savings, on the one hand, and domestic and household savings, on the other. It appears that government entities and business enterprises, whose surpluses are included in domestic and household savings but not in personal savings, do not incorporate interest rates, either nominal ( $i_{TD}$ ) or real ( $r_{TD}$ ), into their savings decisions. For government entities this is quite plausible, since they are able to finance their investment projects, which are simultaneously categorized as government savings, largely by low interest bonds sold through forced investment regimes or by cheap loans from institutions such as the Social Security System or the Government Service Insurance System.

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<sup>1</sup> The time-series of the interest rates are not adjusted for taxation. This is not likely to bias the results, since the time deposit rates that are used in the analysis can only be regarded as an approximation of the interest rates on which the economic units in both countries base their investment and borrowing decisions.

Similarly, during the 1950s and 1960s changes in interest rates did not disrupt the flow of credit to private enterprises, so that planned investments and the generation of own savings within the companies were not affected. Interest rate changes are almost irrelevant to the many companies which are part of a conglomerate comprising financial as well as non-financial institutions. Such organisations essentially guarantee a continued intersectoral flow-of-funds. Furthermore, the amount of financial assets held by business enterprises is determined largely by the cash flow and investment plans rather than by the level of interest rates.

Contrary to domestic and household savings, personal savings are influenced positively by an increase in the interest rate level. This suggests that the substitution effect of an interest rate change exceeds the income effect. The relatively low interest offered on deposits by Philippine financial institutions during the 50s and 60s did not allow an increase in present consumption without reducing the planned future consumption level. It is interesting to note that only the nominal rate of interest has a significant positive effect on personal savings, whereas that of the real rate of interest is insignificant. It appears that individual investors orientate their savings decisions at nominal rather than real rates, which indicates the presence of money illusion.

In Thailand, surplus units behave very differently from their Philippine counterparts. Nominal interest rates do not exert a significant influence on the level of domestic, household and personal savings, whereas the impact of the

level of real rates is significantly negative. The differences in the impact in both countries has to be attributed to the policy of high interest rates pursued by Thai financial institutions as opposed to the policy of low interest rates followed by Philippine financial institutions.

While in the Philippines the substitution effect of an interest rate change dominates the income effect, the reverse holds true in Thailand. The high real deposit rates<sup>1</sup> in the latter country enable savers to reduce their savings efforts while maintaining their savings targets, assuming that they do indeed adhere to target saving. Further evidence for this assumption is found in the following analysis of the relationship between saving and inflation.

In the case of business enterprises, an increase in the already high loan rates is likely to deter all but the most profitable enterprises from taking up loans. Many planned investment projects have to be shelved because of the unavailability of external finance at acceptable interest rates. This in turn might frustrate the savings efforts of business entities.

#### d. Inflation and Expected Inflation

As in the case of interest rates, specification problems arise with respect to inflation and expected inflation. In this study, the former is represented by the percentage increase in the GNP deflator (GDP deflator for Thailand) ( $\dot{P}$ ) rather than by the increase in the consumer price index,

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<sup>1</sup> See Table 4.4, p. 187.

because savings decisions involve investment as well as consumption goods. Previous analyses have approximated expected inflation by some weighted average of current and past periods' inflation ( $\dot{AP}$ ) or by the change in the rate of inflation ( $\dot{AC}$ ). Both proxy variables are applied in this analysis. As to the number of years to be taken into consideration and the weights to be attached to the different periods in the specification of expected inflation, the empirical investigation showed that the decision-making units in the Philippines and Thailand are shortsighted with respect to the past. Inflation rates prior to that of the last period have no significant effect on savings behaviour in either country. Their inclusion leads to an increase in the standard error of estimation rather than to a reduction. Approximating expected inflation either by a simple average of current inflation and that of the last period or by attributing different weights to both inflation rates, renders almost identical results. Only the results of the former specification are presented.

In the Philippines, inflation and expected inflation do not add to the explanatory power of the basic absolute income hypothesis in so far as gross domestic savings and household savings are concerned (see Tables 3.14 to 3.16, pp. 165-7). None of the coefficients relating to inflation and expected inflation is significant at the 5 per cent level.

The functions relating to personal savings suggest that individual investors respond more strongly to changes in inflation and expected inflation. An increase in the latter (applying the first specification only) induces individual

investors to reduce their level of savings, presumably so as to prevent further inflation losses. Since they have to resort to financial assets to a much greater extent than corporations and unincorporated business enterprises, their savings decisions are much more likely to be influenced by expectations that inflation will rise. This explains the difference in the impact of expected inflation on the level of domestic and household savings, on the one hand, and on the level of personal savings, on the other.

In addition to the impact on the level of personal savings, inflation and expected inflation influence the structure of personal savings. The analysis of the portfolio behaviour of individual investors in the Philippines shows that during periods of high inflation, in particular during the seventies, investors shifted their funds into financial and tangible assets, which offered at least some protection against inflation. This aspect is discussed in greater detail in Chapter V.<sup>1</sup>

Despite the excellent record of the monetary authorities in Thailand with respect to monetary stability, it appears that Thai investors are very sensitive to changes in the price level. This is indicated by the substantial reduction in the standard error of estimation when inflation and expected inflation are introduced into the savings functions. The level of domestic, household and personal savings are significantly and positively affected by inflation.

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<sup>1</sup> See sections V.B.1 and B.2.

The positive coefficient of inflation suggests that target saving predominates. A reduction in the real value of assets due to inflation is compensated for by increased savings efforts. In addition, the empirical analysis shows that inflation leads to a redistribution of income from wage to profit earners,<sup>1</sup> which in turn leads to an increase in the overall savings ratio, as has been shown earlier.

As in the Philippines, the expectation that inflation will increase leads individual investors in Thailand to reduce their level of savings. In addition, the level of domestic savings in Thailand responds positively to an increase in expected inflation (applying the first specification only). There are two possible explanations for this. First, the greater income uncertainty associated with an increase of inflation in the future might influence enterprises to accumulate more savings. Second, enterprises that rely to a great extent on external finance might fear that the inflationary process will induce the authorities to introduce a tight monetary policy, so that they have to rely more on own funds. On the basis of the available data, it is not possible to determine to what extent these explanations are applicable.

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<sup>1</sup> Current period's inflation ( $\dot{P}$ ) has a significant positive impact on the ratio of profit to labour income (PL):

$$PL = 2.292 + 0.0123 \dot{P}$$

(20.12) (2.31)

$$\bar{R}^2 = 0.504 \quad F = 26.3 \quad SE = 0.134 \quad DW = 1.856$$



Table 3.14. The Impact of Financial and Monetary Developments on Gross Domestic Savings I

| The Philippines                                                                                  | $\bar{R}^2$ |        | F      | SE    | DW |
|--------------------------------------------------------------------------------------------------|-------------|--------|--------|-------|----|
| (1) $S_G = -3233.2 + 0.315 Y_G$<br>(5.27) (17.74)                                                | 0.979       | 1230.8 | 552.5  | 2.004 |    |
| (2) $S_G = -3729.9 + 0.380 Y_G - 273.8 i_{TD}$<br>(5.03) (6.78) (1.20)                           | 0.979       | 626.5  | 547.8  | 2.099 |    |
| (3) $S_G = -7741.4 + 0.387 Y_G - 17.85 r_{TD}$<br>(2.19) (6.67) (1.28)                           | 0.978       | 573.5  | 557.3  | 2.095 |    |
| (4) $S_G = -9897.9 + 0.416 Y_G + 15.68 \dot{P} + 10.36 \dot{AP}$<br>(1.81) (5.06) (0.69) (0.33)  | 0.977       | 338.2  | 575.3  | 2.053 |    |
| (5) $S_G = -8845.9 + 0.403 Y_G + 22.62 \dot{P} - 176.6 AC$<br>(1.97) (4.91) (1.03) (0.10)        | 0.977       | 336.7  | 576.6  | 2.061 |    |
| Thailand                                                                                         |             |        |        |       |    |
| (6) $S_G = -4268.0 + 0.251 Y_G$<br>(1.83) (13.53)                                                | 0.969       | 809.5  | 2627.7 | 1.301 |    |
| (7) $S_G = -15472.1 + 0.197 Y_G + 2700.2 i_{TD}$<br>(2.24) (5.28) (1.68)                         | 0.971       | 434.3  | 2541.0 | 1.482 |    |
| (8) $S_G = -3065.0 + 0.249 Y_G - 357.2 r_{TD}$<br>(1.62) (17.02) (3.90)                          | 0.980       | 609.0  | 2113.8 | 1.573 |    |
| (9) $S_G = -4141.2 + 0.234 Y_G + 191.1 \dot{P} + 382.6 \dot{AP}$<br>(3.16) (20.93) (1.57) (2.42) | 0.985       | 528.7  | 1808.6 | 1.591 |    |
| (10) $S_G = -4321.0 + 0.240 Y_G + 437.6 \dot{P} - 40.96 AC$<br>(3.45) (22.45) (4.86) (0.69)      | 0.982       | 421.7  | 2021.6 | 1.415 |    |



Table 3.15. The Impact of Financial and Monetary Developments on Household Savings I

| The Philippines |                                                                                              | $\bar{R}^2$ | F     | SE     | DW    |
|-----------------|----------------------------------------------------------------------------------------------|-------------|-------|--------|-------|
| (1)             | $S_H = -1789.7 + 0.179 Y_D$<br>(2.69) (7.63)                                                 | 0.915       | 281.4 | 422.5  | 1.647 |
| (2)             | $S_H = -1928.5 + 0.193 Y_D - 38.48 \dot{I}_{TD}$<br>(2.30) (3.05) (0.21)                     | 0.912       | 135.3 | 430.8  | 1.670 |
| (3)             | $S_H = -4054.8 + 0.227 Y_D - 8.200 r_{TD}$<br>(1.30) (3.34) (0.73)                           | 0.911       | 128.8 | 430.7  | 1.754 |
| (4)             | $S_H = -3179.1 + 0.208 Y_D + 11.12 \dot{P} - 5.974 A\dot{P}$<br>(0.63) (2.05) (0.66) (0.24)  | 0.899       | 72.7  | 450.2  | 1.689 |
| (5)             | $S_H = -1933.5 + 0.163 Y_D - 4.294 \dot{P} + 1216.3 AC$<br>(0.45) (1.59) (0.23) (0.91)       | 0.903       | 75.7  | 442.2  | 1.739 |
| Thailand        |                                                                                              |             |       |        |       |
| (6)             | $S_H = -2815.5 + 0.169 Y_D$<br>(1.70) (9.78)                                                 | 0.882       | 196.3 | 2689.4 | 1.604 |
| (7)             | $S_H = -5571.4 + 0.149 Y_D - 705.4 \dot{I}_{TD}$<br>(0.94) (3.38) (0.49)                     | 0.879       | 95.3  | 2731.8 | 1.648 |
| (8)             | $S_H = -2073.0 + 0.171 Y_D - 352.2 r_{TD}$<br>(2.47) (20.04) (4.83)                          | 0.928       | 163.5 | 2120.1 | 1.738 |
| (9)             | $S_H = -3145.7 + 0.154 Y_D + 285.0 \dot{P} + 179.9 A\dot{P}$<br>(4.52) (18.70) (2.17) (1.24) | 0.941       | 127.9 | 1932.5 | 2.017 |
| (10)            | $S_H = -2874.0 + 0.154 Y_D + 425.4 \dot{P} - 65.27 AC$<br>(4.03) (19.08) (6.29) (1.10)       | 0.939       | 125.9 | 1947.1 | 2.044 |

Table 3.16. The Impact of Financial and Monetary Developments on Personal Savings I

| The Philippines |                                                                                              | $\bar{R}^2$ | F     | SE     | DW    |
|-----------------|----------------------------------------------------------------------------------------------|-------------|-------|--------|-------|
| (1)             | $S_P = -1342.9 + 0.187 Y_D$<br>(5.57) (20.53)                                                | 0.966       | 741.8 | 315.9  | 1.925 |
| (2)             | $S_P = -747.4 + 0.108 Y_D + 250.3 I_{TD}$<br>(2.52) (3.29) (2.42)                            | 0.971       | 437.8 | 291.6  | 1.917 |
| (3)             | $S_P = -203.3 + 0.163 Y_D + 4.440 r_{TD}$<br>(0.12) (4.75) (0.71)                            | 0.963       | 329.1 | 325.1  | 1.848 |
| (4)             | $S_P = -287.7 + 0.172 Y_D + 27.97 \dot{P} - 32.77 \dot{AP}$<br>(0.14) (4.27) (1.97) (2.16)   | 0.968       | 246.1 | 299.3  | 1.975 |
| (5)             | $S_P = -1881.2 + 0.173 Y_D - 5.022 \dot{P} + 1597.2 AC$<br>(0.93) (3.94) (0.58) (1.81)       | 0.967       | 232.9 | 307.5  | 1.958 |
| Thailand        |                                                                                              |             |       |        |       |
| (6)             | $S_P = -2983.7 + 0.163 Y_D$<br>(3.05) (15.86)                                                | 0.939       | 399.4 | 1804.3 | 1.995 |
| (7)             | $S_P = -7078.0 + 0.134 Y_D + 1053.4 I_{TD}$<br>(2.01) (5.03) (1.21)                          | 0.939       | 204.0 | 1788.4 | 2.014 |
| (8)             | $S_P = -1981.0 + 0.159 Y_D - 220.6 r_{TD}$<br>(1.92) (15.49) (3.30)                          | 0.954       | 262.5 | 1554.7 | 2.198 |
| (9)             | $S_P = -2661.0 + 0.154 Y_D + 461.8 \dot{P} - 301.1 \dot{AP}$<br>(4.52) (22.58) (4.96) (2.81) | 0.967       | 273.3 | 1303.9 | 1.675 |
| (10)            | $S_P = -2333.1 + 0.147 Y_D + 262.7 \dot{P} - 32.55 AC$<br>(2.70) (15.65) (4.05) ( 0.74)      | 0.959       | 186.7 | 1464.1 | 2.045 |

e. Foreign Capital Inflow and Export Earnings

In the Philippines, the inflow of foreign currency, either in the form of foreign exchange earnings through exports (X) or in the form of grants, loans or direct investment ( $S_F$ ) has a positive impact on the level of domestic, household and personal savings (see Tables 3.17 to 3.19., pp.173-5). Any possible substitution effects between domestic and foreign savings are more than offset by the foreign exchange effect.

Foreign exchange crises in 1949, 1959 and 1969 forced the Philippine development authorities to concentrate their efforts on balancing the supply of and demand for foreign exchange.<sup>1</sup> During many years, the development strategy in the Philippines has been geared towards that objective. The empirical results in this analysis underline the importance of the foreign exchange gap for the Philippine development in the past decades. Lack of foreign exchange has not only prevented the implementation of many investment projects, but it has at the same time presumably frustrated and diminished domestic savings efforts.

Although Thailand has also been faced with trade deficits in most years between 1950 and 1977, foreign exchange crises did not arise because the monetary stability and the satisfactory growth performance attracted large amounts of foreign funds into the country. Borrowing in the Euro- and Asian Dollar Markets has never been a problem.

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<sup>1</sup> See John H. Power and Gerardo P. Sicat, The Philippines, Industrialization and Trade Policies (London, Oxford University Press, 1971), pp. 30-58.

The ample supply of foreign funds is reflected clearly in the empirical analysis. The results show that foreign capital inflow acts as a perfect substitute for internally generated savings (see function (7), p.173). Moreover, the impact of export earnings on gross domestic savings in Thailand is of lesser significance than in the Philippines, although the absolute values of the respective coefficients differ only marginally.

It appears that the easy access to foreign resources has lessened the savings efforts in Thailand. Discussions with bankers, who invariably emphasized that any deficiencies in domestic savings could be compensated for by foreign capital, confirm this interpretation. Further corroboration for it is found in the activities of financial institutions of the government, which prefer to obtain foreign loans rather than to mobilize domestic funds, irrespective of whether the intended projects necessitate foreign exchange or not.

#### f. Financial Intermediation

The proliferation and sophistication of the financial systems in the Philippines and Thailand has not only enhanced saving by providing new investment opportunities, but also increased the ability to borrow, in particular that of business enterprises. The empirical analysis underlines the importance to differentiate between what one might call the savings effect and the borrowing effect in the relationship between financial intermediation and savings behaviour (see Tables 3.17. to 3.19., pp. 173-175).

The quantitative expansion of the Philippine and Thai financial systems, denoted by the number of bank offices (BO), is found to have a positive effect on the level of personal savings. However, in the case of Thailand the effect is not significant at the 5 per cent level of significance, while in the case of the Philippines multicollinearity causes interpretation problems, so that an institution-elasticity of personal savings cannot be substantiated convincingly. In both countries, the level of domestic and household savings, is negatively related to the increase in the number of bank offices.

As has been emphasized before, individual investors have to rely on financial intermediaries for savings outlets to a much greater extent than business entities, whether they are incorporated or unincorporated. Furthermore, individuals have less access to the credit facilities of financial intermediaries. Therefore the savings effect dominates the borrowing effect with respect to personal savings, while the reverse holds true in the case of domestic and households.

The qualitative expansion of the financial system is represented here by the total amount of private financial assets outstanding to financial intermediaries (IF) and the ratio of the amount of assets outstanding to gross national product (gross domestic product in the case of Thailand) (IFY). The introduction of both variables into the savings functions leads to ambiguous results in the case of the Philippines. While the results relating to the first variable indicate that the process of financial intermediation has a positive impact on the level of domestic, household and personal

savings, those relating to the second variable suggest the opposite. However, only the introduction of IF into the personal savings function yields a substantial reduction in the standard error of estimation. In the other cases, the additional variable does not add to the explanation of the variation in the level of savings.

Representing the qualitative expansion of financial intermediation by the index of private financial assets outstanding to financial intermediaries with 1950 as base year ( $IF_t/IF_{1950}$ ) helps to clarify the issue. It substantiates the earlier impression that financial intermediation has no significant impact on the level of domestic and household savings, while its impact on the level of personal savings is positive and significant:

$$S_P = - 498.4 + 0.139 Y_D + 19.76 (IF_t/IF_{1950})$$

(2.05) (10.67) (3.78)

$$\bar{R}^2 = 0.975 \quad F = 506.8 \quad SE = 271.6 \quad DW = 2.092$$

The results for Thailand also necessitate the differentiation between the impact of financial intermediation on personal savings, on the one hand, and domestic and household savings, on the other. With respect to personal savings, the two proxy variables (IF and IFY) render opposing results. However, their introduction into the basic savings function leads only to a marginal reduction in the standard error of estimation, so that the hypothesis that a qualitative expansion of the Thai financial system does affect the level of personal savings cannot be confirmed unambiguously.

In the case of domestic and household savings, the savings effect of financial intermediation is clearly dominated by the borrowing effect. All coefficients are negative and significant at the 5 per cent level. Closer inspection of the development of domestic and household savings in Thailand and the development of the amount of financial assets outstanding reveals that while the latter has increased continuously between 1950 and 1977, the former two time-series declined substantially in 1958, 1967, 1971 and 1974 to 1977.<sup>1</sup> These years are also characterized by a large increase in borrowing from banks and other financial institutions. Although gross domestic and gross household savings, that is, before the subtraction of the increase in liabilities, have risen consistently, net savings display a decline because of the sharp increase in debt during the respective years.

On the basis of the above results, the hypothesis that financial intermediation has a positive impact on the level of savings has to be rejected, except in the case of personal savings in the Philippines. However, one has to bear in mind that a complex process such as the expansion of the services of financial intermediaries can be described by a single variable only to a limited extent. In addition, multicollinearity prevents a clear identification of precise parameter responses.

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<sup>1</sup> See Statistical Appendix, C.4.



Table 3.17. The Impact of Financial and Monetary Developments on Gross Domestic Savings II

| The Philippines |                                                                                  |             |        |        |       |
|-----------------|----------------------------------------------------------------------------------|-------------|--------|--------|-------|
|                 |                                                                                  | $\bar{R}^2$ | F      | SE     | DW    |
| (1)             | $S_G = -3233.2 + 0.315 Y_G$<br>(5.27) (17.74)                                    | 0.979       | 1230.8 | 552.5  | 2.004 |
| (2)             | $S_G = -1565.6 + 0.158 Y_G + 0.308 S_F + 0.585 X$<br>(2.53) (3.81) (1.48) (4.11) | 0.988       | 656.5  | 438.6  | 2.106 |
| (3)             | $S_G = -12676.3 + 0.849 Y_G - 7.869 B0$<br>(4.55) (5.39) (3.28)                  | 0.984       | 794.3  | 487.5  | 2.135 |
| (4)             | $S_G = -1886.2 + 0.223 Y_G + 0.157 IF$<br>(0.88) (1.56) (0.65)                   | 0.978       | 601.1  | 559.1  | 1.910 |
| (5)             | $S_G = -2943.6 + 0.397 Y_G - 10480.3 IFY$<br>(7.09) (8.44) (1.98)                | 0.981       | 642.2  | 541.3  | 1.974 |
| Thailand        |                                                                                  |             |        |        |       |
| (6)             | $S_G = -4268.0 + 0.251 Y_G$<br>(1.83) (13.53)                                    | 0.969       | 809.5  | 2627.7 | 1.301 |
| (7)             | $S_G = -993.6 + 0.139 Y_G - 1.288 S_F + 0.574 X$<br>(0.26) (2.00) (1.99) (1.80)  | 0.971       | 289.9  | 2540.7 | 1.355 |
| (8)             | $S_G = 1984.0 + 0.438 Y_G - 30.79 B0$<br>(0.44) (4.51) (2.10)                    | 0.972       | 446.9  | 2505.7 | 1.498 |
| (9)             | $S_G = -20370.7 + 0.554 Y_G - 0.586 IF$<br>(3.37) (5.70) (3.30)                  | 0.977       | 553.4  | 2257.4 | 1.357 |
| (10)            | $S_G = -4165.4 + 0.427 Y_G - 93834.1 IFY$<br>(1.03) (5.03) (2.34)                | 0.973       | 459.0  | 2473.4 | 1.159 |



Table 3.18. The Impact of Financial and Monetary Developments on Household Savings II

| The Philippines |                                                                            | $\bar{R}^2$ | F     | SE     | DW    |
|-----------------|----------------------------------------------------------------------------|-------------|-------|--------|-------|
| (1) $S_H$       | $= -1789.7 + 0.179 Y_D$<br>(2.69) (7.63)                                   | 0.915       | 281.4 | 422.5  | 1.647 |
| (2) $S_H$       | $= -1086.6 + 0.113 Y_D + 0.104 S + 0.175 X$<br>(1.37) (2.29) (0.54) (1.50) | 0.916       | 95.5  | 420.4  | 1.689 |
| (3) $S_H$       | $= -3890.2 + 0.311 Y_D - 1.350 B0$<br>(1.51) (1.81) (0.70)                 | 0.912       | 137.0 | 428.5  | 1.652 |
| (4) $S_H$       | $= -1258.0 + 0.140 Y_D + 0.047 IF$<br>(0.73) (1.16) (0.32)                 | 0.912       | 135.7 | 430.3  | 1.634 |
| (5) $S_H$       | $= -1565.4 + 0.261 Y_D - 8405.6 IFY$<br>(3.50) (4.60) (1.81)               | 0.918       | 146.6 | 415.2  | 1.634 |
| Thailand        |                                                                            |             |       |        |       |
| (6) $S_H$       | $= -2815.5 + 0.169 Y_D$<br>(1.70) (9.78)                                   | 0.882       | 196.3 | 2689.4 | 1.604 |
| (7) $S_H$       | $= -2228.7 + 0.174 Y_D - 1.754 S + 0.156 X$<br>(1.09) (2.22) (2.79) (0.53) | 0.907       | 85.9  | 2388.5 | 1.487 |
| (8) $S_H$       | $= 3439.3 + 0.548 Y_D - 46.09 B0$<br>(0.75) (4.96) (3.59)                  | 0.907       | 126.9 | 2400.4 | 1.804 |
| (9) $S_H$       | $= -41770.8 + 0.791 Y_D - 0.778 IF$<br>(4.08) (6.69) (5.39)                | 0.929       | 170.9 | 2092.1 | 1.843 |
| (10) $S_H$      | $= -6051.7 + 0.476 Y_D - 116799. IFY$<br>(2.29) (4.95) (3.32)              | 0.910       | 132.4 | 2354.7 | 1.405 |

Table 3.19. The Impact of Financial and Monetary Developments on Personal Savings II

| The Philippines |                           | $\bar{R}^2$         | F     | SE    | DW     |
|-----------------|---------------------------|---------------------|-------|-------|--------|
| (1)             | $S_P = -1342.9$<br>(5.57) | + 0.187<br>(20.53)  | $Y_D$ |       |        |
|                 |                           |                     |       | 741.8 | 315.9  |
|                 |                           | 0.966               |       |       | 1.925  |
| (2)             | $S_P = -397.8$<br>(1.58)  | + 0.102<br>(4.57)   | $Y_D$ |       |        |
|                 |                           | + 0.299<br>(3.12)   | $S_F$ |       |        |
|                 |                           | + 0.190<br>(3.12)   | X     | 318.1 | 279.8  |
|                 |                           |                     |       |       | 2.087  |
| (3)             | $S_P = 411.6$<br>(0.79)   | + 0.055<br>(1.42)   | $Y_D$ |       |        |
|                 |                           | + 1.598<br>(3.35)   | B0    | 469.9 | 281.8  |
|                 |                           |                     |       |       | 2.003  |
| (4)             | $S_P = 438.7$<br>(0.77)   | + 0.048<br>(1.11)   | $Y_D$ |       |        |
|                 |                           | + 0.176<br>(3.14)   | IF    | 477.2 | 279.7  |
|                 |                           |                     |       |       | 1.926  |
| (5)             | $S_P = -1435.6$<br>(6.58) | + 0.236<br>(6.71)   | $Y_D$ |       |        |
|                 |                           | - 4277.3<br>(1.49)  | IFY   | 378.9 | 312.8  |
|                 |                           |                     |       |       | 1.998  |
| Thailand        |                           |                     |       |       |        |
| (6)             | $S_P = -2983.7$<br>(3.05) | + 0.163<br>(15.86)  | $Y_D$ |       |        |
|                 |                           |                     |       | 399.4 | 1804.3 |
|                 |                           | 0.939               |       |       | 1.995  |
| (7)             | $S_P = 1331.5$<br>(0.41)  | - 0.046<br>(0.75)   | $Y_D$ |       |        |
|                 |                           | - 0.119<br>(0.28)   | $S_F$ |       |        |
|                 |                           | + 0.677<br>(3.25)   | X     | 170.5 | 1607.7 |
|                 |                           |                     |       |       | 1.763  |
| (8)             | $S_P = -3092.5$<br>(2.69) | + 0.513<br>(3.20)   | $Y_D$ |       |        |
|                 |                           | + 1.176<br>(0.21)   | B0    | 192.1 | 1839.8 |
|                 |                           |                     |       |       | 1.996  |
| (9)             | $S_P = -5684.9$<br>(2.31) | + 0.227<br>(4.14)   | $Y_D$ |       |        |
|                 |                           | - 0.100<br>(1.17)   | IF    | 202.9 | 1792.8 |
|                 |                           |                     |       |       | 2.023  |
| (10)            | $S_P = -1291.5$<br>(1.19) | + 0.019<br>(0.30)   | $Y_D$ |       |        |
|                 |                           | + 53580.6<br>(2.24) | IFY   | 226.0 | 1703.7 |
|                 |                           |                     |       |       | 1.938  |

## CHAPTER IV

### THE NEED FOR ATTRACTIVE FINANCIAL INSTRUMENTS:

#### THE SUPPLY SIDE OF SAVINGS MOBILIZATION

##### A. Introduction

In this chapter, the supply side of savings mobilization is examined on the basis of the financial instrument approach.

The analysis of the role of financial institutions and money and capital markets in the mobilization of savings has been largely neglected in the Philippines and Thailand. The few investigations that are available either describe the existing institutions<sup>1</sup> or concentrate on individual problems, such as interest rate policy.<sup>2</sup> Among many of the decision-making units conventional wisdom prevails and this determines their long-run strategy. For example, in the Philippines, the emergence of deposit substitutes and the high and volatile interest rates in the money market have been blamed on speculation, when really high inflation and measures by the monetary authorities were at the root of the problem. This and many other aspects have to be put in proper perspective. Identifying the attractiveness of different financial instruments is an important precondition to understanding people's savings behaviour. Only after this has been done can the necessary measures be taken to improve

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<sup>1</sup> See, for example, Alek A. Rozental, Finance and Development in Thailand (New York, Praeger Publishers, 1970), and Paiboon Wattanasiritham, 'Thailand's Financial Institutions: Brief Description and a Comparative Analysis of their Roles in Mobilizing Savings and Providing Credit', in: Prateep Sondysuvan (ed.) *op. cit.*, 51-78.

<sup>2</sup> See, for example, Republic of the Philippines, NEC, Report of the Inter-Agency Committee on the Study of Interest Rates (Manila, NEC, 1972).

the efficiency of the financial system in mobilizing savings.

Following the characteristics emphasized in the profile of financial instruments in Chapter II, various instruments are analyzed in section B of this chapter. First, instruments denoting voluntary savings (deposits, deposit substitutes, long-term debt securities and corporate shares) are discussed, second, those denoting contractual savings (life insurance) and, third, those denoting compulsory savings (employee benefit funds). The importance of these instruments in financial savings is examined, and some of their general features are studied. This is followed by an analysis of the different characteristics of the instruments, to the extent that they pose a constraint to more saving or present an especially attractive feature encouraging thrift. More attention is paid to the financial development in the Philippines than in Thailand, as it was comparatively more eventful.

The various financial instruments are treated separately for analytical reasons. However, the developments in the market for one instrument often spill over into other markets and affect the relative attractiveness of the various financial instruments, which is pointed out on numerous occasions.

## B. Deposits

### 1. Deposits as the Most Important Financial Savings Instrument

During the 1960s and 1970s, deposits have become the savings instruments most frequently used by individual investors in the Philippines and Thailand (see Table 4.1). This development has been particularly pronounced in Thailand, where they accounted for two-thirds of financial savings in 1977. Indeed, the preference for deposits has led to a lopsided financial system. This is explained not only by the relative efficiency of the different financial institutions, but also by the tax-exemption of interest income from deposits. The latter biased the allocation decisions of savers against financial instruments other than deposits.

Table 4.1. Personal Savings in the Form of Deposits, 1950-77

| Year | The Philippines               |                    | Thailand                      |                    |
|------|-------------------------------|--------------------|-------------------------------|--------------------|
|      | Deposits<br>(Pm) <sup>1</sup> | D/FA<br>(per cent) | Deposits<br>(Bm) <sup>1</sup> | D/FA<br>(per cent) |
| 1950 | 116.6                         | 26.21              | 264.3                         | 19.86              |
| 1955 | 179.2                         | 55.85              | 297.5                         | 21.91              |
| 1960 | 49.8                          | 8.00               | 881.4                         | 46.84              |
| 1965 | 331.1                         | 27.21              | 1603.9                        | 44.33              |
| 1970 | 923.9                         | 39.21              | 3375.0                        | 50.29              |
| 1975 | 800.8                         | 23.90              | 8038.2                        | 70.26              |
| 1977 | 1994.0                        | 50.78              | 12366.8                       | 65.96              |

Remarks: 1) In constant prices of 1969.

Definitions: FA - Financial Savings

Source: See Statistical Appendix, B.1. and C.1.

The many people who own deposits provide further evidence for the importance of this type of savings instrument. The number of depositors can only be estimated on the basis of the number of accounts. Since one person may have more than one account, this is likely to give an overestimate. In both countries, the number of accounts has more than doubled between 1970 and 1976 to some 15 million. In 1976, the proportion of the population which deposited money in banks amounted to 36.1 per cent in the Philippines and 35.4 per cent in Thailand.<sup>1</sup>

Four types of deposits are distinguished:<sup>2</sup>

- (1) Demand deposits (DD), which allow the drawing of cheques. These carry very low or zero interest and no restrictions are placed on the withdrawal of money.
- (2) Savings deposits (SD), which are characterized by a pass-book that is needed for the deposit and withdrawal of money. A moderate rate of interest is offered and restrictions exist with respect to the withdrawal of money, although these are generally not enforced.
- (3) Time deposits (TD), which require the saver to invest his money for a fixed period of time. A certificate is issued to the depositor. Premature withdrawal is usually only possible, if a reduced rate of interest is accepted.
- (4) Other deposits (OD), which are defined here to comprise capital funds of mutual building and loan associations and non-stock savings and loan associations in the Philippines and of savings and agricultural co-operatives in Thailand.

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<sup>1</sup> Based on data provided by CBP, DER and BOT, DER.

<sup>2</sup> Described are only the 'pure' forms of deposit.

The structure of deposits underwent dramatic changes during the period between 1950 and 1977.<sup>1</sup> While demand deposits represented the dominant form in both the Philippines and Thailand in 1950, and in Thailand still in 1960 (since commercial banks offered a mixture of demand and savings deposits until 1962), they were only of minor importance in both countries in 1977.

Table 4.2. Structure of Personal Deposits (Stocks), December 1977

| Type of Deposit | The Philippines |                     | Thailand    |                     |
|-----------------|-----------------|---------------------|-------------|---------------------|
|                 | Amount (Pm)     | Proportion per cent | Amount (Bm) | Proportion per cent |
| DD              | 3174.7          | 13.19               | 8056.4      | 7.09                |
| SD              | 13180.4         | 54.74               | 12556.5     | 11.05               |
| TD              | 7592.1          | 31.54               | 90376.5     | 79.50               |
| OD              | 128.0           | 0.53                | 2693.9      | 2.37                |

Source: See Statistical Appendix, B.1. and C.1.

During the sixties and seventies, yield consideration led savers to prefer increasingly savings and time deposits which in 1977 accounted for 86.3 per cent of all deposits in the Philippines and 90.6 per cent in Thailand. This had important implications for the investment process, as it allowed banks to extend loans of longer maturity.

## 2. Accessibility

The leading-sector approach of Patrick emphasizes spatial accessibility as the main determinant of resource mobilization.<sup>2</sup>

<sup>1</sup> The structural changes are discussed in detail in Chapter V.

<sup>2</sup> Hugh T. Patrick, op. cit.



However, the savings functions estimated in Chapter III indicate that the number of bank offices has a significant positive influence only on the level of personal savings in the Philippines. Nevertheless, the vital role branch expansion plays in reaching potential savers must not be overlooked. In surveys on banking habits conducted in the Philippines and Thailand, location is named as one of the most important criteria for choosing a particular bank.<sup>1</sup>

The extent of spatial accessibility is determined by two factors: the total number of financial institutions and their regional distribution.

The number of bank offices where money can be deposited by the general public has increased manifold during the period 1950 to 1977. In the Philippines, it has risen more sharply (from 113 in 1950 to 2655 in 1977) than in Thailand (from 241 to 1619 respectively). In 1977, one bank on the average had to cater for 16809 Filipinos, but for 27346 Thais. Of course, the quality of different financial institutions has to be taken into consideration. Even if one excluded money shops and some rural banks operating in the Philippines, which offer a very limited range of services, the number of offices there is still much higher than in Thailand.

Since the increase in income and the expansion of the branch networks are highly correlated, the savings functions presented in Chapter III cannot reveal clearly the institution-elasticity of savings. In order to exclude the influence of

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<sup>1</sup> See Consumer Pulse, op. cit., p. 35.



income, a cross-section regression analysis of commercial banks has been undertaken, with the number of offices (increase in the number of offices) of each commercial bank as the independent variable and the amount of deposits (increase in the amount of deposits) of each bank as the dependent variable. The relationship has been investigated for individual types of deposits as well as for total deposits.

The analysis indicates that the number of offices has a significant positive impact on the amount of total deposits and its components, that is, demand, savings and time deposits, except for time deposits in the Philippines in 1965 and 1970.<sup>1</sup> In the Philippines, the explanatory power of the number of offices is highest for total deposits and savings deposits and comparatively weaker for demand and time deposits, while in Thailand it is very similar with respect to all types of deposits.

In Thailand, the size of the branch networks has, over the years, become more important as a determinant in the process of deposit mobilization by individual commercial banks, as is indicated by the increase in the adjusted coefficient of determination. The results do not reveal such a development in the Philippines.

The combined time-series cross-section analysis suggests that, on average, the opening of one additional office during the period 1965 to 1970 led to additional deposits of ₱6.97 million in the Philippines and ₱82.63 million in

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<sup>1</sup> The estimated functions for total deposits are to be found at the end of the section.

Thailand. During the period 1970 to 1975, the increase in deposits per additional office was considerably lower in the Philippines, due to the rapid expansion of the office networks. Each new office added only ₱3.44 million in total deposits. Compared to this, in Thailand each new office led to additional deposits amounting to ฿115.63 million during the same period.

On the basis of the regression analysis, no statement can be made about the viability of the establishment of any additional office. However, it does indicate that deposits are institution-elastic.

An increase in the number of offices has to be accompanied by a more even regional distribution of these offices, if greater spatial accessibility is to be achieved. As a consequence of the concentration of income and thereby surplus funds in urban areas, the office networks of commercial banks are most dense in Manila and Bangkok respectively.

Table 4.3. Regional Distribution of Offices and Savings and Time Deposits of Commercial Banks, December 1976

|                                                   | Proportion<br>of Offices<br>(per cent) | Persons<br>per Office | Proportion<br>of SD and TD<br>(per cent) | SD and TD<br>per Person<br>(₱ or ฿) |
|---------------------------------------------------|----------------------------------------|-----------------------|------------------------------------------|-------------------------------------|
| The Philippines                                   |                                        |                       |                                          |                                     |
| Metropolis                                        | 41.97                                  | 11834                 | 69.04 <sup>1</sup>                       | 2270                                |
| Province                                          | 58.03                                  | 63245                 | 30.96 <sup>1</sup>                       | 145                                 |
| Thailand                                          |                                        |                       |                                          |                                     |
| Metropolis                                        | 32.30                                  | 13214                 | 58.79                                    | 11485                               |
| Province                                          | 67.70                                  | 55631                 | 41.21                                    | 946                                 |
| Remarks: 1) September 1976                        |                                        |                       |                                          |                                     |
| Source: The Philippines - CBP, DER and NEDA, NSCO |                                        |                       |                                          |                                     |
| Thailand - BOT, DER and Ministry of Interior      |                                        |                       |                                          |                                     |

In recent years, the branch networks have been expanded primarily in provincial areas, as rural incomes rose to levels sufficiently high to make the establishment of offices viable.<sup>1</sup> Philippine as well as Thai bankers who were interviewed by the author stressed that wherever funds are likely to be mobilized in sufficient amounts, so that the break-even point is reached, a new branch will be opened.<sup>2</sup>

In both countries, the monetary authorities support the spread of the branch network to areas that have hitherto been neglected. The requirements for opening a new branch outside the Metropolis and in particular in rural settings are lower than those in Manila and Bangkok respectively. For example, Philippine commercial banks that have not yet fully complied with the new minimum paid-in capital requirements have to increase their capital by ₱5 million for every new branch in the Manila area, but by only ₱2 million for a new office in provincial areas.<sup>3</sup>

The above considerations lead to the conclusion that spatial accessibility serves as an effective instrument in enhancing the thrift habit. In both the Philippines and Thailand, this is recognized by the financial institutions and the branch networks are expanded accordingly.

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<sup>1</sup> Based on data and information provided by CBP, DER and BOT, DER.

<sup>2</sup> See Clodualdo Z. Reyes, Criteria of Banks for Setting Up of Branches and/or Agencies in Regions (Quezon City, Institute for Small-Scale Industries, University of the Philippines, 1971), pp. 11-12.

<sup>3</sup> See CBP Circular No. 567, May 4, 1977, in: 29th Annual Report '1977, pp. 337-8.

## Appendix - The Institution-Elasticity of Deposits

| The Philippines                                           |     |         |         |             | $\bar{R}^2$ | F     | SE     |
|-----------------------------------------------------------|-----|---------|---------|-------------|-------------|-------|--------|
| 1. Total Deposits                                         |     |         |         |             |             |       |        |
| 1.1. 1965                                                 | D = | 29.73   | + 3.95  | BO          | 0.518       | 43.0  | 57.1   |
|                                                           |     | (2.71)  | (6.57)  |             |             |       |        |
| 1.2. 1970                                                 | D = | 57.67   | + 6.65  | BO          | 0.583       | 54.1  | 116.3  |
|                                                           |     | (2.45)  | (7.36)  |             |             |       |        |
| 1.3. 1975                                                 | D = | 123.89  | + 12.74 | BO          | 0.645       | 59.2  | 322.9  |
|                                                           |     | (1.66)  | (7.70)  |             |             |       |        |
| 1.4. 1977                                                 | D = | 382.19  | + 14.48 | BO          | 0.581       | 44.0  | 492.5  |
|                                                           |     | (3.20)  | (6.63)  |             |             |       |        |
| 2. Increase in Total Deposits                             |     |         |         |             |             |       |        |
| 2.1. 1970-65 $\Delta D$ =                                 |     | 16.70   | + 6.97  | $\Delta BO$ | 0.506       | 39.9  | 46.2   |
|                                                           |     | (1.75)  | (6.32)  |             |             |       |        |
| 2.2. 1975-70 $\Delta D$ =                                 |     | 17.54   | + 3.44  | $\Delta BO$ | 0.332       | 13.9  | 94.4   |
|                                                           |     | (0.83)  | (3.72)  |             |             |       |        |
| Thailand                                                  |     |         |         |             |             |       |        |
| 3. Total Deposits                                         |     |         |         |             |             |       |        |
| 3.1. 1965                                                 | D = | 162.73  | + 19.77 | BO          | 0.596       | 42.4  | 197.1  |
|                                                           |     | (1.82)  | (6.51)  |             |             |       |        |
| 3.2. 1970                                                 | D = | 150.67  | + 41.13 | BO          | 0.676       | 59.5  | 903.3  |
|                                                           |     | (0.73)  | (7.71)  |             |             |       |        |
| 3.3. 1975                                                 | D = | - 51.89 | + 99.68 | BO          | 0.768       | 93.9  | 2324.6 |
|                                                           |     | (0.10)  | (9.69)  |             |             |       |        |
| 3.4. 1977                                                 | D = | -307.16 | +118.00 | BO          | 0.817       | 125.8 | 3152.8 |
|                                                           |     | (0.42)  | (11.22) |             |             |       |        |
| 4. Increase in Total Deposits                             |     |         |         |             |             |       |        |
| 4.1. 1970-65 $\Delta D$ =                                 |     | 43.54   | + 82.63 | $\Delta BO$ | 0.712       | 70.1  | 513.1  |
|                                                           |     | (0.40)  | (8.38)  |             |             |       |        |
| 4.2. 1975-70 $\Delta D$ =                                 |     | - 82.76 | +115.63 | $\Delta BO$ | 0.803       | 114.8 | 736.6  |
|                                                           |     | (0.50)  | (10.71) |             |             |       |        |
| Remarks:                                                  |     |         |         |             |             |       |        |
| 1) Nominal values are used in the cross-section analysis. |     |         |         |             |             |       |        |
| For the combined cross-section time-series analysis,      |     |         |         |             |             |       |        |
| the data are deflated by the GNP (GDP) Deflator.          |     |         |         |             |             |       |        |
| 2) Banks that merged are treated separately for the years |     |         |         |             |             |       |        |
| before the merger.                                        |     |         |         |             |             |       |        |
| 3) The figures in parentheses are t-ratios.               |     |         |         |             |             |       |        |
| Definitions:                                              |     |         |         |             |             |       |        |
| D - Total Deposits                                        |     |         |         |             |             |       |        |
| BO - Number of Offices                                    |     |         |         |             |             |       |        |
| Source of Basic Data:                                     |     |         |         |             |             |       |        |
| The Philippines - CBP, DER                                |     |         |         |             |             |       |        |
| Thailand - BOT, DER                                       |     |         |         |             |             |       |        |

### 3. Yield

In recent years, the interest rate policy in developing countries has received much attention. This is exemplified in the liberalization approach of McKinnon and Shaw.<sup>1</sup> Despite the effects of a policy of high interest rates in South Korea, Taiwan and Indonesia, the impact of an increase in interest rates on total savings remains unclear. The savings functions tested in Chapter III with interest rate as an independent variable rendered significant positive results only in the case of personal savings in the Philippines. However, in the presence of multicollinearity, the interest rate elasticity of savings is difficult to measure.

The positive influence of an increase in interest rates on savings in deposits, and thereby on the structure of savings, is more widely accepted.<sup>2</sup> The portfolio models that are applied to non-institutional investors in the Philippines and Thailand in Chapter V indicate that the interest rate structure is an important element in the determination of the structure of financial savings.

Despite this, both countries have paid little attention to the role of interest rates in the process of savings mobilization. This only changed during the seventies. The monetary authorities were mainly concerned with the cost of investment and consequently the interest rates on credit. Although capital is one cost factor among many in investment projects, interest rates represent the only domestic prices to be subjected to regulations.

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<sup>1</sup> Ronald I. McKinnon, *op. cit.*, and Edward S. Shaw, *op. cit.* See also Section II. C.2.a.

<sup>2</sup> See, for example, Edward M. Gramlich and David T. Hulett, *op. cit.*

In both countries, the interest rate ceilings were frequently ignored by banks and higher interest rates were offered to many customers. However, in the Philippines this proved insufficient to offset inflation during many years. Between 1960 and 1977, the average real rate of interest on time deposits was negative in eight years, whereas in Thailand it was negative in only four years.

Table 4.4. Real Rates of Interest on Savings and Time Deposits, 1960-77 (in per cent per annum)

| Year | The Philippines  |               | Thailand         |               |
|------|------------------|---------------|------------------|---------------|
|      | Savings Deposits | Time Deposits | Savings Deposits | Time Deposits |
| 1960 | - 2.51           | - 2.18        | - 0.91           | 2.74          |
| 1965 | - 0.13           | - 0.58        | - 1.51           | 2.01          |
| 1970 | - 8.79           | - 7.28        | 3.78             | 7.69          |
| 1971 | - 6.32           | - 5.08        | 4.94             | 9.07          |
| 1972 | - 0.70           | 0.54          | - 5.36           | - 1.79        |
| 1973 | -11.63           | -10.39        | -15.16           | -11.47        |
| 1974 | -25.22           | -22.82        | -14.54           | -10.32        |
| 1975 | - 1.95           | 2.09          | 2.15             | 6.02          |
| 1976 | - 0.65           | 4.18          | 0.58             | 4.39          |
| 1977 | - 1.60           | 3.26          | - 0.60           | 3.12          |

Remarks: The real rates of interest are computed by deducting the increase in the GNP deflator (GDP deflator for Thailand).

Source: See Statistical Appendix, B.3. and C.3.

The reluctance to save in deposits between 1971 and 1975 (the ratio of savings in deposits to total financial savings declined from 0.467 to 0.239) and the buoyancy of the money market as a consequence of the negative real deposit rates

led the monetary authorities in the Philippines to review their interest rate policy. A joint International Monetary Fund-Central Bank of the Philippines commission recommended that discretionary powers be granted to the Central Bank allowing it to adjust interest rates according to the prevailing economic situation.<sup>1</sup> This recommendation was based mainly on the findings of the Inter-Agency Committee on the Study of Interest Rates.<sup>2</sup> According to its report, the usury law of 1916, which imposed a maximum interest rate of 12 per cent per annum on secured and 14 per cent per annum on unsecured loans, has

- (1) led to a rigid and inefficient interest rate structure;
- (2) led to a distorted capital market;
- (3) hampered investment and capital formation;
- (4) prevented an optimal capital mix; and
- (5) induced a credit allocation that is inconsistent with development priorities.

The rather belated upward shift of the interest rate ceilings in July 1974 proved insufficient to render deposits attractive. Savings in deposit substitutes continued to grow more rapidly than those in deposits. The further increase in the prescribed maximum interest rates in January 1976 was therefore supplemented by the introduction of an interest rate ceiling for deposit substitutes. The marginal increase in savings deposits, the real rate of interest on which remained negative, and the significant increase in

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<sup>1</sup> See CBP, Recommendations of the Joint IMF-CBP Banking Survey Commission on the Philippine Financial System (Manila, CBP, 1972), pp. 35-6.

<sup>2</sup> See Republic of the Philippines, NEC, op.cit. pp. 25-7 and 33-5.



time deposits, which boasted high real rates of return in 1976 and 1977, demonstrates the sensitivity of savers to changes in interest rates.

Table 4.5. Peso Savings and Time Deposits at Commercial Banks, The Philippines 1975-78

| Year  | Savings Deposits        |                                                     | Time Deposits |                                                     |      |                         |
|-------|-------------------------|-----------------------------------------------------|---------------|-----------------------------------------------------|------|-------------------------|
|       | Total (Pm) <sup>1</sup> | with maturities of 2 years and less (Pm) (per cent) |               | with maturities of 2 years and less (Pm) (per cent) |      | Total (Pm) <sup>1</sup> |
| 7/75  | 5111.7 <sup>2</sup>     | 1108.8                                              | 81.4          | 253.4                                               | 18.6 | 1362.2                  |
| 12/75 | 4817.7                  | 1177.8                                              | 77.7          | 337.7                                               | 22.3 | 1515.5                  |
| 12/76 | 5511.0                  | 1648.6                                              | 62.5          | 989.1                                               | 37.5 | 2637.7                  |
| 12/77 | 6113.2                  | 2347.4                                              | 60.7          | 1517.7                                              | 39.3 | 3865.1                  |
| 6/78  | 6867.6                  | 2082.7                                              | 49.6          | 2152.9                                              | 50.4 | 4272.3                  |

Remarks: 1) In constant prices of 1972.

2) June 1975

Source: CBP, DER

In addition, the substantial investment in time deposits with maturities of more than two years, which from 1 January 1976 were no longer subject to an interest rate ceiling (in 1978, commercial banks offered between 12 and 20 per cent per annum according to maturity),<sup>1</sup> indicates the potential savings that may be mobilized if the determination of interest rates is left to market forces.

In Thailand, interest rate policy has been used less frequently than in the Philippines; but in general it has been more effective in the former country. The Bank of

<sup>1</sup> The data have been provided by CBP, DER.



Thailand adjusted deposit rates only twice during the period 1962 to 1977, in 1963 and 1974 by one percentage point downwards and upwards respectively. Unlike in most other developing countries, time deposits in Thailand, which in 1977 accounted for 79.5 per cent of all deposits, yielded a positive real rate of return in most years after 1960, averaging 2.83 per cent per annum.<sup>1</sup> This made deposits the most important form of financial savings.

The tax-exemption of interest income from deposits since 1962 has enhanced further the yield of deposits. Having accomplished its objective of promoting the banking habit, its abolition in 1977 was timely, since in addition to fiscal inequity and loss of revenue, it has led to a bias in savers' decisions against capital market instruments. The introduction of the 10 per cent tax on interest income is unlikely to bring about any sudden changes in the allocation of surplus funds. However, it was necessary to create ultimately a more balanced financial system.<sup>2</sup>

#### 4. Risk

The main risk involved in depositing money with a bank - aside from income uncertainty due to inflation - is the possible closure of the financial institution due to insolvency or mismanagement and the consequent loss of a large part of the deposit, if not all.

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<sup>1</sup> For the basic data, see Statistical Appendix, C.3.

<sup>2</sup> In 1977, the tax-exemption of deposits was abolished also in the Philippines. See Presidential Decree No. 1156, and Bureau of Internal Revenue, Revenue Regulations No. 8-77.

In the Philippines, in almost every year since 1967, one or more banks have closed. The following table is based on scattered information in the annual reports of the Philippine Deposit Insurance Corporation (PDIC) and does not claim to be complete. The cases that have been taken up by the PDIC for compensation of affected depositors are listed. This is likely to include nearly all closures as membership has been compulsory after 1969.

Table 4.6. Bank Closures in the Philippines, 1963-1977

| Year | Number of Banks |     |    |    |       | Number of Deposits<br>Affected | Amount of Deposits<br>Affected (P '000) |
|------|-----------------|-----|----|----|-------|--------------------------------|-----------------------------------------|
|      | cbs             | sbs | db | rb | other |                                |                                         |
| 1963 |                 |     |    | 1  |       | 28707                          | 2744.6                                  |
| .... |                 |     |    |    |       |                                |                                         |
| 1967 |                 |     |    | 1  |       | 95                             | 0.8                                     |
| 1968 | 1               | 1   |    | 2  |       | 55206                          | 55009.9                                 |
| 1969 |                 | 1   | 1  | 1  |       | 20158                          | 11824.5                                 |
| 1970 |                 |     |    | 1  |       | 592                            | 4.5                                     |
| 1971 |                 |     |    |    |       | -                              | -                                       |
| 1972 |                 | 1   |    | 4  | 1     | 144092                         | 30895.9                                 |
| 1973 |                 |     |    | 3  |       | n.a.                           | n.a.                                    |
| 1974 | 1               |     |    | 1  |       | n.a.                           | 121157.0 (cbs only)                     |
| 1975 |                 |     |    |    |       | -                              | -                                       |
| 1976 |                 |     |    | 1  |       | 889                            | 23.0                                    |
| 1977 | 1               |     |    |    |       | 157977                         | 207265.3                                |

Definitions: cbs - commercial banks  
sbs - savings banks  
db - private development banks  
rb - rural banks

Source: PDIC Annual Report, various issues; CBP, SRO.

All bank categories are affected by failures, but especially rural banks. Fifteen out of the twenty-three cases listed are rural banks and therefore special attention must be given to their vulnerability. Incompetent management and unsound bank practices are the major reasons for the frequent failures, in particular:<sup>1</sup>

- (1) board meetings are not attended by some directors and principal managers;
- (2) tight liquidity situations due to inadequate capital and poor financial management;
- (3) lack of fundamental management know-how on the part of the directors and principal officers;
- (4) unsound lending practices due to the fact that the bank is controlled by one family;
- (5) malpractices among principal officers;
- (6) inadequate and faulty internal control; and
- (7) ignorance with respect to the rules and regulations of the Central Bank.

Better supervision and greater care in the issuing of new licences are needed. Preventative measures should be given greater attention than remedies when bank failures have already occurred. The capital build-up programmes for the various categories of banks are a move in the right direction. However, because of the many types of financial institutions and limited supervisory resources in the Philippines, it seems almost impossible to rule out bank closures.

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<sup>1</sup> See Vilmo E. Gamao, 'Danger Signals That Spell Distress', CB, 2(1976), No. 1, 8-11, pp. 10-11.

Therefore the PDIC performs an important task. According to Republic Act 5517, all deposits amounting to ₱10000 or less are insured. Table 4.7 indicates the percentage of deposits covered by the insurance system.

Table 4.7. Distribution of Savings and Time Deposits at Commercial Banks by Size (per cent), The Philippines, December 1977

|                  | Savings Deposits |        | Time Deposits |        | Savings and Time Deposits |        |
|------------------|------------------|--------|---------------|--------|---------------------------|--------|
|                  | Number           | Amount | Number        | Amount | Number                    | Amount |
| ₱1000 and below  | 87.5             | 7.6    | 17.6          | 0.4    | 85.6                      | 5.1    |
| ₱1001 - 10000    | 10.3             | 18.0   | 56.3          | 11.3   | 11.5                      | 15.7   |
| ₱10001 - 50000   | 1.7              | 20.1   | 18.7          | 16.7   | 2.2                       | 18.9   |
| over ₱50000      | 0.5              | 54.3   | 7.4           | 71.6   | 0.1                       | 60.3   |
| Source: CBP, DER |                  |        |               |        |                           |        |

Owing to the very skewed distribution of deposits by size, nearly all savings deposits and three-quarters of the time deposits at commercial banks are covered through the PDIC, but only 25.6 per cent and 11.7 per cent respectively of the outstanding amounts. The objective of protecting small depositors is met. However, although in general large depositors are better informed about the condition of financial institutions and although they own more diversified portfolios than small depositors do, there is little justification to exclude the former from the deposit insurance scheme.

The PDIC pays off not only depositors of banks that had to be closed but also helps banks to overcome solvency problems through stand-by deposits, emergency loans or by

purchasing their assets.<sup>1</sup> Here again, rural banks are the prime customers of the PDIC together with stock savings and loan associations.

Since the establishment of the Bank of Thailand (BOT) no bank failures have occurred in Thailand. In several cases, the BOT took over the management of banks that were in difficulties. Furthermore, the government acquired shares of the banks until a take-over by a new owner group and a new management could be arranged.<sup>2</sup> In 1967, two banks were saved through their merger, which was primarily administered by the BOT. Since it is not the task of a central bank (except under special circumstances) to bail out banks, which are about to close down because of inefficient management or high risk transactions, the establishment of a security fund, like that in the Philippines, might be considered.

The above analysis suggests that a banking system with a wide variety of financial institutions, as in the Philippines, is more vulnerable and more difficult to supervise, given the scarcity of skilled supervisory personnel in developing countries. Possible advantages of a greater diversity are offset, to a certain extent, by a higher risk of bankruptcies. If new financial services are to be offered, monetary authorities might find it preferable to have them incorporated in existing institutions, rather than to add new institutions to the system.

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<sup>1</sup> See PDIC, Annual Report for the Year Ended December 31, 1973 (Makati, PDIC, 1974), p. 7.

<sup>2</sup> See Paul Sithi-Amnuai, Finance and Banking in Thailand, A Study of the Commercial System, 1888-1963 (Bangkok, Thai Wattana Panich, 1964), pp. 163-4.

## 5. Product Variation

Since deposits have become the most important form of personal saving in financial assets, efforts to enhance further the thrift habit as well as attempts to overcome some of the most pressing problems in development, such as housing, might be more successful if they are tied to deposits and variations thereof. Special deposit schemes could be the answer to some of the problems:

### (1) deposit schemes to induce regular saving

In order to make people save regularly, that is, deposit a certain minimum amount periodically, a lower minimum denomination, a higher rate of interest or special boni at the end of certain periods could be offered.

### (2) deposits for particular purposes

Investment in housing, education or special agricultural technologies that is conducive to national development could be increased by offering deposits especially meant for these purposes, which carry a higher than usual interest rate. Similarly, life insurance cover might be combined with a deposit scheme in order to overcome people's prejudices against insurance.

### (3) combined deposit/loan schemes

Regular saving and saving for special purposes could also be fostered by offering easier credit terms after a certain period or after a specific amount has been saved. The building societies in the United Kingdom and the Bausparkassen in the Federal Republic of

Germany operate such a system and have contributed substantially to overcome the housing shortage in both countries.<sup>1</sup>

In both the Philippines and Thailand, some of these suggestions have already been implemented. In the Philippines, educational trust plans (which are not strictly deposits) and schemes that include a combination of higher than usual interest rates, life insurance coverage and special credit terms are offered. Since they were only introduced in 1977, it is too early for an evaluation.

In Thailand, some commercial banks offer a lower than minimum denomination and special credit terms if a certain amount of money is saved each month. In 1949, the Government Savings Bank (GSB) introduced a deposit/insurance scheme. Furthermore, housing deposits have been offered by the GSB and the Government Housing Bank since 1969 and 1974 respectively. These entail the right to relatively cheap housing loans. Neither of these schemes has been successful. This is largely due to the lack of information provided to prospective depositors, which in turn - in the case of the GSB - is caused by lack of skilled staff, able to explain the special features of the deposits and to induce people to open such accounts. If the special schemes are to be made popular, the management of the respective banks must give marketing more attention.

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<sup>1</sup> In 1977, in the United Kingdom, 59.6 per cent of private sector deposits were held at building societies. See Central Statistical Office, Financial Statistics, No. 194 (June 1979), p. 112. In West Germany, housing deposits (Bauspareinlagen) comprised 17 per cent of all savings and time deposits in 1978. See Statistische Beihefte zu den Monatsberichten der Deutschen Bundesbank, Reihe 1, No. 7 (July 1979), pp. 71 and 93.



6. Information: A Study of the National Savings for Progress Campaign in the Philippines

Information policy is supposed to fulfil two important tasks: first, to make people aware of the existence of banks and the deposits they offer and to advise people of how to make use of the deposit services; second, to induce people to save, in particular to deposit money in banks rather than keeping their savings in currency or spending them on tangibles, by explaining the advantages of banks and deposits.

Surveys of banking habits in the Philippines and Thailand indicate that people do not lack information concerning banks and their mode of operation. Only a small percentage of those persons interviewed who did not save in banks explained this by their lack of knowledge of how to do so.<sup>1</sup> Therefore this analysis concentrates on the second task of information policy. In order to investigate the question, whether people can be induced to save or save more not only by offering more attractive financial instruments but also by providing various kinds of information on the importance of saving and depositing in particular, the National Savings for Progress Campaign is analyzed.

In view of the ambitious investment targets laid down in the development plan for 1973 to 1976, it was felt necessary to increase deposit mobilization substantially. Since the growth of deposits in the years prior to 1973 was regarded as far from satisfactory and insufficient to

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<sup>1</sup> See Unisearch, 'Project Save, Awareness and Attitude Enquiry' (CBP, mimeo, 1976), pp. 53-63.



achieve the capital formation target, a savings campaign was instituted. Its major objective as 'to mobilize savings in banks in order to accelerate capital formation for economic development through non-inflationary means'.<sup>1</sup> Specifically, a rate of increase of 6.9 per cent per annum in the amount of savings and time deposits was chosen as a goal.<sup>2</sup>

The means to achieve this objective comprised mainly advertising in newspapers, magazines and comics, as well as commercials on radio, television and in cinemas. In addition, posters, streamers, vest pins, T-shirts and raffle booklets were distributed so as to realize the widest possible dissemination of the main campaign slogan Ipagpatuloy ang Kaunlaran, Mag-Impok sa Bangko - Continued Progress Through Savings in Banks.

Furthermore, premium savings bonds have been introduced which offer a lottery benefit. Other suggestions like in-plant bank facilities for industrial payrolls, loan interest incentives for regular savers, tax incentives and broad based equity ownership have only been implemented to a minor extent.

From these activities, various others which took place during the period of the campaign and which affected substantially the characteristics of deposits have to be separated. First, and most important of all, interest rates on savings and time deposits have been raised in 1974 and again in 1976, although the original national savings mobilization programme suggested

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<sup>1</sup> CBP, Committee on Savings, 'Proposed National Savings for Progress Campaign: Program for Fiscal Year 1975-76 (CBP, mimeo), p. 9.

<sup>2</sup> See CBP, DER, 'National Savings Mobilization Program' (CBP, mimeo, 1973), pp. 4-6.

the retention of the interest rate structure.<sup>1</sup> Second, the expansion of the bank branch system has been accelerated. These activities cannot be considered to be part of the savings campaign. Rather, they represent measures which became necessary because of the general economic conditions. For example, the high inflation necessitated an upward adjustment of the interest rate ceilings.

The ultimate criterion for evaluating the savings campaign is the extent to which the targets for the number and amount of deposits have been met.

Table 4.8. Annual Targets and Actual Increases in Total Peso Savings and Peso Time Deposits of Banks, The Philippines, 1973-77

| Period                                                                                                                                                           | Increase in Number of Deposits (per cent) |        | Increase in Amount of Deposits (per cent) |        |             |        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|--------|-------------------------------------------|--------|-------------|--------|
|                                                                                                                                                                  | Target                                    | Actual | Target nominal                            | Actual | Target real | Actual |
| 6/73 - 6/74                                                                                                                                                      | 15                                        | 33.4   | 12                                        | 34.8   | 6.9         | - 4.1  |
| 6/74 - 6/75                                                                                                                                                      | 20                                        | 16.1   | 15                                        | 43.1   | 6.9         | 36.1   |
| 6/75 - 6/76                                                                                                                                                      | 10                                        | 12.4   | 10                                        | 28.9   | 6.9         | 20.3   |
| 6/76 - 6/77                                                                                                                                                      | 12                                        | 16.1   | 12                                        | 27.2   | 6.9         | 22.4   |
| 12/76 - 12/77                                                                                                                                                    | 15                                        | 11.8   | 20                                        | 21.4   | 6.9         | 13.5   |
| Remarks: The real rates of growth are computed by applying the consumer price index for Metro Manila.                                                            |                                           |        |                                           |        |             |        |
| Source: Based on Data from CBP, Committee on Savings, 'National Savings for Progress Campaign, Annual Report 1977' (CBP, mimeo), Annex B, Table 4, and CBP, DER. |                                           |        |                                           |        |             |        |

From the above data it would appear that the savings campaign has been highly successful. The targets for the increase in the number of deposits have been met in three of

<sup>1</sup> Ibid., p.10.

the five periods. Those for the nominal increase in the amount of deposits were achieved in all five periods. Indeed, they were substantially exceeded. Even after taking inflation into consideration, which the Committee on Savings invariably fails to do in its analysis, and confronting the actual real rates of growth with the original target of 6.9 per cent per annum, the notion of a successful campaign seems to be confirmed, although the real growth rates are somewhat less spectacular than the nominal ones.

However, the figures convey a false impression, for two reasons:

- (1) The data comprise total peso savings and peso time deposits, whereas the campaign is directed only at individuals, but not at government institutions and business enterprises. Therefore only the increase in deposits held by individuals should be evaluated.
- (2) The number and amount of deposits would have grown also in the absence of the savings campaign. The 'normal' rates of growth have not been taken into consideration, when the targets were set. If the campaign is to be regarded as effective, the rates of growth following the initiation of the campaign have to exceed the rates of growth prior to it.

Both criticisms are incorporated in the data presented in Table 4.9.

Table 4.9. Growth Rates of the Number and Amount of Peso Savings and Time Deposits held by Individuals, The Philippines, 1962-1977

| Period   | Increase in Number of Deposits (per cent)                                                                                                  |        |        | Increase in Amount of Deposits (real growth rate in per cent) |        |        |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|---------------------------------------------------------------|--------|--------|
|          | SD                                                                                                                                         | TD     | SD+TD  | SD                                                            | TD     | SD+TD  |
| 1967-62  | n.a.                                                                                                                                       | n.a.   | n.a.   | 108.52                                                        | 151.55 | 115.98 |
| 1972-67  | 98.47                                                                                                                                      | 66.91  | 98.20  | 31.12                                                         | 39.94  | 32.93  |
| 1977-72  | 100.83                                                                                                                                     | 620.06 | 104.59 | 22.90                                                         | 86.53  | 36.43  |
| Remarks: | The number of deposits includes those of commercial, savings and rural banks. The amount of deposits refers to all financial institutions. |        |        |                                                               |        |        |
| Source:  | Number - CBP, DER<br>Amount - See Statistical Appendix, B.1.                                                                               |        |        |                                                               |        |        |

The increase in the number of savings deposits during the period 1972 to 1977 was only marginally higher than that during the previous five years. The real rate of growth for the amount of savings deposits actually showed a decline. On the other hand, the increase in the number and amount of time deposits was markedly higher during the campaign compared with the period preceding it.

Whether the growth in time deposits can be attributed to the campaign must be doubted, however. Not until 1976 did peso time deposits pass the previous peak of 1972. The considerable increase in 1976 and 1977 was largely due to the upward adjustment in interest rates and the removal of interest rate ceilings on time deposits with maturities of more than two years.<sup>1</sup> Furthermore, since time deposits

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<sup>1</sup> See section IV.B.3.

with more than 10000 Pesos account for nearly 90 per cent of the total time deposits (commercial banks only),<sup>1</sup> any substantial increase in the amount deposited is likely to have accrued in the bracket of large deposits. It cannot be expected that savers with financial assets of this size let themselves be influenced by television commercials, posters or raffles.

If inflation is taken into account, the spectacular increases in deposits become less impressive. If in addition, the increases are compared with those of previous periods, the success of the campaign becomes suspect. Making people, and especially children, aware of the importance of saving and informing them of how to use banks are certainly important tasks. Various surveys that have been undertaken indicate that advertising and the other promotional activities have achieved this.<sup>2</sup> However, the increase in deposits can hardly be attributed to them. The improvement in the standard of living, the expansion of the branch network of financial institutions and the increase in interest rates were most probably the significant factors which brought about the increases.<sup>3</sup>

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<sup>1</sup> See section IV.B.4.

<sup>2</sup> See Unisearch, op. cit.; and Unisearch 'Project Tipid, Awareness and Attitude Enquiry' (CBP, mimeo, 1976).

<sup>3</sup> See section III.D.4.

C. Deposit Substitutes

1. Far-Reaching Changes in the Portfolio of Individual Investors Because of the Introduction of Deposit Substitutes

There is no generally accepted definition of deposit substitutes. Various criteria are used by which the substitutability of financial assets for bank deposits is determined.<sup>1</sup> For the purpose of this analysis the existing legal regulations are followed to define the relevant market. In the Philippines, deposit substitutes comprise promissory notes, repurchase agreements involving government or private sector securities, certificates of assignment or certificates of participation and contingent liabilities such as sales with recourse.<sup>2</sup> In Thailand, promissory notes constitute the main market for deposit substitutes.

The emergence of deposit substitutes has been the single most important development in the financial systems in the Philippines and Thailand during the sixties and seventies. In particular, in the Philippines, it led to dramatic changes in the portfolio decisions of investors (see Table 4.10.). Not only has saving in deposits been adversely affected (the proportion of personal savings in deposits declined from 46.5 per cent in 1970 to 24.9 per cent in 1975), but also that in corporate shares and bonds. Investment in deposit

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<sup>1</sup> See International Monetary Fund, 'The Philippine Financial System, Market for Deposit Substitutes, and a Monetary Policy Framework' (CBP, mimeo, 1977), pp. 25-33.

<sup>2</sup> See Sec. 567.3, in: CBP, Manual of Regulations on the Supervision of Financial Intermediaries, Vol. 1 (Quezon City, reprinted by U.P. Business Research Foundation), pp. 228-9.

substitutes was so attractive that owners of life insurance took up policy loans to invest in the money market. The competition from deposit substitutes forced banks to expand their range of services. Furthermore, the monetary authorities in the Philippines were induced to review their policy with respect to the mobilization and allocation of funds and to assume a more active role in the development of the capital market.

Table 4.10. Personal Savings in the Form of Deposit Substitutes, 1967-1977

| Year         | The Philippines                                                                               |                    |       | Thailand                |                    |       |
|--------------|-----------------------------------------------------------------------------------------------|--------------------|-------|-------------------------|--------------------|-------|
|              | DS<br>(Pm) <sup>1</sup>                                                                       | DS/D<br>(per cent) | DS/FA | DS<br>(Bm) <sup>1</sup> | DS/D<br>(per cent) | DS/FA |
| 1967         | 20.8                                                                                          | 1.78               | 1.01  | 18.8                    | 0.77               | 0.44  |
| 1970         | 267.0                                                                                         | 28.90              | 11.33 | 152.1                   | 4.50               | 2.27  |
| 1973         | 778.9                                                                                         | 56.52              | 22.42 | 1193.8                  | 15.76              | 7.77  |
| 1974         | 834.7                                                                                         | 81.90              | 21.77 | 2054.1                  | 23.51              | 13.39 |
| 1975         | 788.1                                                                                         | 98.41              | 23.52 | 670.4                   | 8.34               | 5.86  |
| 1976         | 83.3                                                                                          | 4.70               | 2.19  | 1605.8                  | 15.59              | 9.96  |
| 1977         | 266.3                                                                                         | 13.23              | 6.78  | 2488.6                  | 20.12              | 13.27 |
| Remarks:     | 1) In constant prices of 1969.                                                                |                    |       |                         |                    |       |
| Definitions: | DS - Deposit Substitutes (including Treasury Bills)<br>D - Deposits<br>FA - Financial Savings |                    |       |                         |                    |       |
| Source:      | See Statistical Appendix, B.1. and C.1.                                                       |                    |       |                         |                    |       |

While in 1967 deposit substitutes still accounted for only an insignificant proportion of personal savings in financial assets, they became the most important financial asset in the Philippines in 1974 and 1975 when they comprised nearly the same amount as all deposits together. Large



depositors reorientated their investments and participated in the money market. The measures to suppress the market<sup>1</sup> became partly effective in 1976 as can be seen from the sharp decline in the proportion of financial savings in this form.

In Thailand, deposit substitutes also gained rapidly in importance after 1967, but never reached the same significance as in the Philippines, because competitive interest rates were offered on deposits. The ratio of savings in deposit substitutes to financial savings reached a high point in 1974. Yet, even then they only amounted to less than one fourth of savings in deposits, underlining again the overwhelming importance of deposits in Thailand. Unlike in the Philippines, in Thailand no measures were taken against investment in deposit substitutes and they continued to play a significant, though erratic, role in the mobilization of personal savings.

## 2. Accessibility

In the Philippines, deposit substitutes are offered by non-bank financial intermediaries as well as by commercial banks. Although the former institutions are actively discouraged from establishing branches, the widespread network of commercial banks ensures that accessibility to deposit substitutes is not limited to Metropolitan Manila.

In Thailand, on the other hand, savers outside the Bangkok area are essentially excluded from the market for deposit substitutes, since the finance and securities companies

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<sup>1</sup> Details are discussed in the following sections.



which offer these instruments are concentrated in the capital city. The establishment of further provincial offices is prohibited because of alleged difficulties in supervising such offices. This, however, cannot be a valid reason to exclude savers in provincial areas from investment opportunities. The attempts by some finance and securities companies to have the regulation relaxed or even abolished have been without success so far.<sup>1</sup>

In addition to restrictions with respect to the spatial accessibility of deposit substitutes, regulations concerning the minimum amount further limit the number of investors who are able to purchase these financial instruments.

In the Philippines, as of 1 July 1976, the minimum size of any single deposit substitute transaction was fixed at ₱200000 for maturities of 730 days or less, and at ₱100000 for maturities exceeding that period.<sup>2</sup> The objective of this measure is threefold: first, it is meant to curtail the money market in general, second, the monetary authorities hoped to stabilize the money market rates with the variety of regulations that included the increase in the minimum denomination, and third, the lower denomination for deposit substitutes with maturities of more than two years is aimed at the development of a long-term securities market.

The objectives are not likely to be met, as they are directed at the symptoms and not at the causes of the expansion

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<sup>1</sup> See 'Finance Firms in Plea for Business', BP, 32(1978), No. 149, pp. 15 and 22.

<sup>2</sup> See CBP, Circular No. 495, 2 January 1976, in: CBP, 28th Annual Report 1976, pp. 246-7.

of the money market, the volatility of interest rates and the short-term nature of deposit substitutes. Already before the imposition of higher minimum denominations, almost 90 per cent of the placements in the money market amounted to ₱200000 or more. The regulation, therefore, could hardly be expected to lead to a significant decline in investments in the money market. The data on transactions during December of 1975, 1976 and 1977 indicate that the total volume was not affected and continued to rise.

Table 4.11. Volume of Money Market Transactions Classified by Size of Placement, The Philippines, 1975-1977

| Size<br>(₱'000)   | December 1975<br>(per cent) | December 1976<br>(per cent) | December 1977<br>(per cent) |
|-------------------|-----------------------------|-----------------------------|-----------------------------|
| less than 100     | 6.37                        | 0.89                        | 0.88                        |
| 100-199           | 5.68                        | 3.25                        | 2.36                        |
| 200-2000          | 39.57                       | 39.17                       | 32.24                       |
| over 2000         | 48.38                       | 57.71                       | 64.51                       |
| Total Volume (₱m) | 15888.6                     | 17122.7                     | 20008.1                     |

Source: CBP, Philippine Financial Statistics, various issues.

The regulation might also enhance the volatility of the money market rates rather than help to stabilize them, since it leads to a decrease in the number of investors operating in the market and an increase in the average size of placement, so that the position of a small number of investors is strengthened and thereby their impact on the market. Furthermore, many individual investors who are now excluded from money market transactions tended to renew their investment at the time of maturity to a much greater extent

than institutional investors and therefore provided a particularly stable source of funds.<sup>1</sup>

The discrimination between placements of maturities of less than 730 days and those exceeding 730 days is not likely to foster the development of the capital market, as long as this does not offer the liquidity which makes deposit substitutes so attractive. It can hardly be expected that funds which are denied these investment opportunities will be invested in financial assets which are officially more desirable, like deposits or bonds. On the contrary, investment might take place in tangible assets or in the unorganized money market, so that deficit units with worthwhile projects will find it difficult to obtain the necessary external funds. In addition, financial institutions are likely to find ways of circumventing the regulation whenever necessary.

Although the market for deposit substitutes has also grown rapidly in Thailand in recent years, it is of lesser importance than in the Philippines and accordingly less restrictive regulations are taken. This point will be further emphasized in the analysis of interest rates. The minimum size for promissory notes prescribed by the Bank of Thailand is 50000 Baht for Bangkok and two neighbouring changwats and 10000 Baht in the other provinces.<sup>2</sup> As in the

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<sup>1</sup> See International Finance Corporation, 'Scope and Prospects for the Establishment of a Securities Market Liquidity Mechanism in the Philippines' (CBP, mimeo, 1976), p.9.

<sup>2</sup> In defiance of this regulation, smaller finance companies accept funds amounting to only 1000 Baht.

Philippines, there are no convincing reasons for prescribing a minimum denomination. Such regulations only ensure that remunerative financial assets are concentrated further in the hands of households with a high net worth, intensifying the uneven income and wealth distribution.

### 3. Yield

The high interest rates offered on deposit substitutes represent their most prominent feature and are the major reason for the large amount of funds mobilized through these financial instruments. Unlike the interest rates on deposits, they were not subject to regulations by monetary authorities - this has changed in the Philippines in 1976<sup>1</sup> - and reflected lenders' and borrowers' perception of the scarcity of funds.

Table 4.12. Interest Rates on Deposit Substitutes and Time Deposits, 1967-77 (in per cent per annum)

| Year | The Philippines     |             |                  | Thailand      |             |                  |
|------|---------------------|-------------|------------------|---------------|-------------|------------------|
|      | Nominal Rates<br>TD | Rates<br>DS | Real Rates<br>DS | Nominal<br>TD | Rates<br>DS | Real Rates<br>DS |
| 1967 | 6.09                | 11.13       | 4.65             | 6.80          | n.a.        | n.a.             |
| 1968 | 6.55                | 13.22       | 8.21             | 6.87          | n.a.        | n.a.             |
| 1969 | 6.21                | 13.72       | 9.16             | 6.79          | 9.50        | 9.61             |
| 1970 | 6.56                | 15.13       | 0.81             | 7.07          | 9.50        | 10.12            |
| 1971 | 7.04                | 13.91       | 1.59             | 7.34          | 9.75        | 11.47            |
| 1972 | 7.24                | 14.91       | 8.21             | 7.38          | 8.94        | - 0.23           |
| 1973 | 7.24                | 10.10       | - 7.53           | 7.80          | 8.81        | -10.46           |
| 1974 | 8.42                | 17.50       | -13.74           | 8.27          | 10.50       | - 8.09           |
| 1975 | 10.09               | 15.23       | 7.23             | 8.04          | 10.25       | 8.24             |
| 1976 | 11.88               | 13.02       | 5.31             | 8.01          | 10.56       | 6.95             |
| 1977 | 11.91               | 12.58       | 3.92             | 8.13          | 10.06       | 5.06             |

Remarks: Real rates are computed by deducting the increase in the GNP deflator (GDP deflator for Thailand).

Definitions: TD - Time Deposits. DS - Deposit Substitutes

Source: See Statistical Appendix, B.3. and C.3.

<sup>1</sup> See CBP, Circular No. 493, 2 January 1976, in CBP, 28th Annual Report 1976, pp. 243-4.

Although deposit substitutes did not provide a complete hedge against inflation in either country, they offered a substantial yield advantage over ordinary deposits, in particular in the Philippines where the average interest rate on deposit substitutes was twice as high as that on time deposits during several years. This led many savers to change their portfolio in favour of deposit substitutes (the ratio of savings in deposit substitutes to financial savings increased from 0.010 in 1967 to 0.236 in 1975) and attracted much criticism and ill-defined anxieties in the Philippines.

It was felt - particularly during 1974 and 1975 - that money market rates were too high and indeed had led to a situation where short-term interest rates exceeded those for long-term securities.<sup>1</sup> The volatility in the money market rates was blamed on speculation and regarded as an additional obstacle to the development of a bond market.

A closer look at the money market and the financial system in general, however, reveals that the high interest rates reflected above all the tightness in the monetary policy and the upsurge in inflation starting with the seventies. They were necessary to mobilize the financial savings needed to meet the demand for credit and investment. An inverted yield curve can only be constructed, if money market rates are compared with interest rates on subsidized loans extended by the Development Bank of the Philippines or the artificially low return on government securities. The yields of long-term

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<sup>1</sup> See, for example, Edita A. Tan, 'A Note on Central Bank Regulations of the Financial System', PRBE, 13(1976), 25-42, p. 30.

securities, which were not subject to regulations or subsidies but determined by the prevailing market, were substantially higher and exceeded those on money market instruments.<sup>1</sup>

Although the interest rates on deposit substitutes showed substantial monthly or even daily fluctuations, a comparison of the coefficient of variation between Philippine money market rates and those in major industrial countries indicates that the Philippine market was not especially volatile.<sup>2</sup> The fluctuations are to be attributed mainly to the tightness in monetary policy, which induced commercial banks to borrow heavily in the money market to make up for reserve deficiencies, rather than to speculation.<sup>3</sup> The uncertainties they created could not remain without influence on the expectations and preferences of lenders and borrowers and might have been detrimental to the bond market. This, however, never displayed much activity even during the sixties, when the volume of deposit substitutes outstanding was still insignificant.

In 1976 and 1977, a package of measures was devised aimed at re-channelling funds from the money market, stabilizing money market rates and enabling the development of a long-term securities market. The two most important results were: first, the introduction of an interest rate

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<sup>1</sup> See also International Finance Corporation, op. cit. pp. 10-15.

<sup>2</sup> See International Monetary Fund, op. cit., p. 71.

<sup>3</sup> See Edita A. Tan, op. cit., pp. 39-40; and International Finance Corporation, op. cit., pp. 15-17.

ceiling of 17 per cent on some types of deposit substitutes with maturities of 730 days or less and,<sup>1</sup> second, the imposition of a 35 per cent tax on all money market transactions.<sup>2</sup>

Again, it has to be emphasized that the regulations fail to tackle the underlying causes that led to the money market and its problems, as are discussed above. The differentiation between various types of deposit substitutes is likely to bias the flow of funds between lenders and borrowers in ways not favourable to the development process. If money market rates tend to exceed the ceiling in the future, the regulations could lead to credit rationing and the expansion of the unorganized money market and thereby suppress saving and investment.

The large increase in deposits, particularly time deposits, the stagnation in the amount of deposit substitutes outstanding and the decline in the money market rates after 1975 might suggest that the measures taken by the monetary authorities have brought about the desired results.<sup>3</sup> The interest rate ceiling on deposit substitutes supplemented by ceilings on the rates for loans and receivables have indeed led some financial institutions to reduce their money market activities. Instead, many quasi-banks have resorted to pure

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<sup>1</sup> See CBP, Circular No. 493, op. cit. This has been amended by CBP, Circular No. 585, 24 December 1977, in: CBP, 29th Annual Report 1977, pp. 369-70, which prescribes a ceiling of 16 per cent per annum effective 1 January 1978 and of 15 per cent per annum effective 1 July 1978. These are supposed to be effective rates, including the 35 per cent tax on money market transactions.

<sup>2</sup> See Presidential Decree No. 1154, and Bureau of Internal Revenue, Revenue Regulations No. 7-77.

<sup>3</sup> See Statistical Appendix, B.1. and B.3.



brokerage between lenders and borrowers which renders the intermediation process much more difficult.<sup>1</sup> Since these are off-balance sheet activities, the relative decline in the money market seems exaggerated. Institutions which lack the expertise and clientele for brokerage circumvented the interest rate ceilings with various methods, such as prepaid interest and alternative amortization schedules. Because of the liquidity of the monetary system, such activities remained grey zones in the financial system rather than leading to the development of a black market.

The increase in time deposits occurred mainly in accounts with maturities exceeding two years which are not subject to any interest rate ceilings.<sup>2</sup> This underlines the importance of a market-oriented interest rate policy. By offering attractive interest rates, savers were induced to invest again in time deposits. The restrictions placed on the money market were only of minor importance.

In Thailand, the underlying economic conditions (ample liquidity, double-digit inflation during only two years and continued growth of savings in deposits) were such that deposit substitutes were not regarded as a threat to the development of the financial markets in general. The mobilization of savings through promissory notes has not been hampered by interest rate ceilings. Income from these financial assets is taxed at source and the imposition of the tax follows the usual pattern of income taxation rather than being an instrument to suppress the market.

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<sup>1</sup> See Bancom Development Corporation, Report for 1977 (Makati, Bancom, 1978), pp. 2 and 8.

<sup>2</sup> See section IV.B.3.



The experience with deposit substitutes in Thailand confirms further the earlier argument that the introduction of such instruments and the level of interest rates offered are not the cause of distortions in the financial system. Rather, deposit substitutes emerge because the needs of borrowers and lenders have not been met by the existing financial instruments.

If the financial system is sufficiently liquid, as it has been in Thailand during most years, the interest rates on deposit substitutes will be only marginally higher than those on deposits. On the other hand, in an economy, which is characterized by a scarcity of funds and high and volatile inflation, deposit substitutes will yield substantially higher returns than deposits. In addition, they will induce substantial changes in investors' portfolios, especially when the nominal rates of interest on deposits are pegged at artificially low levels, as did happen in the Philippines.

#### 4. Risk

The market for deposit substitutes developed largely unregulated in the Philippines and Thailand. Non-bank financial intermediaries, which introduced these financial instruments during the sixties, were not placed under the supervision of the respective central banks before 1972.<sup>1</sup> Regulations concerning minimum capital requirements, risk asset/capital ratios and liquidity ratios were supplemented

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<sup>1</sup> See (Republic of the Philippines) Presidential Decrees No. 71 and 72; and (Government of Thailand) 'Regulations Governing Finance and Securities Companies', translation of 'Notification of the Ministry of Finance', in: Government Gazette, Vol. 89, Part 141, 22 September 1972.

in the following years by restrictions on lending and reserve requirements (in the Philippines only).<sup>1</sup> Due to lack of expertise and personnel, however, supervision and examination remained far from being comprehensive and thorough. Still, as of the beginning of 1976, only half of the registered finance and securities companies in Thailand submitted the required reports and few of those that were submitted could be checked.<sup>2</sup>

The lack of supervision did not deter investors in the Philippines. According to bankers interviewed, people did not pay particular attention to differences in the risk of deposit substitutes offered by the various financial institutions until a commercial bank had to close down in 1974 because of inefficient money market management. High yields attracted people irrespective of the risk involved. In order to ensure the soundness of the financial system, institutions that lack the capital funds and management skills needed, in particular finance companies, have been phased out by the monetary authorities and more will have to follow in the future.

The risk factor is the major reason that deposit substitutes in Thailand did not penetrate the market for deposits to the extent they did in the Philippines. While nearly all commercial banks are regarded as trustworthy by

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<sup>1</sup> See CBP, Circular No. 496 and 497, 2 January 1976, in: 28th Annual Report 1976, pp. 247-9.

<sup>2</sup> See 'Burgeoning Finance Companies', TI, 8(1976), No. 1, 11-28, p. 16.

the general public, most finance and securities companies lack the public confidence needed to attract large funds. The major companies are partly or fully owned by domestic or foreign banks and consequently the promissory notes they issue carry little risk. However, among the 130 finance and securities companies authorized as of December 1977, many are considered to provide highly risky financial instruments and investors are advised to be careful.<sup>1</sup>

The bankruptcy of a major finance company and the subsequent run on some other institutions in 1979 underlines the weakness of the sector.<sup>2</sup> After the expiry of the five-year grace period granted to existing companies in 1972 to comply fully with the legal requirements, it is up to the Bank of Thailand to enforce the regulations and make unsound companies cease operation.

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<sup>1</sup> Ibid., pp. 15-17.

<sup>2</sup> See 'New Strains on Banking', FT, 18 December 1979, p. 16.

## D. Long-Term Debt Securities

### 1. Insufficient Resources to Satisfy Long-Term Capital Needs

The current development plans for the Philippines and Thailand as well as the long-run development projections for both countries include a multitude of large projects with long gestation periods. These require long-term funds which have to be mobilized above all through the capital markets, since the banking systems concentrate on short-term credit and are reluctant to commit their resources for more than one year. The capital requirements of the development processes and the existing structure of financial savings in the Philippines and Thailand contrast sharply. The markets for long-term debt instruments and equity shares, which are supposed to provide long-term funds, have so far been rather inactive.

Table 4.13. Personal Savings in the Form of Long-Term Debt Securities, 1950-1977

| Year | The Philippines                           |                    | Thailand                                  |                    |
|------|-------------------------------------------|--------------------|-------------------------------------------|--------------------|
|      | Bonds and Debentures<br>(Pm) <sup>1</sup> | B/FA<br>(per cent) | Bonds and Debentures<br>(Bm) <sup>1</sup> | B/FA<br>(per cent) |
| 1950 | 0.2                                       | 0.04               | 23.5                                      | 1.77               |
| 1955 | 1.3                                       | 0.40               | 14.7                                      | 1.08               |
| 1960 | 6.0                                       | 0.97               | 162.7                                     | 8.64               |
| 1965 | 0.9                                       | 0.07               | 208.2                                     | 5.75               |
| 1970 | - 4.0                                     | - 0.17             | 81.0                                      | 1.21               |
| 1975 | 25.5                                      | 0.76               | 20.5                                      | 0.18               |
| 1977 | 19.8                                      | 0.50               | 59.7                                      | 0.32               |

Remarks      1) In constant prices of 1969.

Definitions: FA - Financial Savings

Source:        See Statistical Appendix, B.1. and C.1.

In both countries, the share of personal saving in form of corporate and government bonds and debentures has been very small, if not negligible, in most years.<sup>1</sup> Vigorous efforts are needed to strengthen the capital markets, if they are to provide an important source of long-term funds.

## 2. Accessibility

### a. Supply

The large amounts of government bonds outstanding (in 1977, P21276.0 million in the Philippines and P54696.2 million in Thailand)<sup>2</sup> indicates that there is no lack of long-term debt securities. However, these are primarily sold through forced investment regimes, while the rest is retained largely by the respective central banks. In both countries, hardly any efforts are made to take a market-oriented approach and penetrate private investment portfolios. As government securities often serve as an introductory instrument to the securities market, this should be of particular concern. Many savers with moderate net worth prefer to invest initially in government securities, since these appear, in general, more default free than private securities. An inadequate supply of attractive government bonds can consequently stifle the development of the overall market

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<sup>1</sup> This is a phenomenon shared with many other developing countries. In India, for example, bonds and debentures comprised less than 3.5 per cent of gross household savings between 1970 and 1976. See Reserve Bank of India, Report on Currency and Finance, Vol. 2 (1977-78), p.10.

<sup>2</sup> The data have been provided by CBP, DER and BOT, DER.

for bonds and debentures. This problem has been recognized finally in the Philippines, where efforts are underway to rationalize the market for government securities,<sup>1</sup> and in Thailand, where steps are taken to tap the funds of non-banks. The specific measures that have been introduced are discussed in the following sections.

The Philippine and Thai markets for corporate bonds and debentures are similarly underdeveloped. Until 1977, the number of issues has been small and the opportunity for investment therefore very limited. Between 1967 and 1977, an estimated 41 bonds worth P709.6 million were issued in the Philippines.<sup>2</sup> During the same period, an estimated 30 issues involving P799.0 million can be recorded in Thailand.<sup>3</sup> These represent insignificant amounts compared with the loans granted by commercial and other banks.

For individual investors the picture looks even worse than the above figures indicate. According to managers of the leading investment house in the Philippines, the first truly public offering occurred only in 1977. Previous issues were mostly private placements for which the Securities Exchange Commission (SEC) requires a maximum number of 19 investors. This effectively excluded individual investors, as these were unwilling to acquire a large amount of an illiquid security. In Thailand, on the other hand, individual

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<sup>1</sup> See Joint Department of Finance-Central Bank Committee, 'A Report on the Rationalization of Yields and Terms of Government Securities' (CBP, mimeo, 1975).

<sup>2</sup> Estimated on the basis of the 'List of Bonded Indebtedness', in: SEC, Investment Research and Statistics Department, 'A Study of Long-Term Financing: The Philippines Bond Market' (SEC, mimeo, 1976).

<sup>3</sup> For method of estimation, see Statistical Appendix, C.1.

investors have acquired approximately 30 per cent of the amount issued.<sup>1</sup>

In the Philippines, the lack of corporate bonds and debentures can be traced to several problems that have arisen on the side of the borrowers as well as that of the intermediaries and lenders:

- (1) The availability of cheap, subsidized loans from special financial institutes, in particular the Development Bank of the Philippines (DBP), prevents corporations from seeking funds through the issue of securities. This obstacle could be overcome, if the DBP is allowed to provide subsidized loans only for projects with a high social but low private rate of return.
- (2) Because of lengthy procedures to obtain approval of the SEC, bond issues are a time-consuming and costly undertaking. Through simplified processing methods implemented in 1978, the SEC hopes to cut the application time by almost two-thirds, thus removing the obstacle of administrative delays.<sup>2</sup>
- (3) The maximum commission of investment houses for long-term securities is 5 per cent. Compared with the interest margin of money market transactions, this is quite unfavourable. In addition, the large secondary market for deposit substitutes provides substantial income for investment houses, while the market for long-term

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<sup>1</sup> Estimated on the basis of information by two leading finance and security companies.

<sup>2</sup> See 'SEC Simplifies Processing of Bond Issues to Help Promote Long Term Capital Market', SEC Weekly Bulletin, 7(1978), No. 17, p.1.



securities is still very thin and hardly remunerative. An increase in the commission would make underwriting more attractive.<sup>1</sup>

- (4) In order to enlarge the number of underwriting institutions, brokerage firms that are limited so far to best effect underwriting, which is more uncertain and less accepted, could be allowed to take up firm underwriting.<sup>2</sup>
- (5) Investment regimes that force government financial institutions, banks and insurance companies to purchase low interest government bonds limit the amount of private long-term securities these institutions can purchase. Not only for this reason, the government is advised to offer in general securities at prevailing market conditions and to leave investors the choice between different types of securities.
- (6) Long-term financial assets are made less attractive than short-term financial assets through a biased fiscal treatment. The tax on income from interest on money market instruments is not deducted at source and tax evasion through under-reporting is widespread. Interest and dividends on long-term financial assets instead are directly reported to the Bureau of Internal Revenue and thereby become fully taxable. The 35 per cent tax levied on money market instruments in 1977 is

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<sup>1</sup> See SEC, Investment Research and Statistics Department, op. cit., p. 118.

<sup>2</sup> Ibid.



largely borne by the borrower and does not provide the necessary remedy. The authorities might consider a tax levied on all financial instruments which is withheld at source and the rate of which declines with increasing maturity.

Relatively easy access to short-term loans, which are in general rolled over, represents the major obstacle to corporate issues in Thailand. The extremely conservative lending practices of commercial banks make only prime companies eligible for loans. Large surplus funds on part of the commercial banks are a consequence of this policy. If less strict criteria were to be applied in the extension of loans and if the roll-over of short-term credits were handled with more discretion, prime customers might be induced to seek long-term funds through the issue of bonds and debentures. This would not only help to develop the market for long-term securities, but it would also help to overcome the uneven distribution of loans among borrowers of different standing.

#### b. Sales Outlets

Except in the case of Premyo Savings Bonds (PSB) and Central Bank Certificates of Indebtedness (CBCI) which are marketed through a large sales network comprising all commercial banks, several savings and development banks and various other institutions,<sup>1</sup> government bonds in the Philippines are not readily available in provincial areas.

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<sup>1</sup> See CBP, Securities Marketing Department, 'Annual Report 1976' (CBP, mimeo), p. 6.

Similarly, accessibility to corporate bonds is limited to the branch network of the respective underwriters, although, of course, interested investors can contact them directly by telephone or mail. Commercial banks with their branch network could provide the extensive system of sales outlets needed to reach potential savers. However, more attractive sales premiums than in the case of PSB and CBCIs should be offered. Otherwise the banks will continue to regard the sale of securities as an undesired duty and will make insufficient efforts to market them.<sup>1</sup> The establishment of an extensive and efficient dealer/broker network is a necessary condition to make bonds and debentures more popular.

In Thailand, government bonds can be purchased at the Bank of Thailand, its branches and provincial treasury departments. This is clearly insufficient, especially since the treasury departments took no initiative to popularize the securities, as they received no sales premium. From October 1978 onwards, a premium of 0.1 per cent of sales is offered. Furthermore, considerations are under way to extend the sales network to include commercial banks and the Government Savings Bank (GSB). Managers of commercial banks that were interviewed showed little interest in the sale of government bonds, since they are afraid that the securities will compete with deposits. A combination of moral suasion and attractive sales premium might overcome their reluctance.

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<sup>1</sup> Ibid., pp. 19-20 and 22.

The GSB is also unwilling to sell government bonds for the premium of 0.1 per cent that has been offered. An analysis of the methods used to disseminate Premium Savings Certificates (PSC) that are issued by the GSB indicates that the GSB branch network would not provide the efficient sales outlets that are needed. The many offices, particularly in the provincial areas, ensure that PSCs, which represent approximately 60 per cent of all debt securities held by individuals,<sup>1</sup> are readily available. The procedure involved in the purchase of PSCs is, however, very cumbersome and possibly distracts many interested investors. All applications for PSCs have to be sent to the head office in Bangkok so that there are substantial delays until the documents are issued. According to GSB officials, it takes about two weeks, but waiting periods of one month or more also occur. A customer has to sign up to eight forms before he finally receives his certificate. Already in 1963, an adviser from the United Nations suggested stocking blank certificates at all branches and agencies, which would imply no risk.<sup>2</sup> This procedure would make PSCs more attractive and might help to overcome the stagnation in sales after 1973.<sup>3</sup> Unless measures are taken to simplify the distribution system of the GSB it does not appear advisable to use its branch network as sales outlets for government bonds.

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<sup>1</sup> See Statistical Appendix, C.1.

<sup>2</sup> See 'Recommendations for a Revised System for Issuing Small Denomination Securities by the Government Savings Bank of Thailand', in: 'Reports from Mr. Henry Houston, U.N. Adviser to Government Savings Bank, Thailand, January 1963 - December 1964' (GSB, mimeo).

<sup>3</sup> See Statistical Appendix, C.1.

As in the Philippines, accessibility to corporate bonds and debentures in Thailand is confined largely to the metropolis. Direct contacts to the head offices of the finance and securities companies which act as underwriters - through mail or by telephone - overcome in general the limitations of the branch network. However, the inclusion of commercial banks in the dealer/broker system would greatly benefit the marketing process.

c. Denomination

The amounts of bonds and debentures which are accessible to the majority of savers is further limited by the fixture of high denominations. This holds true especially for the Philippines, as can be seen from the following table.

Table 4.14. Minimum Denominations of Bonds and Debentures, 1970-1977

| The Philippines                                                                                                                                        |               | Thailand        |             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|-----------------|-------------|
| CB                                                                                                                                                     | ₱1000 - 1 mio | CB              | ฿100-100000 |
| GB - CBCI                                                                                                                                              | ₱10000        | GB              | ฿100        |
| - Treasury Notes                                                                                                                                       | ₱5000         |                 |             |
| - PSB                                                                                                                                                  | ₱10           | GEB             | ฿1000       |
| OB - DBP Bonds                                                                                                                                         | ₱10000        | OB - PSC        | ฿20         |
| - LBP Bonds                                                                                                                                            | ₱500          | - Savings Bonds | ฿20         |
| Defininitions: CB - Corporate Bonds and Debentures<br>GB - Government Bonds<br>GEB - Government Enterprise Bonds<br>OB - Other Bonds                   |               |                 |             |
| Source: The Philippines - SEC and CBP, DER<br>Thailand - <u>Securities Exchange of Thailand Handbook, 1977-78</u> , op. cit., pp. 128-9; and BOT, DER. |               |                 |             |

In the Philippines, except for Premyo Savings Bonds (PSB) and bonds issued by the Land Bank of the Philippines (LBP), long-term debt securities are only within the reach of very few savers. Even the Central Bank Certificates of Indebtedness (CBCI), which were initially meant to tap the surplus funds of households, have been priced so as to exclude non-institutional investors from the market. A minimum denomination of ₱10000 was set to avoid competition with bank deposits. However, if an active bond market is to be developed, such competition is inevitable. In order to enlarge the number of potential investors in the bond market, it is therefore essential to lower the minimum denominations.

In Thailand, minimum denominations are fixed at levels that enable the majority of savers to invest in bonds and debentures. Government bonds and approximately 50 per cent of the corporate securities are sold at 100 Baht. This is equal to the minimum denomination of savings deposits at commercial banks.

### 3. Liquidity

A few minor exceptions notwithstanding, the secondary market for government and corporate bonds and debentures is almost non-existent. As of December 1977, no long-term debt securities were listed on either the Manila or Makati Stock Exchanges. The last trading activity was recorded in 1970 worth a mere ₱4.0 million.<sup>1</sup> In Thailand, the number of listings

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<sup>1</sup> The data have been provided by the SEC, IRSP.

has increased steadily since the Securities Exchange of Thailand (SET) started operation in April 1975.

Table 4.15. Number of Corporate Debentures and Government Bonds Listed on the SET and Their Trading Activity, Thailand 1975-1977

| Year                                                                    | Corporate Debentures <sup>1</sup> |              | Government Bonds <sup>2</sup> |              | Government Enterp. Bonds |              |
|-------------------------------------------------------------------------|-----------------------------------|--------------|-------------------------------|--------------|--------------------------|--------------|
|                                                                         | No.                               | Trading (฿m) | No.                           | Trading (฿m) | No.                      | Trading (฿m) |
| 1975                                                                    | 4                                 | 10.3         | 20                            | 58.0         | -                        | -            |
| 1976                                                                    | 5                                 | 12.5         | 24                            | 253.9        | 7                        | 42.0         |
| 1977                                                                    | 5                                 | 7.7          | 30                            | 251.0        | 7                        | 2.0          |
| Remarks: 1) Listed and authorized debentures                            |                                   |              |                               |              |                          |              |
| 2) Excluding investment bonds which are not sold to the general public. |                                   |              |                               |              |                          |              |
| Source: SET, <u>Annual Report</u> 1976 and 1977.                        |                                   |              |                               |              |                          |              |

Despite the high number of listings of bonds and debentures, the value of trading at the SET is small. It accounted for only 0.98 per cent of overall trading in 1977. In this year, 3 out of 5 corporate debentures, 13 out of 30 government bonds and 4 out of 7 government enterprise bonds were not traded at all and the remaining bonds and debentures only occasionally.<sup>1</sup> The institutionalized secondary market is obviously very thin, so that bonds and debentures are not readily saleable.

The Bank of Thailand (BOT) plans to develop fully the secondary market for government bonds operating outside the SET. The trading amounting to 933.4 million Baht in 1977 occurs

<sup>1</sup> See SET, Annual Report 1977, pp. 24-5 and 34-5.

mainly between financial institutions, and, at least at this stage, it is of little importance to the general public.<sup>1</sup> However, individual investors can resell government bonds to the BOT at a discount which declines with maturity, a procedure that could also be adopted by the Central Bank of the Philippines.

Similarly, in the Philippines secondary market operations involving government securities developed outside the stock exchanges. Primarily, Central Bank Certificates of Indebtedness are traded. Bonds issued by the Development Bank of the Philippines and other government securities are of lesser importance. All three types of securities follow the general money market trend and are traded usually at large discounts, which indicates the lack of market-orientedness of the primary issues.

An improvement in the overall bleak picture of the secondary market for long-term debt securities in the Philippines and Thailand depends above all on a continuous supply of securities at terms that reflect the condition of the market and a broadening of ownership. In the past, forced investment regimes enabled the government to 'sell' its bonds without effort, but this ultimately hampered the development of the overall market in the long run.

Maturities have to be tailored more to savers' needs. In order to overcome the reluctance of savers in the Philippines to purchase long-term debt securities, it might be advisable to issue initially 2 to 3 year debentures and

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<sup>1</sup> The data have been provided by the BOT, Banking Analysis Division.



subsequently securities with longer maturities. This could help to familiarize savers with less liquid financial instruments. In addition, in both countries, efforts could be made to have all long-term debt securities listed on the stock exchanges. Since stocks are more acceptable than bonds and debentures and are more widely traded, issuing and listing convertible debentures could give further impetus to the capital market.

Moreover, in the case of corporate bonds and debentures, it seems feasible that the issuing companies and/or underwriters ensure the liquidity of these securities by purchasing and selling in a secondary market to be established by them. Such measures have been taken by two investment houses in the Philippines. Certain issues managed by these institutions can be resold so that investors do not have to be afraid of burdening themselves with illiquid securities. The liquidity thus offered increased the attraction of the securities considerably. Similar steps could be taken in Thailand by leading finance and securities companies.

#### 4. Yield

In contrast to interest rates on private bonds and debentures, those on government as well as other bonds do not compare favourably with those on deposit substitutes or even those on regular deposits. They fail to reflect the opportunity cost of long-term capital and the risk involved in purchasing bonds.



Table 4.16. Interest Rates on Bonds and Debentures,  
1977 (in per cent per annum)

| The Philippines  |                                                                                                            |      | Thailand        |           |      |
|------------------|------------------------------------------------------------------------------------------------------------|------|-----------------|-----------|------|
| CB               | 16.29                                                                                                      |      | CB              | 10.50     |      |
| GB -             | 2.00-11.75 (t)                                                                                             |      | GB              | 8.50-9.00 | (t)  |
| - Treasury Notes | 10.50-11.75                                                                                                |      |                 |           |      |
| - PSB            | 6.00                                                                                                       | LB t |                 |           |      |
| - CBCI           | 9.00                                                                                                       | t    |                 |           |      |
| OB - DBP Bonds   | 9.00                                                                                                       | t    | OB-PSC          | 1.00+5.50 | LB t |
| - LBP Bonds      | 6.00                                                                                                       | t    | - Savings Bonds | 6.00      | t    |
| Remarks:         | (t) - partially tax-exempt t - tax-exempt LB - lottery benefit                                             |      |                 |           |      |
| Source:          | The Philippines - Bancom Development Corporation, Research<br>Department; CBP, DER.<br>Thailand - BOT, DER |      |                 |           |      |

Until well into the seventies, interest rates on government bonds in the Philippines were fixed irrespective of maturity and the prevailing situation in the money and capital market. The overriding objective was, and still is, to finance budget deficits and government investment as cheaply as possible. As of December 1976, 36.1 per cent of all outstanding issues by the national government, government enterprises and the central bank carry an interest rate of less than 5 per cent per annum and 82.6 per cent of less than 10 per cent per annum.<sup>1</sup>

<sup>1</sup> See, CBP, 'Annual Report of the Securities Servicing Department for Calendar Year 1976' (CBP, mimeo), p.13.

A survey of institutional investors revealed that the uncompetitive interest rates on government securities have severely retarded the development of an active bond market and necessitate further reliance on forced investment regimes.<sup>1</sup> In the report on the rationalization of yields and terms of government securities a revision of the interest rate policy is asked for among other measures.<sup>2</sup> To what extent this advice will be followed remains to be seen.

In Thailand, government and government enterprise bonds offer yields marginally higher than those on deposits. Except for 1973 and 1974, real rates of interest were positive. However, the 8.50 and 8.85 per cent per annum on those government bonds that can be acquired by non-institutional investors only hold true if the securities are held for 10 and 8 years respectively. Within these periods, the Bank of Thailand will repurchase them at a discount.

While the concept to increase the yield the longer the securities are held induces investors, in general, to keep government bonds until maturity, it renders them relatively less attractive than 12-months time deposits. Efforts to increase the interest rate either explicitly or implicitly by shortening the period within which 8 per cent per annum are realized (three years are suggested) have met, so far, strong opposition from the Ministry of Finance, which does not want to see an increase in the cost of public borrowing.

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<sup>1</sup>See Joint Department of Finance - Central Bank Committee, op. cit., pp. 12-14.

<sup>2</sup>Ibid., p. 1.

Although the interest rate on government bonds was changed only a few times, the substantial changes in sales to individuals that went along with the changes in interest rates indicate that saving in government bonds is interest-elastic. For example the increase from 7.5 to 8.5 per cent per annum in fiscal year 1974 brought about an impressive increase in sales from ₱46.9 million (1973) to ₱159.6 million (1974).<sup>1</sup>

Securities that offer a lottery benefit instead of a fixed income have been very popular in Thailand since their introduction in the 1940s, and might become similarly popular in the Philippines, where they were introduced in 1974. However, it is unlikely that the Premium Savings Certificates (PSC) and the Premyo Savings Bonds (PSB) familiarize savers with the concept of securities. Successful as they may be, a lottery would probably serve the same purpose. This is indicated by the fact that many savers in the Philippines look upon the PSB as a lottery ticket and keep the bond for only a few months.<sup>2</sup> A basic interest rate, in addition to the lottery benefit, may change this attitude. The 1 per cent per annum interest on PSC - provided they are held for at least three years - is clearly insufficient to give the impression of a security as opposed to a lottery ticket.

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<sup>1</sup> The data have been provided by the BOT, Banking Analysis Division.

<sup>2</sup> See CBP, Securities Marketing Department, 'Annual Report 1976', op. cit., pp. 22-3.

## 5. Information

Most people are aware of deposit services and know how to make use of them, whereas they are not familiar with the concept of bonds and debentures. Nevertheless, in both countries, information policy is a much neglected element in the marketing strategy. Even institutional investors complain about lack of information on government bonds.<sup>1</sup>

That promotion can have a significant positive impact on the sale of bonds was first demonstrated in the Philippines in connection with the issue of DBP Progress Bonds in 1967, when a large-scale marketing campaign was launched. The Development Bank of the Philippines (DBP) organized a securities marketing department, recruited and trained a large number of sales agents and provided about 500 accredited service outlets. The lack of knowledge and confidence was overcome partly by educational and promotional programmes, based mainly on personal contacts.<sup>2</sup> The following table indicates their success.

Table 4.17. DBP Progress Bond Holdings as of 30 June 1970

| Series      | A   |          | B  |          | C  |          | D  |          |
|-------------|-----|----------|----|----------|----|----------|----|----------|
|             | Pm  | per cent | Pm | per cent | Pm | per cent | Pm | per cent |
| Individuals | 34  | 34       | 20 | 40       | 3  | 6        | 0  | 0        |
| Banks       | 25  | 25       | 14 | 28       | 38 | 76       | 39 | 78       |
| Other Inst. | 41  | 41       | 16 | 32       | 9  | 18       | 11 | 22       |
| TOTAL       | 100 | 100      | 50 | 100      | 50 | 100      | 50 | 100      |

Source: DBP, Annual Report, Fiscal Year 1969-70, p. 18.

<sup>1</sup> See Joint Department of Finance-Central Bank Committee, op. cit., p. 15.

<sup>2</sup> See DBP, Annual Report, Fiscal Year ended 30 June 1967, pp. 22-3.

The campaign provides evidence that bonds can be sold to non-institutional investors, if their characteristics, such as accessibility, liquidity, interest and risk, are tailored to the needs of investors, and if ignorance and distrust are overcome by offering adequate information. However, the decline in the share of individual investors after the first two series also shows that short-term efforts are insufficient and that persistent efforts with respect to the terms and information offered are needed, if bonds are to be established as an important and regular part of investors' portfolio.

The absence of a long-run strategy and a persistent sales drive is also apparent in the marketing of government bonds in the Philippines and Thailand. In the former country, efforts are concentrated on the Central Bank Certificates of Indebtedness (CBCI) and the Premyo Savings Bonds (PSB). In addition to a large network of sales outlets established especially for these securities, a broad advertising campaign was launched to familiarize the general public with these instruments.

Nevertheless, both securities have not sold well to non-institutional investors. Individuals hold only 0.32 per cent and 11.70 per cent of the CBCI and PSB respectively outstanding as of December 1977.<sup>1</sup> In the case of the CBCIs, the disappointing performance can be attributed mainly to the low interest rate offered and to the high minimum denomination.

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<sup>1</sup> Based on data provided by the CBP, Securities Servicing Department.

With respect to PSBs, insufficient awareness among the general public, particularly in rural areas, is considered as the most important reason. Because of the importance of personal relations, the necessary dissemination of information on PSBs can be brought about only by personal promotion, which is supposed to come from the branches of commercial, savings and rural banks at which this instrument is available. The lack of initiative on the part of the personnel of these financial institutions might be overcome by higher sales premiums. If individual investors are to be induced to purchase government bonds, a persistent information and promotion policy should be part of the rationalization programme with respect to government securities.<sup>1</sup>

Essentially, the same criticism applies to Thailand. Until October 1978, no efforts have been made to sell government bonds to the non-institutional public, despite the fact that the terms of the securities compare quite favourably with other financial instruments. According to the expected budget deficit, the volume of bonds to be sold is fixed. Sales targets are set for commercial banks, the Government Savings Bank and 'other' investors, but not specifically for individual investors. Consequently, no promotional activities were undertaken to attract these investors. Rather, a waiting attitude predominated.

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<sup>1</sup> See Joint Department of Finance-Central Bank Committee, op. cit., p. 62.

Starting with the fiscal year 1979, a more active approach is planned. For the first time, a budget for advertising in newspapers, cinemas and on television has been allocated to the banking department of the Bank of Thailand which is in charge of government bond sales. As in the Philippines, such activities can be regarded only as initial steps in the direction of a comprehensive strategy to inform people about government securities and to promote their sale.



## E. Corporate Shares

### 1. The Necessity to Broaden Public Ownership of Corporations

While personal saving in form of corporate debt securities is marginal, as has been shown in the previous section, the situation with respect to equity securities looks much better, at least at first sight.

Table 4.18. Personal Savings in the Form of Corporate Shares,  
1950-1977

| Year         | The Philippines                                                                    |                   | Thailand                |                   |
|--------------|------------------------------------------------------------------------------------|-------------------|-------------------------|-------------------|
|              | CS<br>(Pm) <sup>1</sup>                                                            | CS/FA<br>per cent | CS<br>(Bm) <sup>1</sup> | CS/FA<br>per cent |
| 1950         | 131.7                                                                              | 29.61             | n.a.                    | n.a.              |
| 1955         | 49.5                                                                               | 15.42             | 215.9                   | 15.90             |
| 1960         | 235.5                                                                              | 37.82             | 418.5                   | 22.24             |
| 1965         | 276.1                                                                              | 22.69             | 747.3                   | 20.66             |
| 1970         | 446.5                                                                              | 18.95             | 1712.1                  | 25.51             |
| 1975         | 689.3                                                                              | 20.57             | 951.1                   | 8.31              |
| 1977         | 545.7                                                                              | 13.90             | 2125.4                  | 11.34             |
| Remarks:     | 1) In constant prices of 1969                                                      |                   |                         |                   |
| Definitions: | CS - Corporate Shares (including shares of mutual funds)<br>FA - Financial Savings |                   |                         |                   |
| Source:      | See Statistical Appendix, B.1. and C.1.                                            |                   |                         |                   |

After deposits, corporate shares represent the second most important investment outlet (financial assets only) for individuals. The above figures, however, have to be regarded with caution. Only a small percentage of the shares have been made available to the general public, either through a public offering or a private placement. In most cases, new capital is raised within the families which are in control of the companies.



## 2. Accessibility

As already indicated, the total amount of personal savings in form of corporate shares gives a false impression of the availability of this investment alternative.

Table 4.19. Total Investment in Corporate Shares and Volume of Underwriting, 1970-1977

| Year | The Philippines     |                     |                       | Thailand            |                     |                       |
|------|---------------------|---------------------|-----------------------|---------------------|---------------------|-----------------------|
|      | Total CS<br>(in ₱m) | Underwr.<br>(in ₱m) | Und./CS<br>(per cent) | Total CS<br>(in ฿m) | Underwr.<br>(in ฿m) | Und./CS<br>(per cent) |
| 1970 | 608.7               | 2.0                 | 0.33                  | 1968.1              | 89.4                | 4.54                  |
| 1971 | 666.7               | 50.4                | 7.56                  | 1568.5              | 60.5                | 3.86                  |
| 1972 | 773.7               | 213.1               | 27.54                 | 2611.9              | 16.4                | 0.63                  |
| 1973 | 944.1               | 76.0                | 8.05                  | 5463.6              | 327.1               | 5.99                  |
| 1974 | 2326.4              | 329.3               | 14.15                 | 5562.5              | 598.1               | 10.75                 |
| 1975 | 2035.4              | 98.1                | 4.82                  | 1798.4              | 323.7               | 18.00                 |
| 1976 | 2023.9              | n.a.                | n.a.                  | 2551.2              | 50.6                | 1.98                  |
| 1977 | 1961.3              | 188.3 <sup>1</sup>  | 9.60                  | 4078.5              | 245.2               | 6.01                  |

Remarks: 1) Public offerings only.

Source: The Philippines - CBP, DER and SEC, IRSD  
Thailand - BOT, DER and 'Securities Offerings in Thailand: 1967-77',  
in: Securities Exchange of Thailand Handbook, 1977-8,  
op. cit., pp. 128-9.

In general, the proportion of corporate shares that was made available to the general public did not exceed 10 per cent in either country, so that the opportunities to save in this form were quite limited. The major reasons for the lack of supply of stocks are the unwillingness of the owners of companies to share control with non-family members and to reveal any information on their business transactions.<sup>1</sup> In 1977, only 58 of the top 1000 corporations and 21 of the top

<sup>1</sup> A survey in Thailand on the sources of initial capital for business enterprises revealed that 87.6 per cent came from the entrepreneur's personal savings. See Alek A. Rozental, op. cit., p. 261

100 were listed on the stock exchanges in the Philippines.<sup>1</sup>  
In Thailand, just 7 of the top 100 manufacturing companies were represented at the Securities Exchange (SET) in 1976.<sup>2</sup>  
Public ownership of corporations is consequently very limited.

Table 4.20. Breakdown of Number of Shareholders of 183 Listed Companies in the Philippines and 50 Listed Companies in Thailand

| The Philippines          |                 |            |                    |           | Thailand        |            |                    |            |
|--------------------------|-----------------|------------|--------------------|-----------|-----------------|------------|--------------------|------------|
| Shareholders per Company | Companies (No.) | (per cent) | Shareholders (No.) | (percent) | Companies (No.) | (per cent) | Shareholders (No.) | (per cent) |
| 100 or less              | 9               | 4.9        | 609                | 0.2       | 0               | 0.0        | 0                  | 0.0        |
| 101-200                  | 24              | 13.1       | 3991               | 1.3       | 1               | 2.0        | 131                | 0.2        |
| 201-500                  | 59              | 32.2       | 18179              | 5.9       | 28              | 56.0       | 9219               | 12.3       |
| 501-1000                 | 31              | 16.9       | 23065              | 7.5       | 9               | 18.0       | 5643               | 7.5        |
| 1001-2000                | 26              | 14.2       | 36766              | 11.9      | 4               | 8.0        | 5486               | 7.3        |
| 2001-5000                | 20              | 10.9       | 38670              | 12.5      | 5               | 10.0       | 17755              | 23.7       |
| 5001-10000               | 5               | 2.7        | 31071              | 10.1      | 0               | 0.0        | 0                  | 0.0        |
| over 10000               | 9               | 4.9        | 156004             | 50.6      | 3               | 6.0        | 36666              | 49.0       |
| TOTAL:                   | 183             |            | 308445             |           | 50              |            | 74900              |            |

Source: The Philippines - SEC, IRSD  
Thailand - based on data from SET, DRP, Companies Profile (Bangkok, SET, 1978), (Thai).

More than half of the companies under consideration have less than 500 shareholders. Companies with more than 10000 shareholders comprise approximately fifty per cent of all

<sup>1</sup> See SEC-Business Day's 1000 Top Corporations in the Philippines, Vol. 10 (Quezon City, Businessday Corporation in collaboration with SEC, 1978).

<sup>2</sup> See Directory of Thailand's Largest Manufacturing Companies in 1976 (Bangkok, Faculty of Commerce and Accountancy, Thammasat University, 1977), and SET, Annual Report 1976, pp. 16-17.

shareholdings, although there are only 9 such companies in the Philippines and 3 in Thailand. The total number of shareholders can only be estimated. If multiple ownership is taken into consideration, there are about 150000 to 200000 in the Philippines (as of 1976) and 35000 to 40000 in Thailand (as of 1978). The lower figure for Thailand is due to the fact that an active capital market was not established before 1975.<sup>1</sup>

Various steps could be undertaken - and to some extent already have been - to stimulate a greater supply of corporate shares:

- (1) In the Philippines, the availability of low-interest, subsidized loans from public financial institutions renders the issue of new shares comparatively costly. As in the case of long-term debt securities, companies will resort to shares only as a last source of funds.<sup>2</sup>
- (2) Underwriting constraints, like the maximum commission of 5 per cent for investment houses and the exclusion of brokerage firms from firm underwriting, have a similar negative impact on the issue of corporate shares as that on corporate bonds. In the Philippines, an increase in the commission and the enlargement of the circle of underwriting institutions could improve the marketing of new shares.<sup>3</sup>

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<sup>1</sup> In 1963, the Bangkok Stock Exchange was established. However, it remained rather inactive and never represented a viable trading market.

<sup>2</sup> See section D.2.a. of this chapter.

<sup>3</sup> See section D.2.a. of this chapter.

- (3) Various investment incentives are offered in both countries by a Board of Investment for projects that are conducive to economic development. If these incentives were limited to public companies or those which are about to become public, it would not only help to broaden public ownership of corporations but also help to spread the benefits of the incentives more evenly.
- (4) In many studies, it is suggested that preferential tax treatment should be offered to companies whose shares are available to the general public. The experiences with such incentive schemes have been mixed, however. In the Philippines, a 5 per cent development tax has been imposed on closely held companies. So far, this has been without effect. In Thailand, on the other hand, the 30 per cent corporate tax for listed companies, compared with 35 per cent for non-listed ones, has led many companies to apply for listing at the SET. Care must be taken, however, that those companies attracted mainly by the tax advantage fully comply with the listing requirements and that their shares are actively traded. A large number of illiquid shares does not further the cause of the stock exchange and could indeed defeat the prime purpose of the tax incentive.<sup>1</sup>

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<sup>1</sup> See Sunissa Hancock, 'Row Brews on the Stock Exchange', BP, 32(1978), No. 230, p. 16.

### 3. Liquidity

Only a small proportion of the largest companies in the Philippines and Thailand are listed on the stock exchanges. Even many of those shares that have been offered publicly were never listed. Between 1945 and 1975, only 146 of the 518 public offerings in the Philippines have been permitted to be listed on the stock exchanges.<sup>1</sup> The ratio was higher in Thailand, where between 1967 and July 1977, 27 of the 47 publicly offered shares were ultimately listed on the SET.<sup>2</sup>

Table 4.21. Number of Listed Shares, 1977

|                            | The Philippines <sup>1</sup> | Thailand <sup>2</sup> |
|----------------------------|------------------------------|-----------------------|
| Banks                      | 4                            | 8                     |
| Insurance                  | 4                            | 2                     |
| Investment and Finance     | 18                           | 8                     |
| Cement                     | 5                            | 3                     |
| Logging                    | 4                            | -                     |
| Textiles                   | 7                            | 4                     |
| Commercial and Industrial  | 48                           | 19                    |
| Sugar                      | 6                            | -                     |
| Mining                     | 30                           | -                     |
| Subtotal Bigboard          | 126                          | 44                    |
| Mining and Oil Exploration | 126                          | -                     |
| Total                      | 252                          | 44                    |

Remarks: 1) Manila and Makati Stock Exchanges  
2) including authorized shares

Source: The Philippines - MSE, Monthly Review, 29(1977), No.12;  
MSEI, Monthly Digest, 7(1977), No. 12.  
Thailand - SET, Annual Report 1977.

<sup>1</sup> See International Finance Corporation, op. cit., p. 51.

<sup>2</sup> See 'Securities Offerings in Thailand, 1967-77', in: Securities Exchange of Thailand Handbook 1977-78, op. cit., pp. 128-9.

Although the number of shares listed and authorized on the Securities Exchange of Thailand (SET) is increasing rapidly, it is still far below the number listed on the Manila and Makati Stock Exchanges. However, 126 of the 252 shares listed on the latter two are speculative issues of mining and oil exploration companies, few of which have taken up production. For the time being, most of them cannot be considered as a sound investment, although ultimately some of them might prove to be highly profitable.

The value of trading is substantial in both countries. Indeed, in 1977, the SET became one of the busiest stock exchanges in Asia. However, the aggregate figures tell little about the liquidity of individual shares, that is, the ability to sell them at 'realistic' prices. Of the 252 shares listed at the Manila and Makati Stock Exchanges, 85 were not traded on the Manila Stock Exchange and 98 on the Makati Stock Exchange in 1977. Furthermore, the annual turnover of many shares, particularly on the big board, remained below 5 per cent.<sup>1</sup> Except for one share, all the 44 listed on the SET in 1977 were traded, though not all on a day-to-day basis. Still, three shares accounted for 67.82 per cent of all trading.<sup>2</sup>

In both countries, the trading activity is to a large extent due to speculation. The issues listed on the small board of the stock exchanges in the Philippines, which represent oil and mining exploration companies, accounted for

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<sup>1</sup> See MSE, Monthly Review, 29(1977), No. 12, and MSEI, Monthly Digest, 7(1977), No. 12.

<sup>2</sup> See SET, Annual Report 1977, pp. 24-5.

more than 80 per cent of the total volume of trading in 1977.<sup>1</sup> Similarly, the trading boom at the SET is largely speculative. In 1977, the stock price index more than trebled. A turnover of ₱26273.4 million with only 44 shares listed indicates lack of prudent investment.<sup>2</sup> Instead of an instrument to mobilize long-term funds and to ensure the liquidity of corporate shares, the stock exchanges are gambling places, which is likely to deter many investors.

The introduction of a capital gains tax for shares that are sold within a certain period after purchase could have helped to overcome this problem. Because of fears that such a tax would affect trading adversely, it has been suspended indefinitely in the Philippines.<sup>3</sup> It was similarly shortlived in Thailand. Only three months after its imposition in May 1978, it was repealed because of the slow-down in trading and the administrative problems involved.<sup>4</sup> In both cases, a transfer tax of 0.25 per cent and 0.11 per cent respectively has been introduced, which certainly does not help to dampen speculation.

Trading that ensures liquidity for the majority of the listed shares is especially hampered by the small number of shareholders and the highly uneven distribution of shareholdings.

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<sup>1</sup> See MSE, Monthly Review, op. cit., and MSEI, Monthly Digest, op. cit.

<sup>2</sup> See SET, Annual Report 1977, op. cit., pp. 24-5.

<sup>3</sup> Presidential Decree No. 1116.

<sup>4</sup> See 'New Stock Tax Effective Today', BP, 32(1978), No. 205, p.15.



Table 4.22. Ownership Distribution of 52 Selected Listed Shares, The Philippines 1976

| Holding (par<br>value bracket) | Shareholders |            | Capital |            |
|--------------------------------|--------------|------------|---------|------------|
|                                | (No.)        | (per cent) | (P'000) | (per cent) |
| less than P10000               | 163983       | 93.3       | 294234  | 12.2       |
| P10000-50000                   | 8364         | 4.8        | 189961  | 7.9        |
| P50000-100000                  | 1691         | 1.0        | 142209  | 5.9        |
| P100000-500000                 | 1291         | 0.7        | 282586  | 11.8       |
| P500000-1000000                | 242          | 0.1        | 334407  | 13.9       |
| more than P1000000             | 231          | 0.1        | 1162402 | 48.3       |
| Source: SEC, IRSD              |              |            |         |            |

While the capital owned by 93.3 per cent of all shareholders amounts to just 12.2 per cent of the total capital, less than 1 per cent of the shareholders with holdings of more than P100000 make up for 74 per cent of the capital. No comprehensive statistics are available for Thailand, but partial data indicate that the ownership distribution is similarly skewed.

In order to increase the liquidity of corporate shares, public ownership above all has to be broadened. A minimum number of shareholders that enables active trading should be prescribed for all companies to be listed on the stock exchange. To ensure the participation of a wider public, prospective investors have to be provided with more information on the shares available and also have to be protected against trading manipulations. In addition, delisting of companies that do not achieve a minimum turnover within a certain period might be considered.



#### 4. Yield

Due to non-competitive market structures, that is, high import tariffs or quasi-monopolies, high returns on equity are realized in the Philippines and Thailand. This is indicated by the performance of the top 1000 Philippine companies and the top 100 Thai manufacturing companies.<sup>1</sup> However, the high profits are reflected in the dividend yields only to a small extent.

Table 4.23. Distribution of Dividend Yields, 1977

| Yield Bracket<br>(per cent <u>per annum</u> ) | The Philippines        |          | Thailand               |          |
|-----------------------------------------------|------------------------|----------|------------------------|----------|
|                                               | Number of<br>Companies | per cent | Number of<br>Companies | per cent |
| 0                                             | 32                     | 34.0     | 3                      | 8.1      |
| 0-4.00                                        | 13                     | 13.8     | 1                      | 2.7      |
| 4.01-8.00                                     | 22                     | 23.4     | 21                     | 56.8     |
| 8.01-12.00                                    | 11                     | 11.7     | 10                     | 27.0     |
| 12.01-16.00                                   | 11                     | 11.7     | 1                      | 2.7      |
| 16.01-20.00                                   | 3                      | 3.2      | 1                      | 2.7      |
| 20.01-30.00                                   | 2                      | 2.1      | 0                      | 0.0      |
| more than 30.00                               | 0                      | 0.0      | 0                      | 0.0      |
| TOTAL                                         | 94                     | 100.0    | 37                     | 100.0    |

Remarks: The base total for the Philippines comprises the 94 companies listed on the big board of the stock exchanges. Preference shares are treated separately. Only cash dividends are taken into consideration.

Source: The Philippines - data compiled from MSE, Monthly Review, 29(1977), No. 12.

Thailand - data compiled from SET, DRP, op.cit.

<sup>1</sup> See SEC-Business Day's 1000 Top Corporations in the Philippines, op. cit., various issues, and Directory of Thailand's Largest Manufacturing Companies in 1976, op. cit.

In 1977, in the Philippines, cash dividends were paid by 62 of the 94 companies listed on the big board, but the dividend yield of more than two-thirds of the companies did not exceed 8 per cent. Moreover, only 26.8 per cent of the companies (11.8 per cent if companies listed on the small board are also taken into consideration)<sup>1</sup> have regularly paid dividends over the five-year period between 1973 to 1977. The presidential directive of 1973, which requires companies with surplus profits in excess of operating and capital expansion requirements to declare dividends, has brought about no change in the dividend policy.<sup>2</sup> As long as long-term capital needs can be funded internally or through subsidized loans, little effort will be made to render corporate shares more attractive.

Similarly, in Thailand, dividend yields do not compare favourably with the interest rates offered on deposit substitutes, bonds or even deposits. In 1977, the dividend declarations of 67.7 per cent of the companies meant yields of less than 8 per cent. The fact that the first ฿10000 of dividends are tax exempt and that the amount exceeding ฿10000 is subject to a deduction of 30 per cent (for listed companies only) improves the relative yield of corporate shares slightly, although not with respect to bonds, as these are also partly tax-exempt. However, 46.9 per cent of all companies listed

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<sup>1</sup> Based on dividend declarations published in MSE, Monthly Review, various issues. Preference shares are not taken into consideration.

<sup>2</sup> See Edgar Plan 'The Philippines', in: Philip Thorn (ed.) Banking Structures and Sources of Finance in the Far East (London, Bankers Research Unit, Financial Times Limited, undated), 70-107, p. 98.

as of June 1978 had a continuous dividend record between 1973 and 1977, which represents a substantial improvement over the performance of the companies in the Philippines.<sup>1</sup>

While for investors with a small net worth, who seek long-term investment outlets and lack the information to profit from frequent changes in their portfolio, dividends are the main feature of corporate shares, investors in the high net worth bracket are equally or even more interested in fluctuations in the market price of shares enabling capital gains (or losses). The Philippine stock price index showed a long run decline from a peak in 1969, when the index stood at 356.7, down to 72.9 in 1977.<sup>2</sup> Profits are made through week to week or at most month to month buying and selling. Long-run capital gains are realized only in individual cases.

In Thailand, the stock exchange is only in its infant stage. During 1977, it experienced its first boom, which led the TISCO share price index to more than treble from 177.7 in May 1975 to 591.4 in October 1977.<sup>3</sup> Although there was a distinct upward trend on a monthly basis, prices fluctuated - often very sharply - from day to day. Several shares had to be suspended for a short period when their market price changed by more than 15 per cent during a single day.

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<sup>1</sup> Based on dividend declarations published in SET, DRP, op. cit.

<sup>2</sup> See CBP, SB, 29(1977), p. 374.

<sup>3</sup> The data have been provided by Thai Investment and Securities Company.

In both countries, short-term speculation, in particular of insiders, is highly profitable in the absence of a capital gains tax. The additional volatility of share prices due to widespread speculation renders investment in stocks very risky and thereby diminishes its attraction to many savers.

## 5. Risk

### a. Risk Factors Involved in the Investment in Corporate Shares

Corporate shares represent the most risky financial instrument considered in this analysis. If public ownership of equity is to be broadened, it is necessary to limit the risks through adequate laws and institutional arrangements. In order to have as many shares listed as possible, the listing requirements of the stock exchanges in the Philippines and Thailand are minimal.<sup>1</sup> They seem insufficient to ensure that only shares of sound companies are listed. Only a few of the following requirements regarded as essential by stock exchanges in developed countries are prescribed by the Philippine and Thai authorities:

- (1) The corporation should have existed and operated for a minimum period of time.
- (2) The minimum paid-in capital of the corporation should exceed a certain amount.

In both countries, this item is mentioned in the listing

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<sup>1</sup> See MSEI, 'Basic Requirements for Listing Application' (MSEI, mimeo); and Article 2, in: 'Notification of the Ministry of Finance (Translation), Re: Specification of rules, conditions and procedures for registration of securities as listed securities or authorized securities by the Board of Directors of the Securities Exchange of Thailand and for withdrawal of same' (SET, mimeo, 1978).

requirements but insufficiently specified in the Philippines. The Makati Stock Exchange requires only mining and oil exploration companies to have a minimum paid-in capital of ₱500000. The Securities Exchange of Thailand (SET) demands that companies have a registered capital of at least ₱10 million.

- (3) The corporation should have a minimum number of shareholders that ensures active trading.

In the Philippines and Thailand, the lack of liquidity of most shares is directly attributable to the inadequate number of shareholders. The Philippine and Thai stock exchanges require only 300 and 250 shareholders respectively for a corporation that intends to have its shares listed.

- (4) The corporation should have a minimum number of years of profitable operations.

Such an item was initially included in the listing requirements of the SET. However, it has been replaced in the meantime by a much less specific requirement which refers only to a sound financial position and satisfactory operations.

- (5) The corporation should have made dividend payments of a minimum level or should have had the potential for such payments during a minimum number of years.

- (6) Shareholders, other than the members of the family in control of the corporations, its directors and officers, should hold a minimum percentage of the share capital and should exceed a minimum number, so as to ensure that a truly public corporation is listed. The SET already requires that ordinary shareholders should hold no less than 25 per cent of the total paid-in

capital, and that none of them should hold more than 0.5 per cent of the total paid-in capital.

Enforcing the above requirements, in particular (6), will probably present some difficulties. However, the increasing need for long-term funds should provide sufficient incentive for the authorities to take the necessary measures needed to strengthen the capital market. The delisting of companies, which do not fulfil the requirements, could be demanded after a not too generous grace period.

In addition to stricter listing requirements, some further measures are needed. Investors must be adequately informed about the companies whose shares they want to purchase not only at the time of listing but continuously. Therefore it is important to require listed companies to furnish annually audited balance sheets and income statements to its shareholders and the public in general. Strict regulations with respect to the contents of the statements are to ensure that they provide meaningful information.

Even if the above requirements are met, small shareholders are not sufficiently protected. Insider knowledge is frequently the cause for erratic market price movements. Stockbrokers, for example, are still allowed to sit as directors of companies that are listed at the stock exchanges.<sup>1</sup> So far, in neither country, have any measures been adopted to prevent this. The protection of minority shareholders can be improved further by granting them special rights, for example, by enabling them to demand a special audit.

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<sup>1</sup> See 'Immediate Ban on Stockbrokers Proposed', DE, 6(1977), No. 95, p. 9.

b. Reducing the Risk Through Investment in Mutual Funds

Mutual funds - comprising portfolios of different risk according to whether they are mainly based on fixed income securities or corporate shares - have attracted large amounts of savings in several developed countries. They offer two major advantages to ordinary savers who lack the information and expertise to handle a sophisticated financial instrument such as a security: first, the shares of mutual funds enable the participation in a diversified portfolio, so that the risk for an individual investor is greatly reduced; second, the portfolio is managed by experts who have access to information superior to that of most other investors.

In the Philippines and Thailand, mutual funds have not, or not yet, played any significant role in the mobilization of savings. In the late fifties, several mutual funds were established in the Philippines. They collapsed, however, after a few years when it was disclosed that investments in the largest of the funds had been misappropriated by some of its executives. Since then, no efforts have been made to mobilize savings of the general public through mutual funds. It should be possible to revive the interest in such institutions and to develop them into effective mobilization instruments, if one or more of the well-established investment houses (like Bancom Development Corporation or Ayala Investment and Finance Corporation) would act as manager of mutual funds under the custodianship of the Central Bank of the Philippines.



The potential of mutual funds even in developing countries has been demonstrated in Thailand in recent years.<sup>1</sup> Through the establishment of the Securities Exchange of Thailand in 1975 and its rapidly increasing activity, the popularization of mutual funds became feasible.<sup>2</sup> With the support of the Bank of Thailand, the Mutual Fund Company was set up. So far, two open-ended funds have been launched (Sin Pinyo I in 1977 and Sin Pinyo II in 1978) which met with immediate success and were heavily oversubscribed, indicating good prospects for further issues. Since a minimum of only five units each at ฿20 had to be purchased, the funds were easily accessible to small savers. If the marketing efforts of the Mutual Fund Company are sustained, significant progress could be made, not only in mobilizing equity capital but also in broadening public ownership of corporations.

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<sup>1</sup> The two mutual funds that were established in 1963 (The Thai Investment Fund) and in 1972 (Wattana Fund) were unable to attract significant amounts of savings, because the Bangkok Stock Exchange, the predecessor of the SET, remained very inactive during the time of its existence. See Alek A. Rozental, *op. cit.*, pp. 342-44; and 'The "Other" Mutual Funds', BIT, 8(1977), No. 4, p. 38.

<sup>2</sup> See 'Thailand's First Mutual Fund Program to Launch', TI, 9(1977), No. 2, 34-37, and 'Sin Pinyo Fund Takes Off', BIT, 8(1977), No. 4, 30-40.



## F. Life Insurance

### 1. The Myth of Lack of Interest in Life Insurance

The importance of long-term funds has already been emphasized in connection with the marketing of bonds and corporate shares. In addition, the development process necessitates stable sources of finance. The stability of savings depend, among other determinants, on the commitments that savers have previously made. In the case of life insurance, the decision-making unit has made a particular strong commitment to save a certain amount regularly. Life insurance is thus an especially stable source of long-term funds. Furthermore, the fact that every month or quarter a specific amount has to be saved enhances the inculcation of the savings habit.<sup>1</sup> For these reasons, the mobilization of life insurance funds deserves special attention, even if these funds play only a minor role in the portfolio of individual investors in the Philippines and Thailand.

Table 4.24. Personal Savings in the Form of Life Insurance, 1950-1977

| Year | The Philippines      |                  | Thailand             |                  |
|------|----------------------|------------------|----------------------|------------------|
|      | LI (Pm) <sup>1</sup> | LI/FA (per cent) | LI (Bm) <sup>1</sup> | LI/FA (per cent) |
| 1950 | 17.2                 | 3.86             | 1.0                  | 0.08             |
| 1955 | 33.5                 | 10.38            | 55.8                 | 4.11             |
| 1960 | 45.7                 | 7.33             | 14.7                 | 0.78             |
| 1965 | 68.3                 | 5.62             | 88.9                 | 2.46             |
| 1970 | 95.8                 | 4.07             | 148.8                | 2.22             |
| 1975 | 104.1                | 3.11             | 203.2                | 1.78             |
| 1977 | 111.5                | 2.84             | 317.6                | 1.69             |

Remarks: 1) In constant prices of 1969

Definitions: LI - Life Insurance  
FA - Financial Savings

Source: See Statistical Appendix, B.1. and C.1.

<sup>1</sup> See Madhusudan Joshi, 'The Role of Contractual Savings', FD, 9(1972). No. 4 43 48. p. 45.

In the Philippines and Thailand, life insurance accounts for only a small proportion of personal savings in financial assets. It reached up to 10 per cent in the Philippines. But, since the mid-sixties, it declined steadily in importance because of the comparatively low yields offered on life insurance policies - a problem which has been aggravated by the high inflation during the seventies.<sup>1</sup>

In Thailand, life insurance has been almost consistently negligible. Managers in the insurance industry who were interviewed pointed out that most people lack the education to understand the importance of life insurance. In addition, the extended family system is mentioned frequently as a major obstacle. However, these problems are not sufficient to explain the unpopularity of life insurance in Thailand, since they are equally applicable to the Philippines, where the number and value of life insurance in force has increased continuously over the last three decades. Between 1960 and 1976 the percentage of the population covered by various life insurance schemes has risen from 1.81 per cent to 9.39 per cent.<sup>2</sup> During the same period, coverage in Thailand did not even double from 0.86 per cent to 1.66 per cent.<sup>3</sup> This has to be attributed mainly to lack of management skills, which meant that, so far, the concept of life insurance is little understood in Thailand. Moreover, the few people who are familiar with the concept regard the purchase of a policy as too high a risk.<sup>4</sup>

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<sup>1</sup> See, The World Bank, op. cit., p. 367.

<sup>2</sup> The data have been provided by the Republic of the Philippines, Department of Finance, OIC.

<sup>3</sup> The data have been provided by Government of Thailand, Ministry of Commerce, OI.

<sup>4</sup> See section F.3. of this chapter.

## 2. Accessibility

The large Philippine and Thai life insurance companies cover most of the provincial areas with their agents, so that anybody who wants to take up life insurance can do so. However, denominational accessibility provides serious problems. Ordinary life insurance policies with annual premium payments of several thousand Pesos or Baht are too expensive for the majority of households in both countries. People's inability to afford life insurance is a major problem in any effort to increase insurance coverage. Enabling people who bought life insurance to deduct up to ₱4000 of the premium payments for income tax purposes does not ease the problem and, according to managers in the insurance industry in Thailand, it has not affected business significantly.<sup>1</sup>

Denomination must not be an obstacle to the purchase of life insurance. Industrial life insurance policies require only premiums of a few Pesos or Baht per month and are, therefore, well within the financial capabilities of many low income households. However, since these policies are not very profitable, they are regarded as a burdensome business by most companies in the Philippines and Thailand. Often, agents try to sell ordinary policies, which the households cannot afford and which are given up after a short period. This leads to a loss not only for the customer but also for the company. A change in company policy and

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<sup>1</sup> See Government of Thailand, Ministry of Commerce, OI, Annual Insurance Report of Thailand, 1975, p. 6.

better training of the agents emphasizing the sales of policies, which are tailored to the needs of the various groups of households, are therefore of utmost importance.

### 3. Risk

As in the case of deposits, most people who purchase life insurance are small rather than big savers, and poorly informed rather than well informed, so that life insurance business is also very sensitive to structural weaknesses in the system. A large number of relatively small savers is affected by any failure of a company, and confidence lost is difficult to regain. The importance of the risk factor is emphasized in surveys in which people in the Philippines and Thailand were asked why they did not buy life insurance, why they have given up their policy, according to which criteria they chose an insurance company and what characteristics they were expecting from a policy. Trust or distrust with respect to the company and its agents featured most prominently in their answers.<sup>1</sup>

In the Philippines, the number of life insurance companies has declined from 28 in 1965 to 22 in 1976. Weak companies, however, did not collapse but were absorbed by other companies, so that none of their customers lost his insurance coverage and his investment. To instil further confidence in the system, a security fund has been set up to which all insurance

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<sup>1</sup> See Prasert Chomchan and Tongroj Onchan, Life Insurance in the Rural Area (Thai) (Bangkok, Kasetsart University, 1973), pp. 10, 15 and 24. Two other unpublished surveys by life insurance companies confirm these findings.

companies have to contribute. In the case of insolvency of a company, claims that remain unpaid will be honoured out of the security fund and outstanding policies are reinsured with another company.<sup>1</sup>

The poor performance of life insurance in Thailand can be traced to the bankruptcy of two major companies in 1964 and 1968. 76710 policies with a combined value of 782.1 million Baht were affected by the closure of these companies.<sup>2</sup> Still, in the sixties, the management of most companies lacked the basic knowledge of how to handle life insurance business. Premiums were regarded as income and the reserves set up to meet future obligations were inadequate.<sup>3</sup> A new insurance law in 1967 and ministerial regulations helped to strengthen the system and improve its standards. The establishment of a security fund, as in the Philippines, however, seems appropriate to overcome people's lack of confidence, at least to some extent. Plans to set up such a fund have so far not been implemented. In 1975, stiff capital requirements were introduced for insurance companies that want to start operations. In order to strengthen the existing companies, it appears advisable to include them in the new requirements after a grace period.<sup>4</sup>

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<sup>1</sup> See Republic of the Philippines, Department of Finance, OIC, Annual Report 1975, p. 8.

<sup>2</sup> The data have been provided by Government of Thailand, Ministry of Commerce, OI.

<sup>3</sup> See Bundhit Kantabutra, Recent Development of Life Insurance in Thailand and Anticipated Future Development (Bangkok, 1976), pp. 7-9.

<sup>4</sup> In the Philippines, existing companies are also required to increase their capital. See Presidential Decree No. 1455.

The risk associated with life insurance does not only depend on the financial stability of the companies but also and even more so on their agents. Fraudulent and badly qualified agents have done great damage to life insurance business in both the Philippines and Thailand. Premiums are not transferred to the company, claims are not properly settled, policy holders often have to pay illegal 'commissions' for policy loans. A leading life insurance company in the Philippines admitted that 3 to 5 per cent of the total premium income is not remitted to the company. It should be considered whether losses to policy holders because of fraud could be covered by the security fund, in case the companies do not take full responsibility for the action of their agents.

However, rather than cure the symptoms, prophylactic measures like a careful selection of the prospective agents, a thorough training and a sufficient income for the agents are needed. Usually, sales agents are trained only a few months and are then left very much alone in their sales drives. Their income depends entirely on the number and value of policies they are able to sell. This does not usually make a decent living. Most agents stay with the job for only a few months,<sup>1</sup> and consequently no stable relationship between agent and policy holder can be developed. The necessary confidence is not sold together with the policy, which is regarded by most agents as just another product.

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<sup>1</sup> According to managers in the life insurance industry in the Philippines and Thailand, about 50 per cent of the newly recruited agents give up their position during the first year.

All too often policies are sold very hastily, false information is given and important conditions of the policy are omitted. This has grave consequences, as many people give up their policy, since it is not tailored to their needs. The following information from one life insurance company (Thailand) indicates the severity of lapsation during the first three years, that is, before a policy has any surrender value.

Table 4.25. Lapsation Ratios of Life Insurance Policies,  
Thailand, 1973-1976

| Year     | 0 year | 1st year | 2nd year | 3rd year | Total (per cent) |
|----------|--------|----------|----------|----------|------------------|
| 1973 (1) | n.a.   |          |          |          |                  |
| (2)      | 12.29  | 21.73    | 7.08     | 0.54     | 41.65            |
| 1974 (1) | 8.45   | 28.62    | 11.61    |          |                  |
| (2)      | 12.97  | 24.62    | 9.34     |          |                  |
| 1975 (1) | 7.85   | 26.24    |          |          |                  |
| (2)      | 10.29  | 29.67    |          |          |                  |
| 1976 (1) | 8.93   |          |          |          |                  |
| (2)      | 12.40  |          |          |          |                  |

Remarks: (1) Sum insured  
(2) Number of policies

Source: Life Insurance Company 'X' in Thailand

The lapsation ratio in the Philippines is similar. Unfortunately, no exactly comparable data are available. An internal study of a leading life insurance company reveals that 33.36 per cent of the premiums on life insurance policies purchased in 1975 were not paid. After two years, the lapsation ratio (based on premium payments) reached 40.34 per cent.



If life insurance is to play a significant role in the mobilization of financial resources, it is of great importance to solve this problem. Agents must get a better training, and it must be ensured that they keep their position for years rather than months. Companies might consider paying their agents, at least in the initial period, a basic income in addition to any commission on the policies sold. Furthermore, the commission might be linked to the lapsation ratio of the customers, to ensure that policies are not pressed upon people who have little idea of what they have bought and who will lose interest in life insurance after a short period.

Paying a basic income will probably be a costly approach in the beginning, but it is necessary if any progress to popularize life insurance is to be made. Otherwise, the vicious circle - bad agents sell only a few policies, few policies render only a small income for the agents and the companies, small income implies frequent changes of the agents and inability on the part of the companies to attract and train good agents - will not be broken. This holds true especially for Thailand and only to a lesser extent for the Philippines, where insurance coverage is comparatively widespread. Two of the eleven insurance companies in Thailand have taken up the basic income approach in some form. Its success remains to be seen.

Weaknesses in the legal framework present another risk for policyholders. The Philippine life insurance laws are copied nearly literally from those of the State of California



and New York (United States). Revisions in these laws and court decisions in both states with respect to life insurance matters strongly influence the development of life insurance laws in the Philippines, so they are up to modern standards.<sup>1</sup> In Thailand, this has not been fully achieved despite new laws and regulations since 1967. At present, the civil and commercial code, for example, allows insurance companies up to five years - two years represent the international standard - during which they may revoke or cancel a policy.<sup>2</sup> This is to give them sufficient time to ensure that no fraud or false statements are involved in the policy application. The period is too long and works against the interest of the people insured. Previous efforts to change this regulation have been frustrated.

The above analysis indicates that any success in the mobilization of substantial savings through life insurance is closely tied to a reduction in the risk of purchasing life insurance policies.

#### 4. Information

Lack of awareness and understanding characterizes the relationship of the majority of the Philippine and Thai populations towards saving in the form of life insurance.<sup>3</sup>

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<sup>1</sup> See Presidential Decree No. 612.

<sup>2</sup> See 'The Insurance Scene, Need for More Detailed Laws', BR, 5(1977), No. 2, 29-35, p. 33.

<sup>3</sup> See, for example, Bundhit Kantabutra, op. cit., p. 17.

Insurance is closely associated with death, and the purchase of a policy is, therefore, regarded as 'tempting fate'. The most urgent task of the information policy of life insurance companies is to overcome the lack of knowledge with respect to life insurance. Personal promotion represents the most important and often only instrument to fulfil this task, as most life insurance owners have been influenced in their buying decision by agents, friends and relatives.

Four questions must be clarified above all:

- (a) What is life insurance?
- (b) What are the objectives of life insurance?
- (c) Who needs life insurance?
- (d) How much insurance coverage is needed?

Attention has to focus again on the agents. They must be sufficiently trained so that they can answer these questions satisfactorily. One of the basic requirements in the mobilization process is to satisfy savers' needs, rather than simply to press a policy on potential life insurance buyers. Agents have to follow this idea, if a mutually beneficial relationship between them and the policy holder is to be formed.

The life insurance business in the Philippines is strongly influenced by its American, and to some extent Japanese, counterpart and consequently follows a rather sophisticated approach. Besides personal promotion, formal advertising on television, radio and in newspapers is widely used.

In Thailand, the majority of the companies have, so far, not taken a marketing approach. Rather, policies are sold along traditional methods. Pre-sale and after-sale service are neglected in general, and formal advertising is discouraged by the insurance commissioner. Although this kind of promotion is not a sufficient condition for satisfactory business, it is necessary to create an atmosphere of awareness. The newly formed Thai Life Assurance Association plans to launch a nationwide campaign to achieve this. However, this will only be translated into more active business, if it is accompanied by an improvement in the operations of the companies, and if the agents can instil, through their work, the necessary understanding and trust.

## G. Social Security and Provident Funds

### 1. Diverging Efforts in the Philippines and Thailand to Expand Social Security and Provident Fund Coverage

Even more than life insurance, social security and provident funds provide a stable source of long-term funds for investment projects. Their mobilization is therefore of particular importance.

Contributions to these funds accounted for a substantial portion of personal savings in financial assets in the Philippines. After having increased rapidly in importance during the fifties, their share reached more than one quarter in 1960. During the sixties and seventies, however, they declined in importance, although the total volume continued to rise steadily.

Table 4.26. Personal Savings in the Form of Social Security and Provident Funds, 1950-1977

| Year | The Philippines          |                      | Thailand                 |                      |
|------|--------------------------|----------------------|--------------------------|----------------------|
|      | SPF <sup>1</sup><br>(Pm) | SPF/FA<br>(per cent) | SPF <sup>1</sup><br>(Bm) | SPF/FA<br>(per cent) |
| 1950 | 20.1                     | 4.51                 | 2.2                      | 0.17                 |
| 1955 | 50.1                     | 15.60                | 60.5                     | 4.45                 |
| 1960 | 180.4                    | 28.98                | 108.6                    | 5.77                 |
| 1965 | 316.7                    | 26.02                | 130.1                    | 3.60                 |
| 1970 | 330.5                    | 14.03                | 413.9                    | 6.17                 |
| 1975 | 432.3                    | 12.90                | 492.7                    | 4.31                 |
| 1977 | 567.5                    | 14.46                | -112.4                   | -0.60                |

Remarks: 1) In constant prices of 1969.  
 Definitions: SPF - Social Security and Provident Funds  
 FA - Financial Savings  
 Source: See Statistical Appendix, B.1. and C.1.

In Thailand, savings in the form of social security and provident funds increased at a similar rate as total personal savings in financial assets but accounted for only a small proportion. As of February 1977, the Government Provident Fund and some government enterprise funds have been discontinued and the contributions are being slowly returned to their members. This explains the dissaving in 1977.

The difference in the number of persons covered by the various schemes underlines that the Thai system of employee benefit funds lags far behind that of the Philippines. In the latter country, approximately 7 million people are members of the Government Service Insurance System, the Social Security System and various provident funds, whereas in Thailand, only an estimated 1.5 million people draw benefits from the government, government enterprise and private provident funds.<sup>1</sup> In the following section, the reasons for the different developments in the two countries are traced to lack of legislation in Thailand.

## 2. Legislation with respect to Social Security and Provident Funds

Despite a number of deficiencies, for example, lack of compliance or the misallocation of some funds, the system of insurance and retirement schemes in the Philippines plays an important part in the mobilization of savings, the financing of development projects and, of course, in providing a social

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<sup>1</sup> The data have been provided by the GSIS, the SSS and BOT, DER.

safety-net. It compares very well with the systems in other developing countries.<sup>1</sup> Continuous upgrading of the regulations ensures that the coverage of the social security system is expanded to more groups of the population and that the benefits are improved further. Thus, social security contributions continue to represent an important source of long-term funds.

In Thailand, on the other hand, social security and provident funds are far from developed. Government employees are relatively well covered through the Government Provident Fund. However, the funds mobilized through the Government Provident Fund are not invested in either financial or tangible assets, but simply kept with the treasury at no interest.<sup>2</sup> So far, employees in the private sector have been almost completely neglected, except for many unfulfilled promises.

The earliest attempt to conceptualize a social insurance scheme goes back as far as 1932.<sup>3</sup> As part of the National Economic Policy of Nai Pridi Phanomyong, a plan was drafted that included every Thai citizen in an insurance system. The draft, however, was rejected. Various other attempts followed, culminating in 1954 with the passing of the Social Insurance Act, B.E.2497, which included benefits covering

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<sup>1</sup> See Franco Reviglio, 'Social Security: A Means of Savings Mobilization for Economic Development', IMFSP, 14(1967), 324-368, in particular pp. 328 and 339.

<sup>2</sup> See Alek A. Rozental, op. cit., p. 337.

<sup>3</sup> For a detailed history of the social security legislation in Thailand, see Medhi Krongkaew, Social Security in Thailand: Growth, Trend and Problems, Discussion Paper Series No. 58 (Thammasat University, Faculty of Economics, 1977).

six categories: maternity, sickness, invalidity, child care, old age and death. Insufficient administrative planning, lack of information that let the public regard the insurance contributions as another tax and a coup d'état led to its eventual abandonment. More drafts followed with no tangible results. As of February 1978, a new social security bill has been drafted and, if passed, employees in Bangkok and five other provinces will be covered, regardless of occupation.<sup>1</sup> However, as neither employers nor employees are particularly anxious to realize its implementation, its prospects are dim.<sup>2</sup>

Because of the lack of social security legislation, private provident and pension funds provide, so far, the only means of retirement benefits and protection in case of disability or death for non-government employees. The operation of these private schemes, however, is hampered by existing and non-existing laws:<sup>3</sup>

- (1) There is no legal framework which defines a provident fund, let alone provides incentives for its establishment.
- (2) No rules and regulations are laid down with respect to its management, acceptable risk and return, matching levels, vesting, member loans and other possible points of contention between employers and employees.

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<sup>1</sup> See, 'Employees to "Chip in" Towards Social Security Fund?' BP, 32(1978), No. 57, p. 3.

<sup>2</sup> See Boonserm Asavapisit, 'Compulsory Health Care Seems a Long Way Off', BT, 1(1978), No. 29, 6-7, p. 6.

<sup>3</sup> See 'Provident Funds and the Law: A Case for Government Action', BIT, 7(1976), No. 2, 22-27, p. 23.



(3) Regulations in the revenue code, the only law that mentions provident funds, imply that company contributions are not deductible as business expenses until they are definitely paid out. As the fund is regarded as part of the company assets, the interest on it is taxable at the corporate rate tax (35 per cent). This also applies to the interest on the employees' contributions, unless they are clearly separated from the contributions by the employer, which they invariably are not. The revenue code also makes it advisable to opt for a lump sum at the time of retirement rather than regular instalments, as the former procedure entails some tax concessions. This, however, often implies that savings accumulated over a long period are spent within a short time.

Because of the ambiguities in the revenue code and its interpretations, there is a lot of confusion with respect to the correct handling of provident funds, in particular, the taxes to be paid.<sup>1</sup> In order to avoid some of the problems, a very popular procedure is to call the contributions to the provident fund a 'wage', deduct the normal 10 per cent withholding tax and treat the contributions as definitely being paid out, so that they can be regarded as part of the business expenses. The employees then sign an agreement authorizing this amount, together with their own contribution, to be deposited with a bank or finance company which manages the fund. Separate accounts are kept for every employee.

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<sup>1</sup> The regulations concerning the deduction of company contributions and the application of the corporate tax rate to the interest earned have not been enforced so far.



Many other concepts exist, some of which simply ignore taxes altogether, expecting provident funds to become tax-exempt eventually.<sup>1</sup>

In 1974, plans were revealed that envisaged the take-over of all private provident funds through a government institution, possibly a provident fund bank, to safeguard the funds and render fraud impossible.<sup>2</sup> However, companies have raised strong objections, which are not without justification.<sup>3</sup> It is feared, first, that the interest earned on the funds would decline since the government cannot match the expertise of the banks and finance companies; second, that government bureaucracy would make procedures more cumbersome and delay pay-outs; third, that the quality of the benefits would decline and, fourth, that the objectives of the companies to attract employees and to reduce staff turnover are essentially frustrated, since their special provident funds become part of a general scheme.

However, legal provisions are needed to overcome the uncertainties, safeguard the funds and, at the same time, enable them to become important sources of long-term finance. The following major principles have been put forward by fund managers.<sup>4</sup>

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<sup>1</sup> See, 'Provident Funds and the Law: A Case for Government Action', op. cit., pp. 25-6.

<sup>2</sup> See, 'Provident Fund Bank Planned', BP, 28(1974), No. 261, p.7.

<sup>3</sup> See, 'Provident Funds and the Law', op. cit., p. 24.

<sup>4</sup> See, 'Provident Funds, Poorly Planned Taxes', BIT, 9(1978), No. 1, 77-80, p. 80.

- (1) Provident funds should be clearly defined.
- (2) Third-party management should be mandatory to prevent companies from using the funds for their own purposes. This would help convince employees that their contributions are safe.
- (3) Employers should be able to determine part of the regulations themselves. Otherwise, the benefits offered by different companies would not be distinguishable and the major objective of provident funds defeated.
- (4) Employers' contributions should be treated as a business expense.
- (5) The corporate income tax should not be applicable to the interest earned on the contributions of employers and employees.
- (6) The contributions to the fund should not be subject to tax until they are paid out. Following this, a concessional rate should be applied.
- (7) A provident fund should be allowed to be managed as a whole rather than demand a breakdown into separate accounts for every employee.

In addition, plans for a comprehensive social security system have to be developed further and an efficient fund management mechanism has to be institutionalized.

## CHAPTER V

### THE STRUCTURE OF PERSONAL SAVINGS AND ITS DETERMINANTS: THE ALLOCATION SIDE OF SAVINGS MOBILIZATION

#### A. Introduction

In most developing countries, the lack of data prevents an analysis of the allocation of savings among different financial and tangible assets. For the Philippines and Thailand, the necessary data have been compiled, covering the period 1950 to 1977. On the basis of these time-series, it is possible for the first time to analyze the changes in the preferences of individual investors in the two countries over several decades. In addition, they enable - also for the first time - the testing of the applicability of the portfolio selection approach to developing countries.

The analysis of the profiles of financial instruments in the Philippines and Thailand in the previous chapter provides the basis for the understanding of people's choice behaviour in these countries. The decisions concerning the allocation of funds among different financial instruments have to be taken within the supply constraints set by the financial intermediaries, financial markets and monetary authorities.

Section B traces the overall structure of personal savings in the Philippines and Thailand since 1950. It summarizes various findings of Chapter IV and relates them to changes in the portfolio behaviour of individual investors. Initially, personal savings are disaggregated into savings taking the form of financial and tangible assets, with the

increase in personal debt being deducted. Alternatively, gross financial and tangible savings are broken down to indicate the share of personal savings meant for self-use and the proportions that are lent to deficit units either directly or indirectly through financial intermediaries. Financial savings are disaggregated further into voluntary, contractual and compulsory savings and into short-term and long-term savings. Finally, the structure of savings in tangible assets is examined.

In section C, the portfolio models described in Chapter II are modified and specified in detail so as to render them empirically tractable. The results of the estimation process are presented in section D.

## B. Changing Patterns in the Structure of Personal Savings

### 1. Savings in Financial Assets versus Savings in Tangible Assets

The great advantage of estimating savings by a flow-of-funds approach is that it enables a structural analysis. There are several ways to disaggregate personal savings, the most prominent of which is the distinction between savings in financial and tangible assets.

From Table 5.1. (see p.279 ) it can be seen that in both countries there is a strong tendency towards savings in financial assets. In the Philippines, the average share of financial assets has risen from 22.5 per cent during the fifties to 45.0 and 58.6 per cent during the sixties and seventies respectively. The increasing importance of financial relative to tangible assets has been partly due to the expansion of the financial system, whereby expansion is meant in a quantitative as well as qualitative sense. As discussed earlier, branches of commercial and savings banks have been established in almost all areas with a sizeable savings potential.<sup>1</sup> New financial institutions have commenced operation and offered a variety of new savings instruments so as to accommodate the changing needs of savers.

Yield considerations have also played an important role in the change in the structure of personal savings. During the sixties, high rates of return on tangible assets, such as housing or own business projects, and comparatively low

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<sup>1</sup> See section IV.B.2.

yields on deposits, bonds and life insurance led savers to prefer the former. The sharp increase in export earnings during the seventies brought about a large supply of liquid resources and induced heavy investment in financial assets. This has been accompanied and made possible mainly by the emergence of deposit substitutes, which unlike traditional deposits provided remunerative savings outlets.

However, the rapid inflation during the latter period prevented the tendency towards financial savings to continue unabated. After having declined to 52.6 per cent in 1970 and 1972, the share of the tangible savings increased again and has remained at about 60 per cent in recent years. Continuous improvements in the financial and monetary system are needed, if further progress is to be made towards financial savings.

A similar sharp increase in the share of savings in financial assets can be noted in Thailand. It rose from 29.1 per cent (1950-59) to 40.0 per cent (1960-69) and 64.1 per cent (1970-77). As in the case of the Philippines, the growing preference for financial assets can be attributed, first, to the proliferation and sophistication of the financial system. Second, continuous high real rates of interest on time deposits attracted large funds into the banking system. This has been reinforced by the tax-exemption of interest income from deposits since 1962.<sup>1</sup>

The rise in the share of financial savings, however, cannot be interpreted solely as a movement away from tangible assets. Presumably, it is also due to an increasing importance

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<sup>1</sup> The tax-exemption was suspended in 1977.

of the organized money and capital markets relative to the unorganized markets. There are no data on the size of the latter, so that the importance of this structural change cannot be evaluated.

The increasing preference for financial assets has far-reaching implications for the investment process, since it enables an expansion of intersectoral financial flows and thereby allows deficit units to draw more on external funds. This in itself can induce higher investment, as previously some projects might not have been implemented because of lack of credit.

In both countries, financial institutions have not only been used increasingly as savings outlets, but also as sources of credit. The substantial increase in financial savings has been offset partly by the accumulation of debt, so that the increase in net financial assets still accounts for less than half of personal savings.

In the Philippines, individuals have already borrowed significant amounts during the sixties. The ratio of the increase in debt to total savings rose from 5.9 per cent during the fifties to 16.7 per cent in the sixties. In Thailand, a marked upsurge in the accumulation of liabilities can only be detected from 1968 onwards. After miniscule borrowing during the fifties and sixties because of the very conservative lending policy of banks, the increase in debt to total savings reached 21.4 per cent during the seventies.



Two developments are responsible for this. First, individuals found it more desirable to borrow because of the high inflation during the seventies. Second, the decline in growth brought about a decline in corporate borrowing, which left commercial banks and finance and securities companies with large amounts of liquid funds. This led the financial institutions to reorientate their lending policies towards non-institutional borrowers. During the period 1974 to 1977, the outstanding amount of individual debt at commercial banks more than doubled, and that at finance and securities companies more than trebled.<sup>1</sup> In 1977, the increase in private debt amounted to more than half of the increase in financial assets. The accumulation of liabilities has been of such significance that it led to an overall decline in personal savings since 1974, despite large increases in gross financial and tangible savings.

Alternatively, personal savings can be disaggregated according to their direction. Tangible assets represent savings for self-use purposes. Direct savings comprise the net increase in primary securities, that is, currency, treasury bills, corporate and government bonds as well as corporate shares, while the net change in indirect securities, that is, deposits, deposit substitutes, shares of mutual funds, trust funds, life insurance and employee benefit funds, constitutes indirect savings (dissavings).

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See Statistical Appendix, C.1..



The large increase in the share of the latter indicates that, in the Philippines and Thailand, individual investors have become more willing to relinquish control over their resources and make use of financial intermediaries (see Table 5.2., p. 280). This has been made possible through the strengthening of the financial system by the monetary authorities and the wider range of financial instruments that are being offered by the various financial institutions. If the assumption is valid that financial intermediaries bring about a more efficient allocation of funds than is done by the unorganized financial markets or the surplus units themselves, the preference for indirect savings implies that increasingly better use is made of the funds that are saved.

## 2. The Structure of Personal Savings in the Form of Financial Assets

In neither the Philippines nor Thailand can a clear pattern of development of the structure of personal savings in financial assets be determined, if a disaggregation into individual assets is undertaken (see Tables 5.3. and 5.4., pp. 288-89 ). The extent to which demand as well as supply considerations have influenced the share of different assets has changed considerably over time.

The share of savings in currency has moved erratically in both countries, a fact that can be attributed only to a small extent to autonomous changes in people's savings behaviour. However, it is striking and an indication for the lack of development of the financial system that, during the early

Table 5.1. The Structures of Personal Savings I, 1950-1977 (per cent)

| Year | The Philippines |       |       | Thailand |       |       |
|------|-----------------|-------|-------|----------|-------|-------|
|      | FA              | PD    | TA    | FA       | PD    | TA    |
| 1950 | 32.7            | - 4.3 | 71.6  | 40.9     | - 0.5 | 59.6  |
| 1951 | - 2.4           | - 3.5 | 105.9 | 40.9     | - 1.6 | 60.7  |
| 1952 | 12.2            | - 1.4 | 89.1  | 5.3      | - 7.4 | 102.0 |
| 1953 | 20.8            | - 0.4 | 79.6  | 28.6     | - 5.4 | 76.8  |
| 1954 | 22.9            | - 0.7 | 77.7  | 32.4     | - 2.2 | 69.8  |
| 1955 | 23.7            | - 9.9 | 86.2  | 35.2     | - 4.0 | 68.8  |
| 1956 | 24.2            | -14.9 | 90.7  | 31.0     | - 4.8 | 73.8  |
| 1957 | 26.8            | -10.5 | 83.8  | 26.3     | - 4.6 | 78.4  |
| 1958 | 30.3            | - 4.8 | 74.5  | 22.4     | - 5.5 | 83.1  |
| 1959 | 33.4            | - 8.0 | 74.6  | 27.8     | - 4.8 | 77.0  |
| 1960 | 32.0            | - 7.6 | 75.6  | 33.6     | - 4.4 | 70.7  |
| 1961 | 42.7            | -16.7 | 74.0  | 33.2     | - 4.5 | 71.3  |
| 1962 | 46.2            | -15.4 | 69.3  | 37.3     | - 5.3 | 67.9  |
| 1963 | 51.8            | -17.4 | 65.5  | 37.3     | - 4.2 | 66.9  |
| 1964 | 30.2            | -19.2 | 88.9  | 39.8     | - 6.1 | 66.3  |
| 1965 | 39.9            | -14.5 | 74.6  | 41.1     | - 8.8 | 67.7  |
| 1966 | 45.3            | - 7.4 | 62.1  | 53.1     | -11.0 | 57.9  |
| 1967 | 56.6            | -18.8 | 62.3  | 37.8     | - 6.6 | 68.8  |
| 1968 | 50.2            | -32.4 | 82.3  | 42.4     | -13.9 | 71.5  |
| 1969 | 55.0            | -17.7 | 62.7  | 44.5     | -14.5 | 70.0  |
| 1970 | 54.8            | - 7.4 | 52.6  | 45.5     | -11.7 | 66.1  |
| 1971 | 57.7            | -19.9 | 62.2  | 53.9     | -11.9 | 58.0  |
| 1972 | 48.1            | - 0.7 | 52.6  | 64.4     | -11.2 | 46.8  |
| 1973 | 67.3            | -20.3 | 53.1  | 67.4     | -17.4 | 50.0  |
| 1974 | 72.5            | -30.2 | 57.7  | 63.1     | -14.7 | 51.6  |
| 1975 | 58.3            | -19.1 | 60.8  | 66.9     | -34.6 | 67.6  |
| 1976 | 56.2            | -14.6 | 58.5  | 69.1     | -24.0 | 54.9  |
| 1977 | 54.0            | -14.4 | 60.4  | 82.1     | -45.7 | 63.7  |

Definitions: FA - Savings in the Form of Financial Assets  
PD - Increase in Liabilities  
TA - Savings in the Form of Tangible Assets

Source: See Statistical Appendix, B.1. and C.1.

Table 5.2. The Structure of Personal Savings II, 1950-1977 (per cent)

| Year | The Philippines |      |       | Thailand |       |      |
|------|-----------------|------|-------|----------|-------|------|
|      | SU              | DI   | ID    | SU       | DI    | ID   |
| 1950 | 68.6            | 20.5 | 10.8  | 59.3     | 32.1  | 8.7  |
| 1951 | 102.4           | 0.9  | - 3.3 | 59.8     | 29.9  | 10.3 |
| 1952 | 87.9            | 2.7  | 9.4   | 95.0     | - 2.7 | 7.7  |
| 1953 | 79.3            | 7.5  | 13.2  | 72.8     | 13.2  | 14.0 |
| 1954 | 77.2            | 6.3  | 16.5  | 68.3     | 23.2  | 8.4  |
| 1955 | 78.4            | 2.8  | 18.8  | 66.1     | 24.2  | 9.7  |
| 1956 | 79.0            | 9.9  | 11.1  | 70.4     | 18.7  | 10.8 |
| 1957 | 75.8            | 9.6  | 14.6  | 74.9     | 11.8  | 13.3 |
| 1958 | 71.1            | 10.3 | 18.6  | 78.8     | 6.1   | 15.1 |
| 1959 | 69.1            | 15.2 | 15.7  | 73.5     | 18.0  | 8.6  |
| 1960 | 70.2            | 15.4 | 14.4  | 67.8     | 14.8  | 17.4 |
| 1961 | 63.4            | 15.5 | 21.1  | 68.2     | 16.5  | 15.3 |
| 1962 | 60.0            | 13.5 | 26.5  | 64.5     | 9.5   | 26.0 |
| 1963 | 55.8            | 14.7 | 29.4  | 64.2     | 10.0  | 25.7 |
| 1964 | 74.6            | 7.6  | 17.7  | 62.5     | 16.9  | 20.6 |
| 1965 | 65.1            | 13.0 | 21.9  | 62.2     | 17.8  | 19.9 |
| 1966 | 57.8            | 10.6 | 31.5  | 52.2     | 19.0  | 28.8 |
| 1967 | 52.4            | 13.9 | 33.7  | 64.5     | 11.9  | 23.6 |
| 1968 | 62.1            | 12.1 | 25.7  | 62.8     | 12.5  | 24.7 |
| 1969 | 53.3            | 16.6 | 30.1  | 61.1     | 11.8  | 27.1 |
| 1970 | 49.0            | 14.6 | 36.4  | 59.2     | 17.0  | 23.8 |
| 1971 | 51.9            | 12.9 | 35.2  | 51.9     | 14.0  | 34.2 |
| 1972 | 52.2            | 20.2 | 27.5  | 42.1     | 16.7  | 41.3 |
| 1973 | 44.1            | 7.8  | 48.1  | 42.6     | 22.6  | 34.8 |
| 1974 | 44.3            | 16.7 | 38.9  | 45.0     | 14.9  | 40.1 |
| 1975 | 51.0            | 12.6 | 36.4  | 50.3     | 9.9   | 39.9 |
| 1976 | 51.0            | 12.1 | 36.9  | 44.3     | 12.5  | 43.3 |
| 1977 | 52.8            | 11.1 | 36.1  | 43.7     | 10.6  | 45.7 |

Remarks: In this table, personal savings are defined as the sum of the increase in gross financial assets and the increase in tangible assets.

Definitions: SU - Personal Savings for Self-Use Purposes  
DI - Personal Savings in Form of Direct Financial Assets  
ID - Personal Savings in Form of Indirect Financial Assets

Source: See Statistical Appendix, B.1. and C.1.

fifties in Thailand, financial savings consisted of more than one-half of increases in currency holdings. With the spread of banks, the reliance on currency declined sharply.

Deposits have developed into by far the most important savings instrument. As of 1977, they clearly dominate the portfolio of individual investors, accounting for 50.8 per cent in the Philippines and 66.0 per cent in Thailand. Since deposits represent a rather diverse group of assets within which important changes have taken place, a more detailed analysis is necessary.

The change in preference from demand deposits, which accounted for the largest share at the beginning of the fifties, to savings and time deposits enabled financial institutions to expand their credit portfolio and to ensure the easier roll-over of credits. During the seventies, the relatively low yield on savings deposits induced Philippine savers to switch part of their funds to time deposits. Among the latter, those with maturities of more than two years were increasingly preferred, since the yield on these has been freed from interest rate ceilings since 1976. In 1975, only 20 per cent of time deposits carried maturities of more than two years, whereas their share increased to more than one-half in 1978.<sup>1</sup> Viewed in the long-run perspective, a tendency towards deposits with higher yields and longer maturities can be noted.

Striking as it may be, this development has been brought about to a great extent by the emergence of deposit substitutes, which are high-yielding, short-term and negotiable instruments.

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<sup>1</sup> See Table 4.5., p. 189.

The strong upsurge in inflation during the seventies and the consequent negative real rates of interest on savings and most time deposits led many investors to move their resources to deposit substitutes, to the detriment of deposits. Between 1973 and 1975, deposit substitutes accounted for more than 20 per cent of financial savings. Measures to suppress the market, the successful control of inflation and above all, the removal of any interest rate ceilings on time deposits of maturities of more than two years have revived the attractiveness of deposits. This process underlines the importance of interest rates in portfolio decisions.

In Thailand, the structure of financial savings has been determined also, to a great extent, by the rates of return on the different savings instruments. One year time deposits have not only become the most important form of deposit, but the most important financial asset in general. This can be directly attributed to the high positive real rates of interest offered by this type of instrument. The ability to withdraw money prematurely without incurring any loss of interest has further increased its attractiveness. Not even the introduction of deposit substitutes by finance and securities companies diminished the predominance of time deposits in the portfolio of individual investors.

Corporate shares are the second most important form of saving in financial assets, if viewed over the whole period under consideration. However, their proportion gives a misleading impression about the significance of the capital market in either country, since most corporations are closely held. The few families that own the majority of corporations

do not like to share control, nor are they willing to reveal any information about their business ventures. Most of the capital increases are financed from within the families rather than through a public offering of additional shares on the stock exchanges.

Long-term debt securities, either private or public, are almost negligible in the investment decisions of individuals. This indicates very clearly the lack of development of the respective capital markets and the substantial efforts that are needed to render such instruments a viable investment alternative. Insufficient supply of attractive bonds and debentures is mainly responsible for the poor condition the markets are in. Because of the high costs involved in issuing securities, corporations prefer bank credits. Although the Philippine and Thai governments offer a variety of bonds, private surplus funds are not tapped. So far, the ability to finance budget deficits through forced investment regimes has prevented any initiative to market attractive savings instruments.

In both countries, consistently low yields on life insurance policies, exacerbated by high inflation during the seventies, deterred individual investors and led to a decline in the share of this financial instrument. In Thailand, mismanagement and bankruptcies have added to the problems and contributed greatly to the fact that life insurance accounted for less than two per cent of financial savings during most years since 1960.

Employee benefit funds are of far greater importance than private insurance, in particular in the Philippines,

where the GSIS and the SSS have mobilized substantial funds from individuals. It has to be noted that the significance of savings in employee benefit funds is independent from the individual's decisions. Rather, it is determined by the laws that decide who has to participate and with how much. The small percentage of personal savings in employee benefit funds in Thailand therefore indicates that the existing laws on social security and provident funds are insufficient. A lack of interest on part of the savers cannot be deduced from the data.

A second disaggregation of financial savings indicates that voluntary savings predominate. Contractual (life insurance) and compulsory savings (employee benefit funds), which are regarded as the most stable sources of finance, accounted for less than one-fifth of financial savings in the Philippines and less than one-twentieth in Thailand during the last decade (see Table 5.5., p. 290).

Third, savings in financial assets are disaggregated into those in short-term and long-term assets (see Table 5.6., p. 291). Such a distinction must necessarily be arbitrary. Lines have been drawn between assets of maturities of less or more than one year, five years and even ten years. However, even after the respective maturities have been decided on, a separation of both types of assets will be difficult, since part of the securities with an initial maturity of several years are due within just one year and should, therefore, be considered as short-term rather than long-term assets. Lack of appropriate data makes it necessary to use initial maturities as the criterion for disaggregation.



The fact that savers and financial intermediaries have a different perception of the term-structure of funds causes another problem in the definition of short-term and long-term assets. Some intermediaries act purely as brokers between surplus and deficit units. Others adjust to the changing needs of lenders and borrowers by transforming short-term funds into long-term credits or long-term funds into short-term credits. Still others concentrate on the extension of overdrafts and short-term loans (loans for periods not exceeding one year) irrespective of the term-structure of funds they have mobilized from surplus units. In the Philippines and Thailand, the majority of banks belong to the third category, although a very high proportion of the money deposited with them remains in the accounts for several years.

The difference in the perception of the term-structure of funds by savers and financial intermediaries is taken into consideration by applying two definitions of short-term and long-term assets. From the savers' point of view, short-term assets comprise currency, demand deposits, deposit substitutes and treasury bills. In the second definition, which appears to be more relevant as it describes the type of funds available to borrowers, short-term assets are extended to include, in addition, savings and time deposits. It has to be noted, however, that some of the credit extended by the banks is of long-term nature and that part of the short-term credit is rolled over continuously so that they are in fact long-term credits. Therefore the data in



Table 5.6 (see p.291) can only indicate trends, rather than give a precise division between short-term and long-term funds.

Following the first definition, long-term financial assets (LT1) clearly dominate the portfolio of individual investors. During the seventies, they commanded a share of approximately 78 per cent in Thailand. In the Philippines, on the other hand, the seventies saw a notable tendency towards shorter maturities. Between 1969 and 1975, the share of long-term assets declined considerably because the real rates of return on these became negative. Preference was given to deposit substitutes, since the interest rate on these were not subject to government regulations. This brought about serious problems with respect to the funding of longer-term projects. At times, financial institutions experienced difficulties to ensure even the roll-over of short-term credits.<sup>1</sup>

In 1976 and 1977, various measures to render deposits more attractive and deposit substitutes less desirable and a decline in inflation have reversed the trend in favour of long-term assets (LT1). In particular, the removal of interest rate ceilings on time deposits of maturities of more than two years has been very successful, as indicated earlier.

The application of the second definition gives a very different picture. The share of long-term financial assets (LT2) in savers' portfolios has declined considerably in both countries during the last three decades, which is in

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<sup>1</sup> See The World Bank, op. cit., pp. 354-5.

sharp contrast to the needs of their development strategies. In order to finance development projects with long gestation periods, it is necessary, first, to ensure that corporate shares, bonds, life insurance and employee benefit funds play a more prominent role in the portfolio of individual investors by strengthening the capital markets and expanding the coverage of social security to more groups of the population. Second, monetary authorities might induce banks to allocate more of their resources to long-term projects.

### 3. The Structure of Personal Savings in the Form of Tangible Assets

Although the importance of savings in tangible assets has declined since 1950, they still account for more than half of personal savings. The conclusions with respect to the change in the structure of tangible savings can only be tentative, because data on only three types of assets are available.

In both countries, investment in housing has accounted for the largest share during most of the period under investigation (See Table 5.7., p.294). In the Philippines, it predominated throughout the whole period, commanding approximately 50 per cent, whereas in Thailand, its share fell from 55.1 per cent in 1961 to an average 40 per cent during the seventies. In view of the rising housing shortage, the relative decline in the latter years is rather surprising.

**Table 5.3.** The Structure of Personal Savings in the Form of Financial Assets  
I, The Philippines 1950-1977 (per cent)

| Year              | CC    | DD    | SD   | TD    | DS   | B    | CS   | TF   | LI   | EBF  |
|-------------------|-------|-------|------|-------|------|------|------|------|------|------|
| 1950              | 35.8  | 25.3  | -0.9 | 1.9   | 0.0  | 0.0  | 29.6 | 0.0  | 3.9  | 4.5  |
| 1951 <sup>1</sup> | 0.0   | 0.0   | 0.0  | 0.0   | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  | 0.0  |
| 1952              | -13.8 | 7.0   | 18.0 | 1.3   | 0.0  | 0.0  | 36.0 | 7.9  | 12.9 | 30.8 |
| 1953              | 17.7  | - 3.2 | 24.1 | 1.9   | 0.0  | 0.2  | 18.1 | 4.3  | 8.5  | 28.3 |
| 1954              | 5.5   | 2.2   | 20.0 | 5.8   | 0.0  | 0.3  | 21.7 | 4.7  | 11.0 | 28.8 |
| 1955              | - 2.9 | 11.8  | 15.3 | 28.8  | 0.0  | 0.4  | 15.4 | 5.2  | 10.4 | 15.6 |
| 1956              | 20.9  | 11.8  | 30.2 | -18.8 | 0.0  | 0.4  | 26.0 | 4.8  | 9.0  | 15.8 |
| 1957              | 19.9  | 2.6   | 22.0 | 3.0   | 0.0  | 0.2  | 19.6 | 4.0  | 8.1  | 20.6 |
| 1958              | 9.4   | 11.3  | 15.7 | 3.6   | 0.0  | 0.3  | 26.1 | 3.6  | 6.5  | 23.4 |
| 1959              | 16.6  | - 1.1 | 13.5 | 2.3   | 0.0  | 0.0  | 32.7 | 3.5  | 7.0  | 25.6 |
| 1960              | 12.8  | - 5.8 | 12.7 | 1.1   | 0.0  | 1.0  | 37.8 | 4.1  | 7.3  | 29.0 |
| 1961              | 13.5  | 8.2   | 18.0 | 6.8   | 0.0  | 0.1  | 24.1 | 2.8  | 5.8  | 20.6 |
| 1962              | 14.0  | 11.1  | 19.0 | 9.0   | 0.0  | 0.0  | 19.8 | 2.7  | 5.1  | 19.2 |
| 1963              | 15.0  | 14.6  | 24.1 | 6.5   | 0.0  | 0.3  | 18.0 | 2.2  | 3.8  | 15.6 |
| 1964              | - 5.9 | -12.5 | 27.1 | 5.9   | 0.0  | 0.1  | 35.9 | 5.0  | 8.4  | 36.1 |
| 1965              | 14.5  | 2.5   | 19.0 | 5.8   | 0.4  | 0.1  | 22.7 | 3.5  | 5.6  | 26.0 |
| 1966              | 3.8   | 7.7   | 28.2 | 10.3  | 2.9  | 0.6  | 21.5 | 2.9  | 3.2  | 18.9 |
| 1967              | 10.2  | 5.3   | 32.6 | 8.0   | 1.0  | 2.0  | 18.9 | 2.6  | 3.6  | 15.8 |
| 1968              | 1.5   | 1.4   | 24.9 | - 0.7 | 7.0  | 1.3  | 30.6 | 4.1  | 5.1  | 24.8 |
| 1969              | 14.9  | 9.4   | 21.1 | 0.6   | 8.2  | 0.3  | 20.6 | 3.2  | 4.2  | 17.6 |
| 1970              | 9.7   | 4.0   | 30.2 | 5.0   | 11.3 | -0.2 | 18.9 | 2.9  | 4.1  | 14.0 |
| 1971              | 7.5   | 9.1   | 26.9 | 10.7  | 7.7  | 0.0  | 19.3 | 0.3  | 3.1  | 15.5 |
| 1972              | 22.5  | 4.7   | 7.2  | 15.0  | 8.4  | 0.8  | 19.6 | 0.0  | 3.8  | 18.0 |
| 1973              | 0.3   | 8.9   | 25.7 | 5.1   | 22.4 | 0.3  | 13.4 | 10.2 | 3.2  | 10.6 |
| 1974              | 9.5   | 9.0   | 12.9 | 4.7   | 21.8 | 0.1  | 20.5 | 10.5 | 1.7  | 9.3  |
| 1975              | 5.2   | - 1.2 | 13.8 | 11.3  | 23.6 | 0.8  | 20.6 | 9.9  | 3.1  | 12.9 |
| 1976              | 8.7   | 3.9   | 23.0 | 19.6  | 2.2  | 0.5  | 16.2 | 6.4  | 2.4  | 17.2 |
| 1977              | 9.2   | 2.6   | 22.0 | 26.2  | 6.8  | 0.5  | 13.9 | 1.5  | 2.8  | 14.5 |

Remarks: 1) Personal savings in financial assets were negative in 1951 so that percentages are not meaningful.

Definitions: CC - Currency  
DD - Demand Deposits  
SD - Savings Deposits  
TD - Time Deposits and Other Deposits  
DS - Deposit Substitutes and Treasury Bills  
B - Bonds and Debentures  
CS - Corporate Shares and Shares of Mutual Funds  
TF - Trust Funds  
LI - Life Insurance  
EBF - Employee Benefit Funds (GSIS and SSS reserves)

Source: See Statistical Appendix, B.1.

Table 5.4. The Structure of Personal Savings in the Form of Financial Assets  
I, Thailand 1950-1977 (per cent)

| Year | CC    | DD    | SD    | TD   | DS   | B    | CS   | LI   | EBF  |
|------|-------|-------|-------|------|------|------|------|------|------|
| 1950 | 78.1  | 17.0  | 2.8   | 0.0  | 0.0  | 1.8  | 0.0  | 0.1  | 0.2  |
| 1951 | 72.8  | 16.3  | 5.5   | 2.2  | 0.0  | -0.1 | 0.0  | 0.1  | 3.2  |
| 1952 | -77.5 | 90.4  | 20.1  | 24.9 | 0.0  | 5.5  | 0.0  | 0.7  | 35.9 |
| 1953 | 45.1  | 28.9  | 7.8   | 4.6  | 0.0  | 1.1  | 0.0  | 6.9  | 5.5  |
| 1954 | 50.0  | 8.3   | 8.1   | 3.5  | 0.0  | 0.7  | 20.6 | 4.4  | 4.4  |
| 1955 | 52.5  | 9.0   | 8.7   | 4.1  | 0.0  | 1.1  | 15.9 | 4.1  | 4.5  |
| 1956 | 21.8  | 10.2  | 2.4   | 16.8 | 0.0  | 2.8  | 37.1 | 3.4  | 5.4  |
| 1957 | 15.2  | 20.9  | 9.4   | 12.7 | 0.0  | 4.8  | 25.5 | 4.6  | 7.0  |
| 1958 | - 7.9 | 32.9  | 3.1   | 24.4 | 0.0  | 3.6  | 31.4 | 3.6  | 8.9  |
| 1959 | 21.7  | 9.5   | 0.6   | 13.6 | 0.0  | 7.4  | 38.1 | 2.2  | 6.9  |
| 1960 | 15.1  | 22.3  | 9.2   | 15.4 | 0.7  | 8.6  | 22.2 | 0.8  | 5.8  |
| 1961 | 23.7  | 11.9  | 8.2   | 23.5 | -0.2 | 7.7  | 20.4 | -0.3 | 5.1  |
| 1962 | 2.6   | - 0.8 | 4.8   | 61.9 | 0.0  | 8.2  | 20.4 | 1.0  | 1.7  |
| 1963 | 3.2   | -27.2 | 52.7  | 37.4 | 0.0  | 8.3  | 19.9 | 1.7  | 3.9  |
| 1964 | 18.3  | 3.0   | 12.4  | 32.4 | -0.1 | 8.4  | 22.2 | -0.4 | 3.8  |
| 1965 | 23.1  | 15.8  | - 7.2 | 35.7 | 0.1  | 5.8  | 20.7 | 2.5  | 3.6  |
| 1966 | 18.5  | 5.2   | 8.8   | 41.2 | 0.4  | 2.6  | 19.6 | 1.1  | 2.6  |
| 1967 | 9.6   | 3.3   | 5.8   | 48.5 | 0.4  | 2.5  | 23.2 | 2.6  | 4.0  |
| 1968 | 14.5  | 10.1  | 5.9   | 46.8 | 0.4  | 2.8  | 15.7 | -1.4 | 5.1  |
| 1969 | 4.9   | 3.8   | 5.8   | 50.6 | 0.8  | 0.6  | 23.8 | 4.2  | 5.4  |
| 1970 | 12.3  | 1.9   | 4.8   | 43.6 | 2.3  | 1.2  | 25.5 | 2.2  | 6.2  |
| 1971 | 12.3  | 2.6   | 4.1   | 54.8 | 4.8  | 0.7  | 14.8 | 1.4  | 4.6  |
| 1972 | 13.3  | 3.9   | 4.0   | 53.6 | 6.5  | 1.0  | 15.0 | 0.9  | 1.9  |
| 1973 | 15.5  | 3.7   | 7.0   | 38.6 | 7.8  | 0.9  | 23.1 | 1.3  | 2.1  |
| 1974 | 7.0   | 3.4   | 6.7   | 46.9 | 13.4 | 0.2  | 18.9 | 1.1  | 2.4  |
| 1975 | 9.3   | 2.6   | 3.1   | 64.6 | 5.9  | 0.2  | 8.3  | 1.8  | 4.3  |
| 1976 | 12.3  | 3.5   | 5.7   | 54.7 | 10.0 | 0.5  | 8.0  | 1.8  | 3.6  |
| 1977 | 8.0   | 2.5   | 7.8   | 55.7 | 13.3 | 0.3  | 11.3 | 1.7  | -0.6 |

Remarks: No data are available on corporate shares prior to 1954.

Definitions: CC - Currency  
DD - Demand Deposits  
SD - Savings Deposits  
TD - Time Deposits and Other Deposits  
DS - Deposit Substitutes and Treasury Bills  
B - Bonds and Debentures  
CS - Corporate Shares and Shares of Mutual Funds  
LI - Life Insurance  
EBF - Employee Benefit Funds

Source: See Statistical Appendix, C.1.

Table 5.5. The Structure of Personal Savings in the Form of Financial Assets  
II, 1950-1977 (per cent)

| Year | The Philippines |      |      | Thailand |      |      |
|------|-----------------|------|------|----------|------|------|
|      | VL              | CT   | CP   | VL       | CT   | CP   |
| 1950 | 91.6            | 3.9  | 4.5  | 99.8     | 0.1  | 0.2  |
| 1951 | 0.0             | 0.0  | 0.0  | 96.7     | 0.1  | 3.2  |
| 1952 | 56.3            | 12.9 | 30.8 | 63.4     | 0.7  | 35.9 |
| 1953 | 63.2            | 8.5  | 28.3 | 87.6     | 6.9  | 5.5  |
| 1954 | 60.1            | 11.0 | 28.8 | 91.2     | 4.4  | 4.4  |
| 1955 | 74.0            | 10.4 | 15.6 | 91.1     | 4.1  | 4.5  |
| 1956 | 75.2            | 9.0  | 15.8 | 91.3     | 3.4  | 5.4  |
| 1957 | 71.4            | 8.1  | 20.6 | 88.5     | 4.6  | 7.0  |
| 1958 | 70.1            | 6.5  | 23.4 | 87.5     | 3.6  | 8.9  |
| 1959 | 67.4            | 7.0  | 25.6 | 90.9     | 2.2  | 6.9  |
| 1960 | 63.7            | 7.3  | 29.0 | 93.5     | 0.8  | 5.8  |
| 1961 | 73.6            | 5.8  | 20.6 | 95.1     | -0.3 | 5.1  |
| 1962 | 75.7            | 5.1  | 19.2 | 97.2     | 1.0  | 1.7  |
| 1963 | 80.7            | 3.8  | 15.6 | 94.4     | 1.7  | 3.9  |
| 1964 | 55.6            | 8.4  | 36.1 | 96.6     | -0.4 | 3.8  |
| 1965 | 68.4            | 5.6  | 26.0 | 93.9     | 2.5  | 3.6  |
| 1966 | 77.9            | 3.2  | 18.9 | 96.3     | 1.1  | 2.6  |
| 1967 | 80.6            | 3.6  | 15.8 | 93.4     | 2.6  | 4.0  |
| 1968 | 70.1            | 5.1  | 24.8 | 96.3     | -1.4 | 5.1  |
| 1969 | 78.2            | 4.2  | 17.6 | 90.4     | 4.2  | 5.4  |
| 1970 | 81.9            | 4.1  | 14.0 | 91.6     | 2.2  | 6.2  |
| 1971 | 81.4            | 3.1  | 15.5 | 94.0     | 1.4  | 4.6  |
| 1972 | 78.2            | 3.8  | 18.0 | 97.2     | 0.9  | 1.9  |
| 1973 | 86.2            | 3.2  | 10.6 | 96.6     | 1.3  | 2.1  |
| 1974 | 89.0            | 1.7  | 9.3  | 96.5     | 1.1  | 2.4  |
| 1975 | 84.0            | 3.1  | 12.9 | 93.9     | 1.8  | 4.3  |
| 1976 | 80.4            | 2.4  | 17.2 | 94.6     | 1.8  | 3.6  |
| 1977 | 82.7            | 2.8  | 14.5 | 98.9     | 1.7  | -0.6 |

Definitions: VL - Voluntary Savings  
CT - Contractual Savings (Life Insurance Reserves)  
CP - Compulsory Savings (Employee Benefit Funds)

Source: See Statistical Appendix, B.1. and C.1.

Table 5.6. The Structure of Personal Savings in the Form of Financial Assets III, 1950-1977 (per cent)

| Year | The Philippines  |                  |                  |                  | Thailand |       |      |      |
|------|------------------|------------------|------------------|------------------|----------|-------|------|------|
|      | ST1              | LT1              | ST2              | LT2              | ST1      | LT1   | ST2  | LT2  |
| 1950 | 61.0             | 39.0             | 62.0             | 38.0             | 95.2     | 4.8   | 98.0 | 2.0  |
| 1951 | 0.0 <sup>1</sup> | 0.0 <sup>1</sup> | 0.0 <sup>1</sup> | 0.0 <sup>1</sup> | 89.2     | 10.8  | 96.8 | 3.2  |
| 1952 | - 6.9            | 106.9            | 12.4             | 87.6             | 12.9     | 87.1  | 57.7 | 42.3 |
| 1953 | 14.5             | 85.5             | 40.5             | 59.5             | 74.0     | 26.0  | 86.5 | 13.5 |
| 1954 | 7.7              | 92.3             | 33.5             | 66.5             | 58.3     | 41.7  | 69.8 | 30.2 |
| 1955 | 8.8              | 91.2             | 52.9             | 47.1             | 61.6     | 38.4  | 74.4 | 25.6 |
| 1956 | 32.7             | 67.3             | 44.0             | 56.0             | 32.1     | 67.9  | 51.2 | 48.8 |
| 1957 | 22.5             | 77.5             | 47.3             | 52.7             | 36.0     | 64.0  | 57.8 | 42.2 |
| 1958 | 20.7             | 79.3             | 39.9             | 60.1             | 24.9     | 75.1  | 51.7 | 48.3 |
| 1959 | 15.5             | 84.5             | 31.1             | 68.9             | 31.2     | 68.8  | 44.5 | 55.5 |
| 1960 | 7.0              | 93.0             | 20.6             | 79.4             | 38.0     | 62.0  | 61.5 | 38.5 |
| 1961 | 21.7             | 78.3             | 46.5             | 53.5             | 35.4     | 64.6  | 65.7 | 34.3 |
| 1962 | 25.1             | 74.9             | 53.0             | 47.0             | 1.8      | 98.2  | 67.1 | 32.9 |
| 1963 | 29.5             | 70.5             | 60.1             | 39.9             | -24.0    | 124.0 | 64.6 | 35.4 |
| 1964 | -18.4            | 118.4            | 14.3             | 85.7             | 21.2     | 78.8  | 64.7 | 35.3 |
| 1965 | 17.3             | 82.7             | 42.1             | 57.9             | 39.0     | 61.0  | 66.2 | 33.8 |
| 1966 | 14.4             | 85.6             | 52.9             | 47.1             | 24.0     | 76.0  | 73.1 | 26.9 |
| 1967 | 16.6             | 83.4             | 56.9             | 43.1             | 13.4     | 86.6  | 66.3 | 33.7 |
| 1968 | 9.8              | 90.2             | 33.6             | 66.4             | 25.1     | 74.9  | 76.2 | 23.8 |
| 1969 | 32.5             | 67.5             | 54.0             | 46.0             | 9.5      | 90.5  | 63.8 | 36.2 |
| 1970 | 25.0             | 75.0             | 59.9             | 40.1             | 16.5     | 83.5  | 63.0 | 37.0 |
| 1971 | 24.2             | 75.8             | 61.8             | 38.2             | 19.7     | 80.3  | 76.5 | 23.5 |
| 1972 | 35.7             | 64.3             | 57.6             | 42.4             | 23.7     | 76.3  | 80.2 | 19.8 |
| 1973 | 31.6             | 68.4             | 62.3             | 37.7             | 27.0     | 73.0  | 71.5 | 28.5 |
| 1974 | 40.3             | 59.7             | 57.8             | 42.2             | 23.8     | 76.2  | 76.2 | 23.8 |
| 1975 | 27.5             | 72.5             | 52.5             | 47.5             | 17.7     | 82.3  | 83.7 | 16.3 |
| 1976 | 14.7             | 85.3             | 57.2             | 42.8             | 25.7     | 74.3  | 84.9 | 15.1 |
| 1977 | 18.6             | 81.4             | 66.6             | 33.4             | 23.8     | 76.2  | 85.9 | 14.1 |

Remarks: 1) Personal Savings in the form of financial assets were negative in 1951 so that percentages are not meaningful.

Definitions: ST1 - CC, DD, DS, TB - short-term financial assets  
 ST2 - CC, DD, SD, TD, DS, TB - short-term financial assets  
 LT1 - long-term financial assets, first definition  
 LT2 - long-term financial assets, second definition

Source: See Statistical Appendix, B.1. and C.1.

Since construction costs have substantially increased in both countries, this cannot explain the downward trend in Thailand. A major reason might be the lack of special finance schemes for housing. While in the Philippines, the Government Service Insurance System, the Social Security System, savings banks and stock savings and loan associations provide various mortgage and credit schemes, in Thailand the Government Housing Bank, which is supposed to finance housing programmes, has so far extended only a small amount of credit. Other schemes by the Government Savings Bank and by commercial banks are not attractive and little known. As people can still be more easily induced to save in tangible assets, improved housing finance schemes could help to enhance further the thrift habit. This, and the fact that housing is one of the basic needs, should be sufficient reason to offer attractive schemes.

The portion of consumption that goes into durables has slowly increased over the past three decades from an estimated 3.02 per cent in 1950 to 4.30 per cent in 1977 for the Philippines and from 3.18 per cent to 5.11 per cent respectively in Thailand. The higher propensity to purchase consumer durables is also reflected in the share these assets command in the structure of savings in tangible assets. In the Philippines, it rose - though not continuously - up to 1972. The decline afterwards can be largely attributed to the high inflation during the seventies and the fall in real income for the mass of the people in urban areas, which represent the prime markets for consumer durables. In Thailand, the



share of consumer durables has risen substantially from 32.7 per cent to approximately 55 per cent for 1975 to 1977.

Since in this analysis only registered capital increases in unincorporated business are taken into consideration, the significance of saving in this asset is presumably underestimated. However, the trends the available data indicate should still be valid.

In the Philippines, the share of investment in unincorporated business has been rather stable after a sharp decline during the mid-fifties. In Thailand, on the other hand, the buoyancy of the economy during the sixties and early seventies led savers to prefer increasingly the reinvestment of surplus funds in own business enterprises. The share of savings in this type of asset rose almost continuously to 20.0 per cent in 1972. In recent years, investment in unincorporated business, like that in incorporated business, has declined not only relatively but also in absolute terms. This is explained by the reluctance of entrepreneurs to make substantial investments in an atmosphere of political and above all economic uncertainty which has plagued Thailand since 1973.



Table 5.7. The Structure of Personal Savings in the Form of Tangible Assets, 1950-1977 (in per cent)

| Year | The Philippines |      |      | Thailand |      |      |
|------|-----------------|------|------|----------|------|------|
|      | UIB             | RC   | CD   | UIB      | RC   | CD   |
| 1950 | 19.3            | 52.0 | 28.7 | 0.0      | 52.7 | 47.3 |
| 1951 | 20.3            | 52.3 | 27.4 | 0.0      | 52.9 | 47.1 |
| 1952 | 16.9            | 52.9 | 30.3 | 0.0      | 56.0 | 44.0 |
| 1953 | 21.2            | 49.4 | 29.5 | 0.0      | 55.3 | 44.7 |
| 1954 | 21.6            | 39.9 | 38.5 | 4.3      | 55.6 | 40.1 |
| 1955 | 12.7            | 49.8 | 37.5 | 5.3      | 51.9 | 42.8 |
| 1956 | 12.0            | 55.7 | 32.4 | 5.8      | 53.4 | 40.8 |
| 1957 | 11.0            | 58.5 | 30.6 | 7.1      | 52.8 | 40.1 |
| 1958 | 11.7            | 55.2 | 33.0 | 10.3     | 51.1 | 38.6 |
| 1959 | 12.9            | 55.3 | 31.8 | 10.3     | 54.2 | 35.5 |
| 1960 | 12.7            | 52.3 | 35.0 | 12.2     | 53.1 | 34.7 |
| 1961 | 11.7            | 56.5 | 31.8 | 12.2     | 55.1 | 32.7 |
| 1962 | 14.0            | 52.6 | 33.4 | 10.4     | 55.0 | 34.5 |
| 1963 | 13.5            | 54.4 | 32.1 | 11.5     | 52.7 | 35.8 |
| 1964 | 11.4            | 57.9 | 30.7 | 13.6     | 51.4 | 35.0 |
| 1965 | 10.5            | 57.3 | 32.2 | 13.0     | 49.3 | 37.7 |
| 1966 | 11.8            | 54.2 | 34.1 | 14.5     | 46.3 | 39.2 |
| 1967 | 10.2            | 53.2 | 36.6 | 18.5     | 44.0 | 37.4 |
| 1968 | 10.9            | 51.3 | 37.8 | 16.9     | 42.9 | 40.2 |
| 1969 | 9.3             | 51.2 | 39.5 | 15.3     | 39.7 | 45.0 |
| 1970 | 8.6             | 49.4 | 42.0 | 17.3     | 37.0 | 45.7 |
| 1971 | 11.6            | 45.5 | 42.9 | 18.5     | 37.5 | 44.0 |
| 1972 | 9.3             | 45.8 | 44.9 | 20.0     | 38.4 | 41.6 |
| 1973 | 13.7            | 43.3 | 43.0 | 15.5     | 39.8 | 44.7 |
| 1974 | 12.2            | 46.0 | 41.8 | 9.6      | 40.7 | 49.7 |
| 1975 | 10.0            | 50.7 | 39.3 | 5.4      | 39.3 | 55.3 |
| 1976 | 8.4             | 54.6 | 37.1 | 5.1      | 39.8 | 55.1 |
| 1977 | 10.2            | 53.8 | 36.0 | 4.9      | 40.9 | 54.2 |

Definitions:    UIB - Investment in Unincorporated Business  
                       RC  - Investment in Housing  
                       CD  - Purchase of Consumer Durables

Source:            See Statistical Appendix B.2. and C.2.

### C. Rendering the Theoretical Portfolio Models Empirically Testable

The analysis in the previous sections has provided a broad picture of the structure of personal savings in the Philippines and Thailand and its development over the last three decades. It suggests that relative rates of interest, inflation, structural changes in the respective financial systems, government regulations and political developments have been the major determinants of the portfolio behaviour in both countries. The models described in Chapter II enable a more thorough investigation and the testing of alternative hypotheses with respect to the different factors influencing portfolio behaviour. Before these models can be applied to the Philippine and Thai data, several modifications have to be made to render them empirically testable and more relevant to the economic environment of developing countries. The final specifications are developed in the following sections.

#### 1. Choice Set versus Non-Choice Set Assets

The portfolio of financial assets that are taken into consideration in this analysis consist of the following items:

- (1)  $V_{CC}$  - Currency
- (2)  $V_{DD}$  - Demand Deposits
- (3)  $V_{SD}$  - Savings Deposits
- (4)  $V_{SDF}$  - Savings Deposits in Foreign Currencies (The  
- Philippines only)
- (5)  $V_{TD}$  - Time Deposits
- (6)  $V_{TDF}$  - Time Deposits in Foreign Currencies (The  
Philippines only)

- (7)  $V_{OD}$  - Other Deposits
- (8)  $V_{DS}$  - Deposit Substitutes
- (9)  $V_{TB}$  - Treasury Bills
- (10)  $V_{CB}$  - Corporate Bonds
- (11)  $V_{GB}$  - Government Bonds
- (12)  $V_{OB}$  - Other Bonds
- (13)  $V_{CS}$  - Corporate Shares (The Philippines only)
- (14)  $V_{MF}$  - Shares of Mutual Funds
- (15)  $V_{LI}$  - Life Insurance Reserves
- (16)  $V_{TF}$  - Trust Funds (The Philippines only)
- (17)  $V_{EBF}$  - Employee Benefit Funds

The ability to adjust one's desired stock of wealth with respect to a particular asset without great delay and transaction costs constitutes the criterion for distinguishing between choice set and non-choice set assets. It leaves, however, several possible ways of partitioning the portfolio. In addition to economic considerations, data availability and data processing play an important role in deciding on the respective groups of assets.

Although the investor can immediately bring about any desired change in the stock of currency and demand deposits, both assets (the latter only in the case of the Philippines) are categorized as non-choice set assets in order to avoid singularity in the specification of the model. Furthermore, the categorization as non-choice set assets seems appropriate because currency, and particularly demand deposits, are held partly for transaction purposes.

During the 1950s and early 1960s, Thai commercial banks offered demand deposits which allowed the drawing of cheques, but which, at the same time, yielded a moderate rate of return. These deposits are included in the choice set. The same applies to savings and time deposits in local currencies.

Savings and time deposits in foreign currencies, which are offered in the Philippines under a special scheme, provide only a small rate of return. Political considerations are the main reason for keeping money in this form. Therefore foreign currency deposits are regarded as non-choice set assets.

Other deposits comprise shares of non-stock savings and loan associations and mutual building and loan associations in the Philippines and shares of savings and agricultural co-operatives in Thailand. By acquiring these assets, the investor makes a long-run commitment, which, for example, in the case of savings co-operatives, lasts twelve years. The shares are not negotiable so that the investor is bound by his decision for a long period. This suggests the treating of other deposits as exogenous.

Deposit substitutes and treasury bills are short-term instruments which, in the Philippines, can be sold at any time in the very active money market. In Thailand, the issuing institutions repurchase their notes prematurely at a discount. Both assets are, accordingly, included in the choice set.

Bonds, corporate shares and shares of mutual funds are categorized as choice set items as well, although the capital markets in the Philippines and Thailand are rather inactive. Most of the long-term debt securities and most corporate shares are not listed and even many of those that are cannot be sold immediately. However, since it is possible to do so within a matter of weeks, it would not be correct to regard them as exogenous items. For Thailand, two exceptions are made. Other bonds and shares of mutual funds are treated as non-choice set assets, because data on their respective yields are not available.

Life insurance reserves, employee benefit funds and the assets handled by fund managers are regarded as exogenous. Once a decision has been made to invest in these assets, it is very difficult to reverse it, and substantial obstacles are to be overcome, if the funds are to be recovered before their repayment is due, which in general, is the time of retirement or death.

In accordance with the above considerations, the portfolios in the Philippines and Thailand are partitioned as follows:

(1) The Philippines

$$V_1 = [V_{SD}, V_{TD}, V_{DS}, V_{TB}, V_{CB}, V_{GB}, V_{OB}, V_{CS}, V_{MF}]$$

$$V_2 = [V_{CC}, V_{DD}, V_{SDF}, V_{TDF}, V_{OD}, V_{LI}, V_{TF}, V_{EBF}]$$

(2)  $V_1 = [V_{DD}, V_{SD}, V_{TD}, V_{DS}, V_{TB}, V_{CB}, V_{GB}]$

$$V_2 = [V_{CC}, V_{OD}, V_{OB}, V_{MF}, V_{LI}, V_{EBF}]$$

The analysis of the structure of savings in financial assets has shown that important changes have taken place within

certain assets, for example, the growing importance of time deposits with maturities of more than two years. The unavailability of data makes it impossible to disaggregate the portfolios further as may seem advisable. Rather, in order to account for various data constraints and to economize on the number of coefficients that have to be estimated, an aggregation of several assets is necessary. Those assets which have similar features or which are so insignificant in size that they make a separate treatment unviable are grouped together.

For the Philippines, an aggregation is undertaken in the case of currency and demand deposits ( $V_C$ ), deposit substitutes and treasury bills ( $V_{DS}$ ), corporate shares and shares of mutual funds ( $V_{CS}$ ) and in the case of savings and time deposits in foreign currencies and other deposits ( $V_{ED}$  - exogenous deposits). In addition, the minimal amount of corporate bonds outstanding is added to government bonds ( $V_{GB}$ ). For Thailand, treasury bills are added to deposit substitutes ( $V_{DS}$ ) and other bonds and shares of mutual funds are aggregated to form other securities ( $V_{OS}$ ).

Choice set and non-choice set assets are then defined as follows:

(1) The Philippines

$$V_1 = [V_{SD}, V_{TD}, V_{DS}, V_{GB}, V_{OB}, V_{CS}]$$

$$V_2 = [V_C, V_{ED}, V_{LI}, V_{TF}, V_{EBF}]$$

(2) Thailand

$$V_1 = [V_{DD}, V_{SD}, V_{TD}, V_{DS}, V_{CB}, V_{GB}]$$

$$V_2 = [V_{CC}, V_{OD}, V_{OS}, V_{LI}, V_{EBF}]$$

## 2. Determining Expected Rates of Return

In the portfolio models, the demand for choice set assets depends among other factors on the expected rates of return of the choice set assets ( $Y_1$ ). Furthermore, Model III distinguishes expected total period ( $Y_1$ ) and expected intra-period rates of return ( $P_1$ ).

Both  $Y_1$  and  $P_1$  are unobservable and have to be estimated. Usually actual rates of interest provide the basis for the estimation process. Various analyses suggest that a linear transformation of actual rates of interest represents the most appropriate approximation procedure.<sup>1</sup> In line with these earlier findings, it is hypothesized that expected total period and intra-period rates of return are a scalar multiple of the actual interest rates  $R_i$ .

$$1.1. \quad Y_i = k_1 R_i$$

$$1.2. \quad P_i = k_2 R_i$$

The asset demand equations specified in Model III can then be modified as follows:

$$1.3. \quad V_1 = D_1 R_1 - M_3 V_2 - M_4 \Delta V_2 - M_5 \Delta W_0 + NW_0$$

with

$$1.4. \quad D_1 = \frac{1}{b} k_1 M_1 - \frac{1}{b} k_2 M_2$$

The specifications of Models I and II are changed accordingly.

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<sup>1</sup> Various approximation procedures are discussed in Anthony S. Courakis, 'In Search of an Explanation of Clearing Bank Portfolio Behaviour', pp. 17-19, and in his 'Problems of Estimation in Models of Portfolio Selection' (Oxford, Brasenose College, mimeo, 1978).



### 3. Incorporating Special Behaviour of Investors and Financial Development into the Portfolio Models

The asset demand equations that have been derived do not include a constant term. However, many investors keep part of their portfolio in certain assets irrespective of yield and wealth considerations. For example, minimum amounts of deposits are kept to provide a basic 'safety net'. In addition, inertia on the part of the investor and institutional obstacles to adjust the portfolio as planned could explain this phenomenon. The incorporation of a constant term is to account for such behaviour.

In the analysis of the most appropriate objective function describing the portfolio behaviour of individual investors, the increasing proliferation and sophistication of the financial system in developing countries has been pointed out. It can be expected that the new opportunities for investment, which are provided through this process, will affect the decision-making process and determine to some extent the composition of the portfolio, in addition to rates of return and risk.

There are several possible variables to represent the process of financial development. Since the number of bank offices per capita and the ratio of money supply to gross national product capture only some aspects of the process, they have been discarded. The index of private financial assets outstanding with 1950 as base year (FI) and the ratio of private financial assets outstanding to gross national product (FY) seem most appropriate, as they comprise all financial assets offered to investors. The choice between



the latter two variables must be arbitrary. In this analysis, the financial development index (FI) is applied. However, it should be noted that the application of the asset-income ratio (FY) yields the same overall results. The variable to represent the process of financial development is introduced into the asset demand functions as an additive term.

#### 4. The Set of Nested Hypotheses

In the analysis of the portfolio behaviour of individual investors, Model III represents the most general framework. In addition to the balance sheet constraints already embodied in the data, it incorporates only symmetry and adding up constraints with respect to the impact of changes in expected rates of return on the demand for choice set assets. Model II imposes the further constraint that individual investors ignore intra-period changes in non-choice set assets, while Model I stipulates that the demand for choice set assets is independent of the composition of non-choice set assets. Therefore the models can be regarded as a set of nested hypotheses.

After incorporating the constant term (L), the proxy variable for the process of financial development (FI) and an error term (u), the set is specified as follows:

$$2.1. V_1 = D_1 R_1 - (MS_{12} + NI_2)V_2 - M_4 \Delta V_2 - M_5 \Delta W_0 + NW_0 + KFI + L + u$$

$$2.2. V_1 = D_1 R_1 - (MS_{12} + NI_2)V_2 - O \Delta V_2 - O \Delta W_0 + NW_0 + KFI + L + u$$

$$2.3. V_1 = D_1 R_1 - (OS_{12} + NI_2)V_2 - O \Delta V_2 - O \Delta W_0 + NW_0 + KFI + L + u$$

where M contains the properties of the respective matrices in the three models.

In order to overcome the singularity of the covariance matrix of the error terms  $E(uu')$ , one demand equation is deleted. This can be done without loss of information because of the aggregation properties of the various coefficients.<sup>1</sup>

As for the savings functions relating to the income hypotheses, the above models are estimated by applying the full information maximum likelihood method.<sup>2</sup> The adequacy of the different constraints incorporated in the models is evaluated on the basis of the chi-square value of the likelihood ratio.<sup>3</sup> The number of degrees of freedom is derived from the difference in the number of free coefficients estimated.

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<sup>1</sup> See Anthony S. Courakis, 'Clearing Bank Asset Choice Behaviour: A Mean Variance Treatment', pp. 189-90.

<sup>2</sup> See C.R. Wymer, op. cit.

<sup>3</sup> See H. Theil, op. cit., pp. 179-84.

D. The Application of the Portfolio Selection Approach  
to the Behaviour of Individual Investors in the  
Philippines and Thailand

The discussion of the empirical results is divided into three parts. First, the relative performance of the alternative hypotheses embodied in Models I, II and III is compared and their applicability to the portfolio behaviour of individual investors in the Philippines and Thailand is evaluated.

Second, the portfolio model, which shows the best overall performance, is presented in detail. Among the many coefficients that are estimated, there are some whose size and sign do not lend themselves to interpretation. This has to be attributed mainly to multicollinearity, since the time-series of some assets and interest rate are highly correlated. The discussion of the results, therefore, concentrates on the most important relationships. It draws heavily on the analysis of individual financial assets in the previous chapter.

Third, in order to overcome some of the interpretation problems, various assets are aggregated. A condensed version of the original models is analyzed in section D.3. Its choice set distinguishes between liquid and non-liquid assets only, while the number of non-choice set assets is reduced to three.

1. The Performance of Alternative Portfolio Models

The comparison of the chi-square values of the likelihood ratios reveals that Model III is superior to Models II and I. Relaxing the constraint of homogeneity with respect to the response to non-choice set assets, as is done in Model II, and subsequently incorporating anticipated changes in non-choice set assets, as is done in Model III, leads to a significant reduction in the chi-square value. Hence, the hypotheses, that investors do not incorporate into their portfolio decisions the composition of their non-choice set assets, and the anticipated changes in these assets, can be rejected.

Table 5.8. The Relative Performance of Alternative Hypotheses with respect to Portfolio Behaviour

| Hypothesis            | The Philippines |                           | Thailand    |                           |
|-----------------------|-----------------|---------------------------|-------------|---------------------------|
|                       | $\chi^2(n)$     | Probability of Acceptance | $\chi^2(n)$ | Probability of Acceptance |
| (1) Model I           | 663.149(70)     | $p < 0.001$               | 536.605(70) | $p < 0.001$               |
| (2) Model II          | 450.739(45)     | $p < 0.001$               | 348.372(45) | $p < 0.001$               |
| (3) Model III         | 72.180(15)      | $p < 0.001$               | 37.194(15)  | $0.001 < p < 0.005$       |
| (3) <u>versus</u> (1) | 590.969(55)     | $p < 0.001$               | 499.411(55) | $p < 0.001$               |
| (3) <u>versus</u> (2) | 378.559(30)     | $p < 0.001$               | 311.178(30) | $p < 0.001$               |
| (2) <u>versus</u> (1) | 212.410(25)     | $p < 0.001$               | 188.233(25) | $p < 0.001$               |

The comparison of the chi-square values suggests also that the various hypotheses with respect to portfolio behaviour are more applicable to the data for Thailand than to those for the Philippines. It would be erroneous to interpret this

as evidence for a more sophisticated behaviour of Thai investors and/or a more sophisticated financial system in Thailand. The analysis in the previous chapter has shown that the Philippine system matches its Thai counterpart in every respect and that Philippine investors are as responsive to interest rate changes in their portfolio decisions as Thai investors. However, it might be that the poorer performance of the models in the case of the Philippines reflects the interventionist approach taken by the Philippine authorities, which has created various imperfections in the financial markets,<sup>1</sup> as opposed to the more market-oriented approach adhered to by the Thai authorities. Additional investigations have shown that part of the differences in the chi-square values has to be attributed to differences in the partitioning of the two portfolios.

Overall, all three portfolio models are found to perform poorly. Except for Model III in the case of Thailand, none of them can be accepted even at the 0.001 probability of occurrence. The unsatisfactory performance of the models might be due to the quality of data, multicollinearity, the partitioning of the portfolios, the approximation procedure with respect to the expected rates of return, and the other problems in the specification of portfolio models that have been discussed earlier.<sup>2</sup> These areas need further investigation.

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<sup>1</sup> See the discussion on deposits, deposit substitutes and long-term debt securities in Chapter IV.

<sup>2</sup> See section II.D.8.

With increasing data availability, the relevant portfolio could be extended to include liabilities and tangible assets in addition to financial assets. The high inflation during the seventies and the resulting negative real interest rates, for example, have led Philippine and Thai investors to increase their borrowing and to restructure their portfolios in favour of tangible assets. In order to incorporate these developments into the analysis, it is vital to increase the number of assets that are considered and to include liabilities in the portfolio models.

Despite the increasing sophistication of the financial systems in the Philippines and Thailand, the money and capital markets in both countries are still characterized by numerous imperfections, which prevent the investor from arranging his portfolio according to his objectives. The constant term that is incorporated in the above models can represent this problem only to a very limited extent.

Finally, the poor performance of the portfolio models could suggest that the underlying objective function, that is, expected utility maximization, and the underlying negative exponential utility function do not describe adequately the objectives pursued by the decision-making units in the Philippines and Thailand.

These problems should be borne in mind during the following analysis of the empirical results that have been derived for Model III.

## 2. A Detailed Analysis of Model III

### a. The Philippines

Own-rate effects: Three of the six own interest rate coefficients are positive as hypothesized (see Table 5.9., p. 316). Following conventional t-tests, all three are significantly different from zero at the 5 per cent level.

The empirical results underline what has been stressed earlier,<sup>1</sup> namely that in the Philippines, investment in savings and time deposits is interest-elastic and that the policy of low interest rates that has been pursued by the Philippine monetary authorities is likely to have deterred many potential investors from deposits. Leaving the fixing of interest rates to the individual financial institutions would enable them to respond faster to changes in the scarcity of investment funds. Experiences in developed countries have shown that this does not endanger the functioning of the banking sector or leads to a greater number of bankruptcies.

Of the two types of long-term debt securities included in the portfolio, only other bonds have a positive own interest rate coefficient. It is conceivable that in the case of various financial instruments, a certain minimum interest rate has to be exceeded before investors react positively to increases in the interest rate. Although the interest rate on government bonds has more than doubled between the fifties and seventies, the average yield remained below six per cent per annum,<sup>2</sup> which in no way reflects the

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<sup>1</sup> See section IV.B.3.

<sup>2</sup> See Statistical Appendix, B.3.



scarcity of long-term funds in the Philippines. Consequently, higher bond rates did not induce an increase in government bond holdings. Contrary to this, interest rates on other bonds have been much more attractive. This attraction has been further enhanced through some secondary trading in other bonds, which increases their marketability.

Compared with deposit and bond rates, the rate of return on deposits substitutes has been very high, since until 1976, it has not been subject to government regulations. Therefore funds were invested in deposit substitutes despite their widely fluctuating relative rate of return, as long as the return they offered reflected the scarcity of investment funds to a much greater extent than the interest rates on deposits and bonds.

The insignificant own interest rate coefficient in the case of corporate shares has to be attributed to the pattern of ownership of corporations. Most of these are closely held. They provide jobs, influence and other benefits to the shareholder in addition to cash dividends and capital gains which are used here to represent the rate of return on corporate shares.<sup>1</sup> While both cash dividend yields and the stock price index declined over the last decade, shareholders continued to invest so as to retain or expand control of the respective corporations.

Cross-rate effects: Eight of the fifteen symmetric cross interest rate coefficients are negative, confirming the hypothesis that substitution effects dominate complementarity effects.

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<sup>1</sup> Stock dividends, which are often offered instead of cash dividends, have not be taken into consideration because of their uncertain benefit to shareholders.



The empirical analysis shows that an increase in the time deposit rate leads to a decline in the demand for savings deposits and vice versa. The main difference between savings and time deposits, namely the opportunity to withdraw funds immediately from the former as against fixed maturities with respect to the latter, has been eroded by the banks, which allow premature withdrawal from time deposits without reducing the interest paid, in overt defiance of regulations of the Central Bank of the Philippines.<sup>1</sup> Thus, both types of deposits have become close substitutes.

Substitution also characterizes the relationship between savings deposits and deposit substitutes. The effect is much less strong than the one between savings and time deposits because of the high minimum denomination for deposit substitutes. These institutional obstacles also explain why there is no statistically significant substitution effect between time deposits and deposit substitutes.

The fact that investment in corporate shares is made rather independently of relative rates of return is corroborated further by the insignificant cross-rate coefficients.

Other bonds have been the only long-term debt securities that offered attractive features to individual investors. The negative cross-rates between other bonds on the one hand, and time deposits and deposit substitutes on the other, suggest that individual investors in the Philippines can be persuaded to invest in long-term debt securities, if sufficiently attractive terms are offered.

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<sup>1</sup> See CBP, Circular No. 584, 24 December 1977, in: CBP, 29th Annual Report 1977, pp. 368-9.

It should be noted that the interest rates used in this analysis are not adjusted for taxation. Since the income derived from some financial assets is tax-exempt, while the income from others is subject to a special tax rate, the relative net yields differ from the relative gross yields. The use of gross instead of net yields, according to which investors presumably make their decisions, could explain why some of the own-rate and cross-rate effects do not follow expectations.

Non-choice set assets and their composition: The hypothesis that non-choice set assets and their composition are a main determinant of the portfolio behaviour of individual investors in the Philippines is confirmed with eighteen of the coefficients being significantly different from zero at the 5 per cent level.

The most interesting findings relate to the impact of life insurance and employee benefit funds on the demand for choice-set assets. The empirical analysis indicates that investment in life insurance does not act as a substitute for investment in deposits, government bonds or corporate shares. Strengthening the life insurance industry and spreading life insurance cover is therefore likely to lead to an increase in the level of savings rather to a mere change in their structure. Making life insurance more popular should consequently be a part of the Philippine campaign to mobilize more savings.

While the investment in life insurance is independent of the portfolio decisions with respect to choice set assets,

an increase in compulsory savings, that is, employee benefit funds, induces a reduction in the demand for choice set assets. The reduction in demand is particularly strong with respect to savings deposits. A unit increase in employee benefit funds induces a decline of 0.74 units of savings deposits. This suggests that a major part of savings deposits are accumulated to provide income after retirement. Moreover, the results suggest that individual investors in the Philippines lessen their voluntary savings efforts, when they have to invest part of their surplus funds in social security and provident funds.<sup>1</sup>

Anticipated changes in non-choice set assets: Like the composition of non-choice set assets, anticipated changes in these items have a significant impact on the portfolio behaviour of Philippine investors. The differences in the response to anticipated changes in non-choice set assets and the coefficients of non-choice set asset holdings, which have been discussed above, can be interpreted as differences in the short-run and long-run relationship between choice set and non-choice set assets.

For example, an anticipated increase in the life insurance fund leads to a reduction in the demand for savings deposits, whereas the coefficient describing the relationship between the two assets suggests that the demand for both is independent. It is conceivable that the greater security associated with increased insurance

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<sup>1</sup> For investors in the United States, the opposite has been found by Cagan. See Phillip Cagan, The Effects of Pension Plans on Aggregate Savings: Evidence from a Sample Survey (New York, NBER, 1965), in particular pp. 81-9.

protection induces the investor initially to reduce his holdings of savings deposits, which to some extent serve a similar purpose to life insurance. In the long-run, however, life insurance is regarded as a financial safety net which is independent of the other financial assets that have been accumulated.

Wealth and financial development: The wealth and the financial development effects are considered together, since they are closely interrelated not only statistically but also economically. With increasing wealth, the expansion of the branch network and the introduction of additional financial instruments and services become feasible. At the same time, the process of financial development enhances the growth of wealth by increasing the number of investment opportunities and by facilitating the investment process.

However, it would be wrong to assume that because of this strong inter-relationship the financial development index is superfluous. Constraining the index to zero leads to a significant rise in the chi-square value from 72.180(15) to 177.087(20). Thus, the hypothesis that financial development, as specified in this analysis, does not provide additional information on the portfolio behaviour has to be rejected.

The joint consideration of the wealth and financial development effect reveals that the demand for savings deposits has benefited most from the combined effects. The strong positive wealth effect is only to a small extent

reduced by a negative financial development effect. Similarly, with increasing wealth, the demand for time deposits has increased. However, the introduction of new financial instruments, in particular, other deposits and deposit substitutes, is responsible for a negative financial development effect, which more than offsets the positive wealth effect.

Deposit substitutes represent the most important innovation of the Philippine financial system.<sup>1</sup> This is reflected in a positive financial development effect. It dominates the negative wealth effect, leading to a positive combined effect.

The market for government bonds in the Philippines remains underdeveloped due to supply constraints. Consequently, the demand for government bonds cannot increase with wealth, nor is it affected significantly by the process of financial development.

Approximately one quarter of the increase in wealth is allocated to corporate shares. The introduction of new financial instruments has not affected the demand for shares. As pointed out earlier, continuous equity investment is necessary in order to retain control of the corporations.

Finally, in the case of other bonds, the positive wealth effect is offset partly by a negative financial development effect. When other bonds were introduced in 1967, they attracted great interest from individual investors. However, the marketing efforts lacked persistency and the

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<sup>1</sup> See section IV.C.1.

relative demand for other bonds declined after the introduction of new financial instruments.<sup>1</sup>

The constant term: The constant term is significant in four of the six equations. Its importance is underlined further by the fact that the chi-square value increases significantly from 72.180(15) to 153.229(20) when the constant term is constrained to zero. Therefore the hypothesis that the constant term has no significant impact is not acceptable at the 0.001 probability of occurrence.

The results suggest that a minimum interest rate level has to be exceeded before individual investors invest in savings and time deposits as well as government bonds. Contrary to this, some proportion of corporate shares and other bonds is held independent of yield and risk considerations. Most investors are unlikely to sell a major part of their shareholdings, because it would imply losing control of the corporation(s). Furthermore, the stock markets in the Philippines are not active enough to allow the trading of a large amount of shares. The absence of an active capital market is also the main reason why the holding of other bonds is not completely adjusted to changing market conditions.

Despite the fact that many of the hypotheses with respect to the portfolio behaviour of individual investors have been substantiated by the empirical results, overall, the stock-flow model cannot be accepted even at the 0.001 level of probability, as indicated by the chi-square value of the likelihood ratio.

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<sup>1</sup> See section IV.D.5.

Table 5.9. Model III: Portfolio Behaviour of Individual Investors in The Philippines

|              | $R_{SD}$        | $R_{TD}$         | $R_{DS}$         | $R_{GB}$         | $R_{CS}$         | $R_{OB}$         | $V_C$             | $V_{ED}$         | $V_{LI}$         | $V_{TF}$          | $V_{EBF}$         |
|--------------|-----------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|------------------|-------------------|-------------------|
| (1) $V_{SD}$ | 8.020<br>(2.76) | -8.045<br>(2.73) | -0.275<br>(0.73) | 0.353<br>(2.86)  | -0.062<br>(1.87) | 0.008<br>(0.05)  | -1.326<br>(8.03)  | -0.862<br>(3.62) | 0.045<br>(0.08)  | -2.117<br>(6.31)  | -0.742<br>(7.82)  |
| (2) $V_{TD}$ |                 | 7.413<br>(2.46)  | 0.962<br>(1.94)  | -0.208<br>(1.69) | 0.046<br>(1.25)  | -0.168<br>(1.15) | 0.239<br>(1.21)   | 0.996<br>(3.76)  | -0.425<br>(0.67) | -0.004<br>(0.01)  | -0.084<br>(0.80)  |
| (3) $V_{DS}$ |                 |                  | -0.571<br>(1.00) | -0.002<br>(0.12) | 0.015<br>(0.33)  | -0.130<br>(8.04) | 0.305<br>(1.23)   | -0.759<br>(2.26) | -0.953<br>(1.21) | 1.467<br>(3.06)   | -0.048<br>(0.35)  |
| (4) $V_{GB}$ |                 |                  |                  | -0.001<br>(0.03) | -0.001<br>(0.67) | 0.058<br>(3.92)  | 0.005<br>(0.99)   | 0.058<br>(8.30)  | 0.019<br>(1.10)  | -0.032<br>(3.06)  | 0.010<br>(3.63)   |
| (5) $V_{CS}$ |                 |                  |                  |                  | -0.001<br>(0.12) | 0.002<br>(1.65)  | -0.077<br>(1.37)  | -0.454<br>(5.59) | 0.491<br>(2.56)  | -0.155<br>(1.50)  | -0.077<br>(2.38)  |
| (6) $V_{OB}$ |                 |                  |                  |                  |                  | 0.230<br>(7.26)  | -0.096<br>(14.14) | 0.021<br>(2.48)  | -0.178<br>(8.58) | -0.160<br>(12.31) | -0.058<br>(16.90) |

|              | $\Delta V_C$     | $\Delta V_{ED}$  | $\Delta V_{LI}$  | $\Delta V_{TF}$  | $\Delta V_{EBF}$ | $\Delta W_D$      | $W_D$            | FI                | L                | SE    |
|--------------|------------------|------------------|------------------|------------------|------------------|-------------------|------------------|-------------------|------------------|-------|
| (1) $V_{SD}$ | 0.399<br>(3.12)  | 0.349<br>(1.77)  | -3.283<br>(2.74) | 1.219<br>(3.19)  | -0.204<br>(2.31) | 0.167<br>(2.54)   | 0.788<br>(8.92)  | -0.189<br>(2.63)  | -0.176<br>(1.93) | 0.042 |
| (2) $V_{TD}$ | 0.178<br>(1.21)  | -0.197<br>(0.86) | -0.664<br>(0.48) | -2.201<br>(4.92) | 0.159<br>(1.60)  | -0.049<br>(0.64)  | 0.190<br>(1.87)  | -0.210<br>(2.66)  | -0.346<br>(3.67) | 0.049 |
| (3) $V_{DS}$ | -0.668<br>(3.67) | 0.051<br>(0.18)  | 3.719<br>(2.19)  | -0.169<br>(0.31) | -0.064<br>(0.51) | 0.049<br>(0.53)   | -0.307<br>(2.38) | 0.456<br>(4.26)   | 0.052<br>(0.37)  | 0.060 |
| (4) $V_{GB}$ | -0.005<br>(1.32) | -0.043<br>(7.19) | 0.161<br>(4.27)  | 0.001<br>(0.08)  | -0.007<br>(2.60) | 0.003<br>(1.24)   | -0.003<br>(0.96) | -0.002<br>(0.96)  | -0.200<br>(4.19) | 0.001 |
| (5) $V_{CS}$ | 0.012<br>(0.28)  | -0.107<br>(1.67) | -0.488<br>(1.18) | 0.917<br>(7.58)  | 0.067<br>(2.19)  | -0.134<br>(5.94)  | 0.267<br>(9.33)  | -0.023<br>(0.92)  | 0.492<br>(14.68) | 0.015 |
| (6) $V_{OB}$ | 0.084<br>(18.15) | -0.053<br>(7.51) | 0.555<br>(12.83) | 0.233<br>(16.47) | 0.049<br>(15.73) | -0.036<br>(14.64) | 0.065<br>(19.69) | -0.032<br>(12.72) | 0.179<br>(3.68)  | 0.002 |

$\chi^2 (15) = 72.180$        $p < 0.001$

Remarks: The figures in parentheses are t-ratios.



b. Thailand

Own-rate effects: The hypothesis of non-negative own interest rate coefficients is confirmed only with respect to demand and savings deposits (see Table 5.10, p.325). Up to 1962, commercial banks in Thailand offered demand deposits that were actually a mixture of demand and savings deposits, allowing the drawing of cheques while at the same time carrying a modest rate of interest. After this type of deposit was abolished and after the maximum interest rate allowed on demand deposits at commercial banks was reduced to one hundredth of one per cent, the relative demand for demand deposits declined in favour of savings and time deposits.

The positive own-rate coefficient in the case of savings deposits underlines that small deposit holdings, which constitute the bulk of savings deposits, are interest-elastic. It is therefore important to adjust the savings deposit rate in line with changing market conditions, if this type of deposit is to remain attractive to investors.

In the case of government bonds, the own interest rate coefficient is found to be not significantly different from zero. In the absence of an active secondary market for long-term debt securities and of attractive repurchasing schemes of the Bank of Thailand, investors keep government bonds until maturity irrespective of changes in the relative interest rates.

The negative own interest rate coefficients relating to the other three assets might be due to the construction of the time-series for the respective interest rates. In



particular, the time-series of the rate of return on deposit substitutes and corporate bonds need improvement.<sup>1</sup> It has to be emphasized again that gross yields are used instead of net yields, which has probably biased the results and contributed to the negative own-rate effects. In the absence of alternative data, these problems must be left unresolved.

Cross-rate effects: As in the Philippines, substitution effects dominate complementarity effects in the relationship between choice set assets. According to the empirical analysis, demand and savings deposits are close substitutes. The usual substitution effect one would expect between both types of assets is enhanced by the peculiarities of the deposit schemes in Thailand during the fifties and sixties. As mentioned earlier, commercial banks offered deposits that carried the features of both demand and savings deposits, which are categorized in this analysis as demand deposits. The abandonment of the scheme led to a substantial shift of funds out of demand deposits into the 'normal' savings deposits.

The relationship between time deposits and savings deposits is complementary. This indicates that time deposits serve other purposes than savings deposits, although they are very similar with respect to basic features like liquidity, risk and information.

Contrary to the experience in the Philippines, the introduction of deposit substitutes has affected the portfolio behaviour of Thai investors only slightly. The demand for time deposits, the most important financial asset of

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<sup>1</sup> See Statistical Appendix, C.3.

individual investors, has not been adversely affected, which is reflected in the empirical analysis by an insignificant coefficient. However, it appears that there is a significant substitution effect between deposit substitutes and savings deposits, despite the fact that the minimum denomination for both assets differs widely (¥100 in the case of savings deposits against ¥50000 in the case of deposit substitutes).

Similarly, the results reveal a significant substitution effect between government bonds and savings deposits. Investors, who intend to make an investment for several years but who cannot afford the minimum denomination needed for time deposits, find a remunerative savings outlet in government bonds, which require the same amount as savings deposits at commercial banks. On the other hand, the results suggest that government bonds and time deposits are complements. A closer look at the yield and liquidity features of both assets explains why this is so. The rate of return on government bonds increases the longer they are kept by the investor. After a period of three years, the government bond rate exceeds the time deposit rate. The investor, therefore, will acquire government bonds only after he has accumulated the desired holdings of the more liquid time deposits.

The findings with respect to corporate bonds and debentures indicate that despite the fact that there is no active secondary market for this type of financial instrument, it competes directly with time deposits, deposit substitutes and government bonds. This suggests that sufficient interest

exists for private long-term debt securities and that an active market could be developed if the supply constraints, which so far have prevented its development, are overcome.

Non-choice set assets and their composition: Non-choice set assets and their composition represent an important determinant of the portfolio behaviour of individual investors in Thailand, as has been the case in the Philippines. Thirteen of the thirty coefficients are significant at the 5 per cent level.

An increase in currency holdings leads only to a minor reduction in the demand for demand deposits. The increase is primarily funded by reducing the holdings of time deposits and to a lesser extent by reducing the holdings of deposit substitutes. The strong substitution effect between time deposits and currency (a unit increase in currency holdings induces a reduction of time deposit holdings by 0.81 units) finds its explanation in another of the peculiarities of the Thai financial system. As mentioned earlier, until recently time deposits could be withdrawn at any time without loss of interest. Most investors, therefore, prefer time deposits over demand and savings deposits and meet their currency needs through withdrawals from time deposits.

In order to understand the impact of other deposits on the demand for choice set assets, it is useful to take a closer look at the special features of this type of asset. Other deposits comprise the share capital of agricultural

and savings co-operatives. People take up membership of agricultural and savings co-operatives because it gives them access to the credit schemes these institutions offer. Thus, other deposits serve a distinctly different purpose from savings deposits, time deposits, deposit substitutes or corporate bonds. Consequently, the relationship between other deposits and the latter types of assets is complementary.

Premium savings certificates, which offer a lottery benefit in addition to a minimal rate of return of one per cent per annum, constitute the main part of other securities. An increase in these leads to a reduction in the demand for savings and time deposits and deposits substitutes. Thai investors are obviously willing to forego a relative constant return as offered by deposits and deposit substitutes for the small chance of a big gain.

Finally, life insurance and employee benefit funds are considered. As in the Philippines, life insurance does not act as a substitute for choice set assets. None of the relative coefficients is significant at the 5 per cent level. This underlines the importance to strengthen the life insurance industry in a strategy to enhance the thrift habit. Similarly, an increase in employee benefit funds does not lead to a significant reduction in the demand for deposits, which make up about two-thirds of the gross financial assets held by Thai investors. However, the demand for deposit substitutes and government bonds is negatively affected by increased investment in employee benefit funds.

Overall, there appear to be good prospects to induce higher savings by expanding the membership of compulsory savings schemes.

Anticipated changes in non-choice set assets: The empirical analysis confirms the hypothesis that anticipated changes in non-choice set assets have a significant impact on the portfolio decisions of individual investors in Thailand. Differences in the response to such changes and the coefficients characterizing the relationship between choice set and non-choice set assets suggest differences with respect to the short and long-run relationship between the types of assets.

This is exemplified by the relationship between time deposits and currency. Above, it was found that both assets are close substitutes. Yet, in the short-run, investors respond to an anticipated increase in currency by increasing the demand for time deposits. They are able to do so because they know that, whenever needed, funds can be withdrawn from time deposits.

Wealth and financial development: Thai investors respond to an increase in wealth by increasing the demand for all six choice set assets. The wealth effect is strongest with respect to time deposits and deposit substitutes, underlining the fact that these are the two most important assets in the portfolio of individual investors.

The results show that in the case of savings deposits, deposit substitutes and corporate bonds the positive wealth effect is more than offset by a negative financial development

effect. In so far as savings deposits are concerned, the negative financial development effect reflects the proliferation of the commercial banking system and the consequent popularization of time deposits during the sixties and seventies. With respect to corporate bonds, it expresses continuous supply constraints from which the market for private long-term debt securities has suffered. In the case of deposit substitutes, however, the negative financial development effect is not plausible, since this type of asset has been the main successful innovation in the Thai financial system.

Constraining the financial development index to zero enables clarification of the relative size of the wealth and financial development effects. While in the case of savings deposits and corporate bonds the wealth effect becomes negative, it remains positive in the case of deposit substitutes.

Overall, constraining the financial development index to zero leads to a significant increase in the chi-square value (from 37.194(15) to 105.773(20)), so that the hypothesis that the financial development index does not provide additional information on the portfolio behaviour of Thai investors must be rejected.

Constant term: The incorporation of a constant term into the asset demand equations adds significantly to the explanatory power of the model. This is underlined by the significant difference between the chi-square value of the model, in which the constant term is constrained to zero (86.211(20)), and the chi-square value of the unconstrained version (37.194(15)).

In particular, it is found that investors hold a minimum amount of deposit substitutes irrespective of yield and risk considerations. Since deposit substitutes can be resold to the issuing companies at a small discount, institutional obstacles to adjust the holdings of deposit substitutes are not responsible for this phenomenon. Rather it suggests that a proportion of the deposit substitutes is constantly renewed at the time of maturity.

In the case of government and corporate bonds, the significant negative constant term shows that investors acquire these assets only after a minimum interest rate level has been exceeded. This reluctance is due to the difficulties in liquidating bond holdings in the absence of an active secondary market for long-term debt securities.

The chi-square value of the likelihood ratio of 37.194(15) indicates that the constraints embodied in the stock-flow model are far more acceptable in the case of Thailand than in the case of the Philippines. However, the fact that the probability of acceptance lies only between 0.001 and 0.005 suggests that the model still leaves much room for improvement.



Table 5.10. Model III: Portfolio Behaviour of Individual Investors in Thailand

|              | $R_{DD}$         | $R_{SD}$           | $R_{TD}$          | $R_{DS}$          | $R_{GB}$         | $R_{CB}$          | $V_{CC}$         | $V_{OD}$           | $V_{OS}$         | $V_{LI}$         | $V_{EBF}$        |
|--------------|------------------|--------------------|-------------------|-------------------|------------------|-------------------|------------------|--------------------|------------------|------------------|------------------|
| (1) $V_{DD}$ | 34.366<br>(7.36) | -61.880<br>(20.01) | 6.223<br>(1.55)   | 21.359<br>(13.33) | -1.003<br>(0.70) | 0.934<br>(8.95)   | -0.092<br>(1.59) | -10.426<br>(12.48) | 1.688<br>(6.96)  | -0.226<br>(0.46) | 1.636<br>(5.85)  |
| (2) $V_{SD}$ |                  | 52.820<br>(4.93)   | 22.981<br>(1.73)  | - 9.249<br>(2.79) | -5.238<br>(3.53) | 0.565<br>(3.76)   | 0.059<br>(0.39)  | 3.881<br>(1.52)    | -0.826<br>(1.50) | 2.910<br>(1.56)  | -1.451<br>(1.27) |
| (3) $V_{TD}$ |                  |                    | -34.550<br>(2.20) | - 1.014<br>(0.23) | 6.543<br>(3.97)  | -0.185<br>(1.10)  | -0.808<br>(4.39) | 5.307<br>(1.62)    | -2.005<br>(2.95) | -4.064<br>(1.74) | 0.978<br>(0.68)  |
| (4) $V_{DS}$ |                  |                    |                   | -11.147<br>(7.26) | -0.193<br>(1.12) | -1.191<br>(15.73) | -0.123<br>(2.30) | 1.694<br>(1.75)    | -0.393<br>(2.13) | 0.838<br>(1.43)  | -2.483<br>(6.57) |
| (5) $V_{GB}$ |                  |                    |                   |                   | -0.061<br>(0.08) | -0.048<br>(1.15)  | -0.038<br>(1.70) | -1.540<br>(6.83)   | 0.564<br>(5.98)  | -0.449<br>(1.87) | -0.325<br>(2.66) |
| (6) $V_{CB}$ |                  |                    |                   |                   |                  | -0.075<br>(6.68)  | 0.003<br>(1.44)  | 0.084<br>(2.85)    | -0.027<br>(3.23) | -0.009<br>(0.39) | -0.005<br>(0.36) |

|              | $\Delta V_{CC}$  | $\Delta V_{OD}$  | $\Delta V_{OS}$  | $\Delta V_{LI}$  | $\Delta V_{EBF}$ | $\Delta W_o$     | $W_o$            | FI               | L                 | SE    |
|--------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|-------------------|-------|
| (1) $V_{DD}$ | 0.195<br>(4.44)  | 2.713<br>(5.66)  | -1.171<br>(2.40) | 1.001<br>(3.09)  | -1.104<br>(3.57) | -0.008<br>(0.90) | 0.006<br>(0.27)  | 0.540<br>(6.15)  | 0.297<br>(1.82)   | 0.046 |
| (2) $V_{SD}$ | -0.594<br>(4.59) | -3.768<br>(2.24) | 4.431<br>(2.65)  | -2.433<br>(2.13) | 2.053<br>(1.69)  | 0.084<br>(2.79)  | 0.023<br>(0.36)  | -0.092<br>(0.44) | -0.259<br>(0.53)  | 0.154 |
| (3) $V_{TD}$ | 0.671<br>(4.18)  | -0.311<br>(0.15) | -2.264<br>(1.09) | 2.680<br>(1.88)  | -2.446<br>(1.60) | -0.104<br>(2.77) | 0.641<br>(7.99)  | 0.073<br>(0.28)  | 0.378<br>(0.61)   | 0.192 |
| (4) $V_{DS}$ | -0.250<br>(5.64) | 0.691<br>(1.24)  | -1.701<br>(3.11) | -1.157<br>(3.11) | 1.498<br>(3.80)  | 0.040<br>(3.98)  | 0.293<br>(14.09) | -0.481<br>(6.41) | 1.242<br>(6.66)   | 0.051 |
| (5) $V_{GB}$ | -0.025<br>(1.32) | 0.678<br>(3.25)  | 0.723<br>(3.23)  | -0.119<br>(0.80) | -0.011<br>(0.08) | -0.013<br>(3.15) | 0.034<br>(3.75)  | -0.024<br>(0.78) | -0.192<br>(3.12)  | 0.021 |
| (6) $V_{CB}$ | 0.004<br>(2.28)  | -0.003<br>(0.16) | -0.018<br>(0.85) | 0.028<br>(1.99)  | 0.010<br>(0.71)  | 0.002<br>(3.88)  | 0.004<br>(4.57)  | -0.015<br>(4.66) | -1.466<br>(20.00) | 0.002 |

$\chi^2(15) = 37.194$      $0.001 < p < 0.005$

Remarks: The figures in parentheses are t-ratios.



### 3. Portfolio Behaviour with respect to Liquid and Non-Liquid Assets: An Aggregated Version of the Original Models

Limited data availability prevents an exploration of the different problem areas that might be responsible for the unsatisfactory performance of the portfolio models presented above. However, some of the earlier interpretation problems can be overcome by aggregating various assets. Therefore, for the Philippines, alternative specifications of the original models, which comprise only liquid and non-liquid choice set assets and three non-choice set assets, are tested.<sup>1</sup> In the absence of an active capital market, it can be expected that the distinction between liquid and non-liquid assets plays an important role in the portfolio decisions of individual investors.

The liquid choice set assets ( $V_L$ ) include savings and time deposits, deposit substitutes and treasury bills, while the non-liquid choice set assets ( $V_{NL}$ ) comprise corporate, government and other bonds, corporate shares and shares of mutual funds. The set of exogenous assets is specified to contain currency and demand deposits ( $V_C$ ), exogenous deposits ( $V_{ED}$ ) and long-term assets ( $V_{LT}$ ), the latter being the sum of life insurance, trust funds and employee benefit funds.

$$V_1 = [V_L, V_{NL}]$$

$$V_2 = [V_C, V_{ED}, V_{LT}]$$

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<sup>1</sup> The aggregated version of the portfolio models is not tested for Thailand, since in the Thai portfolio non-liquid choice set assets are insignificant compared with liquid choice set assets.

The expected rate of return on liquid assets is represented by a scalar multiple of the time deposit rate and the expected rate of return on non-liquid assets by a scalar multiple of the rate of return on corporate shares.

As in the case of the non-aggregated version of the portfolio models, the incorporation of the composition of non-choice set assets and anticipated changes in these assets into the portfolio decision-making process leads to a significant reduction in the chi-square value of the likelihood ratio. Consequently, the hypotheses of homogeneity of response to changes in non-choice set assets and of lack of anticipation of changes in non-choice set assets have to be rejected again.

Table 5.11. Portfolio Behaviour with respect to Liquid and Non-liquid Assets: The Performance of Alternative Hypotheses

| Hypthesis     | $\chi^2(n)$ | Probability of Acceptance |
|---------------|-------------|---------------------------|
| (1) Model I   | 117.312(8)  | $p < 0.001$               |
| (2) Model II  | 47.967(5)   | $p < 0.001$               |
| (3) Model III | 1.151(1)    | $0.250 < p < 0.300$       |

In the following, the empirical results for Model III are discussed in detail. The results confirm the hypotheses with respect to own-rate and cross-rate effects (see Table 5.12., p.330 ). The respective coefficients have the correct sign and are significant at the 10 per cent level. This emphasizes the interest sensitivity of Philippine investors

and suggests that the interest rate ceilings imposed on various financial instruments are likely to have biased investment decisions against these instruments.

As in the non-aggregated version of Model III, the composition of the non-choice set assets is found to have a statistically significant effect on the portfolio behaviour of individual investors in the Philippines.

The analysis indicates that currency and demand deposits ( $V_C$ ) and liquid assets ( $V_L$ ) are perfect substitutes. The hypothesis that the relevant coefficient equals -1.0 cannot be rejected at the 5 per cent significance level.

Foreign currency deposits, which make up the bulk of exogenous deposits, are to provide, above all, a safety net against political risks rather than a remunerative investment outlet. Non-liquid assets are particularly vulnerable to political uncertainties, as they imply a long-term commitment. It is, therefore, not surprising to find that although both liquid and non-liquid assets are negatively affected by an increase in exogenous deposits, the latter are largely built up at the expense of non-liquid assets.

Long-term funds ( $V_{LT}$ ) are primarily meant to secure the future of the investor's family after his retirement or death. They limit his ability to increase investment in deposits and deposit substitutes. At the same time, they might also reduce his willingness to save for the above purpose through other outlets, regarding himself as being well covered for the eventualities to come. The demand for non-liquid assets is not affected by that for long-term funds, since the former type of assets fulfil a different objective, namely, to retain or expand the control of closely held corporations.

Like the composition of non-choice set assets, anticipated changes in these assets are an important determinant in the portfolio decisions of Philippine investors.

An anticipated increase in cash holdings ( $\Delta V_c$ ) induces the investor to increase his demand for liquid assets and reduces his demand for non-liquid assets. The difficulties in reselling bonds and shares prevents the individual from responding to an anticipated change in cash-holdings by acquiring these assets.

Anticipated increases in life insurance, trust funds and employee benefit funds ( $\Delta V_{LT}$ ) reduce the investor's ability as well as his willingness to build up his holdings of liquid assets. At the same time, the knowledge that the basic need 'safety' will be better met, for example, through an anticipated increase in life insurance, leads the investor to increase his demand for the more risky non-liquid assets.

Both liquid and non-liquid assets respond positively to an increase in wealth. However, the wealth propensity of the former type of assets exceed that of the latter type by far. This cannot be interpreted solely as evidence that the investor prefers liquid assets with increasing wealth. It also represents the growing opportunities to invest in liquid assets. During the fifties, the number of financial institutions and their range of financial instruments was very limited. The investor therefore had to channel surplus funds mainly into business enterprises. Numerous alternative investment opportunities arose during the sixties and seventies



Overall, the aggregated version of Model III is found to perform well, its probability of acceptance lying between 0.25 and 0.30. It confirms the hypothesis that the distinction between liquid and non-liquid assets is of great importance in the portfolio behaviour of individual investors in the Philippines.

By aggregating various choice set and non-choice set assets, interpretation problems that arose in the original portfolio models have been circumvented. Focussing on liquid and non-liquid assets only, also provided additional insight into the portfolio behaviour of individual investors in the Philippines. However, at the same time, the aggregation of assets led to a substantial loss of information. Moreover, the problems relating to the exclusion of tangible assets and liabilities from the portfolio, the approximation procedure with respect to expected rates of return, the imperfections in the financial markets, the objective and the utility functions remain unsolved. In order to gain a better understanding of the portfolio behaviour in developing countries, future research has to address itself to these issues.

## CHAPTER VI

### SUMMARY AND CONCLUSION

The central theme in the analysis of savings behaviour and savings mobilization in the Philippines and Thailand has been the ability of government authorities and private financial institutions to enhance the thrift habit and to bring about a more efficient structure of domestic savings. Vigorous efforts are needed in both countries to meet the savings and investment targets set forward in the respective development plans. However, the savings functions that have been estimated suggest only a limited potential for policy manipulations. Income represents the major determinant of the level of savings, as has been found previously for most other developing countries.

The analysis of the impact of income distribution on the level of savings has only limited policy implications. Although it indicates that a rise in the ratio of profit to labour income has led to an increase in domestic savings, a deliberate redistribution of income in favour of profit earners seems not feasible because of social considerations. Similarly a redistribution of income in favour of the industrial sector and against the agricultural sector, which characterizes the strategy in many developing countries, is either unlikely to bring about a higher savings ratio or is difficult to implement. The regression analysis for the Philippines revealed a positive relationship between the ratio of industrial to agricultural income and the level of domestic savings. Nevertheless, a further squeeze of agriculture appears economically and politically unviable, as



it would be detrimental to the welfare of the majority of the population. In addition, the analysis suggests that, in Thailand, the activities to channel resources from the agricultural sector to the industrial sector, such as the rice premium, have depressed domestic savings and thereby might conceivably have retarded the overall development of the economy. Therefore it is necessary to reconsider any measures that impose a special burden on agriculture.

Moreover, in Thailand, the redistribution of income from the private to the government sector affects domestic savings adversely, since the positive impact of higher taxation on government savings is more than offset by the negative impact on private savings. In the Philippines, on the other hand, greater tax efforts by the government could very well lead to an increase in domestic savings. Private savings have been left unaffected by higher taxes, whereas total domestic savings show a positive relationship with the level of taxation. This is further corroborated by the major tax reform at the beginning of the seventies. Despite the substantial additional revenue for the government sector, the savings rate of the private sector continued to rise, indicating a great potential of untapped funds. Unfortunately, the tax drive did not persist.

On the basis of the regression analysis, it appears that the potential for policy manipulations is even more limited with respect to financial developments, as their impact on the level of savings in the Philippines and Thailand has been marginal.



In the introduction to this study, it was emphasized that foreign capital inflow cannot be a substitute to domestic resource management. Indeed, the ease with which Thailand has been able to acquire foreign funds seems to have lessened efforts to mobilize domestic savings. In the Philippines, on the other hand, foreign exchange has been vital to sustain the investment and growth process. It is up to the monetary authorities to utilize the capital inflow efficiently, so that it supplements domestic resources rather than replaces them.

Exports remain the main source of foreign exchange, while borrowing in international markets can only be a last resort. Accordingly, rather than protecting domestic industries through tariffs or quotas, a more outward looking strategy based on strengthening export oriented industries should be pursued.

The vital resources needed to finance domestic investments have to come from within the country, the financial system being the most important instrument to mobilize surplus funds. Despite this, the expansion of the financial system in the Philippines and Thailand has, according to the savings functions that have been estimated, not led to a better savings performance as has been hypothesized, with the exception of personal savings in the Philippines. However, specification problems and multicollinearity render the evaluation of the impact of financial intermediation on the level of savings rather difficult. An extension of the analysis to a greater number of countries is necessary to settle the issue.

The limited influence of financial developments on the level of savings is also reflected in the relationship between savings and interest rates. In both countries, the impact of time deposit rates on the level of savings is either insignificant or negative, again with the exception of personal savings in the Philippines.

Although inflation did not affect the behaviour of Philippine savers and did indeed induce Thai savers to increase their savings efforts, this should not lead to the conclusion that the respective governments can resort to an inflation tax to finance its investment programmes. Ultimately, such a strategy would affect private savings negatively. After the monetary stability of the 1950s and 1960s, the high rates of inflation during the 1970s are still seen as an exception rather than the rule. The anticipation of rising inflation is bound to lead to a decline in savings, as is already evident in the savings behaviour of individuals in both countries. Moreover, in the Philippines, double-digit inflation rates during the early seventies led savers to change their portfolio in favour of short-term financial assets and tangible assets, which hampered the inter-sectoral flow of funds.

In contrast to the savings functions that have been estimated, the analysis of the supply side of savings mobilization provides the basis for numerous activities of monetary authorities and private financial institutions. Measures to strengthen the financial system are likely to improve primarily the structure of savings. In addition,

improvements in some financial markets can lead to an increase in the level of savings. For example, contractual and compulsory savings are largely made at the expense of consumption rather than being a substitute for voluntary savings.<sup>1</sup> The expansion of the life insurance industry and of social security schemes - which so far have played only a minor role in the mobilization of savings, especially in Thailand - could therefore help to enhance the thrift habit.

The examination of the different financial instruments and their features demonstrated that financial reform as suggested by McKinnon and Shaw is not sufficient to bring about a more efficient performance of the Philippine and Thai financial systems. Instead, it was found that in some areas more government activities are needed, while in others government measures have been detrimental to financial development and consequently should be abandoned.

Government action is necessary in maintaining a sound financial system. In both countries, the authorities have been slow to introduce legislation to provide those financial services that are newly offered with a sound footing and thereby ensure that savers do not have to bear unnecessary risks. Non-bank financial intermediaries, which have started operation during the sixties, have not been subjected to basic regulations, such as minimum paid-in capital or liquidity ratios, until 1972. Even then, many financial reports that were submitted could not be examined properly because of lack of skilled supervisory staff.

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<sup>1</sup> See section V.D.1.

In Thailand, lack of proper legislation has also been a prime reason for the poor state of the life insurance industry which suffered from several bankruptcies during the sixties. Appropriate measures to safeguard the soundness of the life insurance companies were only introduced in 1967 after great damage had already been done to policy holders. It is essential that the monetary authorities concentrate their scarce skilled personnel on supervising the existing financial institutions before venturing into more ambitious activities.

Despite their limited staff resources, the authorities try increasingly to influence the performance of the market by regulating the features of the financial instruments that are offered. This attempt has been most prominent with respect to yield. In the Philippines, interest rate ceilings have been imposed not only on deposits but lately also on deposit substitutes. Rather than stimulating investment through artificially low nominal rates of interest, the ceilings have led to distortions in the financial markets and actually hampered the investment process. Despite the grave consequences of interest rate regulations on the efficiency of the financial system, as pointed out in various studies, the Philippine government seems unwilling to give up this cherished idea, whereas the Thai government is slowly abandoning it.<sup>1</sup>

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<sup>1</sup> This is underlined by the recent change in laws in Thailand. See Richard Nations, 'Thailand Raises Bank Interest Limit to 18 Per Cent', FT, 16 January 1980, p. 3.

Similarly, in both countries, accessibility to deposit substitutes is restricted either by preventing the institutions that offer these instruments from expanding their branch network or by imposing high minimum denominations. Although this has not limited the expansion of the market, it biases the distributions of the benefits derived from these instruments, enhancing the skewed income and wealth distribution. Moreover, in the absence of alternative attractive financial instruments, as has been the case in the Philippines at the beginning of the seventies, such regulations provide the basis for the continued existence of a flourishing unorganized market to which savers, who find the minimum denominations too high, have to resort. This creates difficulties in the intermediation process and the intersectoral flow of funds.

The activities of the government authorities to develop the financial system involve several problems. In some instances, government action is needed to stimulate development, whereas in other instances such developmental activities had detrimental effects. The two most important examples have been the expansion of special government institutions and the long-term debt securities market.

In the Philippines, the Development Bank and the Land Bank and, in Thailand, the Industrial Finance Corporation, the Bank of Agriculture and Agricultural Co-operatives and the Government Housing Bank have been established to provide funds for industrial, agricultural and housing projects that are not financed by the commercial banking system. These

institutions have stimulated investment and to a certain extent enhanced the growth process. However, the subsidized loans of the Development Bank of the Philippines have greatly impeded the development of the capital market, as companies found it easier to approach the Development Bank rather than the general public through bond or equity issues. It is of utmost importance that the government institutions follow the conditions prevailing in the money and capital markets. Exceptions should be made only in the case of projects that are very desirable socially.

The other example that indicates the problems involved in the developmental role of government action refers to the bond market. Because of the size of government debt issues, they provide the ideal basis to induce capital market development. Unfortunately, in both countries, the governments use forced investment regimes to 'market' their securities rather than mobilize funds from the general public by offering attractive financial instruments. The low yields enable the respective authorities to finance budget deficits cheaply, but at the same time deter private investors. Thus, the capital markets remain thin and illiquid. A reorientation of government policy along the lines suggested in Chapter IV seems highly desirable.

Finally, attention has once again to be focussed on government legislation. The differences in the size and sophistication of the social security systems in the Philippines and Thailand has been traced to lack of appropriate laws in the latter country. Without such laws, compulsory savings will remain negligible in Thailand.

However, the development of the financial system remains primarily the responsibility of private institutions. In contrast to the view expressed by Patrick, the expansion of the bank branch system can foster this process only to a limited extent. Instead, financial institutions have to improve, above all, their efficiency and to demonstrate innovation in translating savers' needs into financial instruments and services.

The introduction of deposit substitutes and the wide variety of these instruments offered to lenders and borrowers alike provides the best example of the abilities of the financial institutions in the Philippines and Thailand. In the more traditional markets, such as bonds and life insurance, much remains to be done. In particular, more information has to be furnished to prospective customers. Furthermore, the features of long-term debt securities and life insurance policies have to be extensively revised, if they are to be made attractive. To some extent the problems have been caused by government regulations, but they are equally due to lack of sophistication on the part of the financial institutions.

The proliferation of the Philippine and Thai financial systems has deeply affected the portfolio of individual investors, as is evident in the increase of the proportion of financial assets as opposed to tangible assets. Furthermore, closer inspection of the structure of financial savings reveals that the supply constraints within the two systems had important implications for the allocation of surplus



funds among alternative financial instruments and have, indeed, led to a lopsided savings structure.

Most savings are channelled through financial intermediaries, while the capital markets remain rather inactive. Furthermore, contractual and compulsory savings play a minor role in the portfolios of individual investors. This implies that the bulk of savings are entrusted with financial institutions, such as banks and finance companies, which concentrate on the extension of short-term credit, with an emphasis on the trading sector. Consequently, there is a lack of long-term funds to finance agricultural and industrial projects. While part of the financial needs of agriculture and industry are met by special government institutions, an expansion of the role of capital markets, life insurance and employee benefit funds is necessary to increase the flow of long-term funds.

Although the portfolio models that have been tested are inadequate to explain fully the choice behaviour of individual investors in the Philippines and Thailand, they provide valuable insight into the decision-making process of the respective economic units.

The empirical results render support for the hypothesis that the interest rate structure is an important determinant of the structure of financial wealth. Thai and Philippine investors are as prone to react to relative changes in rates of return as their counterparts in developed countries. The results also show that individual investors in both countries incorporate the composition of non-choice set assets



and anticipated changes in these assets into portfolio decisions. An exclusion of the non-choice set assets from the portfolio that is analyzed must therefore be rejected.

The analysis further suggests that the structure of choice set assets is influenced by the process of financial development and by habit persistence effects as well as institutional obstacles to investment decisions as indicated by significant coefficients with respect to the financial development index and significant constant terms.

Overall, however, the portfolio models leave much room for improvement. Various explanations have been given for their unsatisfactory performance. Data availability prevented any extension of the relevant portfolio and the testing of alternative utility functions as may seem desirable. It is hoped that the results presented here will induce others to compile more data on the structure of financial and tangible assets in developing countries and to explore alternative hypotheses of portfolio behaviour of the economic units in these countries.

## STATISTICAL APPENDIX

### A. Introduction

The statistical appendix gives a detailed account of the main time-series that are used in this study. It consists of two parts — one for the Philippines and one for Thailand — which are subdivided further into four sections: first, stock data on financial assets and liabilities; second, flow data on financial assets and liabilities and on tangible assets; third, interest rates on financial assets; and fourth, national income accounts and other data.

While the data in the fourth section are taken mostly from the national income accounts, the data on stocks, flows and interest rates are compiled from many different sources. The time-series of financial assets and liabilities (stock data) and of the annual changes in financial assets and liabilities and in tangible assets (flow data) represent the wealth and savings of individuals, that is, personal wealth and personal savings, respectively.

Whenever separate data on financial assets and liabilities of resident individuals are not available, which is primarily the case for the 1950s, the average share of individuals' assets and liabilities during the last five years for which a disaggregation is available is extrapolated backwards, if the share is stable during the five-year period. The question of stability is admittedly a matter of judgement. In case a stable share cannot be observed, it is assumed that the

assets and liabilities of individuals follow the over-all trend, which essentially means that the share of the last available year is used.

Several other methods have been considered. Instead of using the average share of the last five years, that of the last ten years, for example, could be applied. However, the substantial structural changes during the late sixties and early seventies render the information contained in the data of the latter years less relevant to the construction of the time-series for the fifties than the information contained in the data for the early sixties. An extrapolation of the trend line covering the period for which disaggregated data are available is unsatisfactory for the same reason.

A more sophisticated approach could be taken by testing various hypotheses with respect to the development of, for example, the ratio of time deposits held by individuals to total private deposits. The most appropriate hypothesis would then be applied to determine the ratio during the fifties. This method has also been discarded, since the data on the possible determinants of the ratio have to be assumed to be rather unreliable during the fifties. Moreover, this method of estimating the missing data might presuppose the tests of the hypotheses with respect to savings and portfolio behaviour.

If the data for a single year are missing, the average share of individuals' assets and liabilities of the two neighbouring years is taken. For some assets and liabilities, only a few figures exist. The gaps are closed by assuming certain growth rates. These time-series can only indicate

the approximate magnitude of the asset or liability under consideration. The annual changes might be very misleading. This is, of course, very problematic for the resulting flows.

Each time-series is an aggregate of the time-series of the different financial institutions. The latter are discussed in terms of three items: Source, Basic Data and Derivation. The two main sources of data are the Department of Economic Research of the Central Bank of the Philippines (CBP, DER) and of the Bank of Thailand (BOT, DER). Since for several assets and liabilities, different time-series exist in different departments of the same institution, the specific department is given in addition to the institution whenever this seems necessary. However, sometimes even in one department, different sets of figures exist for the same asset or liability. The item 'Basic Data' should help to overcome any ambiguity. It gives details of the working sheets and tables from which the statistics are taken. Under 'Derivation', the method of estimation is described.

B. The Philippines

1. Stock Data

All time-series are expressed in million Pesos (current prices).

(1) Currency - CC

Source: CBP, Statistical Bulletin, 29 (1977), pp. 28-9.

Basic Data: Currency in Circulation

Derivation:  $0.9 \times$  total currency in circulation.

Data from the National Economic Development Authority indicate that in 1974 approximately 90 per cent of currency in circulation was held by households. Information for other years is not available.

(2) Demand Deposits - DD

(a) Commercial banks -cbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of cbs

Derivation: 1960-1977, demand deposits held by individuals.

1949-1959,  $0.5495 \times$  total private demand deposits. 0.5495 represents the average ratio of demand deposits held by individuals to total private demand deposits for the years 1960 to 1964.

(b) rural banks - rbs

Source: CBP, Statistical Bulletin, 29(1977), pp 102-3.

Basic Data: Assets and Liabilities of rbs

Derivation: Total demand deposits.

(c) Land Bank of the Philippines - LBP

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of  
the LBP

Derivation: Demand deposits held by individuals.

(d) Philippine Amanah Bank - PAB

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of  
the PAB

Derivation: Demand deposits held by individuals.

(3) Savings Deposits - SD

(a) commercial banks - cbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of cbs

Derivation: 1960-1977, savings deposits held by  
individuals.

1949-1959,  $0.8759 \times$  total private savings  
deposits. 0.8759 represents the average  
ratio of savings deposits held by individuals  
to total private savings deposits for the  
years 1960 to 1964.

(b) rural banks rbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of  
rbs

Derivation: Total savings deposits (excluding the Barrio  
Savings Fund).

(c) savings banks - sbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of  
sbs

Derivation: 1960-1977, savings deposits held by  
individuals.

1949-1959, total savings deposits.

(d) Stock savings and loan associations - sslas

Source: CBP, Statistical Bulletin, 29(1977), pp.112-3.

Basic Data: Assets and Liabilities of sslas

Derivation: Total savings deposits.

(e) private development banks - pdbbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of  
pdbbs.

Derivation: 1975-1977, savings deposits held by  
individuals.

1960-1974, 0.9364 x total savings deposits.

0.9364 represents the average ratio of  
savings deposits held by individuals to  
total savings deposits for the years 1975  
to 1977.

(f) Development Bank of the Philippines - DBP

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of the  
DBP

Derivation: Savings deposits held by individuals  
(1975 to 1977 only).

(g) Land Bank of the Philippines - LBP

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of  
the LBP



Derivation: Savings deposits held by individuals.

(h) Philippine Amanah Bank - PAB

Source: CBP, DER

Basic Data: Consolidated Statement of Condition  
of the PAB

Derivation: Savings deposits held by individuals.

(i) non-stock savings and loan associations - nslas

Source: CBP, DER

Basic Data: Comparative Statement of Condition of  
nslas

Derivation: Total savings deposits.

(j) Postal Savings Bank - PSB

Source: CBP, Statistical Bulletin, 27(1975), p.113.

Basic Data: Assets and Liabilities of the PSB

Derivation: Total savings deposits.

(4) Savings Deposits in Foreign Currencies (CBP Circular  
343) - SDF

(a) commercial banks - cbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of cbs

Derivation: Savings deposits in foreign currencies  
under CBP Circular 343 are disaggregated,  
assuming that these are only private deposits  
and that the composition by holder is  
identical to that of peso savings deposits.

(b) savings deposits - sbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of sbs

Derivation: Total savings deposits in foreign currencies  
under CBP Circular 343.



(5) Time Deposits - TD

(a) commercial banks - cbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of cbs

Derivation: 1960-1977, time deposits held by  
individuals.

1949-1959, 0.5577 x total private time  
deposits. 0.5577 represents the average  
ratio of time deposits held by individuals  
to total private time deposits for the years  
1960 to 1964.

(b) rural banks - rbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of rbs

Derivation: Total time deposits (excluding 'special'  
time deposits held by the CBP and the PDIC  
and excluding the Barrio Guarantee Fund).

(c) savings banks - sbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of sbs

Derivation: 1960-1977, time deposits held by individuals  
1949-1959, total time deposits.

(d) stock savings and loans associations - sslas

Source: CBP, Statistical Bulletin, 29(1977), pp.112-3.

Basic Data: Assets and Liabilities of sslas

Derivation: Total time deposits.

(e) private development banks -pdbbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of pdbbs

Derivation: 1975-1977, time deposits held by individuals.  
1965-1974,  $0.8553 \times$  total time deposits.  
0.8553 represents the average ratio of time deposits held by individuals to total time deposits for the years 1975 to 1977.

(f) Development Bank of the Philippines - DBP

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of the DBP

Derivation: Time deposits held by individuals (1975 to 1977 only).

(g) Land Bank of the Philippines - LBP

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of the LBP

Derivation: Time deposits held by individuals.

(h) Philippine Amanah Bank - PAB

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of the PAB

Derivation: Time deposits held by individuals.

(i) non-stock savings and loans associations - nslas

Source: CBP, DER

Basic Data: Comparative Statement of Condition of nslas

Derivation: Total time deposits.

(6) Time Deposits in Foreign Currencies (CBP Circular 343) - TDF

(a) commercial banks - cbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of cbs

Derivation:  $0.6091 \times$  total time deposits in foreign currencies under CBP Circular 343.

Between 1972 and 1973, peso time deposits declined sharply, while foreign currency time deposits increased severalfold. 0.6091 represents the ratio of the decline in individuals' peso time deposits to the combined decline in individuals' and corporate peso time deposits.

(b) savings deposits - sbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of sbs

Derivation: Total time deposits in foreign currencies under CBP Circular 343.

(7) Other Deposits - OD

(a) mutual building and loans associations - mblas

Source: CBP, DER

Basic Data: Consolidated Balance Sheet of mblas

Derivation: Total capital accounts.

(b) non-stock savings and loan associations - nslas

Source: CBP, DER

Basic Data: Comparative Statement of Condition of nslas

Derivation: Total capital accounts.

(8) Deposit Substitutes - DS

(a) commercial banks - cbs

Source: CBP, DER

Basic Data: Deposit Substitutes of cbs,  
Consolidated Statement of Condition of cbs

Derivation: 1973-1977,  $0.3951 \times$  total deposit  
substitutes.

1966-1972,  $0.3951 \times$  other bills payable.

$0.3951 = 0.7883 \times 0.5021$ .

0.7883 represents the average ratio of  
deposit substitutes held by 'other  
institutions' and individuals to total  
deposit substitutions at cbs for the years  
1973 to 1977.

0.5021 represents the average ratio of  
short-term borrowings from individuals to  
short-term borrowings from individuals and  
other private corporations by non-banks  
for June and December 1974, 1975 and 1976  
(excluding December 1975). The estimated  
ratio is in accordance with information  
provided by several commercial banks.

(b) non-bank financial intermediaries - nbs

Source: CBP, Department of Financial Intermediaries  
(Non-Bank); Bancom Development Corporation,  
Annual Report, various issues.

Basic Data: Summary Report of Short-term Borrowings (DFI),  
Short-Term Borrowings of Bancom Development  
Corporation

Derivation: 1974-1977, short-term borrowings from individuals and 'others'.

1965-1973,  $0.2173 \times$  total deposit substitutes outstanding at financial intermediaries (non-bank).

0.2173 represents the average ratio of deposit substitutes held by individuals to total deposit substitutes for June and December 1974 and December 1975.

Total deposit substitutes for the years 1965 to 1972 are estimated by applying the rate of growth of short-term borrowings of Bancom, which introduced the instrument in 1965 and dominated the market during the sixties and early seventies.

(c) savings banks - sbs

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of sbs

Derivation: Total deposit substitutes outstanding.

(d) private development banks - pdbc

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of pdbc

Derivation: Total deposit substitutes outstanding.

(9) Treasury Bills - TB

Source: CBP, Securities Servicing Department,  
'Annual Report' various issues;  
CBP, Securities Marketing Department,  
'Annual Report' various issues.

Basic Data: Holders of Outstanding Government Securities

Derivation: Treasury bills held by individuals.

(10) Corporate Bonds - CB

Source: Bancom Development Corporation,  
Economic Research Department

Derivation: In 1977, approximately 3.0 million pesos of the PICOP issue, which amounted to 100.0 million pesos, were sold to individuals. Prior to 1977, almost all private bond issues were purchased by institutional investors.

(11) Government Bonds - GB

Source: CBP, Securities Servicing Department,  
'Annual Report' various issues;  
CBP, Securities Marketing Department,  
'Annual Report' various issues.

Basic Data: Holders of Outstanding Government Securities

Derivation: Government securities (excluding Treasury Bills) held by individuals.

(12) Other Bonds - OB

(a) Bonds issued by the Development Bank of the Philippines - DBP

Source: CBP, DER  
DBP, Business Research Department

Basic Data: Holders of Publicly Issued Securities (CBP),  
Schedule of Bondholdings (DBP)

Derivation: DBP bonds held by individuals (1966 to 1977 only).

(b) Bonds issued by the Land Bank of the Philippines - LBP

Source: CBP, DER

LBP, Accounting Department

Basic Data: Holders of Publicly Issued Securities (CBP),  
Schedule of Bondholdings (LBP)

Derivation: LBP bonds held by individuals.

(13) Corporate Shares - CS

Source: CBP, DER

Richard W. Hooley and Honorata A. Moreno,  
op. cit., pp. 371-2.

Basic Data: Capital Investment of Newly Registered  
Business Organizations, Capital Increases  
and Withdrawals of Corporations (CBP),  
Household Sector, Balance Sheet (Hooley/  
Moreno)

Derivation: The 1949 figure is taken from the balance  
sheet of the household sector as estimated  
by Hooley and Moreno. To this figure are  
added the yearly net effect of capital  
investment of newly registered corporations,  
capital increases and withdrawals of  
corporations ( $0.6623 \times$  capital withdrawals  
of corporations and partnerships for the  
years 1950 to 1967, 0.6623 being the  
average ratio of capital withdrawals of  
corporations to total capital withdrawals  
of corporations and partnerships for the  
years 1968 to 1972).



Investment by foreigners (except Chinese) are deducted, assuming that their share in capital investment in newly registered corporations holds true also for capital increases and withdrawals of the particular year.

Investment by institutions are deducted, assuming that their share in the net addition to investment in corporations increased from 4.5 per cent in 1949 to 15 per cent in 1977 by 0.5 per cent annually, and to 22 per cent in 1977 by 1 per cent annually. These percentages are estimated on the basis of partial data on total paid-up capital of corporations and investment by financial institutions in corporate securities.

(14) Mutual Funds - MF

Source: Richard W. Hooley, Savings in the Philippines, 1951-1960 (Quezon City, University of the Philippines, IEDR, 1963), p.27.

Basic Data: Household Saving in Pension Funds, Mutual Funds and New Security Issues

Derivation: See Richard W. Hooley.

Mutual funds ceased operation at the beginning of the sixties because of fraudulent activities of some managers.



(15) Fund Managers - FM

Source: CBP, DER

Richard W. Hooley, op. cit., p. 27.

Basic Data: Assets of Fund Managers

Derivation: 1970-1977, total assets of fund managers.  
The figure for 1977 represents March data.  
Total assets have stagnated between 1971 and 1972, according to information from leading fund managers.  
1960-1970, a growth rate of 17.4 per cent p.a. is assumed. This leads from 104.8 million pesos in 1960 to 521.2 million pesos in 1970.  
1950-1960, stock data are derived on the basis of flow data estimated by Hooley.

(16) Life Insurance - LI

(a) Ordinary Life Insurance - OLI

Source: Department of Finance, Office of the Insurance Commissioner, Annual Report, various issues;  
SEC - Business Day's 1000 Top Corporations in the Philippines, Vol. 10 (Quezon City, Businessday Corporation in collaboration with the SEC, 1978), pp. 266-7.

Basic Data: Consolidated Balance Sheet of Life Insurance Companies (OIC),  
Financial Performance of Top Life Insurance Companies (SEC - Business Day)

Derivation: The following liabilities of life insurance companies are regarded as savings:

- (a) policy and contract reserves,
- (b) policy and contract claims,
- (c) reserves for accident and health,
- (d) policy holders' dividend accumulated,
- (e) policy holders' dividend due and unpaid,
- (f) premiums and annuity considerations received in advance,
- (g) liability for premium deposit.

1973-1977, total amount of items (a) to (g).

The figure for 1977 is estimated on the basis of the rate of growth for 1977 of total policy reserves of the top twelve life insurance companies.

1949-1972,  $1.0500 \times$  total amount of (a).

0.0500 represents the average ratio of items (b) to (g) to item (a) for the years 1973 to 1976.

(b) Mutual Benefit, Relief and Benevolent Societies or Associations - MBS

Source: Department of Finance, Office of the Insurance Commissioner, Annual Report, various issues.

Basic Data: Total Assets of MBS

Derivation: Total Assets.

The figure for 1977 is estimated on the basis of the rate of growth of savings in ordinary life insurance.

(17) Employee Benefit Funds - EBF

(a) Government Service Insurance System - GSIS

Source: GSIS, Annual Report, various issues;

GSIS, Accounting Department

Basic Data: Balance Sheet of the Life Insurance Fund  
and the Retirement Insurance Fund

Derivation: The following items are regarded as savings:

(a) benefits deposited for interest,

(b) claims pending settlement,

(c) dividends payable,

(d) unearned premiums,

(e) undistributed collections,

(f) reserves,

(g) assigned surplus.

The figures represent mid-year data.

(b) Social Security System - SSS

Source: SSS, Annual Report, various issues;

SSS, Accounting Department

Basic Data: Assets and Liabilities, Social Security

Derivation: Total Reserves.

(18) Total Financial Assets of Individuals - TFA

(19) Private Debt with Banks - PDB

(a) commercial banks - cbs

Source: CBP, Statistical Bulletin, 29(1977), p.66;

CBP, DER

Basic Data: Total Credit Outstanding of Commercial Banks,  
Classified by Type of Borrower

Derivation: 1960-1977, total credits outstanding to individuals and single proprietorships.

1976,  $0.2181 \times$  total credits.

1975,  $0.2286 \times$  total credits.

1974,  $0.2391 \times$  total credits.

The share of credits outstanding to individuals and single proprietorships is estimated by assuming that it declined from 0.2496 in 1973 to 0.2075 in 1977 by 0.0105 annually.

During the years 1960 to 1967, the official data did not include credits outstanding of the Philippines National Bank. These are added, assuming that the share of credits outstanding to individuals and single proprietorships of the PNB is identical to that of the other commercial banks.

1949-1959,  $0.3010 \times$  total credits.

0.3010 represents the average ratio of credits outstanding to individuals and single proprietorships to total credits outstanding for the years 1960 to 1964.

(b) rural banks - rbs

Source: CBP, Statistical Bulletin, 29(1977), pp.108-9.

Basic Data: Assets and Liabilities of rbs

Derivation: Total loans.

(c) savings banks - sbs

Source: CBP, Statistical Bulletin, 29(1977), p.82; CBP, DEF

Basic Data: Total Loans (including Discounts)  
Outstanding of Savings Banks, Classified  
by Type of Borrower

Derivation: 1960-1977, total loans and discounts  
outstanding to individuals and single  
proprietorships.

1976, 0.6432 x total loans and discounts.

1975, 0.6952 x total loans and discounts.

1974, 0.7471 x total loans and discounts.

The share of loans and discounts outstanding  
to individuals and single proprietorships  
is estimated by assuming that it declined  
from 0.7990 in 1973 to 0.5913 in 1977 by  
0.051925 annually.

1949-1959, 0.9253 x total loans and discounts.

0.9253 represents the average ratio of  
loans and discounts outstanding to  
individuals and single proprietorships to  
total loans and discounts for the years  
1960 to 1964.

(d) Stock savings and loan associations - sslas

Source: CBP, Statistical Bulletin, 29(1977), pp. 112-3.

Basic Data: Assets and Liabilities of sslas

Derivation: Total loans and discounts.

(e) Land Bank of the Philippines - LBP

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of the  
LBP

Derivation: Loans, discounts and overdraft outstanding  
to private residents (1977: total agrarian  
reform/agricultural credit loans).

(f) Philippines Amanah Bank - PAB

Source: CBP, DER

Basic Data: Consolidated Statement of Condition of the  
PAB

Derivation: Total loans and discounts (plus total  
agrarian reform/agricultural credit loans  
in 1977).

(20) Private Debt with Non-Bank Financial Institutions - PDN

(a) Government Service Insurance System - GSIS

Source: CBP, DER

Basic Data: Loans Outstanding of Government Non-Bank  
Financial Institutions

Derivation: Total consumption loans outstanding of  
the GSIS.

(b) Social Security System - SSS

Source: SSS, Annual Report, various issues;  
SSS, Accounting Department

Basic Data: Assets and Liabilities of the SSS

Derivation: Salary/educational loans and housing loans  
outstanding to employees.

For the years 1966 to 1968, the ratio of

housing loans outstanding to employees to total housing loans outstanding is estimated by assuming that it increased from 0.4594 in 1965 to 0.6904 in 1969 by 0.05775 annually. For the years 1957 to 1964, the share of housing loans outstanding to individuals is estimated at 0.4594. 0.4594 represents the ratio of housing loans outstanding to employees to total housing loans for 1965.

(c) non-stock savings and loan associations - nslas

Source: CBP, Statistical Bulletin, 29(1977), pp.119-20.

Basic Data: Loans Outstanding of Non-Bank Financial Institutions, Classified by Type of Institution

Derivation: Total loans outstanding.

(d) mutual building and loan associations - mblas

Source: CBP, Statistical Bulletin, 29(1977), pp. 119-20.

Basic Data: Loans Outstanding of Non-Bank Financial Institutions, Classifed by Type of Institution.

Derivation: Total loans outstanding.

(21) Private Debt with Life Insurance Companies - PDL

Source: Department of Finance, Office of the Insurance Commissioner, Annual Report, various issues;  
SEC-Business Day's 1000 Top Corporations in the Philippines, op. cit., pp.266-7.



Basic Data: Consolidated Balance Sheet of Life Insurance Companies (OIC); Financial Performance of Top Life Insurance Companies (SEC - Business Day)

Derivation: 1957-1977, total policy loans outstanding. The figure for 1977 is estimated on the basis of the rate of growth for 1977 of total policy loans outstanding of the top 12 life insurance companies. 1949-1956,  $0.3254 \times$  total legal reserves on outstanding policies. 0.3254 represents the average ratio of policy loans outstanding to total legal reserves for the years 1957 to 1961.

(22) Private Debt with Investment Institutions - PDI

Source: CBP, Department of Financial Intermediaries (Non-Bank), Richard W. Hooley, op. cit., p.29.

Basic Data: Assets and Liabilities of Non-Bank Financial Intermediaries (DFI); Loans extended by Finance Companies (Hooley)

Derivation: 1973-1977, receivables/loans outstanding to individuals. 1971-1972, a growth rate of 16.41 per cent per annum is assumed between 1970 and 1971 and between 1972 and 1973, while it is assumed that total receivables/loans were stagnating between 1971 and 1972, as did the loans outstanding of banks and other financial institutions.



1970,  $0.2159 \times$  total assets of finance companies plus  $0.0476 \times$  total assets of investment houses.  $0.2159 (0.0476)$  represents the ratio of receivables/loans outstanding to individuals to total assets of finance companies (investment houses) for 1974.

1960-1970, a growth rate of 20.83 per cent p.a. is assumed. This leads from 52.2 million pesos in 1960 to 346.3 million pesos in 1970.

1951-1960, stock data are derived on the basis of flow data on consumption loans of finance companies as estimated by Hooley.

(23) Total Private Debt - TPD

Table A.1: The Philippines - Personal Wealth I, 1949-1977

| Year | (1) CC | (2) DD | (3) SD  | (4) SDF | (5) TD | (6) TDF | (7) OD | (8) DS |
|------|--------|--------|---------|---------|--------|---------|--------|--------|
| 1949 | 514.9  | 127.6  | 255.9   | -       | 15.1   | -       | -      | -      |
| 1950 | 607.5  | 193.1  | 253.5   | -       | 19.9   | -       | -      | -      |
| 1951 | 580.3  | 141.4  | 248.3   | -       | 21.9   | -       | -      | -      |
| 1952 | 567.2  | 148.0  | 265.4   | -       | 23.1   | -       | -      | -      |
| 1953 | 600.0  | 142.0  | 310.1   | -       | 26.6   | -       | -      | -      |
| 1954 | 609.5  | 145.8  | 344.5   | -       | 36.5   | -       | -      | -      |
| 1955 | 604.4  | 166.3  | 371.2   | -       | 86.7   | -       | -      | -      |
| 1956 | 648.2  | 191.1  | 434.5   | -       | 47.2   | -       | 8.6    | -      |
| 1957 | 704.9  | 198.5  | 497.3   | -       | 55.3   | -       | 9.1    | -      |
| 1958 | 738.5  | 238.9  | 553.4   | -       | 67.7   | -       | 9.7    | -      |
| 1959 | 807.6  | 234.4  | 609.6   | -       | 76.5   | -       | 10.5   | -      |
| 1960 | 857.6  | 211.6  | 659.3   | -       | 80.1   | -       | 11.3   | -      |
| 1961 | 944.7  | 264.7  | 775.6   | -       | 123.5  | -       | 11.7   | -      |
| 1962 | 1055.5 | 352.1  | 925.8   | -       | 194.2  | -       | 12.5   | -      |
| 1963 | 1227.1 | 519.0  | 1202.0  | -       | 268.3  | -       | 12.7   | -      |
| 1964 | 1192.2 | 445.3  | 1361.8  | -       | 301.5  | -       | 14.1   | -      |
| 1965 | 1334.9 | 469.5  | 1548.8  | -       | 358.3  | -       | 14.5   | 4.1    |
| 1966 | 1389.1 | 579.0  | 1954.7  | -       | 503.8  | -       | 33.5   | 45.7   |
| 1967 | 1580.1 | 678.6  | 2563.6  | -       | 648.8  | -       | 38.1   | 64.4   |
| 1968 | 1599.8 | 697.2  | 2901.0  | -       | 634.3  | -       | 43.5   | 159.3  |
| 1969 | 1907.2 | 891.8  | 3336.0  | -       | 642.4  | -       | 47.9   | 329.2  |
| 1970 | 2169.0 | 998.9  | 4150.0  | -       | 768.8  | -       | 56.6   | 634.4  |
| 1971 | 2385.0 | 1261.6 | 4874.1  | 55.7    | 964.3  | 112.3   | 57.8   | 855.9  |
| 1972 | 3091.1 | 1408.3 | 5058.0  | 96.3    | 1365.8 | 174.0   | 63.2   | 1120.0 |
| 1973 | 3107.2 | 1904.5 | 6192.2  | 401.6   | 719.2  | 1099.0  | 69.2   | 2374.8 |
| 1974 | 3880.0 | 2631.9 | 7195.8  | 446.4   | 838.6  | 1352.5  | 76.9   | 4140.6 |
| 1975 | 4273.9 | 2541.9 | 7985.0  | 725.2   | 1562.1 | 1482.5  | 89.2   | 5940.9 |
| 1976 | 5086.6 | 2903.4 | 9870.2  | 998.8   | 3114.9 | 1753.2  | 104.0  | 6145.9 |
| 1977 | 6053.9 | 3174.7 | 12129.7 | 1050.7  | 4971.2 | 1620.9  | 128.0  | 6851.0 |

**Definitions:** CC - Currency  
DD - Demand Deposits  
SD - Savings Deposits  
SDF - Savings Deposits in Foreign Currencies  
TD - Time Deposits  
TDF - Time Deposits in Foreign Currencies  
OD - Other Deposits  
DS - Deposit Substitutes

Table A.2: The Philippines - Personal Wealth II, 1949-1977

| Year | (9) TB | (10) CB | (11) GB | (12) OB | (13) CS | (14) MF | (15) FM | (16) LI |
|------|--------|---------|---------|---------|---------|---------|---------|---------|
| 1949 | -      | -       | 0.5     | -       | 921.7   | -       | -       | 67.6    |
| 1950 | -      | -       | 0.6     | -       | 998.4   | -       | -       | 77.6    |
| 1951 | -      | -       | 0.8     | -       | 1031.6  | -       | 7.0     | 90.5    |
| 1952 | -      | -       | 0.8     | -       | 1065.7  | -       | 14.5    | 102.7   |
| 1953 | -      | -       | 1.2     | -       | 1099.3  | -       | 22.5    | 118.4   |
| 1954 | -      | -       | 1.7     | -       | 1136.6  | -       | 30.6    | 137.4   |
| 1955 | -      | -       | 2.4     | -       | 1163.5  | -       | 39.7    | 155.6   |
| 1956 | -      | -       | 3.2     | -       | 1218.1  | -       | 49.7    | 174.5   |
| 1957 | -      | -       | 3.9     | -       | 1274.1  | -       | 61.2    | 197.5   |
| 1958 | -      | -       | 4.8     | -       | 1362.9  | 4.4     | 74.2    | 220.6   |
| 1959 | -      | -       | 4.7     | -       | 1482.5  | 21.1    | 88.7    | 249.7   |
| 1960 | -      | -       | 8.5     | -       | 1622.1  | 29.5    | 104.8   | 278.4   |
| 1961 | -      | -       | 9.3     | -       | 1807.1  | -       | 123.0   | 315.5   |
| 1962 | -      | -       | 9.4     | -       | 1964.0  | -       | 144.4   | 356.1   |
| 1963 | -      | -       | 13.0    | -       | 2170.5  | -       | 169.6   | 399.2   |
| 1964 | -      | -       | 13.5    | -       | 2382.3  | -       | 199.1   | 448.6   |
| 1965 | -      | -       | 14.2    | -       | 2606.1  | -       | 233.7   | 504.0   |
| 1966 | 0.0    | -       | 12.7    | 9.5     | 2911.6  | -       | 274.4   | 549.8   |
| 1967 | 0.2    | -       | 15.4    | 44.6    | 3264.7  | -       | 322.1   | 616.7   |
| 1968 | 0.0    | -       | 15.4    | 62.9    | 3680.1  | -       | 378.2   | 686.4   |
| 1969 | 0.0    | -       | 17.8    | 66.2    | 4105.5  | -       | 444.0   | 772.6   |
| 1970 | 0.0    | -       | 15.5    | 63.9    | 4615.9  | -       | 521.2   | 882.1   |
| 1971 | 0.0    | -       | 16.0    | 64.7    | 5173.8  | -       | 529.7   | 972.6   |
| 1972 | 0.0    | -       | 22.5    | 82.6    | 5787.8  | -       | 529.7   | 1092.9  |
| 1973 | 0.4    | -       | 34.4    | 85.9    | 6539.2  | -       | 1099.1  | 1271.3  |
| 1974 | 0.1    | -       | 40.2    | 92.1    | 8197.8  | -       | 1951.5  | 1411.4  |
| 1975 | 0.0    | -       | 39.4    | 151.2   | 9772.4  | -       | 2710.6  | 1649.2  |
| 1976 | 0.0    | -       | 29.6    | 205.0   | 11293.4 | -       | 3307.0  | 1878.8  |
| 1977 | 6.9    | 3.0     | 60.2    | 224.4   | 12752.3 | -       | 3466.7  | 2176.9  |

Definitions: TB - Treasury Bills  
 CB - Corporate Bonds  
 GB - Government Bonds  
 OB - Other Bonds  
 CS - Corporate Shares  
 MF - Shares of Mutual Funds  
 FM - Fund Managers  
 LI - Life Insurance

Table A.3: The Philippines - Personal Wealth III, 1949-1977

| Year | (17) EBF | (18) TFA | (19) PDB | (20) PDN | (21) PDL | (22) PDI | (23) TPD |
|------|----------|----------|----------|----------|----------|----------|----------|
| 1949 | 39.4     | 1942.7   | 175.5    | 9.8      | 20.7     | -        | 206.0    |
| 1950 | 51.1     | 2201.7   | 203.7    | 12.3     | 23.7     | -        | 239.7    |
| 1951 | 63.8     | 2185.6   | 219.8    | 14.9     | 27.7     | 0.2      | 262.6    |
| 1952 | 93.0     | 2280.4   | 223.5    | 17.8     | 31.5     | 0.4      | 273.2    |
| 1953 | 145.5    | 2465.6   | 219.2    | 20.7     | 36.4     | 0.6      | 276.9    |
| 1954 | 195.1    | 2637.7   | 207.1    | 32.0     | 42.1     | 0.7      | 281.9    |
| 1955 | 222.3    | 2812.1   | 251.3    | 54.5     | 47.8     | 1.0      | 354.6    |
| 1956 | 255.5    | 3030.6   | 363.1    | 63.2     | 53.4     | 3.9      | 483.6    |
| 1957 | 314.2    | 3316.0   | 459.4    | 70.1     | 58.8     | 7.5      | 595.8    |
| 1958 | 397.9    | 3673.0   | 491.7    | 77.7     | 67.0     | 16.2     | 652.6    |
| 1959 | 504.5    | 4089.8   | 558.6    | 85.2     | 75.8     | 32.8     | 752.4    |
| 1960 | 1279.9   | 5143.1   | 586.1    | 119.7    | 87.3     | 52.2     | 845.3    |
| 1961 | 1311.5   | 5686.6   | 783.2    | 152.5    | 99.0     | 63.1     | 1097.8   |
| 1962 | 1362.2   | 6376.2   | 992.1    | 180.4    | 113.7    | 76.2     | 1362.4   |
| 1963 | 1540.5   | 7521.9   | 1315.8   | 211.9    | 126.7    | 92.1     | 1746.5   |
| 1964 | 1753.1   | 8111.5   | 1574.4   | 287.7    | 146.6    | 111.3    | 2120.0   |
| 1965 | 2009.8   | 9097.9   | 1846.1   | 326.6    | 171.6    | 134.4    | 2478.7   |
| 1966 | 2277.8   | 10541.6  | 1939.5   | 441.9    | 188.8    | 162.4    | 2732.6   |
| 1967 | 2573.0   | 12410.3  | 2349.2   | 602.4    | 207.2    | 196.3    | 3355.1   |
| 1968 | 2909.2   | 13767.3  | 3128.7   | 637.7    | 228.7    | 237.2    | 4232.3   |
| 1969 | 3273.0   | 15833.6  | 3531.7   | 818.0    | 262.3    | 286.6    | 4898.6   |
| 1970 | 3650.8   | 18527.1  | 3703.4   | 916.1    | 296.2    | 346.3    | 5262.0   |
| 1971 | 4098.5   | 21422.0  | 4475.9   | 1048.5   | 333.3    | 403.1    | 6260.8   |
| 1972 | 4662.2   | 24554.4  | 4480.9   | 1043.6   | 378.7    | 403.1    | 6372.5   |
| 1973 | 5253.6   | 30151.6  | 5978.8   | 1139.4   | 411.2    | 469.3    | 7998.7   |
| 1974 | 6006.7   | 38262.5  | 8786.6   | 1311.1   | 461.8    | 818.5    | 11378.0  |
| 1975 | 6994.1   | 45917.6  | 10659.3  | 1501.8   | 530.0    | 1192.1   | 13883.2  |
| 1976 | 8606.3   | 55297.1  | 12205.3  | 1878.9   | 612.6    | 1629.0   | 16325.8  |
| 1977 | 10123.9  | 65794.4  | 14339.5  | 2231.2   | 711.0    | 1846.3   | 19128.0  |

**Definitions:** EBF - Employee Benefit Funds  
TFA - Total Financial Assets  
PDB - Private Debt with Banks  
PDN - Private Debt with Non-Bank Financial Institutions  
PDL - Private Debt with Life Insurance Companies  
PDI - Private Debt with Investment Institutions  
TPD - Total Private Debt

## 2. Flow Data

With the exception of tangible assets, the flow data are derived from the stock data in the previous section. However, in case a time-series contains a structural break because data of a particular financial institution are not available before a certain year, the figure for the first year is not taken into consideration when deriving the flow data. Moreover, during the period 1960 to 1962 the savings in form of employee benefit funds with the GSIS are estimated by deducting from the insurance premiums the claims and benefits paid out, since the introduction of a new reserve account in 1960 led to a structural break in the stock data series. All time-series are expressed in million Pesos (current prices).

(1) Total Personal Savings in Financial Assets - FAT

(2) Total Increase in Private Debt - PDT

(3) Investment in Unincorporated Business - IUB

Source: CBP, Statistical Bulletin, 29(1977), p. 137, 138, 142 ;

CBP, DER

Basic Data: Capital Investment of Newly Registered Business Enterprises,  
Capital Increases and Withdrawals of Corporations and Partnerships

Derivation: 1968-1977, net effect of capital investments of newly registered partnerships and single proprietorships, capital increases and withdrawals of partnerships.

1950-1967, net effect of capital investments of newly registered partnerships and single proprietorships and  $0.3377 \times$  capital withdrawals of corporations and partnerships. 0.3377 represents the average ratio of capital withdrawals of partnerships to capital withdrawals of corporations and partnerships for the years 1968 to 1972.

(4) Residential Construction - RC

Source: National Economic Development Authority.

'The National Income Accounts of the Philippines', various issues;

CBP, Statistical Bulletin, 16(1964) No. 2, p. 96

('Permit Valuations of Private Building Construction').

Basic Data: Gross Value of Construction by Type of Construction

Derivation: Gross value of private residential construction. The time-series for the years 1967 to 1977 is extended backwards by following the rates of growth of the data for the years 1950 to 1967. During the period 1950 to 1954, residential and non-residential construction are separated according to 'permit valuation of private building construction, by type of construction in the City of Manila'.

(5) Consumer Durables - CD

Source: National Economic Development Authority,  
'The National Income Accounts of the  
Philippines', various issues;  
The BCS Survey of Households Bulletin  
Series No. 4, 14, 22, 34,  
Family Income and Expenditure: 1957, 1961,  
1965, 1971.

Basic Data: Personal Consumption Expenditures (NEDA),  
Total Family Expenditures by Expenditure  
Group and Item of Expenditure (BCS)

Derivation: On the basis of the ratio of expenditure  
on consumer durables to total family  
expenditure during the years 1957 (0.0303),  
1961 (0.0302), 1965 (0.0330) and 1971  
(0.0377), expenditure on consumer durables  
is estimated for the remaining years between  
1950 and 1977.

Consumer durables comprise household  
furnishings and equipment, personal effects  
and part of the expenditure on recreation.  
1961-1977, it is assumed that the ratio of  
consumer durables to total consumption  
expenditure increased continuously from  
0.0302 in 1961 to 0.0430 in 1977 at an  
annual rate of growth of 2.23 per cent.  
1950-1960,  $0.0302 \times$  total personal consumption  
expenditure (1957: 0.0303).



(6) Total Personal Savings in Tangible Assets - TAT

(7) Total Personal Savings - SP



Table A.4: The Philippines - Personal Savings, 1950-1977

| Year | (1) FAT | (2) PDT | (3) IUB | (4) RC | (5) CD | (6) TAT | (7) SP  |
|------|---------|---------|---------|--------|--------|---------|---------|
| 1950 | 259.0   | 33.7    | 109.6   | 294.9  | 162.6  | 567.1   | 792.4   |
| 1951 | - 16.0  | 22.9    | 141.5   | 364.7  | 191.2  | 697.4   | 658.5   |
| 1952 | 94.8    | 10.6    | 116.4   | 364.7  | 208.8  | 689.9   | 774.1   |
| 1953 | 185.2   | 3.7     | 150.2   | 350.0  | 208.8  | 709.0   | 890.5   |
| 1954 | 172.1   | 5.0     | 125.9   | 232.9  | 224.7  | 583.5   | 750.6   |
| 1955 | 174.4   | 72.7    | 80.7    | 316.0  | 237.9  | 634.6   | 736.3   |
| 1956 | 209.9   | 129.0   | 94.3    | 438.2  | 254.8  | 787.3   | 868.2   |
| 1957 | 285.4   | 112.2   | 97.9    | 522.2  | 273.1  | 893.2   | 1066.4  |
| 1958 | 357.0   | 56.8    | 103.0   | 484.7  | 290.1  | 877.8   | 1178.0  |
| 1959 | 416.8   | 99.8    | 120.1   | 514.7  | 296.2  | 931.0   | 1248.0  |
| 1960 | 391.3   | 92.9    | 117.0   | 483.2  | 323.2  | 923.4   | 1221.8  |
| 1961 | 645.1   | 252.5   | 131.0   | 630.3  | 355.2  | 1116.5  | 1509.1  |
| 1962 | 790.8   | 264.6   | 166.1   | 624.3  | 396.1  | 1186.5  | 1712.7  |
| 1963 | 1145.7  | 384.1   | 196.1   | 787.9  | 465.0  | 1449.0  | 2210.6  |
| 1964 | 589.6   | 373.5   | 197.8   | 1004.0 | 531.4  | 1733.2  | 1949.3  |
| 1965 | 986.4   | 358.7   | 194.0   | 1056.5 | 592.8  | 1843.3  | 2471.0  |
| 1966 | 1421.3  | 232.9   | 229.3   | 1056.5 | 664.8  | 1950.6  | 3139.0  |
| 1967 | 1868.7  | 622.5   | 210.4   | 1094.0 | 752.0  | 2056.4  | 3302.6  |
| 1968 | 1357.0  | 877.2   | 243.1   | 1142.0 | 840.4  | 2225.5  | 2705.3  |
| 1969 | 2066.3  | 666.3   | 219.0   | 1206.0 | 931.8  | 2356.8  | 3756.8  |
| 1970 | 2693.5  | 363.4   | 223.8   | 1278.0 | 1087.5 | 2589.3  | 4919.4  |
| 1971 | 2894.9  | 998.8   | 362.0   | 1420.0 | 1340.8 | 3122.8  | 5018.9  |
| 1972 | 3132.4  | 45.5    | 318.6   | 1569.0 | 1537.0 | 3424.6  | 6511.5  |
| 1973 | 5597.4  | 1692.4  | 604.5   | 1910.0 | 1900.7 | 4415.2  | 8320.2  |
| 1974 | 8110.6  | 3379.3  | 786.0   | 2976.0 | 2701.5 | 6463.5  | 11194.8 |
| 1975 | 7655.1  | 2505.2  | 795.9   | 4033.0 | 3130.4 | 7959.3  | 13109.2 |
| 1976 | 9379.5  | 2442.6  | 815.3   | 5327.0 | 3620.6 | 9762.9  | 16699.8 |
| 1977 | 10497.3 | 2802.2  | 1196.8  | 6307.0 | 4229.3 | 11733.1 | 19428.2 |

Definitions: FAT - Total Personal Savings in Financial Savings  
 PDT - Total Increase in Private Debt  
 IUB - Investment in Unincorporated Business  
 RC - Residential Construction  
 CD - Consumer Durables  
 TAT - Total Savings in Tangible Assets  
 SP - Total Personal Savings  $\sqrt{(1) - (2) + (6)}$

### 3. Interest Rates

The interest rates presented here are not adjusted for inflation and taxation.

#### (1) Interest Rates on Savings Deposits - RSD

Source: CBP, DER

CBP, Supervisory Reports Office

Basic Data: Assets and Liabilities of commercial and savings banks (DER),  
Consolidated Report of Income and Expenses of commercial and savings banks (SRO),  
Schedule of Changes in Interest Rates on Savings and Time Deposits of Banking Institutions (DER)

Derivation: 1971-1977, the maximum interest rate allowed on savings deposits at cbs and sbs weighted with the average monthly level of savings deposits at cbs and sbs.  
1950-1970, total amount of interest paid on savings deposits by cbs and sbs divided by the average monthly level of savings deposits at cbs and sbs.

#### (2) Interest Rates on Time Deposits - RTD

Source: CBP, DER

CBP, Supervisory Reports Office

Basic Data: Assets and Liabilities of commercial and savings banks (DER),  
Consolidated Report of Income and Expenses of commercial and savings banks (SRO),  
Schedule of Changes in Interest Rates on Savings and Time Deposits of Banking Institutions (DER),  
Breakdown of Peso Time Deposits as to Maturity, commercial banks and savings banks (DER)

Derivation: 1971-1977, weighted average interest rate on time deposits at cbs and sbs, the weights being the average monthly level of time deposits at the respective institutions.  
The interest rates on time deposits at cbs and sbs respectively are derived by taking a weighted average of the maximum interest rates allowed for different maturities, the weights being the outstanding level of time deposits of different maturities as of July of the particular year.  
1950-1970, total amount of interest paid on time deposits by cbs and sbs divided by the average monthly level of time deposits at cbs and sbs.

(3) Interest Rates on Deposit Substitutes - RDS

Source: CBP, DER

Bancom Development Corporation, Economic  
Research Department

Basic Data: Money Market Transactions by Month (CBP),  
Bancom Bill Rate (weekly, starting 12  
February 1965)

Derivation: 1974-1977, weighted average interest rate  
of money market transactions.  
1965-1973, simple weekly average of Bancom  
Bill Rate.

(4) Interest Rate on Government Bonds - RGB

Source: CBP, Statistical Bulletin, 29(1977), pp.251-2;  
CBP, Securities Servicing Department,  
'Annual Report', various issues;  
CBP, Securities Marketing Department,  
'Annual Report', various issues.

Basic Data: Outstanding Government Securities (SB),  
Interest Paid on Government Securities  
(SSD, SMD)

Derivation: Total amount of interest paid on government  
securities (excluding treasury bills, DBP  
and LBP bonds) divided by the level of  
government securities as of June of the  
particular year.

(5) Interest Rates on Other Bonds - ROB

Source: CBP, DER

Basic Data: Nominal Interest Rates on DBP and LBP Bonds,  
Outstanding Amount of DBP and LBP Bonds

Derivation: Weighted average interest rate on DBP and  
LBP bonds, the weights being the total  
amount of bonds outstanding as of June of  
the particular year. The interest rates  
are nominal rates (LBP Bonds: 6 per cent  
p.a., DRP Progress Bonds: 7 per cent p.a.,  
DBP Country Side Bills: 9 per cent p.a.).

(6) Dividend Yield of Corporate Shares - DCS

Source: Manila Stock Exchange, Monthly Review,  
various issues.

Basic Data: Dividends, share prices and authorized  
capital of

- (a) Bank of the Philippine Islands,
- (b) The Philippine Guaranty Co., Inc.,
- (c) Republic Cement Corporation,
- (d) B.F. Goodrich Philippines Inc.,
- (e) Philippine Long Distance Tel. Co.  
(Common),
- (f) San Miguel Corporation (A),
- (g) Central Azucarera de la Carlota,
- (h) Acoje Mining Co. Inc.,
- (i) Baguio Gold Mining Co. (A),
- (j) Consolidated Mines Inc. (A),
- (k) Lepanto Consolidated Mining (A).

The foregoing companies have been chosen so as to approximate the representation of banks, insurance, cement, commercial and industrial, sugar and mining companies in the stock price index constructed by the CBP, DER.

Derivation: Weighted average dividend yield of the eleven companies, the weights being the authorized capital of the respective companies. Only cash dividends are taken into consideration. In order to estimate dividends yields, the dividends are divided by the average between the high and the low share price. In case a company is not quoted in a particular year, the last available quotation is applied.

(7) Capital Gains on Corporate Shares - CGCS

Source: CBP, Statistical Bulletin, 29(1977), p. 374; Manila Stock Exchange, Monthly Review, various issues.

Basic Data: Stock Price Index in Metro Manila, 1952-1977, Share prices of various companies, 1949-1952

Derivation: Percentage increase of stock price index at year-end over the previous year. Since the official stock price index started in 1952, it has been extended on the basis of the share prices recorded in Manila Stock Exchange,

Monthly Review. Included are all those companies which are taken into consideration in the official stock price index and which were also listed during the years 1949 to 1952. The relative weights being attached to the share prices are identical to the weights used in the official index. However, the absolute value of the weights has been adjusted so that they add up to 1.0.



Table A.5: The Philippines - Interest Rates, 1950-1977

| Year | (1) RSD | (2) RTD | (3) RDS | (4) RGB | (5) ROB | (6) DCS | (7) CGCS |
|------|---------|---------|---------|---------|---------|---------|----------|
| 1950 | 1.3309  | 1.7916  | -       | 4.5890  | -       | 9.8698  | - 3.7852 |
| 1951 | 1.3885  | 1.9438  | -       | 3.5004  | -       | 8.6046  | 48.1244  |
| 1952 | 1.4119  | 2.2648  | -       | 2.4363  | -       | 9.1879  | -22.4830 |
| 1953 | 1.6171  | 2.2433  | -       | 4.2614  | -       | 7.4576  | -18.5657 |
| 1954 | 1.7384  | 2.4374  | -       | 4.0266  | -       | 6.9776  | 1.2720   |
| 1955 | 1.7755  | 2.4337  | -       | 3.3381  | -       | 8.4660  | 60.5797  |
| 1956 | 1.9809  | 3.4007  | -       | 2.9753  | -       | 8.2677  | 18.2912  |
| 1957 | 2.2080  | 2.7998  | -       | 3.2093  | -       | 7.1721  | -46.0326 |
| 1958 | 2.7732  | 3.3617  | -       | 3.2438  | -       | 6.8565  | 29.6890  |
| 1959 | 2.9151  | 3.3397  | -       | 3.2306  | -       | 6.2803  | -25.6541 |
| 1960 | 2.9334  | 3.2593  | -       | 2.9564  | -       | 7.1124  | 27.3705  |
| 1961 | 2.8412  | 3.5093  | -       | 2.9038  | -       | 6.4412  | 25.1682  |
| 1962 | 2.9121  | 3.5340  | -       | 2.9439  | -       | 6.5005  | 2.7957   |
| 1963 | 3.2147  | 3.9142  | -       | 3.2254  | -       | 7.4488  | 39.6444  |
| 1964 | 3.4283  | 4.2223  | -       | 3.8366  | -       | 5.6385  | -18.1273 |
| 1965 | 3.9755  | 4.6891  | 11.4517 | 3.5337  | -       | 5.2311  | -12.5343 |
| 1966 | 5.1706  | 6.0908  | 10.6390 | 3.5304  | 7.0000  | 6.6115  | 29.1841  |
| 1967 | 5.3373  | 6.5481  | 11.1339 | 3.1483  | 6.9990  | 5.5205  | 27.6923  |
| 1968 | 5.2824  | 6.2140  | 13.2195 | 3.3130  | 6.9965  | 5.3026  | 52.2511  |
| 1969 | 5.4907  | 6.5550  | 13.7241 | 3.3278  | 6.9940  | 4.1698  | 53.1029  |
| 1970 | 5.5269  | 7.0415  | 15.1260 | 3.7704  | 6.9874  | 5.0399  | -44.2873 |
| 1971 | 6.0000  | 7.2427  | 13.9066 | 3.9247  | 6.9728  | 6.1722  | -48.1934 |
| 1972 | 6.0000  | 7.2415  | 14.9050 | 4.4165  | 6.8995  | 6.6413  | - 7.2573 |
| 1973 | 6.0000  | 7.2395  | 10.1007 | 4.2931  | 6.8997  | 6.5063  | 23.9837  |
| 1974 | 6.0203  | 8.4229  | 17.5030 | 5.7706  | 6.8340  | 5.4130  | -25.6557 |
| 1975 | 6.0487  | 10.0895 | 15.2292 | 5.2922  | 7.4000  | 4.9587  | -19.6251 |
| 1976 | 7.0552  | 11.8837 | 13.0176 | 5.6524  | 7.8039  | 4.8162  | - 0.5487 |
| 1977 | 7.0588  | 11.9140 | 12.5755 | 5.8458  | 7.8558  | 4.5618  | - 0.9655 |

**Definitions:** RSD - Interest Rate on Savings Deposits  
RTD - Interest Rates on Time Deposits  
RDS - Interest Rates on Deposit Substitutes  
RGB - Interest Rates on Government Bonds  
ROB - Interest Rates on Other Bonds  
DCS - Dividend Yield of Corporate Shares  
CGCS - Capital Gains on Corporate Shares



#### 4. National Income Accounts and Other Data

All time-series in this study pertaining to national income, agricultural and industrial production, taxation, exports and savings are taken from National Development Authority, 'The National Income Accounts of the Philippines' (mimeo), various issues. Only the time-series of savings are presented here. The data for 1975 and 1976 are revised but not yet final; the data for 1977 are preliminary. All time-series are expressed in million Pesos (current prices).

(1) Household Savings - SH

(2) Corporate Savings - SC

(3) General Government Savings - SG

(4) Capital Consumption Allowance - D

(5) Foreign Savings - SF

Source: CBP, DER

Basic Data: Foreign Savings

Derivation: Foreign savings comprise:

- (a) reparations from Japan,
- (b) other grants,
- (c) private and official loans,
- (d) direct investment,
- (e) other official capital.

(6) Number of Bank Offices - BO

Source: CBP, DER

Basic Data: Number of Banking Offices in Operation  
Classified According to Type of Banks

Derivation: Included are the various types of offices  
of:

- (a) commercial banks,
- (b) rural banks,
- (c) savings banks,
- (d) stock savings and loans associations,
- (e) private development banks,
- (f) Development Bank of the Philippines,
- (g) Land Bank of the Philippines,
- (h) Philamanah Bank.

(7) Financial Assets of the Private Sector - F

Source: The data sources to construct the time-series  
of private financial assets are identical  
to the ones presented in section B.1 of  
the Statistical Appendix.

Derivation: The financial assets of the private sector  
comprise the following items:

- (a) currency,
- (b) demand, savings, time and other  
deposits,
- (c) deposit substitutes,
- (d) treasury bills,
- (e) corporate, government and other bonds,
- (f) total assets of fund managers,

- (g) life insurance funds,
- (h) employee benefit funds.

(8) Indirect Securities held by the Private Sector - IF

Derivation: Total financial assets of the private  
sector minus

- (a) currency,
- (b) treasury bills,
- (c) corporate and government bonds.

Table A.6: The Philippines - National Income Accounts and Other Data

| Year | (1) SH  | (2) SC | (3) SG | (4) D   | (5) SF | (6) BO | (7) F   | (8) IF  |
|------|---------|--------|--------|---------|--------|--------|---------|---------|
| 1950 | 1057.0  | 42.0   | -11.0  | 312.0   | 69.0   | 113    | 1479.9  | 798.3   |
| 1951 | 619.0   | 69.0   | 71.0   | 345.0   | - 10.0 | 120    | 1387.1  | 734.3   |
| 1952 | 487.0   | 115.0  | 168.0  | 358.0   | 49.4   | 125    | 1454.7  | 816.7   |
| 1953 | 831.0   | 120.0  | 107.0  | 379.0   | 79.0   | 156    | 1617.0  | 938.7   |
| 1954 | 731.0   | 98.0   | 116.0  | 378.0   | 42.6   | 179    | 1766.2  | 1077.9  |
| 1955 | 539.0   | 135.0  | 155.0  | 399.0   | 117.2  | 204    | 1974.6  | 1288.8  |
| 1956 | 696.0   | 145.0  | 233.0  | 457.0   | 172.8  | 249    | 2140.1  | 1403.2  |
| 1957 | 692.0   | 134.0  | 281.0  | 511.0   | 131.4  | 295    | 2399.2  | 1593.8  |
| 1958 | 1034.0  | 140.0  | 194.0  | 553.0   | 106.0  | 315    | 2719.0  | 1873.1  |
| 1959 | 1273.0  | 217.0  | 246.0  | 655.0   | 258.0  | 336    | 3014.3  | 2092.6  |
| 1960 | 1057.0  | 174.0  | 302.0  | 766.0   | 262.6  | 404    | 3993.9  | 3007.6  |
| 1961 | 1284.0  | 205.0  | 307.0  | 872.0   | 39.7   | 433    | 4483.0  | 3401.1  |
| 1962 | 1091.0  | 431.0  | 354.0  | 1048.0  | - 25.9 | 520    | 5069.8  | 3868.0  |
| 1963 | 2133.0  | 505.0  | 385.0  | 1304.0  | 52.0   | 594    | 6116.2  | 4712.3  |
| 1964 | 2266.0  | 529.0  | 415.0  | 1505.0  | 217.5  | 710    | 6583.8  | 5193.4  |
| 1965 | 2791.0  | 375.0  | 204.0  | 1735.0  | 220.8  | 780    | 7462.5  | 5853.8  |
| 1966 | 2787.0  | 657.0  | 229.0  | 1955.0  | 143.4  | 895    | 9103.9  | 7333.5  |
| 1967 | 2444.0  | 711.0  | 370.0  | 2196.0  | 360.8  | 1004   | 10730.3 | 8743.6  |
| 1968 | 2088.0  | 899.0  | 414.0  | 2429.0  | 1033.0 | 1113   | 11963.6 | 9893.2  |
| 1969 | 2395.0  | 746.0  | 264.0  | 2755.0  | 803.4  | 1218   | 14584.9 | 12055.3 |
| 1970 | 2916.0  | 1142.0 | 1009.0 | 3714.0  | 769.8  | 1303   | 17985.3 | 14915.1 |
| 1971 | 3602.0  | 643.0  | 1338.0 | 4651.0  | 403.8  | 1429   | 21260.8 | 17905.5 |
| 1972 | 4549.0  | 843.0  | 934.0  | 5353.0  | 410.1  | 1540   | 26015.4 | 20801.5 |
| 1973 | 7025.0  | 1472.0 | 4121.0 | 6466.0  | 1433.7 | 1699   | 34370.4 | 29244.4 |
| 1974 | 9619.0  | 2504.0 | 4898.0 | 8550.0  | 1682.7 | 1905   | 46650.9 | 39166.0 |
| 1975 | 10457.0 | 3240.0 | 4633.0 | 11304.0 | 3974.7 | 2075   | 53889.8 | 46416.7 |
| 1976 | 13616.0 | 4151.0 | 2495.0 | 12873.0 | 9047.3 | 2444   | 64379.1 | 56314.4 |
| 1977 | 17478.0 | 5014.0 | 3040.0 | 14460.0 | 6826.3 | 2655   | 77274.1 | 67613.8 |

Definitions: SH - Household Savings  
SC - Corporate Savings  
SG - General Government Savings  
D - Capital Consumption Allowance  
SF - Foreign Savings  
BO - Number of Bank Offices  
F - Financial Assets of the Private Sector  
IF - Indirect Financial Assets held by the Private Sector

C. Thailand

1. Stock Data

All time-series are expressed in million Baht  
(current prices).

(1) Currency - CC

(a) Currency in Circulation - C

Source: BOT, Monthly Bulletin (previously Monthly Review), various issues.

Basic Data: Currency Held by Public

Derivation:  $0.9 \times$  currency held by public.

In the absence of exact information on the percentage held by individuals, the same proportion as in the Philippines is applied.

(b) Traveller Cheques Denominated in Baht - TC

Source: GSB, Statistics Department

Basic Data: Assets and Liabilities

Derivation: Total amount of traveller cheques outstanding.

(2) Demand Deposits - DD

(a) commercial banks - cbs

Source: BOT, DER

Basic Data: Deposits at Commercial Banks, baht and foreign currency accounts

Derivation: 1965-1977, demand deposits held by individuals.

1963-1964,  $0.4914 \times$  demand deposits held by residents. 0.4914 represents the average ratio of demand deposits held by individuals to demand deposits held by

residents for the years 1965 to 1969.

1952-1962, 0.5713 x demand deposits held by residents. 0.5713 represents the average ratio of demand and savings deposits held by individuals to demand and savings deposits held by residents for the years 1962 to 1966.

1949-1951, 0.5410 x total demand deposits. 0.5410 represents the average ratio of demand deposits held by individuals to total demand deposits for the years 1952 to 1956.

Before 1963, the item 'demand deposits' comprised demand as well as savings deposits.

(b) Government Savings Bank - GSB

Source: GSB, Statistics Department

Basic Data: Assets and Liabilities of the GSB

Derivation: 1956-1977, current deposits held by individuals at the banking department of the GSB.

1949-1955, 0.4500 x total current deposits. 0.4500 represents the average ratio of current deposits held by individuals to total current deposits for the years 1956 to 1960.

(c) Girotransfer - GT

Source: GSB, Statistics Department

Basic Data: Assets and Liabilities of the GSB

Derivation: Total deposits outstanding under the scheme 'girotransfer'.

(d) Government Housing Bank - GHB

Source: GHB, Accounting Department

Basic Data: Assets and Liabilities of the GHB

Derivation: Demand deposits held by individuals.

(3) Savings Deposits - SD

(a) commercial banks - cbs

Source: BOT, DER

Basic Data: Deposits at Commercial Banks,  
baht and foreign currency accounts

Derivation: 1965-1977, savings deposits held by  
individuals.

1963-1964,  $0.7938 \times$  savings deposits held  
by residents. 0.7938 represents the  
average ratio of savings deposits held by  
individuals to savings deposits held by  
residents for the years 1965 to 1969.

(b) Government Savings Banks - GSB

Source: GSB, Statistics Department

Basic Data: Assets and Liabilities of the GSB

Derivation: Total demand deposits held at the savings  
department. These demand deposits are  
categorized as savings deposits, since their



features (for example, the issue of a passbook) indicate that they are actually savings deposits.

(c) Bank of Agriculture and Agricultural Cooperatives - BAAC

Source: BOT, DER

Basic Data: Assets and Liabilities of the BAAC

Derivation: 1967-1977, savings deposits held by individuals and farmers.

1961-1966, 0.4095 x total savings deposits.

0.4095 represents the ratio of savings deposits held by individuals and farmers to total savings deposits for 1967.

(d) Government Housing Bank - GHB

Source: GHB, Accounting Department

Basic Data: Assets and Liabilities of the GHB

Derivation: Savings Deposits held by individuals.

(4) Time Deposits - TD

(a) commercial banks - cbs

Source: BOT, DER

Basic Data: Deposits at Commercial Banks,  
baht and foreign currency accounts

Derivation: 1962-1977, time deposits held by individuals.

1952-1961, 0.7837 x time deposits held by residents. 0.7837 represents the average ratio of time deposits held by individuals to time deposits held by residents for the years 1962 to 1966.



1949-1951,  $0.6181 \times$  total time deposits.  
0.6181 represents the average ratio of  
time deposits held by individuals to  
total time deposits for the years 1952  
to 1956.

(b) Government Savings Bank - GSB

Source: GSB, Statistics Department

Basic Data: Assets and Liabilities of the GSB

Derivation: 1956-1977, total fixed deposits held at  
the savings department, time deposits held  
by individuals at the banking department  
and total housing deposits.

1949-1955, total fixed deposits held at  
the savings department.

(c) Bank of Agriculture and Agricultural Cooperatives - BAAC

Source: BOT, DER

Basic Data: Assets and Liabilities of the BAAC

Derivation: 1966-1977, time deposits held by individuals  
and farmers and loan compensatory deposits  
held by farmers and farmer groups.

1961-1965,  $0.2326 \times$  total time deposits.  
0.2326 represents the ratio of time  
deposits held by individuals and farmers  
to total time deposits for 1966.

(d) Government Housing Bank - GHB

Source: GHB, Accounting Department

Basic Data: Assets and Liabilities of the GHB

Derivation: Time deposits held by individuals and  
total housing deposits.

(e) Savings Cooperatives - SC

Source: BOT, DER

Basic Data: Assets and Liabilities of SC

Derivation: Total deposits.

(f) Agricultural Cooperatives - AC

Source: Ministry of Agriculture and Cooperatives,  
Agricultural Cooperatives Auditing Division

Basic Data: Assets and Liabilities of AC

Derivation: Total deposits. The 1977 figure is  
estimated by applying the rate of growth  
of total deposits for 1976.

(5) Other Deposits - OD

(a) Savings Cooperatives- SC

Source: BOT, DER

Basic Data: Assets and Liabilities of SC

Derivation: Total capital accounts.

(b) Agricultural Cooperatives - AC

Source: Ministry of Agriculture and Cooperatives,  
Agricultural Cooperatives Auditing Division.

Basic Data: Assets and Liabilities of AC

Derivation: Total capital accounts. The 1977 figure is  
estimated by applying the rate of growth of  
capital accounts for 1976.

(6) Deposit Substitutes - DS

Source: BOT, DER

Weerawat Ratananate, 'A Study of the Relative Role of Financial Intermediaries in Intermediation Process in Thailand (1959-1972) [sic]' (M.A. Thesis, Thammasat University, Faculty of Economics, 1975):77.

Basic Data: Borrowing of Finance and Securities

Companies (BOT),

The Outstanding Amount of Fund of Finance

Companies from Private Sector [sic]

(Ratananate)

Derivation: 1969-1977, borrowing of finance and securities companies from individuals.

1960-1968,  $0.4844 \times$  fund of finance companies from individuals. 0.4844 represents the average ratio of borrowing from individuals to the total fund of finance companies from the private sector for the years 1969 to 1972.

(7) Treasury Bills - TB

Source: BOT, DER

Basic Data: Government Domestic Debt Classified by Holders

Derivation: Treasury bills outstanding to individuals.

(8) Corporate Bonds and Debentures - CB

Source: Securities Exchange of Thailand Handbook  
1977-78, op. cit., pp. 128-9.

Basic Data: Securities Offerings in Thailand: 1967-1977

Derivation: 0.3 x total corporate debentures outstanding.  
The ratio of 0.3 attributed to individuals  
is based on company records of two leading  
finance and securities companies.

(9) Government Bonds - GB

Source: BOT, DER

Basic Data: Government Domestic Debt Classified by  
Holders,  
EGAT Bonds Issued by Purchaser

Derivation: Government bonds and EGAT bonds outstanding  
to individuals.

(10) Other Bonds - OB

Source: GSB, Statistics Department

Basic Data: Assets and Liabilities of the GSB

Derivation: Total premium savings certificates and  
savings bonds outstanding.

(11) Mutual Funds - MF

Source: HLR Group of Companies (Manager of Thai  
Investment Fund),  
International Finance and Consultants Co.  
(Manager of Wattana Fund),  
The Mutual Fund Co. (Manager of Sinpinyo  
Fund I)

Derivation: Total net assets of the three mutual funds.

(12) Life Insurance - LI

(a) Ordinary Life Insurance - OLI

Source: Ministry of Commerce, Insurance Office,  
Annual Insurance Report of Thailand,  
various issues.

Basic Data: Balance Sheet of Life Insurance Companies

Derivation: The following liabilities of life insurance  
companies are regarded as savings:

(a) policy reserves,

(b) unpaid losses,

(c) other policy liabilities.

1969-1977, total amount of items (a)-(c).

1952-1968,  $1.0413 \times$  total amount of item (a).

0.0413 represents the ratio of items (b)

and (c) to item (a) for the years 1969 to

1973.

(b) Savings Insurance (Double System) and Life Insurance  
(Endowment and Educational Annuities) operated by the  
Government Savings Bank - GLI

Source: GSB, Statistics Department

Basic Data: Assets and Liabilities of GSB

Derivation: Total amount of deposits and life insurance  
fund outstanding.

(c) Mutual Benefit Societies - MBS

Source: Ministry of Commerce, Insurance Office,  
Annual Insurance Report of Thailand,  
various issues.

Derivation: Total amount of 'contribution from  
membership and reserve fund'.

(13) Employee Benefit Funds - EBF

(a) Government Provident Fund - GPF

Source: Comptrollers General Department  
Office of the National Economic and Social  
Development Board

Basic Data: Total Assets of the Government Provident  
Fund (CGD),  
Wages and Salaries Paid by the General  
Government (NESDB)

Derivation: 1960-1977, total assets.  
1950-1959, the annual increase in assets  
is estimated by multiplying the wages and  
salaries paid by the general government  
during the period 1950 to 1959 by 0.0140.  
0.0140 represents the average ratio of the  
increase in assets to wages and salaries  
paid for the years 1961 to 1972, excluding  
1962. The resulting flow data are  
subtracted from the 1960 assets.

(b) Government Enterprise Provident Funds - GEPF

Source: Alek A. Rozental, Finance and Development  
in Thailand (New York, Praeger Publishers,  
1970), p. 333.

Basic Data: Total Assets of Government Enterprise  
Provident Funds

Derivation: The data from 1960, 1964 to 1966 are taken  
from Rozental.

The amount of assets for the remaining

years between 1950 and 1977 are estimated by assuming that the overall rate of growth of the GEPF was identical to that of the GPF.

(c) Private Provident Funds - PPF

Source: Leading financial institutions that manage provident funds,  
Alek A. Rozental, op.cit., p. 333.

Basic Data: Total Assets of Private Provident Funds

Derivation: The data for 1960, 1964 to 1966 are taken from Rozental.

1967-1977, a rate of growth of 20 per cent p.a. is assumed, using 1966 as a base year. 1949-1963, excluding 1960, a rate of growth of 22 per cent p.a. is assumed.

The rates of growth and the resulting total assets are based on information obtained from various financial institutions.

(14) Total Financial Assets - TFA

(15) Private Debt with Banks - PDB

(a) commercial banks - cbs

Source: BOT, DER

Basic Data: Assets and Liabilities of cbs

Derivation: 1962-1977, total credit outstanding to individuals comprising bills, loans, other loans and overdraft.



1952-1961,  $0.0886 \times$  total bills plus  
 $0.3404 \times$  loans outstanding to business/  
individuals plus  
 $0.3123 \times$  overdraft outstanding to business/  
individuals.

0.0886, 0.3404 and 0.3123 represent the  
average ratios for the years 1962 to 1967  
(excluding 1964), 1962 and 1962 to 1966  
respectively.

1949-1951,  $0.2509 \times$  total loans and  
advances.

0.2509 represents the average ratio of  
bills, loans and overdraft outstanding to  
individuals to total bills, loans and  
overdraft outstanding for the years 1952  
to 1956.

(b) Government Savings Bank - GSB

Source: GSB, Statistics Department

Basic Data: Assets and Liabilities of the GSB

Derivation: 1962-1977, loans outstanding to the  
private sector comprising personal loans,  
housing loans and loans against premium  
savings certificates and life annuities.  
1949-1961, the time-series of loans  
outstanding to the private sectors is  
extended backwards by using the rates of  
growth of premium savings certificates and  
life annuities.



(c) Bank of Agriculture and Agricultural Cooperatives - BAAC

Source: BOT, DER

Basic Data: Assets and Liabilities of the BAAC

Derivation: 1967-1977, total loans outstanding to farmers and farmer groups.

1961-1966,  $0.2926 \times$  total loans and overdraft outstanding to the private sector.

0.2926 represents the ratio of loans outstanding to farmers to total loans and overdraft outstanding to the private sector for 1967.

(d) Government Housing Bank - GHB

Source: GHB, Accounting Department

Basic Data: Assets and Liabilities of the GHB

Derivation: Loans and overdraft outstanding to individuals.

(16) Private Debt with Non-Bank Financial Institutions - PDN

(a) Savings Cooperatives - SC

Source: BOT, DER

Basic Data: Assets and Liabilities of SC

Derivation: Total loans outstanding.

(b) Agricultural Cooperatives - AC

Source: BOT, DER

Basic Data: Assets and Liabilities of AC

Derivation: Total loans outstanding. The 1977 figure is estimated by applying the rate of growth of total loans outstanding for 1976.

(c) Credit Finance Companies - CF

Source: BOT, DER

Basic Data: Assets and Liabilities of CF

Derivation: Total mortgage and hire-purchase loans  
outstanding (long-term).

(17) Private Debt with Finance and Securities Companies - PDF

Source: BOT, DER

Weerawat Ratananate, op. cit., Table B-3.

Basic Data: Lending of FSC (BOT),  
Assets and Liabilities of FSC (BOT),  
The Outstanding Amount of Consumer Credit  
Extended by FSC (Ratananate)

Derivation: 1976-1977, total lending to individuals.  
1972-1975,  $0.2035 \times$  total loans outstanding.  
0.2035 represents the ratio of lending to  
individuals to total lending for 1976.  
1959-1971, total amount of consumer credit  
extended.

(18) Private Debt with Insurance Companies - PDI

Source: Ministry of Commerce, Insurance Office,  
Annual Insurance Report of Thailand,  
various issues.

Basic Data: Balance Sheet of Life and Non-Life  
Insurance Companies

Derivation: Policy loans outstanding of life insurance  
companies plus loans to employees outstanding

of life and non-life insurance companies.

(19) Total Private Debt - TPD

Table A.7: Thailand - Personal Wealth I, 1949-1977

| Year | (1) CC  | (2) DD | (3) SD  | (4) TD  | (5) OD | (6) DS  | (7) TB | (8) CB |
|------|---------|--------|---------|---------|--------|---------|--------|--------|
| 1949 | 2128.0  | 414.6  | 196.8   | 78.0    | 0.0    | -       | 0.0    | -      |
| 1950 | 2738.5  | 547.7  | 219.0   | 77.8    | 0.1    | -       | 0.0    | -      |
| 1951 | 3380.7  | 691.9  | 267.4   | 96.8    | 0.2    | -       | 0.0    | -      |
| 1952 | 3311.4  | 772.7  | 285.4   | 118.9   | 0.4    | -       | 0.0    | -      |
| 1953 | 3615.2  | 967.1  | 338.2   | 149.9   | 0.6    | -       | 0.0    | -      |
| 1954 | 4093.5  | 1046.8 | 415.7   | 183.0   | 1.0    | -       | 0.0    | -      |
| 1955 | 4660.8  | 1144.4 | 509.9   | 227.1   | 1.7    | -       | 0.0    | -      |
| 1956 | 4881.9  | 1248.3 | 534.6   | 396.7   | 2.8    | -       | 0.0    | -      |
| 1957 | 5015.8  | 1432.3 | 617.5   | 506.1   | 5.5    | -       | 0.0    | -      |
| 1958 | 4953.7  | 1689.8 | 641.4   | 691.7   | 11.4   | -       | 0.0    | -      |
| 1959 | 5207.0  | 1800.2 | 648.6   | 839.5   | 22.2   | -       | 0.0    | -      |
| 1960 | 5445.9  | 2153.2 | 794.2   | 1066.7  | 39.3   | 10.5    | 0.0    | -      |
| 1961 | 5863.8  | 2362.7 | 949.8   | 1460.0  | 63.8   | 7.5     | 0.0    | -      |
| 1962 | 5920.8  | 2345.6 | 1055.3  | 2774.0  | 97.0   | 7.4     | 0.0    | -      |
| 1963 | 6000.0  | 1664.1 | 2376.9  | 3673.6  | 135.7  | 7.3     | 0.0    | -      |
| 1964 | 6547.4  | 1755.1 | 2749.6  | 4605.2  | 177.0  | 4.1     | 0.0    | -      |
| 1965 | 7323.9  | 2286.1 | 2508.9  | 5759.6  | 221.4  | 6.8     | 0.0    | -      |
| 1966 | 8447.1  | 2600.8 | 3043.2  | 8206.1  | 273.5  | 28.1    | 0.0    | -      |
| 1967 | 8855.9  | 2741.4 | 3288.1  | 10255.1 | 508.3  | 47.0    | 0.0    | 24.0   |
| 1968 | 9590.8  | 3254.2 | 3586.6  | 12541.2 | 589.1  | 67.2    | 0.0    | 33.0   |
| 1969 | 9870.1  | 3474.9 | 3919.6  | 15320.6 | 709.3  | 113.8   | 0.0    | 41.0   |
| 1970 | 10692.8 | 3602.5 | 4237.7  | 18102.7 | 835.5  | 264.7   | 0.3    | 51.8   |
| 1971 | 11763.9 | 3828.8 | 4590.7  | 22692.6 | 1008.9 | 679.4   | 0.0    | 66.6   |
| 1972 | 13767.3 | 4416.6 | 5193.4  | 30609.8 | 1178.2 | 1658.9  | 0.0    | 88.7   |
| 1973 | 16800.9 | 5131.2 | 6554.8  | 37953.0 | 1382.4 | 3177.0  | 0.0    | 110.0  |
| 1974 | 18427.2 | 5923.5 | 8102.2  | 48507.1 | 1666.7 | 6275.0  | 0.0    | 131.6  |
| 1975 | 20064.8 | 6375.1 | 8647.9  | 59570.0 | 1972.5 | 7306.3  | 0.1    | 144.3  |
| 1976 | 23217.0 | 7264.8 | 10119.3 | 73313.9 | 2284.9 | 9865.4  | 0.0    | 196.8  |
| 1977 | 25732.6 | 8056.4 | 12556.5 | 90376.5 | 2693.9 | 14030.9 | 0.1    | 220.8  |

Definitions:

- CC - Currency
- DD - Demand Deposits
- SD - Savings Deposits
- TD - Time Deposits
- OD - Other Deposits
- DS - Deposit Substitutes
- TB - Treasury Bills
- CB - Corporate Bonds

Table A.8: Thailand - Personal Wealth II, 1949-1977

| Year | (9) GB | (10) OB | (11) MF | (12) LI | (13) EBF | (14) TFA |
|------|--------|---------|---------|---------|----------|----------|
| 1949 | 3.2    | 23.3    | -       | 0.7     | 5.8      | 2850.4   |
| 1950 | 7.8    | 32.5    | -       | 1.3     | 96.7     | 3721.4   |
| 1951 | 3.4    | 36.3    | -       | 1.9     | 124.8    | 4603.4   |
| 1952 | 3.3    | 41.3    | -       | 72.8    | 156.9    | 4763.1   |
| 1953 | 4.6    | 47.1    | -       | 119.5   | 193.8    | 5436.0   |
| 1954 | 7.4    | 51.3    | -       | 161.8   | 236.0    | 6196.5   |
| 1955 | 11.8   | 58.6    | -       | 206.2   | 284.1    | 7104.6   |
| 1956 | 28.3   | 70.7    | -       | 240.2   | 338.8    | 7742.3   |
| 1957 | 55.2   | 86.1    | -       | 280.7   | 400.2    | 8399.4   |
| 1958 | 64.7   | 104.7   | -       | 308.8   | 470.3    | 8936.5   |
| 1959 | 122.5  | 133.0   | -       | 334.4   | 550.2    | 9657.6   |
| 1960 | 224.9  | 167.7   | -       | 346.8   | 641.7    | 10890.9  |
| 1961 | 314.6  | 213.1   | -       | 341.9   | 732.3    | 12309.5  |
| 1962 | 405.1  | 301.0   | -       | 364.6   | 770.2    | 14041.0  |
| 1963 | 485.2  | 430.1   | 9.4     | 407.4   | 867.0    | 16056.7  |
| 1964 | 575.7  | 590.1   | 10.7    | 396.4   | 980.0    | 18391.3  |
| 1965 | 647.2  | 711.9   | 15.2    | 478.9   | 1100.8   | 21060.7  |
| 1966 | 674.1  | 845.4   | 14.5    | 546.4   | 1260.4   | 25939.6  |
| 1967 | 649.1  | 976.6   | 17.6    | 658.6   | 1430.4   | 29452.1  |
| 1968 | 680.7  | 1076.4  | 14.5    | 586.8   | 1688.8   | 33709.3  |
| 1969 | 610.5  | 1173.3  | 12.1    | 827.2   | 2000.8   | 38073.2  |
| 1970 | 623.2  | 1230.3  | 7.9     | 975.1   | 2412.1   | 43036.6  |
| 1971 | 589.8  | 1307.0  | 5.2     | 1101.0  | 2811.0   | 50444.9  |
| 1972 | 615.3  | 1405.1  | 7.7     | 1235.6  | 3093.4   | 63270.0  |
| 1973 | 629.1  | 1550.1  | 6.2     | 1494.0  | 3506.3   | 78295.0  |
| 1974 | 665.9  | 1529.0  | 7.3     | 1750.7  | 4060.8   | 97047.4  |
| 1975 | 700.2  | 1514.0  | 7.4     | 2063.3  | 4818.8   | 113184.7 |
| 1976 | 740.8  | 1537.9  | 11.8    | 2528.1  | 5739.1   | 136819.8 |
| 1977 | 770.1  | 1584.5  | 200.5   | 3059.7  | 5551.0   | 164833.5 |

Definitions: GB - Government Bonds  
 OB - Other Bonds  
 MF - Shares of Mutual Bonds  
 LI - Life Insurance  
 EBF - Employee Benefit Funds  
 TFA - Total Financial Assets

Table A.9: Thailand - Personal Wealth III, 1949-1977

| Year | (15) PDB | (16) PDN | (17) PDF | (18) PDI | (19) TPD |
|------|----------|----------|----------|----------|----------|
| 1949 | 136.4    | 0.1      | -        | -        | 136.5    |
| 1950 | 146.4    | 0.2      | -        | -        | 146.6    |
| 1951 | 180.5    | 0.2      | -        | -        | 180.7    |
| 1952 | 303.5    | 0.4      | -        | -        | 303.9    |
| 1953 | 429.6    | 0.9      | -        | 6.4      | 436.9    |
| 1954 | 483.6    | 1.2      | -        | 16.9     | 501.7    |
| 1955 | 591.6    | 1.7      | -        | 29.9     | 623.2    |
| 1956 | 729.4    | 3.1      | -        | 48.7     | 781.2    |
| 1957 | 867.9    | 5.8      | -        | 63.4     | 937.1    |
| 1958 | 1032.0   | 11.9     | -        | 84.3     | 1128.2   |
| 1959 | 1205.1   | 21.5     | 0.1      | 102.7    | 1329.4   |
| 1960 | 1390.0   | 36.4     | 10.1     | 108.9    | 1545.4   |
| 1961 | 1681.5   | 58.9     | 10.1     | 112.3    | 1862.8   |
| 1962 | 1952.8   | 90.3     | 10.3     | 115.8    | 2169.2   |
| 1963 | 2200.4   | 118.4    | 12.6     | 119.8    | 2451.2   |
| 1964 | 2645.0   | 149.3    | 12.7     | 101.9    | 2908.9   |
| 1965 | 3309.4   | 187.9    | 16.8     | 114.8    | 3628.9   |
| 1966 | 4513.5   | 234.6    | 18.1     | 123.2    | 4889.4   |
| 1967 | 5167.2   | 699.1    | 40.7     | 139.9    | 6046.9   |
| 1968 | 6675.2   | 824.8    | 57.2     | 146.0    | 7703.2   |
| 1969 | 8285.1   | 985.6    | 104.1    | 193.2    | 9568.0   |
| 1970 | 9394.7   | 1185.7   | 463.9    | 229.6    | 11273.9  |
| 1971 | 10932.8  | 1406.8   | 699.1    | 256.9    | 13295.6  |
| 1972 | 12833.1  | 1545.5   | 1253.3   | 280.0    | 15911.9  |
| 1973 | 16577.9  | 2042.2   | 2046.3   | 300.4    | 20966.8  |
| 1974 | 20070.7  | 2644.9   | 3296.5   | 332.6    | 26344.7  |
| 1975 | 27249.9  | 3625.7   | 4170.5   | 384.4    | 35430.5  |
| 1976 | 34712.5  | 4059.0   | 5132.2   | 449.5    | 44353.2  |
| 1977 | 46221.2  | 5015.7   | 10060.2  | 537.6    | 61834.7  |

Definitions: PDB - Private Debt with Banks  
 PDN - Private Debt with Non-Bank Financial Institutions  
 PDF - Private Debt with Finance & Securities Companies  
 PDI - Private Debt with Insurance Companies  
 TPD - Total Private Debt

## 2. Flow Data

With the exception of corporate shares and tangible assets, the flow data are derived from the stock data in the previous section. However, in case a time-series contains a structural break because data of a particular institution are not available prior to a certain year, the figure of the first year is not taken into consideration when deriving the flow data. All time-series are expressed in million Baht (current prices).

### (1) Corporate Shares

Source: BOT, Monthly Bulletin, various issues; BOT, DER

Basic Data: Capital of Newly Registered Companies,  
Changes in Authorized Capital of  
Registered Companies

Derivation: Net effect of paid up capital of newly  
registered companies plus  $0.5799 \times$   
(capital Increases minus capital decreases  
minus dissolutions).

0.5799 represents the average ratio of  
paid-up capital to authorized capital of  
newly registered companies for the years  
1956 to 1977.

Foreign investments are deducted, assuming  
that the proportion of investments by  
foreigners (except Chinese) in paid-up  
capital of newly registered companies  
holds true also for capital increases,  
decreases and dissolutions.



Investments by institutions are deducted, assuming that their share increased from 2.5 per cent in 1954 to 14 per cent in 1977 by 0.5 per cent annually. The proportion of investments by institutions is approximated on the basis of partial data on total paid-up capital of corporations and corporate securities held by financial institutions.

(2) Total Personal Savings in Financial Assets - FAT

(3) Total Increase in Private Debt - PDT

(4) Investment in Unincorporated Business - IUB

Source: BOT, Monthly Bulletin, various issues;  
BOT, DER

Basic Data: Changes in Authorized Capital of Limited  
and Registered Ordinary Partnerships

Derivation: Net effect of capital of newly authorized  
partnerships, capital increases, decreases  
and dissolutions.

(5) Residential Construction - RC

Source: Office of the National Economic and Social  
Development Board, National Income of  
Thailand, various issues.

Basic Data: Private Residential Construction

Derivation: 1960-1977, private residential construction.



1950-1959,  $0.5539 \times$  total private construction. 0.5539 represents the average ratio of private residential construction to total private construction for the years 1960 to 1964.

(6) Consumer Durables - CD

Source: Office of the National Economic and Development Board, National Income of Thailand, various issues.

Basic Data: Private Consumption Expenditure, Durable Goods

Derivation: 1970-1977, private consumption expenditure, durable goods.

1960-1969, the annual rate of growth of consumption expenditure on durable goods is used to extend the 1970 to 1977 time-series backwards with data from National Income of Thailand, 1972-73 Edition serving as a link.

1950-1959,  $0.0306 \times$  total private consumption expenditure. 0.0306 represents the ratio of consumption expenditure on durables to total consumption expenditure for 1960.

(7) Total Personal Savings in Tangible Assets - TAT

(8) Total Personal Savings - SP

Table A.10: Thailand - Personal Savings, 1950-1977

| Year | (1) CS | (2) FAT | (3) PDT | (4) IUB | (5) RC | (6) CD  | (7) TAT | (8) SP  |
|------|--------|---------|---------|---------|--------|---------|---------|---------|
| 1950 | -      | 781.4   | 10.1    | -       | 599.1  | 538.7   | 1137.8  | 1909.1  |
| 1951 | -      | 882.0   | 34.1    | -       | 693.8  | 616.9   | 1310.7  | 2158.6  |
| 1952 | -      | 89.4    | 123.2   | -       | 957.3  | 751.6   | 1708.9  | 1675.1  |
| 1953 | -      | 672.9   | 126.6   | -       | 998.0  | 805.7   | 1803.7  | 2350.0  |
| 1954 | 197.0  | 957.5   | 64.8    | 89.2    | 1148.6 | 828.9   | 2066.7  | 2959.4  |
| 1955 | 171.7  | 1079.8  | 121.5   | 111.5   | 1095.4 | 902.3   | 2109.2  | 3067.5  |
| 1956 | 376.3  | 1014.0  | 158.0   | 139.5   | 1290.3 | 986.7   | 2416.5  | 3272.5  |
| 1957 | 225.0  | 882.1   | 155.8   | 186.1   | 1391.0 | 1055.3  | 2632.4  | 3358.7  |
| 1958 | 246.4  | 783.5   | 191.1   | 300.2   | 1485.2 | 1123.5  | 2908.9  | 3501.3  |
| 1959 | 444.3  | 1165.4  | 201.2   | 332.3   | 1747.3 | 1144.7  | 3224.3  | 4188.5  |
| 1960 | 352.7  | 1586.0  | 206.4   | 408.2   | 1772.0 | 1156.5  | 3336.7  | 4716.3  |
| 1961 | 358.9  | 1762.8  | 240.5   | 461.3   | 2089.4 | 1238.0  | 3788.7  | 5311.0  |
| 1962 | 444.0  | 2175.5  | 306.4   | 413.2   | 2177.7 | 1367.0  | 3957.9  | 5827.0  |
| 1963 | 490.3  | 2506.0  | 282.0   | 515.5   | 2372.2 | 1612.7  | 4500.4  | 6724.4  |
| 1964 | 663.8  | 2998.4  | 457.8   | 677.3   | 2567.9 | 1749.3  | 4994.5  | 7535.1  |
| 1965 | 689.3  | 3358.7  | 719.9   | 720.8   | 2724.1 | 2085.8  | 5530.7  | 8169.5  |
| 1966 | 1192.8 | 6071.7  | 1260.5  | 962.4   | 3067.9 | 2597.1  | 6627.4  | 11438.6 |
| 1967 | 983.3  | 4249.8  | 739.3   | 1433.5  | 3402.7 | 2893.7  | 7729.9  | 11240.4 |
| 1968 | 799.1  | 5056.4  | 1656.3  | 1443.1  | 3660.0 | 3428.1  | 8531.2  | 11931.3 |
| 1969 | 1369.3 | 5733.1  | 1864.8  | 1380.1  | 3572.0 | 4055.4  | 9008.0  | 12876.3 |
| 1970 | 1705.6 | 6669.0  | 1705.9  | 1678.2  | 3579.0 | 4421.0  | 9678.2  | 14641.3 |
| 1971 | 1287.2 | 8695.5  | 1916.8  | 1731.9  | 3511.0 | 4123.0  | 9365.9  | 16144.6 |
| 1972 | 2255.2 | 15080.3 | 2616.3  | 2186.9  | 4208.0 | 4551.0  | 10945.9 | 23409.9 |
| 1973 | 4513.7 | 19542.8 | 5054.9  | 2251.8  | 5763.0 | 6480.0  | 14494.8 | 28982.7 |
| 1974 | 4381.9 | 23134.3 | 5377.9  | 1812.2  | 7708.0 | 9403.0  | 18923.2 | 36679.7 |
| 1975 | 1463.1 | 17600.4 | 9085.8  | 965.0   | 6986.0 | 9828.0  | 17779.0 | 26293.6 |
| 1976 | 2060.9 | 25696.0 | 8922.7  | 1033.0  | 8124.0 | 11246.0 | 20403.0 | 37176.3 |
| 1977 | 3369.0 | 31382.7 | 17481.5 | 1184.1  | 9967.0 | 13191.0 | 24342.1 | 38243.3 |

**Definitions:** CS - Corporate Shares  
 FAT - Total Personal Savings in Financial Assets  
 PDT - Total Increase in Private Debt  
 IUB - Investment in Unincorporated Business  
 RC - Residential Construction  
 CD - Consumer Durables  
 TAT - Total Savings in Tangible Assets  
 SP - Total Personal Savings  $\sqrt{(2) - (3) + (7)}$

### 3. Interest Rates

The interest rates presented here are not adjusted for inflation or taxation.

#### (1) Interest Rates on Demand Deposits - RDD

Source: BOT, Monthly Bulletin, various issues;  
BOT, DER

Basic Data: Structure of Interest Rates

Derivation: Weighted average interest rate on demand deposits at commercial banks and the GSB, the weights being the amount of deposits held by individuals at the respective institutions. The interest rates are the ones prescribed by the monetary authorities.

#### (2) Interest Rates on Savings Deposits - RSD

Source: BOT, Monthly Bulletin, various issues;  
BOT, DER

Basic Data: Income and Expenditure of Commercial Banks (DER),  
Commercial Bank Deposits in Bangkok  
Metropolis and Other Provinces (MB),  
Structure of Interest Rates (DER and MB)

Derivation: Weighted average interest rate on savings deposits at commercial banks and the GSB, the weights being the amount of savings deposits held by individuals at the respective institutions. The interest rates on savings deposits at commercial banks are derived as follows:

1968-1977, total amount of interest paid on savings deposits by commercial banks divided by the average monthly level of savings deposits.

1963-1967, nominal interest rates prescribed for savings deposits at commercial banks. The interest rates on savings deposits at the GSB are the nominal rates prescribed.

(3) Interest Rates on Time Deposits - RTD

Source: BOT, Monthly Bulletin, various issues;  
BOT, DER

Basic Data: Income and Expenditure of Commercial Banks (DER),  
Commercial Bank Deposits in Bangkok Metropolis and Other Provinces (MB),  
Structure of Interest Rates (DER and MB)

Derivation: Weighted average interest rate on time deposits at commercial banks and the GSB, the weights being the amount of time deposits held by individuals at the respective institutions.

The interest rates on time deposits at commercial banks are derived as follows:  
1962-1977, total amount of interest paid on time deposits by commercial banks divided by the average monthly level of time deposits.

1950-1961, simple average of interest rates on time deposits of different maturities at commercial banks.

The interest rates on time deposits at the GSB are derived by taking a weighted average of the interest rates on time deposits held at the savings and the banking department, the weights being the amount of time deposits held by individuals at the respective departments.

(4) Interest Rates on Deposit Substitutes - RDS

Source: Thai Investment and Securities Co.

Basic Data: Interest Rates on Promissory Notes

Derivation: Simple monthly average of interest rates on 12-months promissory notes.

(5) Interest Rates on Corporate Debentures - RCB

Source: Securities Exchange of Thailand Handbook 1977-1978, op. cit., pp. 128-9.

Basic Data: Securities Offerings in Thailand: 1967-77

Derivation: Weighted average interest rate on debentures, the weights being the volume of the different debentures issued during the year.

(6) Interest Rates on Government Bonds - RGB

Source: BOT, Banking Department  
BOT, DER

Basic Data: Internal Public Debt,  
EGAT Bond Issues by Purchaser

Derivation: Weighted average interest rate on government and EGAT bonds issued to the general public, the weights being the volume of the different issues.

Table A.11: Thailand - Interest Rates, 1950-1977

| Year | (1) RDD | (2) RSD | (3) RTD | (4) RDS | (5) RCB | (6) RGB |
|------|---------|---------|---------|---------|---------|---------|
| 1950 | 2.0795  | 2.0000  | 4.5928  | -       | -       | 4.0000  |
| 1951 | 2.0902  | 2.0000  | 4.5978  | -       | -       | 4.5000  |
| 1952 | 2.0893  | 2.0000  | 4.6035  | -       | -       | 4.5000  |
| 1953 | 2.0899  | 2.0000  | 4.6270  | -       | -       | 6.0000  |
| 1954 | 2.0824  | 2.0000  | 4.4840  | -       | -       | 6.0000  |
| 1955 | 2.0722  | 2.0000  | 4.4513  | -       | -       | 6.0000  |
| 1956 | 2.0687  | 2.0000  | 4.7260  | -       | -       | 8.0000  |
| 1957 | 2.0776  | 2.0000  | 4.7006  | -       | -       | 8.0000  |
| 1958 | 2.1898  | 2.0000  | 4.7680  | -       | -       | 8.0000  |
| 1959 | 2.4204  | 2.0000  | 4.7949  | -       | -       | 8.0000  |
| 1960 | 2.5607  | 2.0000  | 5.6463  | -       | -       | 8.0000  |
| 1961 | 2.5619  | 2.0000  | 5.8022  | -       | -       | 8.0000  |
| 1962 | 2.3105  | 2.0000  | 6.5364  | -       | -       | 8.0000  |
| 1963 | 2.2654  | 3.2853  | 6.2709  | -       | -       | 8.0000  |
| 1964 | 1.5622  | 3.3474  | 6.4564  | -       | -       | 8.0000  |
| 1965 | 1.5671  | 3.1676  | 6.6860  | -       | -       | 7.3701  |
| 1966 | 0.0321  | 2.8903  | 6.8222  | -       | -       | 7.0000  |
| 1967 | 0.0319  | 3.2442  | 6.7981  | -       | 7.0000  | 7.0000  |
| 1968 | 0.0300  | 2.9514  | 6.8734  | -       | 10.0000 | 7.0000  |
| 1969 | 0.0242  | 3.1384  | 6.7918  | 9.5000  | 10.0000 | 7.0000  |
| 1970 | 0.0228  | 3.1634  | 7.0680  | 9.5000  | 10.8333 | 7.0344  |
| 1971 | 0.0196  | 3.2152  | 7.3408  | 9.7500  | 10.6970 | 7.5000  |
| 1972 | 0.0179  | 3.8125  | 7.3824  | 8.9375  | 10.9000 | 7.6749  |
| 1973 | 0.0167  | 4.1068  | 7.8018  | 8.8125  | 9.4789  | 7.5131  |
| 1974 | 0.0156  | 4.0546  | 8.2687  | 10.5000 | 10.8462 | 8.7152  |
| 1975 | 0.0159  | 4.1640  | 8.0380  | 10.2500 | 11.2250 | 8.5000  |
| 1976 | 0.0136  | 4.2049  | 8.0117  | 10.5625 | 9.6711  | 8.5318  |
| 1977 | 0.0145  | 4.4082  | 8.1269  | 10.0625 | 10.5000 | 8.5047  |

**Definitions:** RDD - Interest Rates on Demand Deposits  
RSD - Interest Rates on Savings Deposits  
RTD - Interest Rates on Time Deposits  
RDS - Interest Rates on Deposit Substitutes  
RCB - Interest Rates on Corporation Bonds  
RGB - Interest Rates on Government Bonds

#### 4. National Income Accounts and Other Data

All time-series in this study pertaining to national income, agricultural and industrial production, taxation, exports and savings are taken from National Economic and Social Development Board, National Income of Thailand, various issues. There is a structural break between the time-series for the periods 1950 to 1969 and 1970 to 1977. In order to smooth out the discrepancies, the data for 1969 are taken from the 1972-73 edition of the National Income of Thailand. Only the time-series of savings are presented here. In addition, the section comprises data on various financial variables. The data for 1977 are preliminary. All time-series are expressed in million Baht (current prices).

(1) Savings of Households - SH

(2) Savings of Corporations - SC

(3) Savings of General Government - SG

(4) Capital Consumption Allowance - D

(5) Foreign Savings - SF

Source: BOT, Monthly Bulletin, various issues;  
BOT, DER

Basic Data: Balance of Payments

Derivation: Foreign savings comprise:

- (a) U.S. and other foreign grants,
- (b) special Yen,
- (c) direct investment,
- (d) other private long-term capital movements,



- (e) local government project,
- (f) central government capital movements.

(6) Number of Bank Offices - BO

Source: BOT, DER

Derivation: Included are the various types of offices of:

- (a) commercial banks,
- (b) Government Savings Bank (excluding post office agencies),
- (c) Bank of Agriculture and Agricultural Cooperatives,
- (d) Government Housing Bank.

(7) Financial Assets of the Private Sector - F

Source: The data sources to construct the time-series of private financial assets are identical to the ones presented in section C.1 of the Statistical Appendix.

Derivation: Private financial assets comprise:

- (a) currency,
- (b) demand, savings, time and other deposits,
- (c) notes payable by finance and securities companies,
- (d) treasury bills,
- (e) corporate, government and other bonds,
- (f) net assets of mutual funds,
- (g) life insurance funds,
- (h) employee benefit funds.



(8) Indirect Securities held by the Private Sector - IF

Derivation: Total financial assets of the private  
sector minus:

- (a) currency,
- (b) treasury bills,
- (c) corporate and government bonds,
- (d) assets of the government provident  
fund.

The assets of the GPF are held with  
the Treasury and earn no interest.

Table A.12: Thailand - National Income Accounts and Other Data, 1950-1977

| Year | (1) SH  | (2) SC | (3) SG  | (4) D   | (5) SF | (6) BO | (7) F    | (8) IF   |
|------|---------|--------|---------|---------|--------|--------|----------|----------|
| 1950 | 2550.9  | 266.4  | -262.0  | 369.8   | - 7.2  | 241    | 4364.6   | 1255.2   |
| 1951 | 4094.7  | 284.5  | - 40.5  | 461.3   | 66.6   | 286    | 5418.7   | 1574.2   |
| 1952 | 2838.1  | 305.0  | 415.0   | 599.8   | 199.6  | 300    | 5599.1   | 1805.7   |
| 1953 | 3552.0  | 297.2  | 771.8   | 751.9   | 272.6  | 327    | 6427.4   | 2270.4   |
| 1954 | 3148.7  | 391.1  | 877.5   | 890.2   | 141.1  | 345    | 7274.0   | 2552.9   |
| 1955 | 5089.9  | 286.8  | 987.3   | 1013.9  | 723.7  | 365    | 8270.1   | 2880.9   |
| 1956 | 3965.9  | 278.9  | 1708.8  | 1141.2  | 875.0  | 402    | 8997.7   | 3306.8   |
| 1957 | 2543.7  | 255.7  | 1719.5  | 1293.3  | 1210.0 | 439    | 9748.4   | 3855.4   |
| 1958 | 1689.6  | 210.5  | 1402.2  | 1451.2  | 839.6  | 536    | 10403.9  | 4533.1   |
| 1959 | 2837.3  | 253.4  | 1996.4  | 1589.1  | 1319.1 | 575    | 11249.2  | 4993.0   |
| 1960 | 6106.4  | 423.7  | 1827.6  | 1627.7  | 1065.2 | 638    | 12697.2  | 6015.2   |
| 1961 | 6907.1  | 538.9  | 1908.0  | 1950.7  | 1234.6 | 693    | 14303.4  | 6996.6   |
| 1962 | 6341.0  | 662.9  | 2209.9  | 2360.0  | 2286.0 | 743    | 16354.7  | 8883.7   |
| 1963 | 6077.4  | 819.7  | 2578.0  | 2893.5  | 2668.9 | 781    | 18606.8  | 10908.4  |
| 1964 | 6657.6  | 1296.5 | 2760.0  | 3558.8  | 2274.1 | 795    | 21271.2  | 12774.3  |
| 1965 | 9600.0  | 1277.8 | 3057.5  | 4245.5  | 2138.5 | 823    | 24403.8  | 14910.3  |
| 1966 | 15768.0 | 1788.3 | 3657.4  | 5184.4  | 1918.9 | 846    | 29827.8  | 18974.2  |
| 1967 | 10923.4 | 2258.6 | 4398.6  | 6305.3  | 3189.0 | 890    | 34150.3  | 22735.7  |
| 1968 | 10044.3 | 2590.5 | 4118.7  | 7541.7  | 3737.5 | 934    | 38777.3  | 26381.0  |
| 1969 | 13992.0 | 2358.0 | 4187.0  | 8880.0  | 3800.7 | 978    | 43646.1  | 30802.9  |
| 1970 | 13803.0 | 2431.0 | 2884.0  | 10284.0 | 3228.6 | 1035   | 49371.7  | 35318.9  |
| 1971 | 13082.0 | 3013.0 | 1840.0  | 11558.0 | 2335.6 | 1085   | 58525.7  | 43078.5  |
| 1972 | 18949.0 | 3509.0 | 2097.0  | 12843.0 | 3934.9 | 1139   | 75159.2  | 57106.8  |
| 1973 | 37008.0 | 4203.0 | 3832.0  | 14771.0 | 2202.8 | 1191   | 94543.2  | 72882.3  |
| 1974 | 36859.0 | 6422.0 | 11423.0 | 17794.0 | 8368.1 | 1260   | 116704.3 | 92817.0  |
| 1975 | 38293.0 | 5078.0 | 6814.0  | 20844.0 | 5579.4 | 1315   | 137661.8 | 110918.5 |
| 1976 | 42082.0 | 5368.0 | 3306.0  | 24121.0 | 6784.5 | 1498   | 162263.3 | 131092.2 |
| 1977 | 34256.0 | 6740.0 | 7337.0  | 28292.0 | 9004.3 | 1619   | 194349.2 | 159766.7 |

**Definitions:** SH - Savings of Households  
 SC - Savings of Corporations  
 SG - Savings of General Government  
 D - Capital Consumption Allowance  
 SF - Foreign Savings  
 BO - Number of Bank Offices  
 F - Financial Assets of the Private Sector  
 IF - Indirect Securities Held by the Private Sector

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