THE POLITICAL ECONOMY OF MERGERS IN MANUFACTURING INDUSTRY IN BRITAIN BETWEEN THE WARS

by

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Abstract

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The work was conceived as an attempt to document an aspect of what has been called the rise of the "corporate economy" or of "managerial capitalism" (or, less informatively, the "new industrial revolution"): that is the relative decline of market relations within the system of industrial capitalism and the corresponding growth of economic activity within large corporations. Though this process of change began in Britain in the late nineteenth century, it advanced more slowly than the contemporaneous movement in the United States. Hence, it is argued, the interwar years saw the crucial developments in the structure of industry in Britain, though these have been underestimated because of the absence of a reliable descriptive study of this period. Attention is focussed on the role of mergers in this structural change, since a merger, being a discrete event in the biography of a firm, throws the causes of these developments into clear relief. The study is designed as a critical gloss on economic generalisations about the rise of large scale enterprise based on the propensity to monopolise, an explanation with no diachronic significance; and on the crude technological and economic determinisms dominating the historical writing which add little to Philip Snowden's classic statement that "trusts ... are inevitable. They will continue, whatever obstacles we attempt to put in their path".

Methodologically, the study advances the plea that the disciplines of history and economics each have something to contribute to the understanding of historical changes in the structure of economic decisionmaking. It was possible to use business histories and other historical sources as the basis for an institutional description of the industrial economy in its various aspects: business ideology (chapter 2), managerial structure and innovation (chapter 3), government policy (chapter 4), the capital market (chapters 5 and 6) and the nature of competition (chapter 12). Historical materials
were also used, in conjunction with the financial press, for the compilation of a statistical series of merger activity (chapter 7), which, though subject to various limitations, provides a quantitative basis for the study of interwar merger waves which previous studies have lacked. It also permits the examination of the merger record of individual companies and of important sub-groups, disaggregated by industry, type, date, and size (chapters 8 to 11, and Appendices).

The statistical findings leave no room for doubt that interwar merger waves were of historically significant proportions. An examination of the merger record of 51 large corporations of 1948 over the previous seventy years showed that the major merger of almost two thirds of them occurred in the 1920s and 1930s. Whilst no precise quantitative comparison of interwar merger waves with more recent waves was possible, the weight of the imperfect comparisons of number and value data which can be made renders quite implausible the view that postwar merger waves have been of an altogether different order of magnitude. Moreover, it is clear that interwar mergers contributed significantly to the increase in the level of industrial concentration which laid the basis of the modern corporate economy. A study of the effects of mergers by Hart and Prais, which has been taken to show the greater importance of internal growth, is shown to be invalid in so far as it relates to mergers, since it covers less than 1% of all mergers and less than 20% of large mergers. There are persuasive reasons for believing that, in the interwar years, as today, mergers contributed significantly both to the growth of large firms and to the building up of monopolistic positions in a wide range of industries.

The profile of an interwar merger approximated more closely to modern mergers than to the classical multi-firm mergers of the turn of the century. Whereas multi-firm mergers (i.e. those involving five or more firms) had in the 1880s averaged 19.6 firms per merger, by the 1920s they averaged only 9.1 and by the 1930s only 6.9 firms. This does not, of course, mean that
monopolisation by merger was necessarily less intense, for 71 firms which were identified as extensive acquirers between the wars were found to have acquired an average of 16.8 firms each, or 20.5 firms each if a different basis of calculation is used. Moreover, the bulk (75%) of large interwar mergers were horizontal. Only 4% of the large mergers were classed as diversifying and 21% as vertical; and the vertical mergers were confined to a limited number of industries and were more prone to disintegration than horizontal ones. Whilst it is difficult to draw any precise conclusion about motivation from the dominance of the horizontal merger (for vertical mergers may also be used to consolidate a monopoly position), some factors determining the direction of integration, among them resource endowments, technology and managerial comparative advantages, are suggested.

The positive correlation of merger activity with the trade cycle in general and with share prices in particular, which has been found in other countries and in different time periods, was also a feature of interwar mergers. Merger waves were concentrated at the cyclical peaks of 1919-20 and 1926-9 and the depressed 1930s registered fewer and smaller mergers than the 1920s. Industrial cross-section analysis confirms that interwar merger activity cannot be viewed primarily as a function of depression. The conspicuously depressed industries such as textiles and shipbuilding did merge extensively and in some cases produced spectacular mergers such as the Lancashire Cotton Corporation, which absorbed 96 firms within the space of a few years. Yet their merger intensity was equalled, and on some measures exceeded, by "new" industries such as chemicals and electrical engineering. Merger thus appears to have been a well understood option available to managers wishing to expand the size of their enterprises in a wide range of industries, and must be seen as part of a general process of the growth of firms, rather than solely as a function of the depression mentality of these years.

Yet the feeling that the economic system was unacceptable if it created
depression and unemployment was behind the re-assessment of the structure of industry, known as the rationalisation movement, which was supported in word (if not always in deed) by press, government and bankers and which was enthusiastically adopted by businessmen like Sir Alfred Mond who were behind much of the merger activity. The ideology of rationalisation validated the capitalist system and encouraged the progressive businessmen who adopted it to formulate plans for large scale enterprise and managerial innovation. Public fears of monopoly were subdued by the general belief that the economy needed large scale enterprises comparable with those of foreign competitors, and by a belief that the purposeful organisation of economic activity within large firms would produce benefits outweighing the disadvantages. Whilst the government did not, in general, intervene in manufacturing industry to promote these ideas, it preserved an amiable acquiescence. Laissez-faire well suited both its economic ideology and its political supporters, and no serious policy for the public control of monopoly and merger was developed: the antitrust policy of 1919-21 was merely a political palliative for labour and ministers like Baldwin Churchill, Lloyd-Greame and Runciman were more concerned to preserve the privacy of enterprise than to promote the perfection of competition. Mergers were therefore left to the signals of the market and the quest for profit and power by private individuals, with the state preserving a deliberate disengagement.

In addition to the advantages of monopoly and technical scale economies, there were managerial and financial inducements to merge. Investment appraisal by the managements of large firms was in some respects superior to that by investors in the stock market and shareholders benefitted when their companies retained profits and invested them in acquisitions. Given economies of scale in the capital market (including the 'Macmillan' Gap) and the lower transactions costs of profit ploughback, there were further financial advantages in the aggregation by merger of the demand for capital of several
firms. This typically occurred in a consolidation of a number of unquoted firms which then sought quotation, or in the acquisition by a quoted firm of an unquoted competitor; a contrast with the postwar period when mergers between quoted companies became more dominant. An important reason for the close positive correlation of share prices and merger activity, it is suggested, is that valuation discrepancies (rendering sale profitable at share price peaks) arose because of the more stable expectations of private owners than of stock market investors. The development of the capital market was stimulated by this process and, with the rise of large scale corporations with dispersed share holdings, the constraint of individual wealth and family ownership on the growth of the firm, became a less important one.

There were, however, still important constraints on the growth of the firm through merger between the wars. Paradoxically, the absence of an antitrust policy may indirectly have reduced merger activity, for whilst it permitted merger it also permitted the alternative route to monopoly through cartels and restrictive practices generally. One advantage of these over merger was the avoidance of the managerial diseconomies experienced by firms with too rapid a rate of growth by merger, for only a few firms had developed the decentralised system of management with central financial controls which has made possible the growth of large multi-divisional corporations of the modern type. This is a partial explanation of the decline of the large multi-firm mergers of the turn of the century and the shift to a sequential pattern of multiple acquisition. There were also commercial advantages to this pattern of acquisition: the impact of monopolisation on price was more gradual and correspondingly more likely to gain acceptance from the consumer.

Among other factors inhibiting merger activity, the high gearing ("overcapitalisation") of some companies led in the depression to uncertainty about the locus of control and thus delayed the reorganisation of the staple
industries. More generally the costs and risks of contested takeover bidding were high then, relative to the postwar period, because of closely-held quoted company shareholdings, the strongly entrenched position of incumbent directors and the imperfections of information in the capital market symbolised by the contemporary scandals associated with the names of Hatry and Kylsant.

Some of these factors boded well for the successful accomplishment of the aims of the mergers: the absence of hurriedly consummated takeover bids and the pattern of sequential acquisition, for example, probably led to a more intelligent management appraisal of the benefits of merger. On the other hand some unsuccessful mergers undoubtedly made a negative contribution to economic efficiency and the benefits of other mergers were sometimes cancelled out by the social disadvantages of monopolies (unconstrained by the takeover mechanism) and of the unemployment which sometimes followed rationalisation. However, because of changes in industrial technique, in the size of the market, and possibly even in the very nature of competition, it cannot be unequivocally stated that monopoly power in manufacturing industry overall increased in these years, and, even if it had increased, it would not follow that the welfare effects of this were detrimental, since other sectors of the economy were far from Pareto-optimality. One thing is, however, clear from this study. By a combined process of mergers and internal growth the level of industrial concentration significantly increased in the interwar years, a clear pointer to the retreat of the market and the advance of intra-firm organisation in the modern economy. Though the organisation of rivalrous behaviour for purposes of internal control within the corporation to some extent replicated the competitive behaviour imposed by market relations, the economic system (and with it political and social life also) has been significantly modified by this process.
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St. John's College
June 1972

Leslie Hannah
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<td>A.E.R.</td>
<td>American Economic Review</td>
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<tr>
<td>B.O.U.I.S.</td>
<td>Bulletin of the Oxford University Institute of Statistics</td>
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<td>B.T.</td>
<td>Board of Trade papers</td>
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<tr>
<td>CAB.</td>
<td>Cabinet papers</td>
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<td>Econ.H.R.</td>
<td>Economic History Review</td>
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<td>ed.</td>
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<td>E.H.R.</td>
<td>English Historical Review</td>
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<td>E.J.</td>
<td>Economic Journal</td>
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<tr>
<td>F.C.G.B.A.</td>
<td>Finance Corporation of Great Britain and America</td>
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<td>H.C. Deb 5s</td>
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<td>J.R.S.S.</td>
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<td>M.C.</td>
<td>(1950-57) Monopolies and Restrictive Practices Commission</td>
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<td>(1957- ) Monopolies Commission</td>
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<td></td>
<td>(when followed by short title of reference good = Report on ...)</td>
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<tr>
<td>M.R.G.</td>
<td>Management Research Group</td>
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<td>N.S.</td>
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<td>O.E.P.</td>
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<td>Rev.Econ.Stud.</td>
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<td>ser.</td>
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DEFINITIONS

'Acquisition' describes the event which occurs when one company takes over control of another.

'Consolidation' is used when two (or more) companies combine to form a new company which then acquires control of both of them.

'Merger' and 'Amalgamation' are used interchangeably to refer to acquisitions and consolidations collectively.
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Chapter One

MERGERS IN BUSINESS HISTORY AND INDUSTRIAL ECONOMICS

Just as microscopic work on cells may throw new light on the human body, so detailed study of the growth of particular business units may add to knowledge of the industrial system.


"The stock of literature on mergers has in recent years grown even faster than the number of mergers, though the stock of knowledge on this subject reveals little growth": thus the gloomy observation of two economists surveying from the standpoint of 1970 the recent efflorescence of merger studies. The aim of this thesis is to add to this stock of literature, and hopefully to expand the stock of knowledge, in two ways: firstly by describing accurately the merger waves which occurred in the United Kingdom during the two decades between the First and Second World Wars; and, secondly, by relating that description to some of the conventional categories of economic analysis and to some of the broader themes of the economic history of the period. The approach is an interdisciplinary one, drawing on the techniques and perspectives of both business history and industrial economics. This introductory chapter reviews some of the existing literature on mergers in these disciplines in order to define the nature and the limitations of the interdisciplinary contribution which, given the present state of knowledge about the industrial system and its history, may be realistically aimed at.

Ultimately the distinction between economics and economic history is a trivial one. This becomes clear if one seeks to devise contrasting definitions. It is, for example, no more the case that history can only make non-generalisable statements about highly specific series of events than it is true that economists are concerned only to develop internally consistent mathematical

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models which bear no relation to perceived economic behaviour. Economists and historians may differ in the technical tools of analysis which they have traditionally wielded and in the chronological distance from the present of the events which they habitually investigate, but these differences are not such as to justify the separation of the disciplines.

The literature of economic history has often described mergers and the tendency to large-scale enterprise, but the theoretical formulation of the propositions usually advanced to explain the tendency is usually implicit and imprecise. Moreover, the factual basis of the generalisations is decidedly shaky and contradictory assertions abound. Some believe that "concentration has made measurable progress since the turn of the century", 1 and others suggest that the increase took place principally in the interwar years, 2 whilst, on the other hand, it is stated with equal confidence that "concentration has not significantly increased as between 1900 and the 1950s". 3 In relation to mergers the literature contains many unsupported statements about interwar waves of merger activity. We are told variously that horizontal mergers were uncommon, that the main merger movement occurred in the early 1920s, that those mergers which did occur were largely in the old, or alternatively, largely in the new industries. 4 (In fact none of these statements is true.) Unsupported speculation of this kind has abounded in the vacuum created by the absence of a reliable descriptive study.

For a more detailed and suggestive historical treatment of mergers one

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has to turn to the increasing flow of business histories, and to histories of particular industries based on this literature and other industrial sources. Although Professor Charles Wilson in the preface to his pioneering History of Unilever modestly averred that "it is not necessary to claim that business history is history of the highest calibre",¹ his apology now seems unnecessary in view of his own contribution and a run of works of comparable quality culminating in recent years with Coleman's Courtaulds and Reader's ICI.² Given the distance in time from the events which such histories record, they are usually able to provide for the historian a franker analysis of events such as mergers than is available to the student of contemporary business decisions.

It is unfortunate, however, that much of the writing on mergers in business histories has had something of an anti-theoretical bias. Business historians, who in general quite properly prize their allegiance to the facts of the individual case, have taken refuge in the belief that the passive reaction mechanisms of economic theory have little to do with the businessmen in the firms with which they deal. Thus they tend to see events in the history of the firm, such as mergers, as unique, biographical events explicable in terms of particular or even accidental concatenations of historical forces. They rightly reject econometric reasoning as inappropriate to the single case because based on the law of large numbers, but proceed falsely to disown the logic of economic theory itself. Whilst this avoids the danger of using business history as mere orchestration for well-established theoretical propositions, it has sometimes inhibited business historians in the rigorous development of causal interpretations and thus cut them off from mainstream developments in the economics of industry. Professor Wilson's comments on

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economic generalisations in his prefatory remarks on the merger which laid
the basis of the Unilever group in 1929 will serve as an example:

Tracing patterns in history is an absorbing pastime and one of its
most popular forms is seeking out apparent repetitions. The trouble
is that it is all too easy to see patterns that are not there. Even
the 'similar situations' that seem to recur will often on closer
examination prove to be not so similar as they at first appear, and
our historical laws dissolve at a touch. It is, for example, tempting
to see some correlation between the depression which settled on the
world economy in 1929 and the decision, on 2nd September of that year,
to amalgamate Lever Brothers Limited, the Margarine Unie, and its
English counterpart, the Margarine Union. Such an assumption would be
all the more plausible because it was a fact that the recurrent
periods of amalgamations in the oils and fats industries had often
been associated with economic difficulties. Nevertheless the assump­
tion would be wrong.

By one of those curious tricks which history is never tired of
playing, this, the largest amalgamation of all, was in fact in the
process of gestation for more than a year before the agreement was
finally signed; more than a year, that is, before the beginning of
the linked series of catastrophes which ended in the Wall Street
panic of the autumn of 1929 and inaugurated a long period of economic
disasters. The year during which the negotiations went on was, as we
have seen, a time of reasonable prosperity for the oils and fats
trades. Whatever may be true of earlier proposals for mergers, this
one was not the product of adversity. If it sprung from a realiza­
tion that bad times were almost certain to come again, those who
thought so kept their feelings to themselves. There was no conscious
analysis of economic trends behind the moves of 1928-9; rather was
there a general common-sense conviction that alliance wasted less of
everybody's substance than hostility.1

The hypothesis of depression-induced mergers here set up by Wilson only to
be rejected is interesting if not very precisely specified. His one case
cannot, of course, disprove the thesis but it might at least be informative
in generating suggestions as to why merger discussions might, contrary to
the hypothesis, take place at cyclical peaks. (In fact there is a double
irony in Wilson's remarks for it is clear that mergers, far from being
negatively related to the business cycle exhibit a strongly pro-cyclical
tendency, and it will later be suggested that this pattern can be rationalised
using some of the conventional tools of economic theory.2) Though Wilson's
chapter is full of suggestive detail, he fails to follow the opening remarks

through, and thus does not do justice to this difficult and complex subject.

The approach adopted here, by contrast, attempts more effective and quantitative generalisation from an examination of published business histories and the archives of a number of large companies. Analysis of these sources sometimes revealed new and hitherto unsuspected relationships and the analysis of deviant cases often provided a fruitful source of modifications to accepted generalisations. In the next five chapters of the present work the institutional background of mergers is described, and these chapters form the basis of the subsequent development of a model of merger activity. The approach is similar to that suggested by Mrs. Penrose in her theory of the growth of the firm:

Consistent examples are, of course, no more a proof than are inconsistent examples a disproof of a general argument unless the examples are presented in sufficiently large numbers and selected in such a way that they constitute a representative sample ... the examples presented in the following chapters are illustrative only. There is not sufficient systematic information available as yet to enable any comprehensive testing of the generality of the theory.

However, in focussing more narrowly on mergers, it was also possible to assemble some systematic statistical data. It seemed clear that the time had come for economic historians to use the immense wealth of raw material in published business histories as a quarry of statistical information which to develop generalisations and quantitative analyses. Though business histories must, as "biographies", necessarily concern themselves with the single case, they can also make a cumulative contribution as well as an individual one. Economic historians have already derived information from the varied findings of many business histories, for use in studies of particular industries or of specific problems, and data has also been extracted from company archives for historical econometric work, but we lack any historical study of industrial

structure over time which seeks to develop quantified generalisations from
the large number of case studies embodied in business histories. The present
study attempts to do this for an important component of the modern growth of
the large corporation: the merger activity in British manufacturing industry
between the wars. Chapter 7 describes the construction of a statistical
series for merger activity and in subsequent chapters this is related, within
the institutional framework described in previous chapters, to some of the
economic literature on the determinants and effects of mergers.

This literature is now very extensive. Merger and acquisition activity
is recognised as a significant aspect of market behaviour and of the growth
of the firm, and recent merger booms in Britain and the United States have
stimulated much theoretical speculation and empirical enquiry. There are
difficulties in applying the concepts which have been developed in these
writings to the present study, for clearly merger is not an entirely homogeneous
phenomenon historically. The multi-firm amalgamations of unquoted companies
described by Macrosty require in some respects different categories of analysis
than the takeover bids for and by quoted companies which preoccupy modern
writers. A full understanding of interwar merger waves will only be possible
if these institutional changes are taken into account.

Nevertheless significant uniformities between the periods do emerge, and
the formal categories of economic analysis are, in general, appropriate to
interwar mergers. For example, Coase's account of the determination of the
boundaries of the firm is relevant. He defines the market as a place where
supply and demand can be mediated by voluntary transactions, and the firm as
an institution in which an administrative structure determines the relation-

2. E.g. R. Marris, The Economic Theory of 'Managerial' Capitalism, 1964;
Singh, Take Overs.
reprinted in American Economic Association, ed., Readings in Price Theory,
1953, pp. 351-368.
ships of participants. The boundaries of the firm are determined by the relative costs of market and firm, as businessmen continually adjust the boundaries of their firms at the margin according to the relative costs of market and firm. The decision to vertically integrate — to "make it oneself" rather than to "buy out" — clearly conforms to this model, but it can also be broadened and applied to horizontal integration. The private costs to firms of dealing in markets in which they are horizontally related (i.e. selling the same or closely substitutable products) would include the differences between competitive and monopoly profits, the effects of overlapping sales forces or other marketing expenses, the costs of uncertainty of market shares under imperfect competition and of externalities which could be internalised, and, if there are economies of scale, the difference between the costs of operating at the present scale and on a scale equal to the size of the market.\textsuperscript{1}

Entrepreneurial calculations will also take into account the cost of using factor markets as well as product markets. Thus even where product market considerations would suggest the use of the market rather than the firm, production may be organised by one or more firms operating at the optimum financial scale if the capital market allocates capital inefficiently to small firms.

All this is directly relevant to merger and demerger,\textsuperscript{2} if they are considered as sub-cases of a change in the boundary of the firm, analysable as

\textsuperscript{1} Coase does not himself apply the model in this way to horizontal integration within the firm, but the extension to include these familiar categories would seem to be legitimate. It differs from vertical integration in that the un-integrated firms in the horizontal case are not engaged in transactions with each other. Moreover, for both the vertical and horizontal cases, the model is incomplete since it abstracts from the intermediate category of interfirm co-operation, e.g. in cartels or technical agreements.

\textsuperscript{2} Demergers appear to be much less common than mergers, though see e.g. Wilson, Unilever, v. 1, p. 298 and pp. 49, 270, below and cf. Economic Trends, November 1969, p. xxii, for recent years. Their scarcity may be due to a consistent movement of cost advantages in favour of the firm (see ch. 2 and 3 below) or because of frictions in the market for assets, and managerial prejudice (see Industrial Policy Group, Harrer Policy, 1971, para 24).
alternatives to internal growth and decline in the adjustment mechanism by which market and firm reach an equilibrium position.\(^1\) Assuming profit maximisation, merger will be preferred to internal growth when the anticipated costs of shifting the boundary of the firm by merger are exceeded by those of shifting it by internal growth. If this condition is satisfied, either one firm will acquire another or the profit opportunity will be mediated in a consolidation. As precise data on relative costs is normally only available to decision-makers within firms, the process can usually only be observed indirectly. The model is therefore untestable, though it has a certain heuristic value in illuminating structural change.

The classical theorems of microeconomics were developed essentially to explain the effects of structure on behaviour, as in price theory, which explains the effects of particular market structures, notably monopoly and competition (both structures with determinate solutions), on output decisions, and thus on prices and profits. It is a short step for these to be pressed into service as explanations of the reverse effect, of behaviour on structure, as they have been in that vast body of economic literature which views merger almost exclusively in terms of the search for monopoly power. This study does not add to that weighty literature and the reader may be surprised at the reticence of the pages which follow on the subject of monopoly. This reticence should not be misconstrued. Businessmen more readily admitted monopolisation as an aim of merger in the depressed interwar years (when monopoly was little condemned and often approved), and the contemporary commentator who found their primary purpose to be "the enhancement of profits by the elimination of competition"\(^2\) may have been right. The point here is not

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1. Though, being a single, large, discrete change, merger is not a marginal mechanism and therefore suggests discontinuity of cost changes, or, at least, of adjustments to them. It is, of course, unrealistic to say of mergers, that "businessmen will be constantly experimenting, controlling more or less, and in this way, equilibrium [of market and firm] will be maintained" (Coase, op.cit., p. 350).

that this was not a benefit of merger, but that as an explanation of merger it has no diachronic significance. The profits of monopoly were always potentially present: the problem for the historian is to explain the reluctance or inability of entrepreneurs to capture the predicted profits earlier than in the event they did. Other causal variables must therefore be introduced into the model to explain the particular configuration of firm and market at any one time. The technical and institutional background is here very important. Government sets the rules of the game for market and firm and it can be argued that because alternative routes to monopoly were tolerated merger was discouraged. Capital market imperfections, managerial diseconomies of scale, and goals alternative to profit maximisation in firms unconstrained by the threat of takeover could also act as a significant brake on mergers. When such institutional variables are introduced into the analysis, the steady but slow growth of the large corporation with national market power becomes a more intelligible phenomenon.

However, even when these institutional changes are included, it must be recognized that the Coasean equilibrium model is ultimately inadequate to describe the complex world of economic and historical reality. The theory of the firm, it has been justly said, is in reality a theory of the market in which the firm is a mere featureless, adaptive organism with no internal structure, no past and no future. But firms are not simply mechanisms responding to exogenous changes in the "state of the arts" of organising firms and markets, and thus to changes in relative costs. They are, in addition, creative units which may themselves innovate wants and produce changes in relative costs. Economics, like other functionalist interpretations in the social sciences, can more easily handle system-maintaining forces in adjustments between static equilibria or a moving equilibrium than it can comprehend the timing and nature of the exogenous sources of disequilibrium which such creativity implies. It is the failure of economics to explain fully the changes wrought by creative innovation which has sometimes led the historian
to reject its analytical categories as inappropriate to his subject. Among these sources of disequilibrium and creative innovation are the macro-
performance of the prevailing economic system, the direction of investment in managerial and technical problem solving, ethical criticism, social and political crisis, and fashion (which might be defined as those changes which generate preferences otherwise unexplainable). It is with the operation of some of these factors between the wars and their effects on the merger move-
ment that the next chapter is concerned.
The rapid development of the idea of rationalisation has given rise to amalgamations at a speed and to a degree which are altogether novel.

(L. Urwick, address to section F of the British Association, 1930)

Economic depression was a central fact of the interwar experience: to the labourer it meant the dole, to the employer it meant overcapacity; for both it initiated a process of re-evaluation of the political, social and economic sub-structures of society. The impact of the depression on the growth of socialism, and on the collapse of the paradigms of classical economics in the Keynesian revolution has often been analysed. Less well covered is its impact at the level of popular business philosophy, leading to the questioning among businessmen of the desirability of the existing configuration of firm and market. The rationalisation movement - which gained the attention of bankers, politicians and trade unionists as well as of prominent industrialists between the wars - was an important aspect of the build-up of dissatisfaction with the market. Though the Keynesian revolution ultimately demonstrated that the malfunctioning which they witnessed had a macro- not a micro-solution, this did nothing between the wars to reduce the tenacity of the belief that the market economy was failing, and that the process of rationalisation - essentially a micro-solution - offered the way out.

The word "rationalisation" lacked any precise meaning. As the Economist remarked:

... as often happens with a new immigrant to the language it is undergoing a vogue which has led to its use as a cloak for confused ideas, and sometimes as a badge of respectability for processes of doubtful value.

1. By contrast, the effect of the success of Keynesian policies in the aggressive revival of the "theology of the market" in the postwar world is well known.

To some prominent advocates it clearly implied horizontal amalgamation,¹ a view shared by some critics of the rationalisation movement who described it, less enthusiastically, as "a new fangled term to describe the old fashioned device of eliminating competition".² "I do not much like the word" wrote the economist D.H. Macgregor resignedly in 1934, "but it has become necessary to use it. It is mainly a question of the scale on which private enterprise should be urged or compelled to reorganise itself by amalgamation."³ It is in this sense that we use the term. However, we shall not lose sight of its wider implications, for the more intelligent apostles of rationalisation were careful to stress the interrelatedness of the various aspects of their programme and the insufficiency of merger by itself as an automatic promoter of efficiency. Lyndall Urwick, for example, perhaps the most consistent and coherent, though not the most influential, advocate of rationalisation, wrote that:

The mere financial combination of businesses or the wider application of scientific methods of management to existing units of control, can neither of them by themselves contribute effectively towards equipping Great Britain with that reorganised national economy which is essential if she is to retain her place among the industrialised nations.⁴

The two were seen as complementary, not as competing, aims.

The call for experimentation in new forms of organisation for the firm,

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4. Urwick, Meaning, p. 134 (present author's italics). For Urwick's other writings on rationalisation, see his "The Pure Theory of Organisation with Special Reference to Business Enterprise", British Association 1930, typescript; The Management of Tomorrow, 1933; "Rationalisation", British Management Review, v. 3, no. 1, 1933. Urwick was the director of the International Management Institute at Geneva, and, on its demise in the 1930s, became a successful management consultant.
including large scale merger of interests, motivated as it was by the failure of the market economy to produce prosperity and full employment, was a world wide phenomenon.\(^1\) In Britain, as elsewhere, the instability and insecurity of these years initiated "a very remarkable change". Before the First World War:

... while it was admitted that the old theory of competition was not working without disadvantage, it was believed that, all over, those were less than the disadvantages which might result from anything monopolistic.... The post-war tendency is to change this attitude.\(^2\)

More complaints of "overproduction" or "underconsumption" were heard as each industry met problems of overcapacity; and competition was no longer seen as essentially benign, but was increasingly referred to as "cut-throat", "wasteful", "unfair", "destructive" or "ruinous". The world faced that "gigantic paradox" later to be enunciated by Roosevelt but already stated neatly in 1931, by Urwick:

Our control over natural resources is enlarged almost beyond the wildest dreams, even of each preceding decade. The world's capacity for production has been developed to a far greater degree than any corresponding increase in population, especially in the industrialised nations. Yet the peoples of those nations, by millions are eye to eye with uncertainty, with want, with moral degradation and with despair. We meet under the shadow of the gravest economic crisis which has threatened the material well being of civilisation for a century.\(^3\)

The belief in the inevitability of progress through the actions of individuals co-ordinated only by the invisible hand of the market looked, in this interwar world, progressively less convincing. The assumption on which it was based was:

... that the great complexity of effort necessary to maintain the world's material life cannot be organised, is beyond the control of any form of positive action which humanity can devise.\(^4\)

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4. Ibid., p. 22.
This belief crumbled in the face of evidence that the market also was incapable of that prodigious feat of organisation which the world required. The market appeared instead to involve "seventy-five per cent of our best endeavour ... in unproductive competition, in overlapping and in confused striving".¹

In the place of the market's "automatic" equilibration, which had once seemed to be its strength, it was suggested that men should substitute a consciously and deliberately² fashioned rational system of industrial regulation. "There is abundant evidence", Harold Macmillan told the Management Research Group in 1934;³

... to prove that some form of conscious social direction will have to supplement the old system under which the regulation of our economy was entrusted to the method of trial and error in response to the price indicator.

and this sentiment was widely echoed by rationalisers. "The belief that a more rational control of world economic life through the application of scientific method is possible and desirable",⁴ thus grew in influence, amongst men pleased to believe in their creativity and potentiality as co-operators in extending their power of control over economic life by conscious organisation.

Moderate and reflective economists such as Sir Henry Clay were increasingly concerned

... to discourage the hope that the problem, if left to itself, will cure itself, and to argue that the necessary reorganisation of the depressed industries will not be affected unless the initiative is taken and the impulse given by some agency outside them.⁵

4. Urwick, Meaning, p. 27.
The implication of rationality in the term "rationalisation" emphasized that industry could conform to ideas and values whose proponents were growing in confidence and strength in contemporary society, and in particular to the growing awareness of/faith in things scientific at the level of popular philosophy. Businessmen and statesmen accepted the common popular theme that advances in science and technology were giving men a growing control over the natural environment and pleaded for a greater recognition that the methods of scientific inquiry could solve social and economic difficulties also. Thus Josiah Stamp, ex-economist, ex-director of I.C.I., and chairman of the London Midland and Scottish Railway, pleaded for a "science of social adjustment", and Urwick in the peroration to his address to the British Association in 1930 challenged his colleagues to accept that:

It is time for a fresh step forward. Let us use the intellectual conceptions which have given us the great material advances of the machine age, to resolve the new difficulties which that age has created. Let us say as a scientific organisation - 'it is intellectually possible; it is in line with our tradition'.

The doctrine of progress through the rational application of scientific principles thus aroused expectations of amelioration in face of evidence of unemployment and instability, strengthening the motive to apply new methods in industry. "Scientific management" became, within the rationalisation movement, the obvious parallel to the growing success of science in other fields.

In this respect, it provided for some businessmen an ideology to replace the doctrine of competitive free enterprise whose ethical foundations and

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1. The etymology of the word is obscure, but the implication of rationality clearly gained its acceptance, see Urwick, Meaning, ch. 2; but cf. Davies, Rationalisation, p. 24 who attributes its derivation to "ration", i.e. restriction of output.


claims to be a gospel of human freedom were being undermined by socialism, a rival doctrine with which in some respects, the ideology of rationalisation significantly converged. Competition was disliked by both socialists and rationalisers, and they both stressed not only scientific and rational, but also humane, values: "the glamour of the perfect, unselfish mechanism hangs about the system of rationalisation". The business classes were, of course, very much aware of the need to provide a political and economic alternative to socialism. It was their position which was endangered by depression and it behoved them to revalidate it by showing that those parts of the market system which were causing trouble could be bypassed by the reorganisation of private capital. The promise of the rationaliser that "it is intellectually possible ... it is materially profitable; it will save our economic system from disaster" was not easy to ignore. Rationalisation thus became a defensive reaction to the challenge to the existing structure of power and ownership in industry which the rapid growth of trade unionism and labour socialism had posed.

There was of course an alternative reaction. The inherited faith of members of the business classes in the "theology of the market" could be self-validating: it is not difficult to prescribe a remedy for the deficiencies of the interwar economic system which is consistent with acceptance of an enterprise system depending predominately on market allocative mechanisms. Blame could be laid on the trade unions, for example, for introducing undesirable monopolistic elements into wage determination, or for causing inefficiency through "ca'canny". It could be said that government intervention and the ex-


panding public sector had caused a malfunctioning of a system which, had it been left to itself, would have been perfectly healthy. Indeed the very growth of monopolistic combines could be pictured not as the cure but as the cause of the problem, preventing readjustment by creating price inflexibility.

Yet the weakness of these diagnoses was that, given the political and social situation, the costs of the action they implied were estimated to be high. The Geddes "axe" and the May Report, the Trade Disputes Act and cuts in local rating for businesses were tried as remedies in this tradition, but few businessmen viewed with pleasure the prospect of a protracted series of labour confrontations akin to the General Strike, and no government could safely contemplate larger cuts in public expenditure than those of 1931 or the creation of more widespread distress in already distressed areas.¹ By contrast the replacement of the moral economy of the market by an alternative modified system of economic rationality (which yet preserved something of the privacy of enterprise and the principle of profit) could seem attractive. Conscious action to rationalise industry or to plan the economy, especially when this involved some increase in monopoly power, thus became the vogue in advanced business circles. This programme offered the dual advantages of being at the same time susceptible to collective action (in trade negotiations or government lobbying)² and to private entrepreneurial action (as in the decision to merge). It thus became the common currency not only of a metropolitan élite of intellectuals as some of its critics were inclined to imply, but also of businessmen who liked to picture themselves as successful and hardheaded. Many of their goals - profit maximisation, the growth of their

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2. However laissez-faire survived the depression better than faith in competition and the desire to bring the government into the movement was by no means unanimous, see pp. 56-8, below.
firms, or merely entrepreneurial exhilaration and empire building, were compat­
ible with and reinforced by the doctrines of rationalisation.

The critics were correct, however, in pointing to quite virulent opposition to rationalisation, an opposition for which in many cases the justification is readily apparent. There was clearly a faddist fringe to the movement, "distinguished" - as one rationaliser admitted - "rather by moral enthusiasm than by effective methods", 1 which its critics could characterise as "cheap, superficial and popular". 2 The National Confederation of Employers Associations (an organisation which included many smaller and medium-sized businesses) in preparing a memorandum on the depression felt it necessary to warn the Conservative prime minister that criticisms of the industrial structure and of businessmen emanated from "a movement which seeks to discredit entirely the existing system for the conduct of industry", 3 and others, too, felt that rationalisation came perilously near to socialism. 4 To this criticism the rationalisers replied in kind, opposing the rebuke that their philosophy "has been met with in many influential circles by obstinate and destructive prejudice". 5 The fact that large-scale organisation was not growing as fast as rationalisers had hoped led them to examine "the human forces which make for irrational, illogical, and inefficient organisation". 6 Entrepreneurs were accused of deriving psychic income from operating a system

5. Seager, "Nationalise or Rationalise", pp. 9-10.
which, socially, was inefficient, a system which did not maximise profits, or growth. So the debate raged at a vigorous level of invective and argument, stoked not only by differing evaluations of the economic efficiency of large firms, but by radically differing views about the whole future of the enterprise system. Rival creative images of that future, and not only cost schedules, were at the heart of this debate and this circumstance accounts in good measure for its virulence.

Men, in so far as they do choose their ways of life, select the economic systems in which they organise their working lives not only in response to their assessment of the relative costs of alternative methods of satisfying given wants, but also on ideal grounds, that is in response to their views on whether a particular economic system will produce as well as satisfy wants which they consider personally or socially desirable. These factors are potentially as important as technical factors in determining the direction of innovation in economic organisation and thus in inducing movements in the relative costs of market and firm. The ideologies and self-images of businessmen which can be studied in movements of fashion and opinion such as the rationalisation movement can throw light on this process. However, whilst rationalising opinions may have influenced the direction of innovations in market-biased or firm-biased problem-solving, ultimately it was not the relative debating skills of rationalisers and anti-rationalisers which determined the structure of industry, but rather the objective changes in the relative costs of firm and market. Only if the ex ante desire for a more "rational" control by the firm could be transformed into cheaper ex post costs for the firm (including the private benefits of monopoly) could the invisible hand of the market in the long run be expected to make its hoped-for retreat and yield to the rational brain of the administrator. This balance between subjective and objective forces can be most clearly seen in the evolution of the economic structure of communist societies. These societies have exhibited a pattern of
initial preference for direct management and central control, politically determined by the advent of revolution; but, as inefficiencies and diseconomies are perceived, this yields to a more decentralised system of production management and a closer approach to market mechanisms. In a pluralist political and economic system, also, changes in preferences, though necessarily more diffused and evolutionary than those in a communist revolution, nonetheless have visible effects. In directing the choice of alternative futures, for example, the rationalisation movement was able to induce investment in innovating and building intra-firm organisation, and thus itself importantly patterned the relative costs of firm and market.

We shall return to the question of investment in the management factor by large-scale firms in the next chapter, but there were clearly other non-managerial changes in relative costs of some significance. In particular, market forms of organisation required firms to forego some of the economies of scale which could be achieved by aggregation. There is compelling evidence of the existence of plant economies of scale in a significant number of industries, and rationalisers naturally stressed the access to such economies which merger could provide by aggregating the demand schedules of two or more firms in imperfect markets.¹ Technical economies of plant size were not the only significant ones, however, for the widespread existence of multiplant firms indicates that the postmerger integration of plants was frequently neglected over a long period.² Contemporaries frequently referred to the marketing economies of merger which were often considered to be the most

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¹ J. Hilton, appendix to Committee on Trusts, Report, Cmd 9236, 1918, p. 20; for a fuller discussion of the benefits of scale economies see pp. 216-9, below.

important economies immediately available,¹ and there were also important
financial economies.² The view was also gaining ground that only large firms
could afford the research necessary in modern science-based industry:

The small firm finds it difficult ... to pay for research laboratories ...
[reported a committee of the Privy Council] we believe that some
form of combination ... may be found to be essential if the smaller undertakings of this country are to compete effectively with the great trusts
and combines of Germany and America.³

The rationalisation movement can, in one sense, be seen as an attempt to
publicise these economies of scale. The war had already done much to spread
knowledge of the fact that economies of scale were sometimes not achieved because they were not known to be potentially available. With a large and
predictable demand for a wide range of goods, for example, the Ministry of Munitions had been able to encourage manufacturers to co-operate and
standardise production in order to achieve an expansion of war materials supply.
This contributed to the considerable merger wave during the war,⁴ and also to
the development of postwar views on the need for larger scale industry.⁵ Sir
Vincent Caillard, the armaments manufacturer, looked back to the war from the
1920s as a time of:

... co-operation on a marvellous scale ... manufacturers for the good of their country, threw away their old prejudices and put themselves unreservedly at the disposal of one another. Patents, secret processes, special methods, goodwill, were flung into the melting pot of the common weal.⁶

². See pp. 87-9, below.
This was the authentic, exhilarated voice of the rationalisation movement's plea for co-operation and merger. It is often forgotten that production functions are not exogenously given but, subject to an ultimate physical constraint, are formulated by the entrepreneurs themselves. By elevating and widening the entrepreneurial scan, the enthusiasm of rationalisers enabled the more skilful managers to take that imaginative leap which was necessary to gain access to economies of scale.

The experience of foreign countries, where industrialists had reaped or were supposed to have reaped, the benefits of scale economies, was frequently held out by rationalisers as exemplary. The competition of German and American combines, in particular, which had already been a source of concern before the war was uppermost in the minds of many wartime and postwar merging companies. The House journal of Sperlings, the issuing house and merger promoters, typifies this mood:

What has been drilled into us in Great Britain as the result of the general canvassing of our industrial position and prospects in the light of the war, is that there is far too little of 'Big Business' amongst us. While Germany and the United States have been developing huge industrial consolidations, with ample resources, specialised production, collective agencies for sale and distribution, and with a full equipment for scientific research, we in Great Britain have been trying to get along with a multitude of small, rather old-fashioned, manufacturing units, each maintaining its own selling and marketing organisations, not at all alive to science, stubbornly individualistic both in their products and in their attitude towards other firms in the same industry, conscious that the smallness of their installations made for inefficiency and waste and yet debarred from scrapping and rebuilding them on modern lines by the almost prohibitive cost. It is now being generally recognised that if we are to hold our own in future we must revolutionise our scale of doing things; in trade after trade.  

There was, throughout the 1920s, a flood of literature praising German rationalisation and American mass production, often contrasting Britain's industrial structure and performance unfavourably. The evidence of merger abroad leading to economic expansion and successful competition with English firms in world markets weakened lingering memories of the great development of English trade under small-scale competitive conditions. The conventional wisdom now suggested that, though in the past competition had yielded benefits for British industry, "it is also true that a great increase [of production] took place in the U.S.A. and Germany under a condition of restricted competition and trade organisation". Repeatedly the public rationale of mergers was the need to catch up with and to "face on equal terms" foreign competing firms of larger scale.

The economies publicised by these comparisons, and by the rationalisation movement in general, were largely internal to the individual firms, but not entirely so. In so far as the benefits were external, they did, of course, reduce the relative costs of the market, and in this sense, the rationalisation movement can be said to have had ambiguous implications for Coasean equilibrium. Industrial research, for example, as well as other services, could be produced internally by the firm, but they could also be bought on the market from

1. E.g. Sir Philip Dawson, Germany's Industrial Revival, 1926, p. 10; A. Meakin, The New Industrial Revolution, 1928; H. Quigley, "The Large-Scale Organisation of Production", Manchester Guardian Commercial, 28 Oct. 1926; D. Warriner, Combines and Rationalisation in Germany, 1931; B. Austin and W.F. Lloyd, The Secret of High Wages, 1926; Macmillan Evidence, qq 3883-3892, 3895-6, 8326-7 and v. 2, pp. 747ff. The foreign influence was sometimes more direct. Sir Hans Renold, Sir Alfred Mond and Sir Hugo Hirst, all of German origin, were responsible for British mergers in the chain, chemical and electrical industries. American companies such as General Electric and the Chase Manhattan bank were also involved in merging English companies; see, on American capital generally, J.H. Dunning, American Investment in British Manufacturing Industry, 1958, ch. 1.


specialist suppliers, or, if such suppliers did not exist, organised on a co-operative basis by government or the firms themselves. The very process of the growth of markets also weighted the balance in favour of market dealings by facilitating specialisation and the division of labour between firms. In some respects, the rationalisation movement aimed to accelerate and to supplement such improvements in the efficiency of the market. It was hoped, for example, to produce a better informed market by developing techniques of market research backed up by improved government statistical services, and the planning movement, which, with the support of the rationalisers, gained added impetus in the 1930s, was in a sense an attempt to improve the market by grafting onto it benefits of central control akin to those available to the monopolised industry. These initiatives were alternatives to merger in the sense that they involved deliberate investment in cheapening the anticipated costs of the market, but since they involved a level of co-ordination and co-operation which was difficult to achieve voluntarily and since attempts to gain government legislative sanctions for them in the main failed, the treatment of the rationalisation movement as a factor stimulating investment principally in the firm-based, cost-reducing innovations is justified.

We have no satisfactory way of observing the dynamic process of creative


4. See pp. 67-73, below.
adjustment to Coasean equilibrium which we have sketched, other than by viewing it indirectly in the evolution of the structure of industry. Nevertheless there is reason to believe that the rationalisation movement exercised a strong ideological and environmental influence on the managerial strategies of a significant number of interwar industrialists. In a catalogue of contributors to the literature and debates on rationalisation one has a list of some of the more important businessmen of the day. Sir Alfred Mond was involved in the Amalgamated Anthracite and International Nickel mergers; Sir Harry McGowan had presided over the creation of the Nobel combine by a series of mergers and acquisitions; together, the two men were the architects of Imperial Chemical Industries. Stamp, Barley and Mitchell were also senior managers in I.C.I. and engaged in merging companies in the chemicals and metals industries. Urwick was the founder of a pioneering and successful management consultancy which established itself as a leader in the field of advice on large-scale organisation. Sir Mark Webster Jenkinson, the accountant, Reginald McKenna of the Midland Bank, and Dudley Docker, an ex-President of the Federation of British Industries, gave support to rationalisation in engineering, shipbuilding, steel, electrical and chemical manufacture and they were particularly influential in the mergers with which Vickers were connected. The approval of the Bank of England and the government was also secured and this was instrumental in encouraging mergers in the cotton and iron and steel trades. Even the opponents of rationalisation were constrained to admit that "the blessed word, with its pseudo-suggestion of the scientific has already hypnotised quite a number of important people". The ways in which these proponents of rationalisation attempted to solve the managerial problem posed by the changes they recommended are the subject of the next chapter.

Chapter Three

MANAGEMENT AND THE GROWTH OF THE FIRM

Be not frighted, trade could not be managed by those who manage it, if it had much difficulty.

(Dr. Johnson)

Even amongst the industrialists who supported the principle of rationalisation and were convinced that there were important scale economies available to merged companies, there were many who were prey to doubts about the personal capacities of the men available to run them. "The most difficult thing at present", the Macmillan Committee were told by a banker "is to find a man who can control 10,000,000 spindles. Find that man and I think you will find five or six positions clamouring for him". As Sir Alfred Mond told the House of Commons in 1926:

The essential of the matter is 'management'. I have come to the conclusion that it is impossible for any human being efficiently to control any industry beyond a certain magnitude. At a certain point they begin to show the paralysis of red tape; they become so big that they are like a Government department. In my view it is impossible to organise industries on a national basis and keep them efficient.

Mond is here stressing individualism in management, an idea which remained an important part of the self-image of the business élite. If he himself was able some six months later to embark upon the creation of I.C.I., the largest merger in manufacturing (by market valuation) between the wars, it is nonetheless the case that the fear of diseconomies of scale deterred lesser men.

That a merger did not automatically push back the barriers of managerial diseconomies of scale was a problem often skipped by rationalisers, but central to the concern of contemporary businessmen and observers. Though there are

1. Macmillan Evidence, q 2356.

some increasing returns to relative size (in that increased market control both raises profits and reduces uncertainty, freeing entrepreneurial time for other tasks),¹ past and present experience indicates that considerable managerial difficulties are encountered when large numbers of companies are merged. As the Economist sceptically remarked:

The advocates of concentration and combination ... are accustomed to dwell on the advantages in respect of efficiency and economy of production and distribution which are derivable from the promotion of standardisation of output and specialisation of works, the establishment of uniform costings systems, the interchange of information, the combined research, the collective buying of raw materials, and the joint marketing which are thereby facilitated. That such advantages are so derivable is beyond question; but, despite some very striking instances, the fact that they have been generally so derived is still far from established.²

Management was the crucial factor in the realisation of economies of the type relating to the relative efficiency of firm and market in integrating economic activities. The transition from market relations to intrafirm organisation did not occur costlessly and automatically as a result of merger: it required considerable investment of time, capital and skill in the creation of an efficient administrative structure. Only firms with this organisational investment capacity could embark on an extensive and sustained merger programme with reasonable prospect of success.

The reality of this awareness among businessmen and its effect as a constraint on the growth of the firm by merger is shown strikingly in the internal records of large corporations:

I contend [wrote a senior manager of Courtaulds on a proposal to acquire other rayon companies] that our present Board and our present organisation is and will be for a considerable time incapable of running a monopolised industry.... Before therefore proceeding with the idea of trying to obtain control of either the viscose or acetate producers or both, I consider that we should put our own house in order.³

¹. Cf. the remark attributed to Henry Ford in Business, Sept. 1928, p. 129 that "time given to the study of competition is time lost for one's own business".


On this advice the programme of acquisition was abandoned and it was not until 1957 that Courtaulds acquired its main competitor, British Celanese. 

Again, when the government was investigating the possibility of mergers in the light castings trade, it naturally looked to the largest merged firm in the industry, Allied Ironfounders, to act as a managerial nucleus, but, here too, the original merger of 1929 had imposed so great a managerial strain on the company as to rule out further acquisitions for some years. "Any further concentration", it was reported, "could probably best be carried out through this Company but they feel that it would be unwise to start negotiations for this purpose until they have consolidated their present position".¹

Two pieces of evidence, however, counsel caution in the use of managerial diseconomies of scale as a blanket explanation of the cautious approach of some entrepreneurs to mergers and company growth in the interwar years. Firstly, there were a number of very large companies in various industrial fields which showed no evidence of chronically overstretched management. It is clear that organisations such as the Post Office (with 200,000 workers) and the L.M.S. Railway (250,000 workers) could function efficiently at a large scale, and as W.H. Coates of I.C.I. (which employed about 50,000 people in the U.K.), pointed out:

There is no industrial combine, so far as I am aware, registered under the Companies Acts which has a number anywhere approaching those figures. The speeches of the Chairman of the L.M.S., and also the results of the Company notwithstanding statutory and other conditions under which they have to work, show that you can have efficient management for such an organisation. It is hard to say that those economic units are too large.²

Secondly, and clearly related to the first point, there was a trend to larger firms in many industries between the wars, and many of them could claim, with the Distillers Company, that "this company has been a series of amalgamations. Its birth was the result of an amalgamation and the company has

¹. PRO BT 56 37, Office of the Chief Industrial Adviser, "Industrial Reorganisation", p. 27.
gone on amalgamating ever since".¹

It would thus appear to be more realistic to postulate a managerial limit to the rate of growth (rather than the size) of the firm, a modification which is gaining acceptance in the theoretical literature.² Where managerial skills were highly developed it was realised that the managerial constraint on growth need not be a significant one at all.³ The important variable was management. The analysis of the means by which barriers to growth were pushed back as the skills of companies in digesting acquisitions and in managing large extended organisations were evolved therefore offers an important key to the merger process and the development of the modern firm.

The co-ordination difficulties of large organisations have been analysed in considerable depth by managerial theorists.⁴ It is generally accepted that an executive can conveniently control only a limited number⁵ of subordinates: expansion cannot efficiently be achieved by adding to his span of control above this number; instead an extra hierarchical level must be added. However, a very large firm employing this principle needs a long hierarchy of command, and control loss increases as the chain of command is extended, partly because of the decreasing efficiency of communication, and, further, because of the expanded field of discretionary behaviour for

¹. Quoted in Wilson, Scotch, The Formative Years, pp. 396, 440.
². See e.g. Penrose, Theory of the Growth of the Firm; G.B. Richardson, "The Limits to a Firm's Rate of Growth", OEE, new ser., XVI, 1964. An alternative is to postulate a change in the capacity of the "representative entrepreneur", see F. Lavington, "Technical Influences on Vertical Integration", Economica, VII, 1927, pp. 30-1; or that large firms exhibited managerial diseconomies which were overridden by monopoly benefits.
³. See e.g. Florence, "Reply".
⁴. For a recent review of this literature see O.E. Williamson, "Managerial Discretion, Organisational Form and the Multi-Division Hypothesis", in R. Marris and A. Wood, eds., The Corporate Economy, 1971.
⁵. Six is often suggested as the optimum, though variables such as personality, team spirit and the complexity of the decision situation will, of course, permit a higher number (or dictate a lower number) in particular circumstances.
subordinates which is introduced. In some of the lower reaches of the firm, routinisation of duties might help to widen the span of control (and thus shorten the lines of command), but at the level of senior management this is clearly difficult in view of the strategic and tactical decision-taking required, especially in a growing firm, at those levels.

Technical progress was reducing some of these problems of communication and control in large corporations between the wars. In particular the telephone, perhaps the most important new instrument of communication to become widely available to managers, provided a means of rapid communication between departments or between geographically dispersed branches, and facilitated managerial control. Technical advances substantially cheapened and improved the quality of telephonic communication and there was a considerable increase in the number of business telephones:

Tab. 3


<table>
<thead>
<tr>
<th>Year</th>
<th>Caller connections</th>
<th>Subscriber connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>1914</td>
<td>371,417</td>
<td>805,543</td>
</tr>
<tr>
<td>1920</td>
<td>424,923</td>
<td>974,923</td>
</tr>
<tr>
<td>1925</td>
<td>512,031</td>
<td>968,433</td>
</tr>
<tr>
<td>1930</td>
<td>661,854</td>
<td>1,323,574</td>
</tr>
<tr>
<td>1935</td>
<td>838,892</td>
<td>1,279,552</td>
</tr>
<tr>
<td>1940</td>
<td>965,056</td>
<td>1,976,603</td>
</tr>
</tbody>
</table>

Sources: Archives of the Post Office Corporation; Post Office Telecommunications Statistics, 1927.

Notes: * includes internal and external extensions.
† resident plus business connections, 1914 and 1920.
‡ figure relates to 1915.

Problems both of information presentation and of co-ordination and control were also aided by the mechanisation of routine information gathering and processing.\(^1\) Whilst none of the interwar office machinery innovations had the same discontinuous effects on information and management in the large corporation as the computer (which was later developed from them), the claim of Powers-Sanas in 1930 that "without ... mechanisation of office accounting the rapid growth of business and the formation of large consolidations would have been difficult if not impossible"\(^2\) clearly contained more than a grain of truth. Furthermore, the effect of mechanisation was not only to cheapen information processing for large firms, but, often more significantly, to stimulate new thought about systems of management control. At a Management Research Group meeting in 1937, for example, "it was generally agreed by members after a short discussion [on office machinery] that of the saving in cost 10% was effected through mechanisation and 90% by the general overhaul of existing systems".\(^3\) It was through such structural changes in management that the more significant organisational changes of those years had their impact on the growth of the firm.

The first reaction to the stresses of growth on company management was often the functional differentiation of the managerial task. The increasing division of labour in management is shown by the growth of specialised professional associations and institutions and the expansion in the employment of specialist managers.\(^4\) Most of the large companies which were members of


3. M.G. Minutes, 10 Nov. 1937, p. 3 (Jard Papers).

Management Research Group No. 1, which had been founded in 1926, could send functional specialists occupying senior central office positions to group meetings discussing specialised topics in personnel, finance, accounting and technical matters. The recommendation to "spread overheads" in such contemporary management literature refers, among other things, to the managerial economics of scale available in the use of such specialists and also to the wider use of information the cost of acquiring which did not increase with firm size. The proliferation of functional specialists enabled a central office, whilst assuring managerial functions of an advisory or routine kind to specialists, to concentrate the efforts of entrepreneurial peak co-ordinators on the initiation and planning of general business policy and the efficient oversight of the manufacturing divisions of the firm.

The evolution of specialist functions did not only involve the differentiation of central office tasks, but also encouraged and facilitated the introduction of new methods for the oversight and assessment of subsidiaries, in particular through developments in accountancy. Although cost accounting had a long pedigree as a means of achieving efficiency through managerial control in business, it could still be claimed in the war that British businessmen had not adequately come to terms with it, and the perfecting of cost-finding as an aid to industrial management", as Josiah Stamp pointed out in 1929, was "almost entirely a development of the last 20 years".

1. MRG Minutes, p.54. The companies included I.C.I., Standard Telephones and Cables, the Associated Equipment Company, Metal Box and Dunlop.


Stamp, himself a director of I.C.I. and chairman of the L.M.S. Railway, gained his experience of large scale administration not in business or accountancy but in the Inland Revenue, and there was a steady succession of men from that department in the higher echelons of the I.C.I. management, beginning with W.H. Coutts, the right hand man of the chairman between the wars, and continuing with Paul Chambers and other directors of more recent times. Other large businesses, notably Vickers, recruited senior management from retiring military personnel, but not all firms could rely on such pantouflage as a source of recruitment of men experienced in large scale bureaucratised administrative procedures and control. The demand for more rigorous methods of financial assessment and management information from large businesses was thus mediated by a rapid rise in the proportion of accountants working in industry rather than in private practice. Accountants, who had previously only rarely taken important positions in the directorates of large companies, now began to play a more significant part. At the Dunlop Rubber Company, for example, P.R.N. De Paula (who had been Professor of Accounting at the London School of Economics in the 1920s) was invited to become Controller of Finance in 1929. He developed a comprehensive system of internal audit, costing and forecasting, and Dunlop's finance division was able to provide information for the control of costs and investment, within a framework of annual budgets for subsidiaries. De Paula himself repeatedly stressed the relevance of these methods to overcoming the managerial diseconomies of scale sometimes encountered by merged enterprises, by securing centralisation of control with decentralisation of responsibilities. The career of Francis D'Arcy Cooper at Unilever also indicates the expanding role of the accountant.

1. De Paula, op.cit., p. 207.
2. Dicksee, op.cit., p. 43.
in solving the organisational problems of large enterprises. Coming to Lever
Brothers from the accountancy partnership Cooper Brothers in 1923, he was
largely responsible for consolidating the extensive and disparate parts of
the empire built up by Lord Leverhulme, and, succeeding the founder as
chairman of the company two years later, he eventually became the chairman of
the merged Unilever company and pursued his policy of consolidation and
rationalisation of subsidiaries there throughout the 1930s.

The nature of the need for, and the disadvantages of, the centralised
control which was being facilitated by these innovations, was succinctly stated
in 1930 by Lord Kelchott (formerly Sir Alfred Mond and then chairman of I.C.I.)
when he said that "the real problem of rationalisation and merging of big
enterprises consists in effective central control with sufficient elasticity
lower down to allow action to be neither arrested nor delayed". In many com-
panies this was to involve the splitting of activities on a regional or
product group basis, and the creation of independent profit centres
("divisions") responsible for their performance to a peak executive, which
controlled finance and capital investment. Since Kelchott felt that I.C.I.
had attained these objects, that company is an appropriate one in which to
study the evolution of a decentralised system of subsidiary management in
harness with central office control.

At the time of its formation, in 1926, I.C.I. was the largest merger in
British manufacturing industry in terms of its capitalisation, an amalgamation
of four companies all of which had previously been extensively engaged in
mergers. The two larger partners - Nobel and Imperial K. R. - dominated the
explosives and alkali sections of the chemical industry respectively, and,
accepted with the British Dyestuffs Corporation and the United Alkali Company,
they formed a diversified chemicals and metals group which had a market value

at the time of its formation of over £500 millions. The company continued to
grow both internally and by acquisition, and no insurmountable managerial
barriers to expansion seem to have been reached. The managerial structure of
I.C.I. should, then, offer some indications of the expedients by which large
organisations were able to overcome managerial limits both to the absolute size
and to the rate of growth of the firm. Its managerial structure seems to have owed most to the largest partner
in the merger, Nobel Industries Limited. Brunner Mond, which was in the throes
of a managerial reorganisation at the time of the merger, envisaged a somewhat
looser framework of control but already in the provisional agreement to merge
it was accepted that the new company would adopt a Nobel-type structure.
Nobels had its origin in the British end of the Nobel Dynamite Trust which,
having been split off from its German counterpart in the First World War,

2. The analysis of the managerial structure at Nobels and I.C.I. which follows
is largely based on the following published materials:
Reader, I.C.I., chapters 14. 17.
Stamp, "Amalgamations" in his Some Economic Factors in Modern Life.
R.A. Lynex, "Imperial Chemical Industries" in G.B. Rilward, ed., Large Scale
Organisation, 1950.
J.H. Mitchell, "Methods of Inculcating Modern Management Principles in Large-
Scale Undertakings", Sixth International Congress of Scientific Manage-
ment, Development Section Reports, 1935, pp. 32-36, and his
"The Relationship between Headquarter Departments and the Operating Groups of
Imperial Chemical Industries Ltd.", Seventh International Congress of
Economist, 15 April 1933, pp. 810, 829-30; 5 March 1938, p. 511; 9 April
1938, pp. 96-7.
In addition the following manuscript sources proved particularly useful:
(from the I.C.I. archives):
H.M. Bunbury, History of I.C.I.
Managing Director's Reports to N.I.L. Directors.
I.C.I. Finance Committee Minutes 1927.
Sir Harry McGowan, "The Organisation of a Modern Large Scale Unit in 'Industry'",
typescript, read 1 Dec. 1935 at Ashridge.
(from the Ward Papers):
MRG Minutes, 27 Feb. 1935, "Management Problems connected with the taking over
amalgamated with its main British competitors - some 30 or more companies in all - to form Explosives Trades Limited, the company changing its name to Nobel Industries Limited in 1920. Centralisation of these separate interests was first required and it was for this purpose that the Nobel structure was originally devised. Within six years of the merger, a central research department had been established at Ardmeer, and production had been centralised in the most efficient factories, the remainder being closed down and sold off or transferred to other uses. This seems to have been achieved by the efforts of H.J. Mitchell, aided by John Rogers and Josiah Stamp, in creating a central office structure at Nobel House in London which could handle the managerial problems of consolidation and growth. Routine functional responsibilities such as central purchasing, personnel, publicity, legal, taxation and investment matters were centralised at Nobel House. The legal form of control for the original subsidiaries and for new acquisitions (of which there were many) was for Nobel Industries to become the sole director and for a delegate board to be appointed, responsible to the Nobel directors who served on the main working committees of the Nobel Board - the Management Committee and the Finance Committee. The assessment of the performance of the subsidiaries was facilitated by a unified system of merger accountancy which was developed by Josiah Stamp at a central Secretarial Department. This was fully operational by 1923, showing the financial results of all companies in the group on a common basis. Two other central departments - the Development Department under Todhunter (which investigated proposals for diversification and technical innovation) and the Central Executive and Advisory Department under Mitchell (which acted as the board secretariat and supervised trading agreements and commercial intelligence) - had important entrepreneurial roles. In particular they jointly (and sometimes with the assistance of outside accountants), assessed potential acquisitions in their financial, commercial and technical aspects. The skill of their premerger assessments, together with the central post-merger control, facilitated the assimilation of acquisitions and the
release of synergy in the mergers which were undertaken. Growth was thus self-sustaining as the financial and managerial "surpluses" generated were made available for further expansion.

When this centralised system had been successfully developed it appears that some devolution of responsibility onto the manufacturing units was attempted, Mitchell aiming at "the retention at H.Q. only of the ultimate control and of certain specialised service departments".¹ The metal manufacturing subsidiaries were organised from Birmingham rather than from Nobel House and although financial control and rationalisation of capacity was enforced, they were kept on a loose rein. Although the major ingredients of a financially centralised group with decentralised divisional management which later developed in I.C.I. were present in this structure, they were there only in germ. It was only with the increase in size after the I.C.I. merger that a full system of divisionalisation emerged. Even then, however, full centralisation of I.C.I. itself was to precede the programme of decentralisation.²

Although Sir Alfred Mond became the first chairman of I.C.I. when it was formed in 1926, men from Nobel occupied strategically important positions in the new company. The considerable managerial "surplus" of the Nobel group (indicated by the reported drying up of attractive investment possibilities in its Development Department's Reports) was now released upon the task of organising I.C.I. Investment management was soon centralised in the Finance Committee, and an Executive Committee, consisting of directors with functional responsibilities, controlled all new capital expenditure and provided a central

² It appears to have been the view of the Nobel directors that such a cycle of centralisation and decentralisation was necessary in a merger, centralisation initially providing unified accounting and personnel policies and being followed by decentralisation to encourage local managerial initiative and efficiency, see, e.g. McGowan, "Large Scale Unit"; J. Stamp "The Management and Direction of Industry", 1930 broadcast reprinted in his Criticism and Other Essays, 1931.
forum for policy making. Banking, purchasing, commercial, staff, and statistical control policies were very quickly standardised and centralised. In short, an enlarged central office of service departments and strategic entrepreneurial committees was developed similar to that which had obtained in Nobels. The rationalisation of production capacity on the basis of technical and financial reports on subsidiary factories had by the late 1920s been applied to the whole range of I.C.I. manufactures. Expansion continued as new products were manufactured and new subsidiaries were acquired (after investigation by the central Development Department) in the metals, fertiliser, dyestuffs and general chemical fields. The system of regional sales offices originally developed by Brunner Mond was taken over by the group and became the sales offices for the majority of I.C.I. products.

This centralisation brought lower costs through enhanced buying power and rationalised production, joint distribution and selling, better financial control and improved cash flow, and better use of scarce research, commercial intelligence, and other managerial talent. Nevertheless the structure soon showed signs of the weaknesses of centralised decision-making, and between 1929 and 1931 manufacturing was decentralised to 8 "groups", each with a chairman and a delegate board consisting of local executives and liaison officers from head office.

The model for the groups was the Birmingham end of the business which had been inherited from Nobels and supplemented by the acquisition of further non-ferrous metal companies. Traditionally independent in Nobels, this group was in 1928 reorganised and each of the four companies in it was also decentralised. This was soon recognised as an appropriate model for the larger chemical subsidiary companies also and the other groups were set up in the following year.

Inter-group policy was co-ordinated by a Central Administration Committee on which the group chairmen sat together with the senior I.C.I. functional officials; and, formally, two subcommittees of the main Board, the Finance
Committee and the General Purposes (formerly Executive) Committee, exercised ultimate control. Channels of communication were thus established by the common membership by central and "group" (i.e. local) executives of central committees and "group boards". The main Board's authority was exercised through control of capital expenditure on the basis of past results (assessed by the unified accounting systems and interdivisional market pricing which had been introduced during the centralisation phase), and of future prospects (assessed by technical and commercial experts). Finance thus remained centralised and, through performance measurement and annual budgeting, controlling.
By the 1930s, then, the company had clearly developed into a modern decentralised, divisionalised corporation with a functionally specialised head office exercising overall financial control and providing managerial and financial services to the divisions ("groups"). It could be seen as a federation of semi-independent firms with the central office providing a highly efficient capital market, management consultancy, and service agency. The full logic of such a structure had not by the close of the interwar period been fully worked out at I.C.I. The chairman, by now Baron McGowan of Ardeer, maintained autocratic central control and insisted, for example, on central office control over pricing policy, so that individual profit centres were not in fact wholly autonomous, and the "groups" themselves could not therefore be held fully responsible for commercial results which emanated from company not "group" policy. The "groups" were thus concerned principally with efficient works management and it was in the sphere of production rather than of commercial affairs that decentralisation was really effective. Nonetheless, for all its limitations the structure clearly conformed to the paradigm of the multi-divisional corporation. Aided by more favourable demand conditions and more successful participation in cartels than many less fortunate companies experienced in the depressed 1930s, this structure enabled I.C.I. to undertake profitable expansion, both internally and by acquisition, without the operation of the serious managerial constraint which, as we have seen, limited the rate of growth of other corporations of comparable size.

Although other firms were developing towards a structure of decentralised divisions in the interwar years, I.C.I. appears to have advanced further than most, and it would be quite wrong to take its success in solving problems of diseconomies of scale as typical. A full analysis of this question must await a definitive study on the lines of Alfred D. Chandler's classic description
of the evolution of enterprise structure in the United States, though it would appear that (as Chandler found for the United States), the general adoption of a divisionalised structure was delayed until the postwar period in Great Britain. Nevertheless interwar management literature and interfirm contacts did help to spread knowledge of budgetary control and divisionalisation. Accountants were quickly familiarised with the problems of imposing uniform accounting procedures on a merger and of controlling capital expenditure by forward budgeting and management specialists frequently discussed the desirable level of decentralisation. The experience of American decentralised management was well publicised and large British businesses interchanged

1. This was the first historical work to develop the multi-division hypothesis systematically, see A.D. Chandler, Strategy and Structure, Chapters in the History of Industrial Enterprise, Cambridge, Mass., 1962. There is a close parallel with Britain in that in the U.S.A. also it appears that a firm in the chemical industry - Du Ponts - led those changes, though they happened in the early 1920s there. At that time it appears that Nobel6 were in fact adopting the Du Pont centralised structure of 1919 as Du Ponts were abandoning it, see Reader, I.C.I., p. 390. Clearly, however, the I.C.I. structure of the 1930s closely resembled that at Du Ponts. L.F. Haber, The Chemical Industry 1900-1930, 1970, p. 341, takes the view that the committee structure of I.C.I. importantly differentiated it from Du Ponts. In so far as it was not until 1944 that single I.C.I. directors (as opposed to members of the Central Administration Committee) were made formally responsible for the results of a single group which they headed, the committee system did represent lingering centralisation. However the similarities of the evolution of decentralised enterprise in the two countries seem more striking than the differences.

It is quite plausible that both I.C.I. and Du Pont worked out the solution independently (as various American corporations did) though the two companies co-operated closely on other matters. We await the second volume of W.J. Reader's history of I.C.I. for a definitive study of this question.

2. For the extent of decentralisation in 1957-58 see R. Harris and M. Solly, A Survey of Large Companies, Institute of Economic Affairs, mimeo, 1959.


Nevertheless the creation of a central office and the adoption of a divisional structure with central financial controls was by no means universal. In smaller and medium-sized companies direct centralised control of all subsidiaries seems to have remained possible and decentralisation of responsibility was limited. The majority of the larger mergers seem to have adopted a decentralised system more by default than, as at I.C.I., by choice after an initial centralising phase. Where no strategy of decentralisation developed, the holding company form of control was most commonly used and internal competition of an administered kind was allowed to persist with only minimal policy and financial controls being exercised from head office. In this sense a decentralised system was the natural form of management in a company growing by acquisition, though there was great variation in the degree of control which was adopted.

Associated Electrical Industries, which had been formed in 1923 by the consolidation of British-Thomson-Houston and Metropolitan Vickers, continued to run them separately for many years, with loose connections through staff meetings (for exchange of information rather than managerial co-ordination) and a central financial control which was very much at arm's length. Other

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1. Especially through the Management Research Groups, one of which (no. 1) was reserved for large companies. Also when the Lancashire Cotton Corporation foundered because of managerial diseconomies, its executives were advised by managers from Dunlop on decentralisation, see Lancashire Cotton Corporation, Main Board Minute Books, 1931-1932, passim (L.C.C. Archives) and correspondence with Dunlop and L.C.C. in Bankers' Industrial Development Company Archives.


3. W.G. Hiscock, "Centralisation or Decentralisation", British Management Review, v. 4, no. 3, May 1940; see also Sir Gilbert Garnsey and T.B. Robson, Holding Companies, 3rd ed. 1936, ch. 4. Mr. H.M. Davies investigating the 80 largest U.K. nonfinancial corporations in 1935 found that 23 were purely holding companies, 51 holding and operating, and only 6 purely operating, see P.S. Florence, "Science and the Social Relations of Industry", Sociological Review, 1939.

companies described as loosely-run confederations of subsidiaries with little central control include Tube Investments, Imperial Tobacco, Tootal Broadhurst Lee, Hawker Siddeley, Guest Keen and Nettlefolds, and Electrical and Musical Industries.¹ If this looser structure prevented the full realisation of all the organisational economies of rationalisation, it nevertheless gave them access to the benefits of pooled overheads, risk-spreading, the interchange of commercial and industrial methods, collusive pricing policies and some degree of co-ordination of new investment. Provided that no diseconomies resulted from their large scale, these firms could justify their decisions to merge on the grounds of such benefits.

However, many firms which failed to develop an appropriate balance of centralisation and decentralisation failed to create the managerial surplus and profits stream which was necessary if acquisition activity was to be sustained. Indeed in some cases, not only did they take time off to digest their growth but some were also obliged to engage in partial demerger to improve the digestion problem. Thus Lever Brothers sold off some of their less manageable assets worth £1½ millions in 1925 and Vickers divested themselves of their interests in motor cars, electrical engineering and non-ferrous metals, as well as their Canadian subsidiary, in a far-reaching reorganisation in the late 1920s.² Others foundered so badly that even this kind of extensive surgery was inadequate and their merger careers ended in bankruptcy or disintegration.³ However the majority of companies which found initial managerial diseconomies after merger of interests - such as English Electric,

¹ Edwards and Townsend, op.cit., pp. 66, 220-7, 293; G. Turner, Business in Britain, 1969, pp. 52, 352; M.G., Tobacco, pp. 38, 168; Economist, 31 Oct. 1937, p. 825. Unilever, especially under Leverhulme in the early 1920s was also run as a loose confederation, see Wilson, Unilever, v. 1, ch. 19.


³ E.G. Amalgamated Industrials, Harper Bean, Armstrong Whitworth, British Glass Industries, STD Motors, Northumberland Shipbuilding. However, some of these cases were complicated by non-managerial factors such as promotional fraud and overcapitalisation.
Unilever, and the United Steel Companies - were able to reorganise, and eventually, by the imposition of appropriate managerial and financial controls, enabled themselves to embark upon a further programme of significant acquisitions.

The rate of growth of large firms by merger (and indeed by internal growth) was, then, significantly constrained by the management variable. Though Nobels could, in a multi-firm merger, double in size in 1913, then continue a programme of consolidating and diversifying acquisitions over the next eight years, and subsequently by merging with three other companies triple in size to become I.C.I., which then itself expanded by further acquisitions, the majority of companies had to accept a more leisurely pace of growth. Multifirm amalgamations had been common before the war, but, implying as they did growth rates for the largest "core" firm in the merger of perhaps twenty or thirty times, had met chronic managerial problems. It is probably for this reason that multifirm amalgamations (which one might define for these purposes as mergers involving more than a quadrupling in size in relation to the largest partner) were rare between the wars. A prominent and significant exception was the Lancashire Cotton Corporation, a merger of almost a hundred small firms, which predictably ran into management problems. Even a merger of seven companies, could run into grave problems. A committee


2. Macrosty, Trust Movement, passim.

3. This definition excludes a merger such as Nobels (Explosives Trades) in 1910 which, though including many firms, only involved a doubling in size at the time of merger, the former Nobels company acting as the nucleus of the merged group. Nobels performed the same nuclear function in the I.C.I. merger. Cf. pp. 145-9, below.

4. Lancashire Cotton Corporation, Main Board Minute Books, 1929-1937, passim (L.C.C. Archives); correspondence relating to L.C.C. in the archives of the Bankers' Industrial Development Company.
of enquiry into Crosse and Blackwell in 1924 had to recommend the writing down of the capital by £2 3/4 millions, finding:

... serious duplication and overlapping in management [and] that the benefits which had actually been derived from combination were so few as to be practically non-existent; and, worst of all, that the associated firms had been competing with one another as strenuously as ever.¹

There could be no more impressive testimony to the fact that rationalisers could give far too little attention to the management factor for the subsequent health of their creations.

On the other hand, the firms which did solve the problems of large-scale organisation and of discontinuous digestion of acquisitions were able to achieve high growth rates through merger, involving a doubling or tripling of firm size in a year. Companies like I.C.I., Reckitts, Fisons, Metal Box, British Plasterboard, Distillers, Tube Investments and many other leading acquirers in the large and medium company size ranges could and did grow rapidly, though they rarely attempted to acquire more than one large or three or four small or medium-sized companies in a year, preferring to keep their rate of growth to a manageable level. Such companies, and especially those like I.C.I. which had solved the current organisational problems of merger, were already approaching rationalisation, monopolisation and company growth with increasing confidence. They were active in important sectors of the economy and other industries were exhorted to follow their example. In 1935 the Industries Group of P.E.P. suggested that:

Now that the technique of large scale production is much nearer solution owing to the realisation that the advantages of centralised control can only be achieved through functional and administrative decentralisation it cannot be overemphasised that the industry must face up to the necessity of further amalgamations.²

The management developments which were thus both an inspiration of and a response to the merger waves, were an integral part of the rationalisation

¹. Quoted in Fitzgerald, Industrial Combination, pp. 193-4.

movement and a condition of its success. As firms solved these problems, economic co-ordination by competition and the market began its retreat. If a misquotation from Burke be permitted, sophists, economists and calculators were coming in the large decentralised corporation to supplement and partially to succeed the more inchoate signals and disciplines of the market.
Chapter Four

THE ROLE OF GOVERNMENT

... the function of the State is not to preserve the competitive system ...

(J.H. Jones, Social Economics, 1920, p. 192)

Government interest in mergers is not as old as other forms of intervention in trade and industry but it has a respectable ancestry. The merger in 1709 of the two East India Companies, for example, was made desirable by government action and aided by a parliamentary reorganisation of capital,¹ and in the nineteenth century government had inevitably been involved in the regulation of "natural monopolies" such as railways and in the amalgamation of companies specially incorporated by Act of Parliament.² Nevertheless, radical abhorrence of "monopoly" did not focus on manufacturing industry, for it was not until the latter decades of the nineteenth century that a permanent tendency to merger and increasing scale in manufacturing industry was noticed. By the interwar period, however, these questions were at the forefront of political and economic debate. It was inevitable, then, that the role of the government in the process should begin to be more seriously discussed. The recent opening of much public and private archival material to scholars provides an opportunity to reassess the impact of this evolving awareness of mergers on public policy and the impact of that policy on private decision-making.

It is paradoxical that Britain, the first industrial nation, was not among the first to take powers to control that growth of merger and concentration of economic power which is typical of mature industrial economies. In

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the United States there have been antitrust controls since the Sherman Act of 1890 and Germany also had a system of public supervision of monopolies and cartels from 1923. In Britain, by contrast, there was no general and permanent public control of monopolies until the 1948 Monopolies and Restrictive Practices (Inquiry and Control) Act. British mergers were not subject to general statutory control until the Monopolies and Mergers Act of 1965.1

Whilst the extent of merger and monopoly was almost certainly smaller in Britain than in some foreign countries, Britain did experience large waves of merger activity and the gap is long – for example, 58 and 51 years respectively between the United States' Sherman and Clayton Acts and the parallel British Acts of 1948 and 1965 – than one would expect from any international differences in merger rates. Some explanation is, then, required for the historical absence of merger legislation. In practice this question cannot be separated from the general absence of an "antitrust" policy (that is including, in addition to merger control, the surveillance of monopolies and restrictive practices), for they were the product of common influences and of common attitudes towards government action which often failed to distinguish between the three components. Furthermore, it will later be argued, the absence of the antitrust package as a whole had an ambivalent effect, and the interaction between its three components was, in its consequences for merger activity, a complex one.

The freedom which English common law allowed to actions in restraint of trade is a commonplace and interwar case law development merely confirmed the general toleration of industrial restrictive practices.2 The common law

1. Though there were previously powers under exchange control regulations to prevent mergers with companies abroad, and also controls over the public utility sector.

abhorrence of "combination in restraint of trade" had for practical purposes disappeared. Trade associations could fine members for price cutting, control their output, use the boycott or fighting company, and eliminate external competitors by exclusive dealing arrangements, rigid tying contracts or deferred rebates, with no interference from the law. There was one weakness in their legal position: "they cannot prevent their members from leaving them, and they cannot always, even while he remains a member, enforce the contract against him". The denial of legal enforceability to contracts in restraint of trade placed Britain in an antitrust position somewhere midway between America (where cartels were proscribed) and Germany (where cartel contracts were fully enforceable). The British law could and did act as sufficient discourage to some cartels, but the disability was not a continuing one, for whilst a number of associations did in fact break up because of this in the depression, court decisions showed "a definite movement from the protection of individual economic freedom to the recognition of the legitimate purposes of group control". The judiciary showed no disposition to increase the severity of the law against restraint of trade, no doubt sharing Lord Chancellor Haldane's pre-war view that competition "may, if it is not controlled, drive manufacturers out of business, or lower wages and so cause labour disturbance" and thus may not be synonymous with the public interest.

A fortiori no change occurred in the legal view of "combinations" which took the form of financial unification. The amalgamation of previously independent and competing enterprises was not abhorred by the law. I have been

able to trace only one attempt by a judge to prevent a merger: the case of John Stephens Limited, in which Mr. Justice Eve, a gentleman whose judicial acrimony appears to have fallen impartially on all financial bureaucracies, attacked a consolidation on the grounds that it was "a most villainous and mischievous form of finance" which was "against the public" because it would raise prices. He was so obviously misguided and ill-tempered that his judgment was reversed after only two days by the Court of Appeal:

... the court was not concerned to see how the alterations would affect persons outside the company, and, so long as combination was not illegal, it was not for the court to enquire whether the interest of the purchasers would be injuriously affected.

As a lawyer subsequently commented:

The huge transactions frequently involved [in a merger] may give scope for the best brains in finance, accountancy and conveyancing, but they seldom call for the interpretation of legal principles by our courts.

Any serious control of restrictive practices or of merger between the wars would therefore have to depend not on the common law but on the statutory creation of a policy. The nearest approach to this came with the many committees on trusts which deliberated at various times between 1918 and 1921. The first, the Committee on Trusts appointed by the Ministry of Reconstruction early in 1918 to review the problem of trusts after the war, noted the rapid expansion of trusts both before and during the war, and recommended control by publicity, a prescription endorsed by the Committee on Commercial and Industrial Policy. However both committees also stressed the benefits of the activities

3. Ibid.
4. Ibid.
6. Committee on Trusts, Report; Committee on Commercial and Industrial Policy after the War, Final Report, Cmd. 9035, 1918.
of trade associations and combinations and were impressed by the need for large scale organisation to meet German and American competition, and by the beneficial effects of concentration, and of co-operation amongst manufacturers for the purposes of standardisation and production planning, which had been encouraged by the Ministry of Munitions in the War. This ambivalent approach to mergers, deriving from the concurrent incidence of social benefits and social costs, was to be present in later discussions of merger policy, and, of course, remains today as the central dilemma of antitrust policy.

During the War a system of government price restriction and control of industry had grown up, as a necessary adjunct to the policy of co-operation with labour in the transformation of the economy to a war footing. ¹ There was a general feeling in government circles at the end of the war that such controls should be abandoned, typified by Winston Churchill's statement, four days before the Armistice, that:

    Our only object is to liberate the forces of industrial enterprise, to release the controls which have been found galling, to divest ourselves of responsibilities which the state has only accepted in this perilous emergency, and from which, in the overwhelming majority of cases, it had far better keep itself clear.²

The price controls were a limited safeguard against unwanted public outcry against profiteering and monopoly, but between 1919 and 1921 most of them were in fact abandoned.³ However, by the Profiteering Act of August 1919, the earning of "a profit which is, in view of all the circumstances unreasonable" was made a punishable offence. Though mergers could not under this Act be investigated qua mergers, they came within its penal clauses if they charged "unreasonably" high prices. The Standing Committee on Trusts which was set up

¹. See, e.g., Asquith Papers, 14-117, Asquith to Asquith, 10 March 1915.


⁴. As a subcommittee of the Central Committee at the Board of Trade which operated the Profiteering Act.
to administer these provisions began its meetings in the optimistic belief that it was the harbinger of wider legislation. Its Chairman, Charles McCurdy (formerly Food Controller and a Coalitionist Liberal M.P.) reminded its members at their first meeting October 1919 that:

... we are asked to set up machinery for the purposes of starting a general bureau of information on the subject, and ... the government have already started with legislation on these lines which will be made permanent in the Autumn.¹

Fifty-seven detailed reports on trusts and prices were to be published in the next two years but McCurdy's hope of permanency was to prove illusory. As Beveridge judged,² the Act was essentially a window-dressing device, and lasted only as long as it was useful in that capacity. It became a pawn in a political strategy which saw no permanent place for government intervention in industry. With men like Bevin, Hobson and Webb as members it placated the left and those who had been members of the original Committee on Trusts, but the quality of the membership was a guarantee of nothing more than the provision of information of a usable kind. The Committee was maintained essentially as a safety valve and, given its meagre powers, could provide no coherently articulated antitrust policy. In the Lever Brothers case, for example, it could not have reversed the process by which Lord Leverhulme had built up his dominant position in the soap industry by acquisition of competitors. The Committee pronounced not on the merits or otherwise of this process of acquisition but on the demerits of the subsequent price increases. With its initially small powers fast ebbing away it soon lost all credibility and even lacked the power to require the production of information which it considered relevant.³ It is hardly surprising

1. BT/55/55, Minutes, 6 October 1919.
3. For a review of the weaknesses of the committee, based on its published reports, see Recs, Trusts in British Industry, ch. 11. The surviving minutes of the committee (BT/55/55) confirm the gradual ebbing away of the political support and power of the committee. See also Wilson, Unilever, v. 1, pp. 247-8; Jones and Marriott, GEC, p. 31.
that antitrust was not an important factor in business decisionmaking, and merger activity, far from being reduced, reached a peak in 1919-1920.¹

The history of the Committee on Trusts, though in the event an historical cul-de-sac, is worth inspecting because it does help us to understand the basic political determinants of the peculiarly retarded development of monopoly policy in Britain. The political origin of control under the Profiteering Act had been a desire to avoid the social unrest which would follow rapidly rising prices.² In April 1920 the Cabinet went on to consider a Trade Monopolies Bill and plans for extending and strengthening government powers in that field. Though the Bill was in fact deferred to a later session (and in the event never became law) the cabinet debate on the subject is illuminating. It centred round two conflicting political pressures; on the one hand there was "the widespread expectation of the public that the evils of profiteering would be vigourously [sic] handled" and, on the other, "the effect of the newly introduced Budget on the business interests represented in the House of Commons and their attitude to the new taxation proposed, and generally, to any undue interference with trade".³ The balance of these considerations was calculated to favour acquiescence in labour demands for control of profiteering, for, as they had decided at a previous meeting, they "could not afford to take risks with labour. If we did, we should at once create an enemy without our own borders and one which would be better provided with dangerous weapons than Germany".⁴ By early 1921, however, food prices had been falling for some months and the political initiative was

1. 2.136, below.

2. Special Report of the Select Committee on High Prices and Profits, with the Evidence, Cmd. 166, 1919; PRO/CAB/25/11 [8 August 1919, discussion of Profiteering Bill]; and cf. the genesis of the German cartel law in the inflationary conditions of 1923, see H. Liefmann, Cartels, Concerns and Trusts, 1932, p. 100.

3. CAB/23/21 [20 April 1920].

4. CAB/23/15 (quoted in A. Warwick, Britain in the Century of Total War, 1968, p. 147). Middle class disquiet at rising prices was incidentally provided with a safety valve, see R. Henriques, Marcus Samuel, 1960, pp. 633-6, [Profiteering enquiry into petrol.]
shifting away from the interventionist liberal coalitionists and their Conservative allies to laissez-faire and "anti-waste" elements. The Profiteering Act was allowed to lapse in May 1921. The protests of the Standing Committee on Trusts and subsequent pleas for the machinery to be resurrected fell on the deaf ears of the ministers at the Board of Trade. The Act had been part of the mechanism by which wartime controls were abandoned by a government which had no taste for intervention in the private sector except where decontrol would menace social stability. By 1921 many Conservatives were taking the view that "propaganda" against profiteering was doing more harm than good and even that it had caused the depression through a "consumers' strike". Thus, even if the government itself had had the will, it was increasingly undesirable politically to adopt an interventionist line in these relatively new areas of state activity.

The position achieved in 1921 was preserved intact throughout the interwar period. Although the possibility of antitrust laws was considered, the Balfour Committee reflected official opinion when it concluded that there was a... danger that a Bill, even if carefully constructed and safeguarded in its scope, might easily be so changed in Committee as to become either a formidable impediment to industrial development, or alternatively a dead letter...

and that

1. BT/55/55, minutes of the 65th, 69th and 71st meetings, April-May, 1921.
2. E.g. Royal Commission on Food Prices, First Report, Cmd. 2390, 1925, paras 342-4.
3. Sir Philip Lloyd-Greame, 139 H.C. Deb. 5s., cols. 602-3. He did, however, promise legislation on trusts in a future session, but no legislation was in fact introduced though he remained at the Board of Trade for most of the next decade. The view that his assurance was not honoured because he fell from power with the Lloyd George coalition in October 1922 (see Political and Economic Planning, Industrial Trade Associations, 1937, p. 19) appears then to be wanting. It is a change in the underlying situation not a change of régime which explains this policy development.
4. E.g. H.G. Williams, Politics and Economics, 1926, p. 159. Williams later became a junior minister at the Board of Trade.
5. Though there were residual price surveillance powers in dyes and explosives, and the prices of buildings and food were reviewed.
... the case for immediate legislation for the restraint of such abuses as may result from combinations cannot be said to be an urgent one.\footnote{1}

The allegation that Parliament, because it might do too much (or, apparently a matter of equal concern, too little!) should not attempt to legislate, was placidly received by a predominantly 

\textit{liberal} Parliament which acquiesced in this view of its own limitations. Throughout the interwar decades the business lobby, which had been prominent in the Cabinet's calculations on anti-trust policy in 1920, remained important, some 39\% of Conservative M.Ps in that period being businessmen.\footnote{2} In 1938, of the 415 M.Ps supporting the National Government, 181 possessed a total of 775 directorships and many of the remainder had family and personal connections with businessmen and widespread investments.\footnote{3} The Federation of British Industries maintained close links with between 70 and 80 M.Ps, seeking to neutralise criticism in the House of member firms such as J. & P. Coats which occupied monopolistic positions.\footnote{4} Industrialists regularly addressed the 1922 committee,\footnote{5} and by the 1920s the tradition of businessmen serving on a Board of Trade advisory committee was firmly established and welcomed by the Cabinet.\footnote{6} However, it was via the House of Commons more crucially than on advisory committees that business groups such as Docker's Birmingham group could exercise power and

\begin{itemize}
\item \begin{flushright} [Balfour] Committee on Industry and Trade, Final Report, Cmd. 3282, 1929, pp. 191-2. The committee did suggest that an investigating tribunal might be valuable, however, and two minority reports stressed the need for more positive action.\end{flushright}\footnote{1}
\item J.M. McEwen, \textit{Conservative and Unionist M.Ps. 1914-1939}, Ph.D. Thesis, London University, 1959, ch. 2.\footnote{2}
\item S. Haxey, \textit{Tory M.P.}, 1939, p. 37 and \textit{passim}.\footnote{3}
\item P. Mathias, \textit{History of the FBI}, typescript, pp. 33-4, 44.\footnote{4}
\item E.g. Baldwin Papers, v. 32, p: 179 (Sir Harry McGowan, 1934 address on the advantages of mergers).\footnote{5}
\item Lord Swinton, \textit{I Remember}, n.d. (1948?), p. 27.\footnote{6}
\end{itemize}
influence. In such an atmosphere of businessmen's government, *laissez-faire* and capitalism were naturally and uncritically accepted as the ideal form of economic organisation. The debate on capitalism versus socialism generated myths and dogmas strengthening the adherence of the right to a belief, already outdated by structural change, that the competition of disaggregated business units validated capitalism and *laissez-faire*. It was sufficient to express a languid faith in the virtues of the competitive private enterprise system without inquiring too closely whether the conditions necessary for the successful operation of such a system were present. This lame ideology, which ignored the economic changes wrought by the growth of mergers and monopoly, could survive because of the consensus on the right that socialism was bad, and the sufficiency of that consensus as a unifying principle. It did not go unnoticed by businessmen that socialists and trade unionists had been among the earlier advocates of antitrust and were now pressing for increased government intervention in the market economy. In this situation anti-socialist credos were not critically evaluated, certainly not sufficiently so for any suggestion to be entertained of the government's duty to enforce competition as a means not of destroying but of strengthening the case for capitalism.

This is not to say that British businessmen did not see some advantages in maintaining the existing structure of industry, in preserving competition and in preventing the further growth of big business. Businessmen naturally disliked monopoly conditions among their own suppliers and sometimes took private action, for example by acquiring suppliers, to circumvent monopoly powers.  

1. As was recognised by civil servants in economic departments (Interview, Lord Hurcomb, 22 April, 1970). The statement by D.P. Swann and D. O'Brien (*Information Agreements, Competition and Efficiency*, 1968, p. 37) that antitrust legislation was delayed because of "the influence of industrialists upon [the Balfour Committee] who, not surprisingly, would not be anxious to call down the wrath of Parliament on their heads" represents, then an oversimplified model of the nature of parliamentary action.

Furthermore, like their American counterparts, small businessmen often used the creation of large firms by merger and no doubt if antitrust laws had existed they would have used them as a competitive weapon. Small enterprise was valued, as in the United States, for its social virtues, but this led, in contradistinction to the American experience, to opposition to antitrust laws on the paradoxical ground that by tolerating restrictive practices the government ensured the survival and profitability of the small firm without the necessity of merger. It has been alleged that, by contrast, American businessmen were convinced that antitrust policy was wise and that competition was an economic and social ideal worth preserving by state action, but it seems clear that the majority of British businessmen considered antitrust to be a baneful policy and placed a high value on freedom from competition and price stability. Any idealistic or opportunistic desire to invoke antitrust was submerged by the spectre of an alternative government based on an organised labour movement pledged to nationalisation. The socialist critique of private industry which formed the backdrop of contemporary attitudes is an important key to the configuration of political debate. British popular sentiment against the


concentration of social, economic and political power focused not on the individual "robber barons" of American antitrust lore, but on private capital and the business class as a whole. Dorle and Means appeared in England in the person of Tawney, who attacked the concentration and divorce of ownership and control in large corporations, not so much in itself as because of the moral state of society which followed from it.  

The reaction of small businessmen was predictable. Even a moderate suggestion that the government should sponsor a council to publicise monopolistic pricing could be characterised as a step on the "slippery slope of socialism." As a contemporary management consultant regretfully recorded, the reaction "has gone beyond all reasonable bounds, and inhibits the majority of businessmen from exercising any reasonable, intellectual judgment in matters where the action of a Government department is concerned." With this convenient configuration of opinion, monopolistic firms could continue to rely on the spectre of state "interference" with their monopoly position as a remedy which in the long run "might be worse than the disease" not only for them but for all businessmen.

No other pressure group with an interest in the control of monopoly or mergers really developed in the interwar years sufficiently to have an impact on policy. There was no consumers' movement and the co-operative movement and the Labour Party were powerless to gain acceptance for legislation permitting investigations.

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4. Committee on Industry and Trade, Final Report, p. 189; see also British Electrical and Allied Manufacturers' Association, Combines and Trusts in the Electrical Industry, p. 27.
5. As is witnessed by a failure of the Labour Government's Consumers' Council Bill of 1931, which would have created a council of seven to investigate restrictions of competition and have endowed the Board of Trade with price-fixing powers, see Economist, April 1931, p. 720; 253 H.C. Deb., 5s. cols. 2105-200. For the co-operative viewpoint, see Macmillan Evidence, qq 6334-6.
adhere[d] to the laissez-faire tradition"¹ and were timid in industrial affairs. The press, though sometimes admitting the logic of a system of public control of monopoly,² emphasised also the value of rationalisation and the need for a restructuring of industry. Mergers were generally welcomed as a positive sign of industrial vigour, and only in the later 1930s did doubts really arise as opinion began to turn against schemes of rationalisation which showed no regard for the public interest.³ The general acceptance of the business viewpoint on antitrust was probably strengthened by the high level of unemployment and the declining prices of the time, as official and public opinion reacted with sympathy to the actions of producers trying to improve their lot in admittedly difficult times. "Sympathies are more with the producer now", commented one economist, "as with the consumer [formerly]."⁴ Thus mergers, monopoly and restrictive practices could be tolerated not so much because they were felt to be wholly good, but because in a period of low profits it was hard to brand them as harmful. This was, after all, an age when the League of Nations and world statesmen attempted to raise the international price level for the common good and when a government report on economic policy - perhaps the best one of these years - recommended British support for these attempts.⁵ It was relatively easy to confuse a rise in the general price level with the achievement of higher monopoly prices in one sector through a merger or cartel, and the confusion was no doubt present.

3. However, even when strongly condemning trusts the Economist opposed U.S. style antitrust laws with all their "difficulties and complications", see Economist, 16 Mar. 1939, p. 552 ("The Cartelisation of England").
The economics profession was also unsuited to adopt its later role as advocate of antitrust. Though it would seem that the simple doctrine of price competition hardly needed elaboration, one economist, W.H. Hutt, was able to accuse his professional colleagues of abandoning their stewardship of the competitive ideal in a search for political fortune and lucrative business commissions.¹ This was a somewhat inflated view considering the disinterested broadsides which the belief in competitive equilibrium had sustained in the previous decade, but economists often confessed their microeconomic work to be highly abstract and were uneasy about its application to real economic situations.² Others, whilst accepting the economic logic of control, were generally unwilling to see control other than by the free admission of competition and by publicity,³ many of them condemning the previous British Profiteering Act and the American antitrust statutes as ill-founded, harmful, or ineffective.⁴

It is now generally accepted that a rigorous antimerger policy can significantly affect the level of merger activity and industrial concentration, but this was not evident to observers between the wars. "Among the intellectual influences on contemporary policy", Robbins sadly noted in 1939, "there are probably few which have been so potent as belief in the inevitability of monopoly",⁵ and many politicians certainly believed, with Philip Snowden, that


². J. Robinson, Economics of Imperfect Competition, 1933, p. 327; though cf. Florence, "Economic Research and Industrial Policy".

³. E.g. Robertson, The Control of Industry, p. 116; MacGregor, Enterprise, Purpose and Profit, p. 60; cf. Liberal Industrial Inquiry, Britain's Industrial Future, 1920, p. 96 for a slightly stronger statement inspired by Keynes.


⁵. L. Robbins, Economic Basis of Class Conflict, 1939, p. 45.
trusts ... are inevitable. They will continue, whatever obstacles we attempt to put in their path. It is then worthwhile asking the question: would the adoption of an antitrust policy have made any difference to the trends in mergers and the size of the firm?

Clearly the answer will depend on the counterfactual antitrust policy which we postulate. The effects of the enforcement of a ban on all mergers which increased concentration above an arbitrarily defined level would on hypothesis have been to prevent such mergers, but (since concentration can also be increased by the exit of some firms and the internal growth of others) it would not necessarily have prevented the attainment of the defined level of concentration. As such results are of limited interest and are mechanically derivable from merger and concentration data, we shall take a more realistic yardstick by using the antitrust laws of the United States as the counterfactual proposition; that is we shall examine the hypothetical effect on the industrial structure of the United Kingdom of the adoption of laws similar to the Sherman Act of 1890 as improved by the Clayton Act of 1914 but before the stricter Celler-Kefauver amendment of 1950, on the assumption that the same stringency of enforcement would have applied in Britain. This is the approach of Stigler, who concluded that even the relatively lax enforcement of the United States antitrust laws prior to 1950 did act as a deterrent to mergers for monopoly, whereas in Britain such mergers continued to be typical. He produced evidence that in a sample of seven comparable industries there was a stronger tendency to increasing concentration through merger in Britain than in America, and that the American merger data indicated a transition between the

1. Quoted, with approval, in R. Boothby et al., Industry and the State: A Conservative View, 1927, p.47
2. On which see chapter 11, below.
1890s and the 1920s from mergers explicitly aimed at monopoly to mergers for oligopoly.

However, there are a number of grounds for doubting the reliability of these conclusions. On the American side, it seems clear that Stigler overestimated the tightening up of the law in the period after the Clayton Act,\(^1\) and his treatment of the British comparison would also appear to be problematical. He himself recognises the limitations of a non-random sample of seven industries\(^2\) but, even if it could be shown that concentration increased more rapidly over the whole range of industry on average in the United Kingdom (and we shall later suggest that this may indeed be so)\(^3\), the interpretation of this as an effect of the absence of antitrust law would be problematical. Stigler justifies his *ceteris paribus* assumptions on the grounds that both economies operate in a similar legal environment and in approximately the same state of technology, but many difficulties remain. He recognises the first of these, that in 1900 the U.S. economy was larger than the British economy and that the differential was increasing throughout the century; but he underestimates the magnitude

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2. "Economic Effects of Anti-Trust Laws", p. 263; though he nevertheless underestimates the difficulty of interpretation. Only two of his seven industries - cement and cigarettes - show higher concentration in the U.S.; in two more - soap and tyres - there is a rather inconclusive pattern; whilst in the seventh - glass - although the U.K. shows higher concentration, Pilkington's dominance owed very little to mergers. Taking the interwar years separately, the contribution of mergers to the Herfindahl index of increases in concentration is higher in the U.K. than in the U.S. in only four of the seven industries; see his Appendix, op.cit., pp. 271-291.

3. P. 63, n. 2 and chapter 11 below.
of this effect. Clearly, if the optimum size of firm is approximately equal in both countries at any one time, a lower initial level and a less steeply rising (or more steeply declining) trend of concentration would be expected in America, even under identical antitrust provisions. If the optimum size of firm were actually lower in Britain - and with a slower adoption of new technology or of new management techniques this is not totally implausible - this effect might be expected to be even stronger. A further complication is that the two economies probably started at different levels of concentration, so that there were objectively fewer opportunities for monopolising mergers in the United States than in Britain. For all these methodological reasons, the examination of comparative levels of concentration can tell us very little about the effects of antitrust laws or of their absence.

There is a further serious criticism of Stigler's study: the United Kingdom not only lacked an antimerger policy, it also tolerated collective restrictive practices which could be an alternative to merger and which were outlawed by American antitrust laws. Price theory offers no key to predicting

1. Stigler (op. cit. p. 265) suggests a rise from twice the size of the British economy in 1900 to four times the British size in 1965. Taking the net value of manufacturing production, we get in billions of dollars at 1955 prices, 6.58 for Britain against 13.1 for America in 1899 (twice the size), rising to 19.1 against 91.9 (almost 5 times) already in 1950, see A. Naizels, Industrial Growth and World Trade, Cambridge, 1963, p. 535. The device of using regional data for two of the seven United States' industries to establish comparability is inadequate since it can only correct for the level, not for the trend.

2. P.S. Florence (The Logic of British and American Industry, 1961, pp. 132-135) found comparable U.S. and U.K. concentration levels for 1935; though G. Rosenbluth ("Measures of Concentration" in Universities-NBER, Business Concentration and Prices Policy, Princeton, 1955) found higher U.K. concentration in 1935. There are great difficulties of interpretation, but since there was a stable level of concentration in the United States between the end of the nineteenth century and the 1930s (see e.g. H. Adelman, "The Measurement of Industrial Concentration", Rev. Econ. Stat., XXXIII, 1951) and an increasing trend in Britain (see Chapter 11, below) it seems reasonable to suppose that the overall level of concentration in the U.K. was lower than that for the U.S. in 1900.

3. Stigler's sample of 7 industries is therefore not representative in this respect. In 1900 the U.K. shows lower concentration in only 2 of the 7 industries; so that his sample is biased against his conclusion!
whether firms seeking to achieve monopoly power will do so through collusive action or through merger; monopoly prices are available through both alternatives. The concurrent toleration of both might therefore have ambivalent effects.\(^1\) We know little about how the choice between the two was made, but presumably the relative costs of internal company management and of cartel enforcement were important considerations. Where managerial diseconomies of scale were feared, restrictive practices would be used as an alternative if there was no fear of prosecution under antitrust laws. It is significant, for example, that the English advisers to an American industrialist planning to merge sections of the British electrical machinery market in the 1920s were personally

...not at all sure whether instead of having one great octopus in the trade it is not better to have several small companies with a close working arrangement.\(^2\)

and it was indeed on the basis of such a cartel that the industry was organised for the next three decades. Throughout British industry there is evidence of the widespread use of restrictive practices ranging from sales cartels and profits pooling agreements\(^3\) to the co-ordination of price policies through interlocking directorates.\(^4\) Paradoxically, therefore, the absence of antitrust might, by permitting such arrangements, have removed an important incentive to merger in the U.K.

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1. As was recognised by D.E. MacGregor, see his introduction to Liefmann, Cartels, Concerns and Trusts, p. vii.

2. Vivian Smith, merchant banker to Gerard Swope of American General Electric in England, quoted in Jones and Marriott, GEO, p. 124; see also p. 57, n. 3 , above. For domestic merger discussions illustrating the same choice, see R.A. Church, Maniracks in Hardware, Newton Abbot, 1969, p. 161.


On the other hand, it is arguable that some of these restrictive practices themselves created imperfections of competition which induced companies to merge.¹ The very process of collusion encouraged firms to know their rivals and this often blossomed into a full integration of interests in a merger.² More directly, when cartels fixed quotas, firms, if they were averse to the instability which a forced renegotiation of their quotas would involve, could only expand their market share by acquiring existing firms.³ In this sense restrictive practices should be considered as complementary rather than alternative to merger. It seems, however, that restrictive practices acting as an alternative to merger would, in the aggregate, have overridden this complementarity. Their role as an alternative to merger is strongly implied in the contemporary usage of the term "combination" interchangeably to describe both merger and restrictive practices, and is also supported by empirical evidence of firm behaviour when restrictive practices are unable to contribute to the objectives of the firm. The largest merger movements in both the United States and the United Kingdom have followed legislation which effectively proscribed collusive pricing behaviour, in the 1930s following the Sherman Act in America and in the late 1950s and 1960s following the Restrictive Trade Practices Act of 1956 in the United Kingdom.⁴ Whilst there were other factors contributing to these leading merger waves in both countries, and the evidence that they were a direct result of legislation is unsystematic,⁵ the coincidence of the


² E. J. Macrosty, Trust Movement, p. 309.


phenomena is strongly suggestive of a causal link and individual case studies confirm this inference.\(^1\) Also when the costs of policing cartel policy or the losses induced by "free-riding" non-member firms induced the collapse of cartels, mergers again appeared as preferred substitute behavior.\(^2\)

It is thus not implausible that, contrary to Stigler, the absence of an antitrust policy in Britain reduced the overall level of merger activity more effectively than the explicit but relatively weak antitrust laws of the United States, by legitimising forms of organisation which in a real sense were substitutable for merger. The general laissez-faire approach of the British government did not have a fundamentally more permissive influence on merger than the desultory United States enforcement of its established antitrust statutes. In this analysis, the differences between American and British antimerger initiatives between the wars lie as much in the contrast of political rhetoric and public ritual as in substantial differences of results. If we are to establish the complicity of the British government in interwar increases in concentration, then, we must clearly turn our attention aside from antitrust to examine government policies for promoting mergers.

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2. E.g. Macrestry, Trust Movement, p. 14; H.G., Cast Iron Rainwater Goods, p. 62; H. Hudson, The History of English China Clays, Newton Abbott, 1967, pp. 24-6. However, merger was also complementary in the sense that it sometimes, by reducing the number of firms, reduced the costs of policing or of free riding and thus facilitated the renewal of oligopolistic collusion or of restrictive practices, see Lucas, Industrial Reconstruction, p. 176; P.L. Cook and R. Cohen, Effects of Mergers, 1956, pp. 143-6; G.C. Stigler, "A Theory of Oligopoly", J.P.E., LXIII, 1964, reprinted in his Organisation of Industry. In this sense the toleration of cartels and restrictive practices may have induced mergers, by adding this indirect monopolistic benefit to the obvious and direct benefit of the reduction of competition between the merger partners.
Governments may justify intervention in business decisions not only, as in antitrust policy, because they believe that the private and social consequences of businessmen's decisions may conflict, but also because they believe they can make better decisions than private individuals. In terms of our more recent experience of government intervention in industry, the Monopolies Commission may be supplemented by the Industrial Reorganisation Corporation: the government may encourage some mergers while discouraging others. It has often been alleged that the strongly entrenched laissez-faire ideology of the government which we have described was in fact overridden by the tide of interventionist opinion in the rationalisation movement, and replaced by a programme of action to encourage mergers and the growth of monopoly. Yet, whilst the interwar years undeniably saw an increasing contact of the government and the private sectors of the economy, the impact of this on manufacturing industry was surprisingly small, and the government was extremely reluctant to move further towards state corporatism. The doctrine that they might know better than businessmen when a merger should occur was, of course, a difficult one for the governments we have described to accept. Nevertheless industrial difficulties, and particularly the high and increasing level of unemployment, did create a climate of opinion favourable to change, and the rationalisation movement, supported as it was by informed sections of business and academic opinion, increased the pressure on the government to give more positive support to mergers. Some of the younger Conservative M.P.s as well as economic advisers, pressed the view that there was room for greater state intervention in the structure of industry. At least one senior Conservative economic minister felt not only that more mergers were needed but also that industrial management was incapable of solving the problems which they posed, a view which was


2. Steel-Maitland, Minister of Labour 1924-29, see Baldwin Papers, v. 30, pp. 9-17.
shared by some senior industrial managers with government contacts who doubted
the capacity of their colleagues in other firms.\(^1\) Such criticisms could not,
however, be publicly voiced by senior ministers for fear of alienating an
important section of the party's political support.\(^2\) Instead the government
tended to look hopefully to industrialists for evidence that they were in fact
hatching appropriate schemes, and industrialists gleefully obliged by pointing
to their proven zeal for merger and co-operative schemes.\(^3\) Mergers were thus
in general welcomed by the government, who, as the President of the Board of
Trade admitted, saw "before themselves the modest task of clearing away
difficulties and of giving the necessary support and shelter to private enter-
prise to cope with its problems on sound principles".\(^4\) The major concession
to the rationalisation lobby was, however, to be not the wholesale promotion
of merger but the removal of minor disincentives. In the 1927 budget, for
example, the payment of stamp duties in cases where a new company was formed
to merge two or more existing companies was remitted, a concession which was
generally considered to accord with common sense and equity.\(^5\) This modest
approach was supported by industrialists, many of whom were ardent rationalisers.

\(^1\) E.g. I.C.I. Archives 7.10.5.D., W.H. Coates, "Memorandum" dated 5 Dec. 1933
criticising a National Confederation of Employers' Organisations report because
it had "assumed that the economic factor of management and organisation in
British industry needs no comment".

\(^2\) Baldwin Papers, v. 30, pp. 41-3 [Memorandum dated Feb. 1929].

\(^3\) E.g. Letter Sir W.J. Larke to Sir P. Cunliffe-Lister, dated 3 Dec. 1925
(Baldwin Papers, v. 27, p. 232).

\(^4\) BT/55/59, Pol. 6, p. 18. [Sir P. Cunliffe-Lister, memorandum of 1927].

\(^5\) Finance Act, 1927, Section 55; cf. P.F. Simonson, The Law Relating to the
Reconstruction and Amalgamation of Joint Stock Companies, 3rd ed., 1919, ch. 5;
A. Mond, "National Savings, Profits and Double Taxation", in his Industry and
Politics, 1927. Although stamp and capital duties could amount to as much as
£50,000 in a very large merger (Bunbury, I.C.I., p. 50) and lawyers and
accountants stressed the advantage of the concession accorded (e.g. A. Cutforth,
Amalgamation Schemes, 2nd ed., 1930, pp. 51-2; Colwyn) Committee on National
Debt and Taxation, Minutes of Evidence, 1927, p. 763) it did not produce a
flood of mergers, partly because it was very rigidly defined and some mergers
still failed to qualify, see R.W. Moon, Amalgamations and Takeover Bids, 2nd ed.,
1960, ch. 4.
but felt that bankers rather than the government were the appropriate agency to bring pressure to bear on industrialists.¹

However the political pressure for rationalisation was leading somewhere even if only in an indirect way. Montagu Norman at the Bank of England viewed it with increasing alarm and was particularly anxious to head off any attempt to renew the Trade Facilities Act for the purpose of providing government support for mergers.² He hastened to assure the government that adequate finance would be available privately for worthwhile amalgamation schemes in the basic industries and began talks with the banks to canvass this object.

The assurances fell on willing ears, and the government was grateful to Norman for taking the burden of forcing mergers on recalcitrant industrialists in the steel and cotton industries out of the government's hands and putting it into the hands of the banks. Churchill, then Chancellor, used Norman's assurances in his 1929 budget speech to nip criticism in the bud,³ and his Labour successors, Snowden and Thomas, were able to develop this approach when Norman announced the formation, by a consortium of banks with Bank of England backing, of the Bankers' Industrial Development Company.⁴

The Labour government of 1929 to 1931 did not, of course, entirely share the ideological aversion of its political opponents to the belief that government decisions could be superior to private ones, yet, with ministers of a deeply conservative instinct on practical matters, and with supporters who feared that rationalisation might create unemployment, it went little further

1. Macmillan Evidence, q 4111; Lucas, Industrial Reconstruction, p. 139.
2. A file of J.H. Thomas, who inherited this policy in 1929 (BT/56/14, CIA/621) states that his predecessors "had in mind an adaptation of the Trade Facilities Acts to stimulate amalgamation and reorganisation". It cannot have advanced very far. The Trade Facilities Act lapsed in 1927. For examples of the opposition to renewal, see Baldwin Papers, v. 30, p. 19; and on Norman's views see Sir Henry Clay, Lords Hearings, 1957, ch. 3.
3. 227 H.C. Deb. 55., col. 58.
4. For which see pp. 113-4, below.
than its predecessors. The view that the Board of Trade should take over B.I.D.C's functions in order to play a more effective role in merger promotion was rejected\(^1\) though there was some pressure on the government to consider a more active role in industrial reorganisation.\(^2\) Instead Sir Horace Wilson, acting as Chief Industrial Adviser, was charged with monitoring the progress of rationalisation in various industries and with stimulating discussions between industrialists in which he was to attempt, by the use of moral suasion, to induce them to merge.\(^3\) Without the financial powers which gave the later Industrial Reorganisation Corporation its leverage, his initiatives came to little. Given the government's parliamentary minority it was obvious, as the *Economist* pointed out, that hints of compulsory amalgamation if voluntarism failed were mere empty threats.\(^4\)

The fall of the Labour Government in 1931, and the world economic crisis of that year brought the adoption of the "great policy" of protection in 1932. At different times, it has been variously argued that mergers are encouraged both by the reduction and by the increase of tariffs. The admission of foreign competition is on the one hand likely to stimulate mergers which seek to reduce domestic competition or to gain access to economies of scale\(^5\) while, on the other hand, the limitation of foreign competition by a tariff is likely to enhance the profits of organising the home market monopolistically\(^6\) and the

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1. BT/56/37, Board of Trade comments on the Mosley Memorandum.
2. BT/56/14, C.I.A./E/551, C.I.A./621; Simoh Papers, M/11/16/46.
3. See e.g. BT/56/43; BT/56/37. In a sense these talks were merely an institutionalisation by a Labour government of a process which Conservative governments had been able to carry out more informally because of the personal networks of business contacts possessed by men of their social class, see Lord Chandos, *Memoirs*, 1962, p. 125; Reader, *I.C.I.*, pp. 251, 447; A.G. Whyte, *Forty Years of Electrical Progress*, 1930, p. 93.
cutting off of foreign raw materials may stimulate vertical acquisitions.¹

The action of the tariff was, then, complex, but there is no indication that it was large. The fact that mergers were at an unusually low level in the years immediately following the imposition of a general tariff in 1932 should not be taken as an indication that the negative effects of tariffs were strongly operative for the low level can be satisfactorily explained in other ways.² Tariffs were important, however, in their effect on the psychology of interventionism, for, through the Import Duties Advisory Committee, more positive government pressure on industry was legitimised. In the steel industry, in particular, the I.D.A.C. was able, through moral suasion and the threat of reducing the level of tariff protection, to encourage restrictive agreements and mergers. However, the approach remained a cautious one and the more adventurous schemes of reorganisation were shelved as the committee tred the new ground of government usurpation of entrepreneurial decision-making powers warily.³ Whilst the I.D.A.C. certainly played a part in "breaking down individualism and educating businessmen in many industries to work together" most of their ideas for encouraging the restructuring of industry as opposed to those for restriction do not appear to have been accepted. In the Lancashire cotton velvet industry, for example, the I.D.A.C., despite its threat of withdrawal of duty, was no more successful in persuading industrialists to agree to mergers than Sir Horace Wilson had been in 1931.⁵

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5. Ibid., pp. 125-30. They did, however, by threatening withdrawal of duty gain the adoption of a price agreement: again a substitute rather than a complement to merger.
Though the National Government maintained the policy of talks with industrialists on mergers which had been initiated by its Labour predecessors and even extended this policy through the I.D.A.C., it continued to eschew undue dictation to private enterprise. Walter Runciman, the new President of the Board of Trade, and Leslie Hore-Belisha, his parliamentary secretary, were not enthusiasts for government intervention and Runciman was sincere when he told the British Bankers' Association in 1934 that he would resist the pressure on him for more intervention, adding that:

"We may easily exaggerate the importance of mere size, and there are not wanting signs that in some quarters the limits to size have already been reached. The truth is that in these days we have rather underestimated the value of competition. It is in the preservation of competition that we can preserve the prosperity of our great commercial and industrial organisations."

The views of planning pressure groups and of interventionist businessmen like Harold Macmillan may have harmonised with the collectivist streak in Tory philosophy but their influence on government policy was minimal. In so far as it was successful, it led not so much to merger as to restrictionist schemes which, like voluntary restrictive practices, were an alternative to merger rather than a stimulus. Even these fell largely in the agricultural and mining industries where they were felt to be a "melancholy necessity."

The major exceptions in manufacturing industry were in the steel industry where I.D.A.C. promoted restrictions, and in the cotton industry where, after

1. Sir Horace Wilson (interview, 28 July 1939) points out that he and Sir Leonard Bremitt continued to visit industrialists to draw their attention to the facilities offered by banks, and liaised weekly with Charles Bruce-Gardner of B.I.D.C.

2. Speech, 9 May 1934, reported in Times, 10 May, 1934, p. 16.


4. I have been able to trace only one case of a legislatively-backed merger in the 1930s, the unification of 6 beet sugar processing companies to form the British Sugar Corporation. The government was heavily involved financially in subsidies to beet growers and this motivated the exceptional intervention of the Sugar Industry (Reorganisation) Act, 1936.

5. 266 H.C. Deb., 5s., cols. 1017-1018.
a decade of private experimentation with schemes for control of capacity, the
government finally gave legislative sanction to a levy for the scrapping of
spindles. The extension of such schemes by a general enabling bill for the
"self-government of industry" was canvassed by Mitchell's Industrial Reorganisa-
tion League and by Political and Economic Planning; but industrial interest
could themselves not agree that the bill was desirable and its approach was
in fact totally rejected by the government. The National Government, like its
predecessors, saw its role as removing minor obstacles in the way of volun-
tarist initiative, rather than as one of active involvement in restriction or
the promotion of manufacturing mergers.

Yet it was inevitable that government, occupying as it did the position
of the largest consumer in the economy, should have had some influence over
the competitive conditions in its supplying industries. Contracting methods
in the services have been said to encourage rings and monopoly as a con-

envisioned price restriction in the cotton industry but was never fully im-
plemented. A scheme for scrapping redundant capacity in shipbuilding, the
National Shipbuilders' Security Ltd., sponsored by E.I.D.C. and privately
financed was merely approved by the government, see Lucas, Industrial Recon-
struction, pp. 55-6. Similar redundancy schemes were operated by other
industries, some being privately conceived, others stimulated by E.I.D.C.,
see e.g. BT 56 37, C.I.A. "Industrial Reorganisation".


3. Coates and Mokhtar of I.G.I. supported the bill but a representative
organisation of large businesses such as the P.D.I. could not agree and rec-
ommended instead the use of voluntary restrictive agreements. In the steel
industry, Sir William Firth favoured statutory reorganisation, but the majority
of steelmen preferred the I.D.A.C.'s voluntary co-operation. See also B.W.

4. The cabinet never seriously entertained the suggestion, which they felt
"would have the effect of checking industrial enterprise and development"
(CAB/17/33, discussion of Mr. Molson's motion). See also BT/64/7, IX 1935.

5. E.g. the tax concession granted to voluntary schemes of capacity restric-
tion in the Finance Act, 1935, s. 25.

6. Only in the war did the government give more solid statutory sanction to
many private restrictive agreements, see D.H. Anderson, 'Government Control
and the Origin of Restrictive Trade Practices in Britain', Account-
ancy, LIV, 1962.
quence of monopsonistic power.\textsuperscript{1} However, the co-operation between munitions manufacturers which had been directly encouraged during the war had rarely involved merger\textsuperscript{2} and the government in the 1920s refused to commit itself to financing the amalgamation of its warship suppliers to form Vickers-Armstrong.\textsuperscript{3}

The direct effect of military contracting on mergers appears likely, then, to have been small. Nevertheless government departments did sometimes recognise the benefits of rationalisation: the General Post Office tried to reduce costs by inducing six of the twelve firms which supplied cables to leave the industry, by merger or otherwise.\textsuperscript{4}

There remains a whole range of possible indirect effects of government policies which were not explicitly aimed to affect mergers but which had some influence on them. Above all the tax laws created purely financial advantages for mergers, stimulating family firms to sell out to quoted competitors and thus contributing a steady trickle to the stream of interwar mergers.\textsuperscript{5} Other gains were limited only by the ingenuity of tax lawyers: for example, companies with accumulated tax losses were bought in order to offset their losses against the profits of the acquiring company.\textsuperscript{6} Anti-pollution laws are said to have encouraged merger by providing a legal basis for monopoly control of water supplies in the cloth finishing trades,\textsuperscript{7} and government regulations in


\textsuperscript{3} Scott, Vickers, p. 165.


\textsuperscript{5} Pp. 86-7, below.

\textsuperscript{6} Committee on Trusts, Report, appendix by J. Hilton, p. 20; M.C., Railies and Industrial Gases, p. 77.

\textsuperscript{7} MacGregor, Industrial Combination, p. 126; M.C., Calico Printing, pp. 73-4.
the spirits trade are said to have had a similar effect. Generally, the need to deal with government paperwork may increase the optimum size of firm. But it is hard to believe that such factors had more than a very marginal influence on industrial development.

Thus government policy appears to have had no strong effect either in stimulating or in preventing mergers. This, we have argued, is explicable in terms of the ideology and motivations of the governments of the day. They were for the most part more certain of their commitment to a capitalist system of enterprise privately owned and as far as possible free of state intervention than to the ideal of competition. Then Stanley Baldwin told his Bowley constituents at Worcester in 1929 that "no one rejoices more than I do to see these industrial problems taken directly out of the hands of politicians, who have never been fit to handle them"; it was not mere political rhetoric but a genuine statement of his personal preference, and (making an allowance for the false modesty appropriate to such gatherings) an important strain of Conservative thinking, which many of his ministers shared and which many of their supporters felt best served the interests of private capital. In these years, it was not the ideal of competition but the ideal of laissez-faire - a laissez-faire which meant freedom from enforced merger as well as freedom from enforced competition - which triumphed. If ministers were being forced by circumstances into a more forward interventionist policy in some spheres, many of them remained determined to limit it and in the case of merger in manufacturing industry they were largely successful.

Since we have not attempted to quantify the impact, positive and negative, intentional and unintended, of government policy on mergers, we are not able to

1. Evely and Little, Concentration in British Industry, p. 139.
2. Edwards and Townsend, Business Enterprise, p. 139.
present a balance sheet of its net effects. Two conclusions do, however, clearly emerge. It appears unlikely that the action of government was a systematic variable in the cyclical fluctuations of merger activity: such impact as it had was more likely to be small and diffuse. Similarly it is implausible that it was responsible for producing an increase in the level of industrial concentration through merger; indeed it may, through the toleration of cartels, have reduced the level of merger activity. Such fluctuations in merger activity and changes in industrial concentration as did occur were more obviously the result of businessmen's decisions to invest internally or to merge, taken in response to the signals of the market and the quest for private profit, than of government intervention.

Now these conclusions may appear to conflict with the conventional interpretation of the period as one of willing, extensive and increasing government intervention in the economy. Partly this interpretation arose because of the tendency of historians and others to view the importance of a government's policy as a positive function of the amount of paperwork and speeches which it generated, evidence which is more readily available than that in private business archives. It is necessary to examine such evidence carefully to eliminate examples of failed attempts to increase the number of mergers, of policy fumbling and of feints by the government designed to mislead critics of their lack of policy into believing that something was in fact being done. Contemporaries were, as we have seen, extremely sensitive to the extension of the powers of the state and it was a short but plausible step for free marketers who disliked monopoly to assert that it arose for political not economic reasons.¹ Even moderate organs of opinion such as the Economist, which recognised the undesirability of the extreme laissez-faire position in the conditions of modern industry, became convinced by the late 1930s that in

¹ L. Robbins, The Great Depression, 1934; and his Economic Basis of Class Conflict, pp. 50-51.
many fields the government had gone too far.¹ In the postwar period, then, it was natural for economists and others to look back to this period and seek justification for the campaign to secure an antitrust policy by branding the government itself as the cause of the ills of increased concentration. Some antitrust campaigners believed, quite incorrectly, that the government had been a pliant tool in the hands of manufacturers seeking legislative sanctions for mergers.² This approach has been strengthened by the interpretive contribution of Marxist historians, who, wishing to establish the mutual support of private capital and the bourgeois state, presented increased concentration as "almost invariably fostered by a benevolent government".³

The purpose of this chapter is not to deny the correctness of these views on government action over much of the economy. Had we been concerned with public utilities, transport, mining or agriculture our conclusions might well have coincided for there was an increasing commitment of government finance and legislative support to producers in these industries, whose special economic characteristics or strategic importance dictated government involvement.⁴ In the case of manufacturing industry, however, it was sometimes admitted by even the most ardent free marketeers that they had little evidence of government involvement⁵ and the Economist, whilst criticising proposals for legislative support for cartels in some manufacturing industries, even argued that stronger measures of compulsory amalgamation were required.⁶ Thus, whilst

¹. Compare the adverse comments on Baldwin's extreme laissez-faire in 1929 (Economist, 12 Jan. 1929, p. 47) with the articles on "The New Feudalism" (ibid., 2 April, 1938, pp. 2-3) and "The Cartelisation of England" (ibid., 3 Mar. 1939, p. 552).

². E.g. N.E.H. Davenport, Vested Interests or Common Pool, 19^2, p. 5^-.


⁶. Economist, 8 March 1939, p. 552.
it is true that many members of the governments of the day approved of the
tendency to merger and monopoly, policy was throughout the period remarkably
noncommittal. However, one element in the contrast between the view here ad-
vanced and the conventional view has its origin neither in the historical
perspective nor in the exclusive focus on manufacturing, but in the failure
in postwar discussions of the growth of economic concentration to distinguish
between the effects of the toleration of restrictive practices and of merger.
If we are right in our view of this then the toleration of restrictive prac-
tices, strengthened in the 1930s by positive controls in industries such as
steel and cotton, may, by providing a form of behaviour alternative to merger,
have decreased the actual rate of merger below the potential rate in these
years.
Chapter Five

THE DEVELOPMENT OF THE CAPITAL MARKET

... the notable deficiency of statistical material of a definitive character


The explanations of mergers alleged in the literature often depend, directly or indirectly, on factors operating through the stock market or the capital market. One of the economies of large-scale operation is cheap access to finance through the new issue market, which is normally not available to small companies. The ability of some companies to raise finance when others cannot, which may arise from imperfections in the capital market, lies behind the possibility, through various forms of predatory behaviour, of forcing competitors to sell out. The fact that titles to assets are readily saleable in the stock market has also been seen as an important influence on mergers. The growth of the influence of the stock market may, by spreading share ownership, facilitate a takeover raid which goes against the wishes of the directors.

Again, imperfections in the stock market, particularly those of an informational kind, may undervalue some companies thus providing a profitable opportunity for acquisition to a highly valued company. The purpose of this chapter and of the next one is to analyse in detail those aspects of the financial environment of British business which might have influenced merger activity. Though the British Stock Exchange provided one of the most advanced financial markets in the world, little research was carried out in the interwar years into its operation, and there are no satisfactory quantitative studies. The present analysis is not therefore in the modern tradition of econometric testing of financial merger theories, but must rather be a reconstruction from institutional studies and case histories of the general nature of the effects rather than of their precise relative importance. Some statistical data on the relation between mergers and stock exchange prices will be developed and presented in chapter 10.
The main contours of the change in the position of the organised stock market in the finance and control of manufacturing industry are relatively clear. Inspection of the "Commercial and Industrial", "Breweries and Distilleries" and "Iron Coal and Steel" sections of the Stock Exchange Official List - that is, broadly, domestic industry and trade - reveals a steep rise in the nominal value of the companies quoted on the London Stock Exchange, as Table 5.1 shows.

Table 5.1

<table>
<thead>
<tr>
<th>LONDON STOCK EXCHANGE: NOMINAL VALUE OF QUOTED SECURITIES</th>
<th>1893</th>
<th>1913</th>
<th>1920</th>
<th>1933</th>
<th>1946</th>
<th>1952</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breweries and Distilleries</td>
<td>52.1</td>
<td>103.8</td>
<td>120.8</td>
<td>188.0</td>
<td>243.0</td>
<td>561.8</td>
</tr>
<tr>
<td>Iron, Coal, Steel and Copper</td>
<td>15.4</td>
<td>329.8</td>
<td>413.1</td>
<td>370.0</td>
<td>312.3</td>
<td>563.0</td>
</tr>
<tr>
<td>Commercial and Industrial</td>
<td>93.3</td>
<td>438.6</td>
<td>669.2</td>
<td>1215.7</td>
<td>1629.5</td>
<td>5930.1</td>
</tr>
<tr>
<td>Total</td>
<td>160.8</td>
<td>872.2</td>
<td>1203.1</td>
<td>1773.7</td>
<td>2284.8</td>
<td>7344.9</td>
</tr>
</tbody>
</table>


The trend in nominal values is, of course, a poor indicator of the change in real values of the assets represented by these securities and there are undoubtedly large changes in the market value of quoted companies which are not reflected in the par value figures of Table 5.1 but the expanding role of the London Stock Exchange is nevertheless unmistakeable.

Some of this expansion of the metropolitan Stock Exchange was at the ex-

1. Supplementary List securities are excluded. This understates the interwar growth of nominal values, e.g. in 1939 the nominal value of similar securities in the Supplementary List was £460m. compared with £1,800m. in the Official List.

2. Though in so far as these resulted in scrip issues, or the writing down of capital (e.g. in iron, coal and steel between the wars) they are reflected in the table.
pense of the provincial stock exchanges which, before 1914, "were almost of greater importance in relation to home securities than London". Although they remained strong and locally important throughout the interwar years, the provincial exchanges gradually ceded an increasing proportion of their business to London as more provincially quoted firms also sought a London quotation. When the provincial exchanges handled new issues, moreover, they increasingly did so in conjunction with the London market. Many of the new issues in London represented in the Table, however, were companies which had formerly been entirely without a quotation on any stock exchange. Although much of the increased value is accounted for by newly issued stock of companies already quoted in London, the importance of new and formerly provincially quoted companies in the expansion of London's influence is suggested by the rise in the total number of quoted companies. Hart and Prais found only 60 such firms in domestic manufacturing and distribution in 1885 (a large proportion of them in the brewing industry), but the number rose to 569 in 1907, 719 in 1924, 1,712 in 1939 and by 1950 had reached 2,061.

Behind these figures, lie important and continuing changes in the structure of financial flows in the economy. In mid-Victorian England the majority of manufacturing firms were small, and, given low tax rates, their capital requirements could often be met by the ploughback of profits or by calls on the family and a circle of close associates. Local finance from bankers, neighbours,


customers and suppliers could also be called upon if expansion was rapid, but
capital requirements were rarely large enough to justify a stock exchange issue.
The nineteenth century debate on limited liability and the joint stock company
stressed its managerial and contractual weaknesses, and there was initially no
widespread expectation that it would prove either a popular or a successful
form of organisation. The adoption of the limited liability form of organisa-
tion was thus a slow process. ¹ This situation began to be transformed with the
development of company promotions through local bankers, stockbrokers and
solicitors on the regional stock exchanges² where local firms were well known
and, from the 1890s onwards, with the rise of a national market for large indus-
trial issues in London. The growth of this market not only facilitated, but was
itself importantly stimulated by, the flotation of shares in the large amalgama-
tions of that decade.³ From their beginnings in previous decades in sectors such
as railways, the stock markets now proceeded to channel small, but increasing,
supplies of capital to manufacturing industry. Local private supplies of finance
were thus increasingly constrained as investors realised that the securities
quoted on the London and provincial exchanges could offer greater marketability,
diversification of risks, and sometimes a higher rate of return than local in-
vestments. As this demand for shares increased, industrialists themselves (and
especially those who, given the increasing demands of large scale industry, had
heavy capital requirements) more often looked towards the organised capital mar-
kets for finance. The process was, however, a gradual one. The traditional

¹. See e.g., H.A. Shannon, "The Coming of General Limited Liability", Economic
History, II, 1931; Cairncross, loc.cit.; A.R. Hall, "A Note on the English
Capital Market as a Source of Funds for Home Investment before 1914", Economica,
N.S. XXIV, 1957; and the debate between Cairncross and Hall in Economica,
N.S. XXV, 1958; Jefferys, op.cit.; Clapham, Economic History of Modern Britain,
v. 2, p. 179.

². Between 1873 and 1912 the number of provincial stock exchanges doubled, see
Edelstein, "Rigidity and Bias in the Capital Market", p. 89.

³. Macrosty, Trust Movement in British Industry, passim.
private sources of finance did not entirely dry up, and the reinvestment of profits remained (as it still remains) the dominant source of finance for investment in home industry and commerce. It was estimated that in 1924 some four-fifths of investment was internally financed. Small firms naturally relied heavily on this form of finance, though a few of the larger quoted firms already financed the greater part of their new investment through the capital market.

Rationalisers were especially quick to point to the unquoted family firm as exhibiting an irrational unwillingness to merge, lack of enterprise and inadequate profit motivation. There is much evidence that this was often the case and that it was also a factor limiting the growth of the quoted sector. Kenricks, the Midlands hardware firm, ignored the recommendation of their management consultants, Peat Marwick and Mitchell, that they should merge, deciding "that it was a very good report but that no action should be

1. D. Finnie, Finding Capital for Business, 1931; "How New Industries Grow", Planning, no. 68, Feb. 1936. For the survival of the role of joint stock banks in providing capital for industry, see e.g., Grant, Postwar Capital Market, pp. 184-9; Lavington, op. cit., p. 143; Macmillan Evidence, q 6393.


3. E. Nevin, The Mechanism of Cheap Money: A Study of British Monetary Policy 1931-39, Cardiff, 1955, pp. 246-8. In a sample of 50 companies, new issues accounted for three times the funds provided by retained profits. The result is unrepresentative of quoted companies as a whole in that it is drawn from companies known to be using the capital market and is also biased by the exclusion of depreciation funds. Cf. "How Companies Finance Recovery", Economist, 9 Jan. 1937, pp. 71-72.
taken", and with friendly bankers they were able to survive a period of low profitability without either merging, or going public.¹ Such businesses especially disliked the prospect of being exposed to the scrutiny of the public and of financiers.² As an accountant involved with mergers commented:

Men who have been accustomed to personal domination almost amounting to dictatorship in their own businesses, do not take kindly to a change of circumstances whereunder they merely become members of a Board of Directors, and may find themselves subject ... to the control of others.³

The capitalist market ethic inherited by such businessmen stressed individualist competition, rather than mutuality, in the conduct of interfirm relations; the moral foundations of capitalist entrepreneurship implied that the individual's character and skill determined relative rewards.⁴ Their "individualism" is hardly surprising in view of this ideological background. Florence well summed up its implications:

What it actually means is, that they prefer power over their own little works to having a small share, with possibly very little power, in a large amalgamation. Secondly, they rather enjoy, as far as I can make out from talking with them and listening to them, the little game of competition; they love the secrecy of private enterprise and the sense of playing for a side; it is possibly a very British instinct; and they feel there is more zest in fighting against a rival than in combining with him. Thirdly, they like the feeling of running a little property; it is rather a petit bourgeois point of view, but after all, men in the Wool Industry or, say the Brass Industry are petit bourgeois and have been since the middle of the Victorian era in England. Finally, the most important reason for their wishing to cling on to their own little business is the feudal idea of handing it on to their family.⁵

For such men - and they were represented in large areas of British industry - an increased autonomy from competitive forces in the product market, and an improved access to capital, both of which could become available in an enlarged quoted

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². Mr. and Mrs. F.H. Crittall, Fifty Years of Work and Play, 1934, p. 162; Macmillan Evidence, qq 6368ff; Minchinton, Tinplate Industry, p. 106.


firm were but poor substitutes for the more personal autonomy and command relationships in the individual firm.

However, there were a number of pressures which motivated family firms to accept flotation in a consolidation, or acquisition by a quoted company. Of these perhaps the strongest was the threat of disruption of the family succession by the death of the managerial heir or by taxation. Sons - if sons there were - were not always able or willing to continue in the footsteps of the father, and the family firm could often as easily be reconciled to an outright sale of control as to the alternative of employing professional managers from outside. A commonly stated reason for seeking a quotation or acquisition by another company was a desire to guarantee management succession, a problem which was arising in starker form because of the many deaths of potential family managers in the war. This expedient was especially valuable when there was also a need to raise cash to pay death duties (a concatenation of family misfortunes which in the nature of things were frequently concurrent).

Although the Colwyn Committee found that only a small number of estates contained insufficient non-trade assets to pay this duty, it is clear that it was often considered an advantage of merger even where it was not the sole cause. Pressure on small firms to merge could also come from the predatory behaviour of quoted competitors. By threatening local firms with competitive elimination through price reductions a public company with superior access to capital (and

1. A large private company requiring access to the capital market could be floated independently, without a merger occurring, but small firms often chose the merger path to a quotation because of economies of scale in the capital market, see pp. 87-9, below.


thus more staying power in a competitive struggle) may persuade a family firm
to abandon the risk and sell out on favourable terms. The classic case here
is provided by the early United States Standard Oil mergers.¹ There were
occasional examples in interwar Britain — in particular the press barons were
accused of using this threat as a means of eliminating competition in the
province newspaper world — but its incidence was rare and probably
exaggerated.²

Even where such difficulties were not presented to the family firm, the
differential taxation of incomes created an opportunity for gains from selling
out.³ Given the tax differential, a family firm whose owners were paying super
tax had an incentive to convert income into capital gain by capitalising
future profits in a stock exchange flotation, or, often more conveniently, by
seeking acquisition by another company. The seeking of a quotation or acquisi­
tion might in such cases be stimulated by the additional element of a desire to
realise capital, whether for spending or for risk spreading, either or both of
which might newly figure among family goals as the controlling generations
change. The shareholders of the acquiring company also benefitted from this
type of arrangement, for since their profits were free of super tax, the
assets could be acquired cheaply and this would sometimes result in a bonus

¹. J. Moody, The Truth about Trusts, New York, 1904, pp. 109-32; G.J. Stigler,
Organisation of Industry.

². Lord Camrose (W.E. Berry), British Newspapers and their Controllers, 1947,
p. 17; Royal Commission on the Press, Report, Cmd. 7700, 1949, pp. 67-9; see
also K.C., Industrial and Medical Gases, pp. 21-2, 92.

Appraisal", privately circulated, May, 1972, has pointed out that, since capital
gains represent a capitalisation of expected future (taxed) income, there is in
fact no such tax differential. However, there will be an opportunity for gain
from selling to shareholders with lower expected tax rates.

⁴. The Finance Act, 1922 closed up an obvious loophole in British tax laws
which allowed past profits to be retained by closely held corporations and
subsequently capitalised by sale (see L.H. Seltzer, The Nature and Tax Treat­
ment of Capital Gains and Losses, New York, 1951, p. 260), so that this
incentive to merger was reduced. The capitalisation of future profits by sale
was not, however, affected by them.
share issue or other form of capital gain. Evidence on the extent of such mergers is both scanty and of a rather indirect kind. An American interview study found that it was a significant factor in United States mergers of the 1940s and it is a plausible inference that it was also a significant factor in British mergers.

Small companies could sometimes be deterred from using the capital market by the existence of financial economies of scale, especially in transaction costs. The difficulty of raising by public issue capital in amounts of under £200,000 - the "Macmillan Gap" - was well known and must have inhibited many small firms from seeking a public issue. However, there were some improvements in their situation between the wars. William Piercy, who had in the 1920s advised a company to seek outside capital only at the £250,000 level, could in the 1930s advise them to start at £100,000 or even, on the provincial exchanges, at £40,000 or £50,000. There was in the 1930s a steady stream of small merger issues, for example one of only £110,000 - the British Pepper and Spice consolidation of 1933 - backed by the British Shareholders' Trust. Nevertheless the


cost of raising such small amounts of capital on the market remained high and
Piercy himself felt that they might better have been handled by a special in-
stitution. The basic expenses of issue - prospectuses, advertising and the
professional fees of accountants, brokers, bankers and solicitors - amounted
to five-figure sums and, as they were fixed costs, this could amount to as much
as 20% of the sum raised in a small issue. Furthermore, the securities of
small companies were less well-known, less marketable, and more risky invest-
ments and were capitalised accordingly.

Financial economies of scale appear to have loomed large for those entre-
preneurs who perceived that these debt and equity financing advantages could be
added to the less spectacular scale economies of aggregation of inventories and
liquidity and the benefits of cheaper overdrafts and internal banking. The
existence of such economies could itself induce firms to merge to achieve the
appropriate scale. As Sir Josiah Stamp wrote:

The average small unit will find it difficult to get finance for
rationalisation either cheaply or at all. But in as much as the
agglomeration of such units may be big enough to command public com-
pany finance in London ... the only hope for rationalisation in the
small unit industries is a further merging on a considerable scale.

1. Piercy later helped to establish the Industrial and Commercial Finance
Corporation to fill this role.

2. Lavington, English Capital Market, pp. 223, 168-9; and also T. Balogh,
Market, chs. 4, 5. Stock Exchange placings and introductions could be cheaper
but were less common and after 1931 were discouraged by the Stock Exchange
Committee, see Balogh, op.cit., pp. 291-2; Henderson, op.cit., pp. 89, 91-4,
120-5, 146-8, 156-61; D. Finnie, Capital Underwriting, 1934, pp. 183-90.

3. Henderson, op.cit., pp. 106-113; Macmillan Evidence, qq 1526-7, 3950;
Nevin, op.cit., pp. 211, 214-5.

4. Lord Melchett, "The Rationalisation of Industry", I.C.I., Mag., April 1927; J.
Stamp, The Relation of Finance to Rationalisation, 1926, p. 5; Grant, Postwar
Capital Market, pp. 186-9; Balogh, Financial Organisation, p. 79; A.E. Musson,
Enterprise in Soap and Chemicals, 1961, p. 297. There is growing evidence in
modern merger studies that the financial economies of merger have been given
less attention than they merit, e.g. J. Kitching ("Why do Mergers Miscarry?",
Harvard Business Review, XLV, Nov-Dec. 1967) found in an interview study that
the synergy from merger was felt to be greater in the financial and organisational
fields than in production economies.

5. Stamp, op.cit., p. 25.
Firms, whether quoted or not, thus found that by aggregating their separate
demand schedules for capital, they could make new issues to finance invest­
ment more cheaply.

The private profitability of a flotation could also be enhanced by the
instability of the expanding demand for shares. As share ownership spread
more widely and control was increasingly divorced from ownership, the way was
opened for serious imperfections of an informational kind to develop. In the
absence of a well-developed financial press and of reliable professional
advice, the shareholder's knowledge of the investments he holds (and, a
fortiori, of those he does not hold) is likely to be poor and his decision-
making accordingly inadequate. Furthermore, as individuals seek to counteract
risk by diversifying their portfolios, their capacity to absorb reliable infor­
mation on their range of investments declines. The high marketability of
titles to assets in a developed stock market also tends to change the focus
of investors' decisionmaking from the long to the short term and, though this
effect was discouraged by the high transactions costs (imposed by taxation and
monopolistic imperfections), increased marketability enhanced the propensity
to speculate. The unflattering comparison by Lord Keynes of the Stock Exchange
to the casino\(^1\) had its justification in the erratic speculative movements of
share prices, both absolutely and relative to each other, which was a conse­
quence of high marketability and informational imperfections.

The high marketability was an innovation which was central to the stock
market's functioning and remained as a source of instability, but the demand
for improved information did result in better legal disclosure requirements and
financial reporting services of a higher quality.\(^2\) However, the provision of
reliable professional advice on investments in home industry was only slowly

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1. J.M. Keynes, The General Theory of Employment, Interest and Money, 1936,
p. 159.
developed and, though the institutions of the London capital market were well attuned to the supply of finance abroad, they played only a small part in domestic capital formation. It was not until the 1930s that the world economic recession turned attention to domestic business and the supply of advice and financial services to domestic investors and industrialists even approached an adequate level. The number of mergers financed by merchant banks and other financial institutions then grew larger, but the process was a slow one.

The informational gap was partly filled by company promoters who provided investors with "advice" and persuaded industrialists to merge, ostensibly to gain access to economies of scale, monopoly power and other benefits. However, their profits were derived from the ex ante expectations of these benefits rather than from their ex post realisation. Many promoters therefore attempted to inflate the value of expected gains from postmerger integrations and to capitalise these in a public issue at inflated prices which reflected these exaggerated claims, thus enhancing their own profits. This had the effect of stimulating rather than controlling the erratic movements of the market.

The speculative booms which were thus intensified did, however, offer a clear profit opportunity to the important sector of owner-managed "family"

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3. Among the beneficiaries of these new interests of the City were British Plasterboard, whose acquisitions were backed by Hambros, and the Rootes Brothers, whose expansion by acquisition in the car industry was largely financed by the Prudential.

firms. It seems probable that the "shadow" valuations of shares by owner managers and other holders of stock in private (and closely-held public unquoted) companies are in general less volatile than the valuations placed on titles to firms' assets by the stock market. This valuation discrepancy is positive in a boom and creates a margin of profit in a flotation for both the original owners and the promoters. It was thus in the fevered stages of stock exchange upswings that promoters principally operated in order to create and exploit speculative hopes by playing on the acquisitive instincts of investors and exaggerating the values of shares. The existence of high profits in the mediation of the supply of firms and the demand of investors for securities by the promotion of merger flotations is well documented.¹ Both the postwar boom of 1919-1920² and the rampant speculation of the late 1920s,³ induced stockbrokers, issuing houses, and ad hoc promoting syndicates in London and the provinces to feed the speculative fever with dubious issues. "Probably never in the history of modern trade and industry" suggested the Economist "was the net spread by the company promoter as it is today".⁴ Among them were many who could restructure industry to establish the basis of profitability which the high market capitalisations implied - and even a promoter as unscrupulous as Clarence Hatry appears to have had a genuine faith in rationalisation and


³. "Amalgamations and New Issues", Economist, 25 Dec. 1926, p. 1120; Grant, Postwar Capital Market, pp. 143-5, 155. The Issuing House Year Book, 1930 detailed 421 stockbroking firms which had been involved in issues between 1926 and 1929, and 280 issuing houses and promoting syndicates, of which 46 had been formed in 1929.

some successful and logical mergers to his credit\textsuperscript{1} - but large profits could also go to the exaggerators and deceivers. Mergers offered a particularly fertile ground for such men, who could:

...realise the advantages that arose from manipulating, not a single company, but a group of companies. A 'parent company' with a number of subsidiaries at its command could do much to baffle the public as to its true state of prosperity. Not only could loans to, and investments in, subsidiaries be so manipulated that balance sheets concealed the true position of the whole group, but sales of rights could be so arranged that a subsidiary could show and transfer a dividend to the parent company which to the average investor may not have been indistinguishable [sic, distinguishable?] from a true trading profit.\textsuperscript{2}

In these ways, institutional developments in the stock market not only failed to improve informational flows but positively tended to distort them.

Whilst there were undoubtedly some legitimate and logically constructed merger issues in booms, the investors in many of them were inevitably disappointed. Postmortems usually revealed the wisdom of the original owners in selling out at boom values and in many cases laid bare the absence of any managerial rationale to the mergers which had been promoted. A number of the postwar boom promotions in the iron, shipbuilding, jute, glass and cotton industries by Sir Edward Edgar's Sperling Combine and by Clarence Hatry's Amalgamated Industrials required wholesale reconstruction and in some cases they disintegrated and the properties were resold to their original owners.\textsuperscript{3}

The new issue boom of 1928 also produced some spectacular casualties. The average depreciation on the issues of 1928 was as high as 41-42\% by 1931 and

\textsuperscript{1} Andrews and Brunner, Capital Development in Steel, pp. 159-61; H. Levy, The New Industrial System, 1936, p. 203; Morgan and Thomas, Stock Exchange, pp. 206-7; Vallance, Very Private Enterprise, ch. 11.

\textsuperscript{2} Collin Brooks, ed., The Royal Mail Case, 1933, pp. xvii-xviii. On the inadequacy of the law relating to holding company accounts, see pp. 104-5, below.

merger issues clearly shared in this general fall. However, though the
Stock Exchange Committee responded to public criticism of the abuses by im­
posing more stringent conditions for permission to deal, the problems of
dishonest promoters - not all of whom were connected with the Stock Exchange -
remained until the more adequate fraud and company legislation of the
postwar era.

A means of raising finance alternative to flotation was acquisition by
an already quoted company. The same economies of scale in finance could be
achieved by aggregating two companies' demand schedules for new capital in
this way, and there could also be savings in transactions costs. A quoted
company with an established reputation among investors found it easier to
raise the new money required than an unknown private company. Alternatively,
it could pay for the acquisition by allotting its own shares to the vendors,
raising any cash required by making a rights issue or a private placing with­
out the expenses of a prospectus issue. The acquiring company might also
desire to find an outlet for its "surplus" profits. Between 1920 and 1938
some 28% of all profits were on average ploughed back by British manufacturing
industry. This system of self-financing had many advantages. Transaction
costs and uncertainty were less than for new capital raised on the market. The
ploughback of profits through acquisitions was both widely approved by

1. Economist, 15 Feb. 1930, pp. 363-4; 26 July 1930, p. 182; Committee on
Finance and Industry, Report, para 368; "The Results of the 1928 New Issue
Boom", E.J., XLI, 1931; R.E. Harris, "A Re-analysis of the 1928 New Issue Boom",
E.J., XLIII, 1933; Clay, "Financing of Industrial Enterprise", p. 218.

2. Departmental Committee on Share Pushing, Report, Cmd. 5539, 1937; Grant,
Postwar Capital Market, p. 165; Grieser, British Investor, ch. 4; F. Paish,
"The London New Issue Market", Economica, N.S. XVIII, 1951, p. 5; Committee on
Company Law Reform, Minutes of Evidence, qq5200, 5400, 6064-5. For the de­
cline of quoted company liquidations, see Singh, Takeovers, pp. 25, 33.

3. Marshall, Industry and Trade, p. 169. Quoted companies reported many en­
quiries from prospective vendors, see e.g. M.C., Fertilisers, p. 55.


industrialists\(^1\) and also tolerated by shareholders, presumably because of the tax and other advantages and because of the absence of a takeover mechanism to enforce higher payout ratios.\(^2\)

Now self-financing is an efficient system of allocation of financial titles to resources where there is a direct relationship between the past and future qualities of management and between past profits and future investment opportunities, but in a growing economy with interindustry shifts and single-industry firms it tended to create immobilities, inhibiting the movement of capital to those investment projects in which the marginal rates of return were highest. Companies could and did overcome this by investment through the market in quoted securities when the expected returns were high,\(^3\) but the mobilisation of capital outside the initial boundary of the firm could also involve participation in the management as well as the finance of other firms, a relationship which often culminated in acquisition, and the disappearance of the intermediate interfirm boundary. Thus in the car components industry, Lucas expanded its initially limited financial commitment to A. Rist Ltd., into a controlling interest and ultimately in 1934 to full ownership.\(^4\) The economic costs of such relationships were probably lower than for general investments through the stock market by the firm's shareholders, for several reasons in addition to the transactions costs of new issues which we have outlined. Firms in the same, or a vertically related, industry, possess knowledge

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2. See chapter 6 below.


of each other's manufacturing skills, credit status and market position as part of their working stock of commercial intelligence so that the cost to them of acquiring information on which to base decisions to acquire share participations are likely to be smaller than the costs to the investor. Furthermore the stock market was clearly ill-equipped to judge untried and especially science-based investment projects in which future rather than past profit levels were the relevant factor in the assessment. The commercial and technical intelligence departments of companies like Nobels and I.C.I., which were prominent acquirers of private and public companies, by contrast, could perform such assessments more expertly.

As more companies were publicly quoted or acquired by quoted companies a profound change took place in the representativeness of the quoted sector, a change in which mergers appear to have had an important role. In 1885 only 5 to 10 per cent of "important" firms had limited liability status, much less Stock Exchange quotations, but in the course of the late nineteenth and twentieth centuries the Stock Exchange developed into the most important market in the national stock of ownership rights. Already by the early 1920s the quoted sector had become more representative of British manufacturing industry as a whole. W.H. Coates, in evidence to the Colwyn Committee, estimated that about 57% of profits originated in public companies by then (though public companies included, of course, many unquoted as well as all quoted companies).

In the next three decades assets continued to be transferred to the quoted


4. [Colwyn] Committee, Minutes of Evidence, qq 8550-1.
sector, and by 1951, a Board of Trade inquiry reported that quoted companies alone accounted for some 71% of profits than generated. Although these estimates are of differing reliability and coverage and thus not strictly comparable, they confirm the growth in the role of the quoted sector of industry.

There remained throughout the interwar years an important and large sector of manufacturing industry in the unquoted sector. This sector included not only those generally small enterprises such as sole traders, partnerships and unincorporated businesses, but also ones which were often large. Among them were nationalised and co-operative enterprises and private companies such as Pilkingtons in the glass industry, and the subsidiaries of foreign companies such as Vauxhall in the car industry. Whilst a large part of British manufacturing industry remained unquoted for much of the interwar period - possibly indeed, if large unquoted companies are included, the larger part - the major large companies were, however, in the quoted sector. The development of the capital market not only created important financial economies of scale, but also, by removing the size limits imposed by the personal wealth and credit of the individual owner, opened the way for the reaping of more general scale economies, for the internalisation of externalities, and for the exploitation of monopoly positions by an increase in size. Large mergers such as I.C.I., which itself consisted of companies formed by previous mergers, were now possible. The average market valuation of quoted firms in mining, manufacturing and distribution increased rapidly; and whilst in 1885 there were no 'giant' firms (i.e. with a market capitalisation of more than £32 millions), there was one by 1907, 4 in 1924, as many as 8 in 1939.

and 10 in 1950. The transformation of the structure of capitalist ownership, wrought by these developments in the capital market, thus facilitated the change from the economic decisionmaking of the Victorian economy of small decentralised units into that of the modern corporate economy of large firms which we know.

1. Hart and Prais, "The Analysis of Business Concentration", p. 154. Between the wars, the real rise is understated by the fall in the general price level.
Chapter Six

THE MECHANISM OF MERGER: THE PREHISTORY OF THE TAKEOVER BID

Oh Lord watch o'er our costings,
And help us keep them down;
Give us sales beyond compare
And a name of great renown.
Oh save us from the revenue
From strikes do keep us rid;
But most of all, Almighty God
Please - no takeover bid


In the previous chapter the process by which mergers and acquisitions were stimulated by and contributed to the developing role of the quoted sector was described. In addition, however, the changing proportions of firms operating in each sector may have had important effects on mergers in other, more indirect, ways. In this chapter some of these alleged effects will be examined.

A particular problem is to explain why there were far fewer contested takeover bids between the wars than in the postwar period. Direct bids to shareholders, contesting the views of their own directors, may be expected to occur when ownership is divorced from control. The possibility of a struggle for control between the existing directors and one or more takeover raiders thus arises. There may also be other aspects of the dispersion of ownership in the quoted sector which affect the relative propensity to merge of firms in this sector. The stereotypes here are well known. On the one hand the family firm is said to shun merger proposals, valuing its traditional character and independence, whilst, on the other, the publicly quoted company, its shares being freely transferable, may change ownership through merger or acquisition without such personal factors entering into consideration.

There is, of course, some truth in these stereotypes. A confidential government enquiry into the reasons for the slowness of the merger movement in the 1930s, for example, found that the personal feelings of aged family
proprieters were often the major reason for the rejection of merger proposals.\(^1\) However, it is equally obvious that there are a considerable number of divergences from the stereotype, as it affects merger activity. For example, whilst William Morris refused to merge his private firm with Austin, fearing a reduction in his personal control, he was still able to acquire many other private firms with his own resources before he finally relinquished control of the ordinary shares in his company.\(^2\) Merger was also undertaken by family companies precisely in order to preserve their prosperity and ownership structure as a defensive measure against large-scale firms.\(^3\) As we have seen, family firms, despite the common characterisation of them by rationalisers as unprogressive, could for a variety of reasons come to accept an acquisition proposal or a public flotation. Families would usually sell out if the price were pitched high enough and, in a few cases, even used the cash thus obtained to establish new businesses.\(^4\) Alternatively, family opposition might be softened by the offer of seats on the board of the merged company, and even some of the largest companies included former family proprietors in board and senior management positions for some considerable time after the original merger.\(^5\) On the other hand, companies recognised that it was detrimental to have a collection of competing former owner-managers on the board of a unified company and the degree of postmerger independence which could be conceded was often limited.\(^6\) It seems clear therefore that there is no simple and unambiguous relationship between a company's private ownership status and its overall propensity to merge.

1. BT 56 37, "Industrial Reorganisation", pp. 1, 3, 37.
4. E.g. M.C., Tobacco, p. 66n; M.C., Cigarette Filter Rods, pp. 57, 107.
In one sense, indeed, the procedure for acquiring private companies was easier than that for quoted companies. The takeover of the Melyn Works in Neath by Baldwins Ltd., may serve as an example. The private owner of this tinplate works was Mr. F.W. Gibbins:

At last after thirty one years in the business he decided to sell out in 1921. He put up to J.C. Davies, the managing director of Baldwins, a memorandum running to about six lines. There were 144 shares at a paid up price of £250. Gibbins asked Davies for £1,000 per share, making £144,000. After visiting the works, Davies suggested knocking off £10,000. Gibbins agreed and sold each share for £900 odd. This was, perhaps, typical in all except its simplicity, for often the procedure was complicated by at least an accountant's investigation into the profit record of the company. The crucial factor was, of course, the willingness of the private owner to sell, and many private owners did, of course, for a variety of reasons, refuse to sell.

It cannot, however, be assumed that the acquisition of a publicly quoted company is necessarily less dependent on such personal factors and private negotiations. It is true that with the dispersal of the ownership of shares the locus of decisionmaking changes, but parallel factors could come into play on quoted company boards, and their directors were indeed often tarred by rationalisers with the same brush as family firms. They too were accused of being irrationally averse to merger. Complaints that there was "a national bias on the part of industry to regards its troubles as merely temporary," and that many industrialists did not realise "the precarious position in which the industry now is" could apply to public as well as to private firms.

2. For more sophisticated methods of valuation see e.g. Cutforth, Methods of Amalgamation; D. Finnie and S. Berlanny, Business Investigations, 1958, ch. 2.
4. Macmillan Evidence, q 5995.
5. M. Webster Jenkinson, "Memorandum on the Steel Trade" in P.R.O. BT 56/2; see also Macmillan Evidence qq 859, 2800, 7497; Andrews and Brunner, Capital Development in Steel, p. 123.
Moreover, public company directors could be as averse as owner-managers to losing their positions on the board. The directors of Tweedales and Smalley, for example, who found that other textile machinery manufacturers were acquiring their company's shares on the open market after they had refused a merger, resisted it with all the tenacity usually ascribed to family firms. ¹

The statistics of the relative incidence of disappearance by merger of quoted companies in the interwar and postwar periods are illuminating here. Between 1948 and 1961, some 25% of the companies quoted on the London Stock Exchange were taken over by other quoted companies, a proportion which by the 1957-68 period had risen to 38%. ² In the interwar period, by contrast, the population of quoted firms was much less exposed to the danger of takeover. A study of 726 firms quoted on the London Stock Exchange in 1924, for example, found that only 33 of them - less than 5% - disappeared by merger in the next fifteen years. ³ It is possible that this lower level can be accounted for by the more abundant supply of unquoted companies available for acquisition, or by a generally lower motivation for merger in the depressed interwar years; but an alternative explanation - that the directors of quoted companies could more easily resist takeovers in the period - also merits attention.

The ease with which a takeover bid is resisted is a function both of the spread of shareownership and of the general institutional arrangements of the stock market. Many of the companies quoted on the stock exchange in the interwar period, especially those in which the founding families still maintained a

¹. Though their attempt to change their Articles to limit the bidders' powers failed, they succeeded in maintaining their independence, see Investors' Chronicle, 8 April 1933, pp. 754, 772.


³. Hart and Prais, "The Analysis of Business Concentration", p. 169. This result may, however, be biased downwards, see pp. 177-201 below. The contrast in unsuccessful bids is even more marked. Between 1948 and 1961, Marris, loc. cit., estimated that there were two to three hundred unsuccessful bids. In the interwar period, such bids were, for reasons which will now be discussed, extremely rare.
managerial interest plus board representation were still closely controlled by large shareholding blocs. Effective voting control by the large holders—usually directors—of such companies (which might in some cases be achieved by the ownership of as little as 20% of the shares) only gradually declined.¹ For such companies, of course, as for private companies, bids would naturally be made to the directors and it is unnecessary to distinguish director-agreed bids from bids direct to shareholders: the support of the directors would normally be necessary to secure the assent of the majority of the shareholders.²

There remained, however, a large number of quoted firms with more widely dispersed shareholdings and largely non-owning directors, which formed a population of potential takeover victims but yet did not in general attract direct bids. In the case of these firms, also, an approach through the directors, followed by controlled stock transfers on the recommendation of the directors (rather than contested takeover raids) remained the norm in these years. The purchase by Stewarts and Lloyds of Alfred Hickman Ltd., in 1920 to secure their supplies of iron may be taken as a typical example.³ When Hickman's chairman was approached he agreed to recommend an offer equivalent to £4 for each Hickman's £1 fully paid share. In the next few months Stewarts and Lloyds' technical adviser reported on Hickman's works and the two companies' auditors made a joint report. On the 24th June, some three months after the discussion with Hickman's chairman, a Stewart and Lloyds' board committee authorised the purchase at the Hickman's suggested price, to be paid partly


in cash and partly in deferred shares. After further correspondence and meetings, there was a provisional agreement by which the Hickman directors accepted on their own behalf and the Stewarts and Lloyds' directors formalised the offer making it conditional on acceptance by 80% of the shareholders. Meanwhile rumours had reached the market and the two companies' share prices fluctuated considerably. Despite such fluctuations the directors of both companies were confident enough of their judgement to go ahead. A meeting of shareholders at the end of September formally approved the terms and by October 30th the purchase was complete.

This was the usual form of merger between two quoted companies and it therefore seemed quite natural for an accountant to insist in 1926 that "the negotiations must obviously be conducted by the Directors. In order to preserve proper secrecy, it is not possible for the Directors to acquaint the shareholders of the matter". ¹ Almost invariably, the shareholders were passive agents in the decisionmaking process, and the history of their attempts to thwart the decisions of directors and achieve a better bid price is largely a study in failure.²

This was partly because some directors felt a responsibility to recommend offers to their shareholders when the bid price was pitched reasonably. There was therefore some opportunity for financiers and industrialists to contemplate an agreed takeover of quoted firms for the purpose of restructuring industry. E.R. Lewis, for example, a stockbroker who had floated the Decca company, suggested to its directors that they buy another record company, Duophone. When they refused, he bought Duophone himself, and then, in 1929, suggested that they sell him the Decca company. Though not personally wishing to sell, the Decca directors realised the financial attractiveness of the offer

2. For examples of the failure of shareholders to achieve better terms, see e.g. Stock Exchange Gazette, 25 Jan. 1927, p. 162; Investors' Chronicle, 21 Oct. 1933, p. 835.
and agreed to pass it on to the shareholders. It was accepted by over 95% of them. Similarly, Lord Leverhulme's offer of £13.10.0d. per share for the deferred shares of Knights in 1920 was so attractive that the company's directors, whilst seeing no logic in the merger, advised their shareholders to accept on purely financial grounds. Yet not all such offers were passed on by directors. Sir Herbert Dixon, responding to rumours of bids, insisted that it was the duty of the board to pass on "suitable" offers to shareholders, however averse the directors might personally be to the bid; but, as the Investors' Chronicle pointed out, the view of directors as to "suitability" did not necessarily mean that the bids received were not above the market price.

One tentative explanation of the failure of contested direct bidding to emerge in its modern form is the quality of information available to shareholders and potential bidders in the interwar years. That this was poor is evident from the accountancy literature of the period. Neither balance sheets nor profit and loss accounts gave adequate indications either of assets and liabilities or of trading profits. For a variety of reasons — commercial

3. This must be taken as a moral, not a legal, statement. According to the law directors have a duty only to the company, not to its shareholders.
5. J.B. Tabb ("Accountancy Aspects of Takeover Bids in Britain 1945-1965", Ph.D. Thesis, Sheffield, 1968, ch. 2) has advanced the alternative explanation that the law provided no means for a successful bidder to remove an incumbent board except at specified times; but, since the Stock Exchange normally required a clause to the effect of the voluntary clause 80 of Table A of the 1929 Companies Act empowering the removal of directors at short notice (D.G. Hemmant, The Companies Act 1929, 1930, p. 363) this explanation must be viewed with reservation.
secrecy, preservation of credit status, reduction of trade union wage pressure, discouragement of new entry - directors sometimes published figures which understated or overstated the true position of their company. The imperfect state of the law relating to company accounts, and in particular to secret reserves and holding company accounts, allowed common resort to such malpractice. Business historians have revealed many examples of untrue statements being made and contemporary accountancy scandals, including the cause célèbre of Lord Kylsant in the Royal Mail Case, revealed the existence of significant, yet legally permitted, deception by directors. As we have seen, the governments of the day were deeply committed to the right of privacy of enterprise and the minor improvements in the law incorporated in the Companies Act of 1929 effected no decisive change. The voluntary attempts at amelioration by accountants like F.R.M. de Paula at Dunlops in the 1930s were equally ineffective except in the case of a few large companies which were in any case not vulnerable to bids. The chairman who remarked that:

We bring into our accounts just as much ... as will enable us to pay dividends we recommend and to place to general reserve or add to carry forward just as much as will make a pretty balance sheet.

was perhaps more honest than most, but he was accurately describing the large area of discretion which directors could exercise in providing the stock market with information. The sheer absence of information not only reduced the number of known profitable acquisition situations but also weighted the advan-

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4. Though, by distorting share prices it may have created some profitable acquisition situations (see Simon, Holding Companies, p. 23), it tended to keep the knowledge of such situations in board circles. Furthermore the accountancy defects may have produced a negative valuation discrepancy (i.e. too high rather than too low a market price) thus discouraging bids, in contrast to the postwar situation where conservative accountancy during inflation may have worked to produce positive discrepancies. Directors could of course try to keep their company's share price at what they considered a reasonable level by controlling the flow of information to the market; see e.g. I.C.I. Archives, Managing Director's reports to NIL Board, 1921-25, passim.
tage in favour of negotiating through the directors those which were perceived. A normal part of such negotiations was for the victim firm to make available more information to the bidding firm (either directly, or if secrecy needed to be preserved, through neutral accountants) than was in fact available to their own shareholders.

There remained, in principle, the possibility of a direct bid to shareholders, where the desired merger partner's directors refused to impart information or refused to recommend the offered price. Whilst, without the co-operation of the intended victim's directors, a potential bidder could not gain access to reliable accounting information, the bidder might be able to determine a bid price for its own purposes on the basis of "capitalised nuisance value"\(^1\) or on physical plant values. One should remember, however, that contested takeover bidding is a difficult and risky business (even today only a small minority of bids are contested) and this was especially so between the wars when the loyalty of shareholders to directors was strong, and directors of other companies had a natural aversion to challenging it.\(^2\) Even if a direct bid were to be made, the directors of the victim firm remained in a strong position relative to their own shareholders. In practice the shareholders would recognise the superiority of the directors' information and tend to take their advice on the true value of the company in relation to the bid price. Thus when bids were recommended by directors, the incidence of shareholder opposition was low.\(^3\) The need for the bidding company to secure the support of the directors was intensified by the absence of power to enforce the purchase of minority holdings when it had succeeded in purchasing more

\(^1\) Jones and Marriott, G.E.C., p. 124; Reader, I.C.I., p. 400.

\(^2\) H.B. Samuel, Shareholders' Money, 1933, p. 7.

\(^3\) For an exception see Investors' Chronicle, 2 Nov. 1935, pp. 955, 959; 16 Nov. 1935, p. 1077; 30 Nov. 1935, p. 1203. [Greenleas and Co (Easiphit) made a bid for Lennards, another shoe company, with the blessing of the Lennards' board, but, to the surprise of the Chronicle commentator, local shareholders successfully organised opposition, and Easiphit failed to gain the required 75% acceptances.]
than 50% of the shares. They were more likely to achieve something approaching total ownership (which might be desirable for reasons of management and finance) if they had the directors' support.¹

This picture contrasts with that in studies of the modern stock market which emphasise the role of a fluid market in corporate control and the takeover bid as important disciplines on corporate management.² Significantly, it was in the 1950s, when the informational constraints had been removed by more stringent company legislation, when share ownership was more widely dispersed and the market in shares was more active, and when the rewards were sufficiently high to justify the risk of direct bids, that they began to appear in larger numbers.³

Nevertheless the stock market could in the interwar years be used to transfer resources to more profitable uses, and firms which were obviously undervalued, were, of course, more clearly open to approach by bidders. As the Board of Inland Revenue commented, "concerns of which the market capitalisation is low as compared with the proper value may be more likely than others to be selected for purchase" and a number of companies showing such "unrevealed value" were said to "have changed hands at a price clearly and

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¹ The position of an acquiring firm was improved significantly by the Companies Act 1928 (clause 50, consolidated as clause 155 of the Companies Act, 1929) which provided for compulsory acquisition of the shares of a dissentient minority where 90% of the shares had already been acquired, thus facilitating the achievement of complete ownership; see Lucas, Industrial Reconstruction and the Control of Competition, p. 184; Economist, 13 July 1929, p. 83. The same effect could be achieved by the difficult and somewhat unethical expedient of juggling the subsidiary's accounts in order to oppress the minority, see Sir Josiah Stamp and C.H. Nelson, Business Statistics and Financial Statements, 1924, p. 267. Nevertheless bids were sometimes withdrawn even when acceptances were as high as 74%, see e.g. Investors' Chronicle, 4 Sep. 1920, p. 257.


markedly in excess of the market capitalisation of their assets". These adjustments to stock exchange prices through merger and acquisition would, however, normally take place under the close surveillance and control of directors rather than of outside bidders. The bidder's weapons were persuasion and bribery, rather than the takeover bid.

Boards generally preferred to negotiate mergers secretly in order to fix up deals before market rumours created large and often inconvenient fluctuations in share prices. If the relative share prices were not right they could either call off the deal or attempt to force the share prices to a level which they considered appropriate. Often it was possible to arrange deals on the basis of eve-of-merger prices or slight premiums but in some cases the deal had to be called off because the news got out and the victim's share price rocketed. Yet the power of incumbent directors is shown in stark form in those occasional acquisitions in which the price paid was actually below the premerger market price of the acquired company's shares. In the Stewarts and Lloyds-Hickman merger of 1920 instanced above, the final bid price of 7/6d. plus one Stewarts and Lloyds' deferred share was some 12/6d. below the market price, yet the directors of the two companies forced the deal through at that price. Again, when Alpha Cement bid for the Central Portland Cement Company it offered its own shares to a total market value of £380,000, though the market capitalisation of Central's shares on the eve of the offer was some £63,750 higher. Press criticism notwithstanding, the directors of both companies justified the terms on the grounds that the market undervalued Alpha and overvalued Central. With this announcement, the negative valuation

1. Suggested Taxation of Wartime Increases in Wealth. Memoranda submitted by the Board of Inland Revenue to the Select Committee of the House of Commons on Increases in Wealth (War), Cmd. 594, 1920, pp. 43, 45.

2. E.g., Economist, 10 June 1939, pp. 612-3.

3. E.g., Investors' Chronicle, 17 July 1920, p. 95.
discrepancy disappeared and the merger went through. As the Investors' Chronicle commentator advised when Ranks later made a board-approved bid for the John Greenwood Millers, "if the directors decide that the business should be sold it is difficult to make any other suggestion", and attempts by shareholders to organise opposition to mergers were almost invariably unsuccessful.

The returns to directors in the prevailing conditions of imperfect information could naturally be considerable. There were not only the profits of inside dealing but it was also widely recognised that the failure to offer suitable "compensation" to the incumbent directors could jeopardise merger discussions. Often a place on the new board was offered, or alternatively a cash payment for loss of office was made which could sometimes amount to as much as one-tenth of the purchase price, a practice condemned by shareholders and the more ethical businessmen, but still extremely common. Middlemen with the ears of several boards could earn high returns from their knowledge. Thus Dudley Docker suggested various mergers to the Vickers Board and made considerable profits from intermediation: £10,000 for the Docker Brothers-Pinchin Johnson merger, and £50,000 for the transfer of Vickers' electrical interests to Associated Electrical Industries.


5. E.g., Macmillan Evidence, qq 859, 7947; Sir Adam Nimmo, "The Control of Industry", The Times, 10 May 1934, p. 16; Jenkinson, "The Steel Industry" in BT 56 2.


However, despite all the difficulties which the powers of directors created, it is not inconceivable that a direct bid to shareholders contesting the view of their own directors, would be considered by rejected suitors, and, indeed, there are a number of exceptions to the generalisation that contested bidding did not occur in the interwar years. Cobbold and Company, for example, in 1936 made a bid in cash and shares for Daniell and Sons Breweries directly to the shareholders after the Daniell's Board had refused a merger. However, a circular from the Board advising refusal had the desired effect: the holders of over two-thirds of the Daniell's capital refused the offer and the bid thus failed.¹

Other kinds of exceptions also tend to confirm the general hypothesis. Debenture holders, for example, were sometimes in a stronger position than ordinary shareholders, especially if the Debenture Trust Deed specified that a large proportion of the votes, or court sanction, was needed to change the deed.² Where they had a specific mortgage on a particular works, a minority of debenture holders could sometimes effectively block a merger by refusing to allow postmerger integration, thus destroying the rationale of the exercise. Also where new capital had to be raised to finance postmerger integration and development, existing debenture holders could refuse to allow the new capital to take precedence over their own claims. Thus even after directors and shareholders had agreed to mergers, debenture holders could object, or at least jockey for a better position. This happened, for example, in the projected fusion of two Newport breweries in 1926³ and in the attempts by Dorman


Longs to consolidate under its control the steel companies of north-east England.¹

Debenture holders were also more frequently in a position to delay mergers because of the prevalence of "overcapitalisation", a term with many, sometimes inconsistent, meanings. It often referred merely to the exaggerated share values with which promoters endowed the companies they floated,² but its effect was particularly crucial to merger negotiations when there was a high proportion of fixed interest stock (in modern parlance high 'gearing' or 'leverage'), for in the deflationary conditions of the time some companies could not maintain the payment of gross interest and redemption obligations which they had contracted.³ The directors of these companies naturally found it difficult to raise funds for investment in modernisation and reorganisation either by new issue or by seeking an acquirer.⁴ A reconstruction of the company's capital - a process which required the co-operation of loanholders in the recognition of their losses - normally had to precede new issue or acquisition, but an acceptable formula was often difficult to devise where control was very finely balanced by high gearing.⁵ The delay which the debenture holders could cause in merger negotiations and the uncertainty about control which this introduced could be sufficient to discourage merger nego-


2. Committee on Industry and Trade, Further Factors in Commercial and Industrial Efficiency, ch. 3; Fitzgerald, Industrial Combination, p. 191; Lucas, Industrial Reconstruction, p. 199; Marquand, Industrial Combination, pp. 88-92.


tations altogether. As the experienced accountant, Sir Mark Webster Jenkinson, explained to the Macmillan Committee, "Some have got financial millstones round their necks, and they do not know how to bring about fusion. Nobody will take them in". ¹

The danger of the situation to which he refers was forcibly illustrated in Eastwoods attempt to acquire its overcapitalised rival, Allied Cement, which had encountered financial difficulties in the slump of 1929 to 1931. Although Eastwoods gained control of the ordinary shares of Allied and placed some of their own directors on the Allied Board, they were unable to raise adequate finance to cover the company's fixed obligations. The debenture holders of Allied therefore appointed a receiver and the Eastwoods directors were removed. In April 1931 the receiver accepted a bid from a rival group, Associated Portland Cement Manufacturers (which had earlier refused to accept the company as a subsidiary because of the complexity of its financial ramifications) and they thus gained control. The wisdom of their earlier caution had in the event been amply confirmed.²

The capacity to unseat the directors and realise the asset value of a company by forced sale also attached to other creditors. Here again, therefore, direct competitive bids emerged when the receiver put such companies up for auction.³ In some cases, however, the creditors' interest was too large and the breakup value of the companies too low for such ad hoc procedures to be used. The banks in particular, with many fixed interest advances frozen in unprofitable companies, were in this position and were in some cases able to make a concerted initiative to overcome the financial difficulties by drastic

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¹. Macmillan Evidence, q 3700.


reorganisation. Though they frequently disclaimed responsibility for forcing bank debtors to merge and officially ruled out joint action as a breach of the confidential customer-client relationship, they were in fact already participating in some enforced reconstruction and amalgamation schemes. In the steel industry, Barclays forced the unwilling directors of Bolckow Vaughan to accept a bid for Dorman Long by the simple expedient of making the renewal of the company's million pound overdraft conditional on the consummation of the merger.

Action by the banks was given a more formal structure with the creation, on Bank of England initiative, of the Bankers' Industrial Development Company (BIDC) in 1929. This was intended to devise schemes to re-equip and, where necessary, to amalgamate, companies in the staple industries; and appears to have been primarily an attempt to head off possible government intervention in the financing and reorganisation of industry. With financial backing from the Bank of England and other City institutions, and with a high-powered staff, it aimed discreetly to catalyse the banks into action which was felt to be in their long term interests. An essential part of BIDC's philosophy was that its capital should in no cases be used to relieve the public of existing financial burdens. Existing assets could not be bought for cash, and thus mergers

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1. Macmillan Evidence, q 1869-74, 1950, 1977, 2203, though cf. q 2388-9. For a complaint by Steel-Maitland of the timidity of bankers and particularly of McKenna of the Midland see Baldwin Papers, v. 29, pp. 54-63. Of course, bankers did regularly put defaulting creditors into liquidation and invite bids for their assets, see e.g. Chandos, Memoirs, p. 130.


5. It was seen in the City as an essentially temporary expedient and it was hoped that the financial burden which the banks had shouldered, would eventually be floated off to the public when conditions were favourable, see e.g. Macmillan Evidence, q 828-59, 9146. The company was known in the City as "B.I.D. - Brought in Dead".
involving cash acquisitions could not occur under its auspices. Instead shareholders and creditors (including the banks) had to agree to pool their interests in return for a paper title to a share in any future benefits of the merger. Any new capital introduced into such schemes by BIDC - which, of course, had prior rights - was intended to finance new investment only. It was on these conditions that the bankers co-operated, some of them somewhat reluctantly. The most spectacular example of BIDC's work was the formation of the Lancashire Cotton Corporation which between 1929 and 1932 absorbed almost a hundred firms. The majority of these were forced by their bankers, on the threat of withdrawal of overdraft and loan facilities, to accept the terms offered by the Corporation, though the bankers in fact delayed the process, ever hopeful that by dilatory quibbling they would gain better terms. Though it is conceivable that mergers would have occurred in the industry in the absence of BIDC (as they did in the fine spinning section of the industry), the Corporation was undoubtedly larger and the operation more swiftly executed than would have been the case if the matter had been left to the directors of the individual companies. Smaller scale mergers were also encouraged by BIDC in the steel industry, though they were, as the historians of the industry comment, "in large part due to the initiative of individual companies and only partly to Montagu Norman's promptings".

The market in titles to control of assets was, then, for a variety of

1. See the debate on the "Hammersley Scheme" for the cotton industry which violated this principle and therefore failed to gain support, in Lloyds Bank Monthly Review, Oct. 1930, Feb. and Mar. 1931.

2. L.C.C. Archives, Annual Reports and Reports of Extraordinary General Meetings, 1929-1933. The more generally quoted figure of 140 is incorrect: it refers to projected acquisitions and to mills not firms.


5. Carr and Taplin, Steel Industry, pp. 441, 444-7, 536.
reasons still, by postwar standards, underdeveloped; and thus the role of the takeover bid as a mechanism of stock market discipline, implied by modern writers, had not yet been seen as an implication of the growing divorce of ownership and control. Only the banks, operating through BIDC in a limited number of industries, came close to determining industrial policy through operations designed to override board decisions and gain effective control of assets for purposes of managerial reorganisation. The interwar period thus stands halfway between the disaggregated Victorian economy of self-financing owner-entrepreneurs disciplined by competition in the product market, and the modern managerial capitalists of Marris's model, subject to a stock market discipline whose logic was not yet fully developed. The interwar period, embracing as it does elements of the capital market mechanisms described by Lavington and of those described by Marris¹ can be expected to exhibit individual characteristics as well as uniformities in the relationship between mergers and other financial variables. We shall return to this in our examination of merger cycles. But first it is necessary to describe the statistical study on which this examination is based.

Chapter Seven
THE INDEX OF MERGER ACTIVITY: SCOPE AND METHOD

How much? how large? how long? how often? how representative?
(J.H. Clapham, "Economic History as a Discipline", in Encyclopaedia of the Social Sciences, v.5, N.Y., 1930)

Ideally merger statistics are compiled by a government agency with the aid of statutory merger disclosure requirements and an efficient financial press. Unfortunately for the historian of past merger movements, the late development of antitrust in this country leaves him with no reliable government statistics of expenditure on acquisitions until the period from 1954 onwards. Moreover, in contrast to the position in the United States, where private enterprise was eager to fill this gap, British economists appear to have had only sporadic interest in mergers before they received the incentive of government policy criticism, which has since turned merger analysis into a flourishing academic industry. Between the excellent private enterprise study by the Fabian civil servant Henry Macrosty published in 1907,¹ and the assumption by the state of responsibility for the compilation of merger statistics,² there is no very reliable tabulation of merger activity. J.F. Rees³ transcribes (sometimes inaccurately) the limited number of reports of the committees on trusts which were published between 1919 and 1921; whilst P. Fitzgerald and A.F. Lucas⁴ limit their coverage to a few of the major mergers of the interwar period and to price associations. A later study by P.E. Hart and S.J. Prais⁵ suffers from including only a limited sample of

4. Fitzgerald, Industrial Combination in England; Lucas, Industrial Reconstruction and the Control of Competition.
5. Hart and Prais, "Analysis of Business Concentration".
mergers between quoted companies. It is therefore necessary to construct an entirely new statistical series for merger activity in Britain between the wars. This chapter will describe the sources, assembly, verification and classification of merger data for these years. In later chapters, this data will be used to examine some of the theories of mergers by cross-section and time-series analysis, and also to assess the general significance for British industrial structure of the interwar waves of merger activity.

Two basic sources have been used for the compilation of the merger series: the contemporary financial press and business and industrial histories.

The growing body of material in business and industrial history, to which we have already frequently referred, provides a promising geological base for a considerable statistical quarry. Preliminary worksheeting of a sample of business histories showed that the individual "biographies" of firms could usefully be transmuted into their collective prosopography. Accordingly data on all mergers which occurred between 1880 and 1954,¹ mentioned in a wide range of general works and business and industrial histories,² were transferred to series "A" worksheets. Some explanation of the use of these works as a source is required, for it must be confessed that the vast majority of business histories fall considerably short of desirable scholarly standards: important questions are left unasked; trivial ones are given detailed consideration. The conceptual framework of the metaphor of the free market and the whiggish eulogy of progress bears little relation to rigorously defined economic concepts. Yet for all their faults (and these can be exaggerated for some of them are of a quality which compares with the better histories) they are usable for the present purpose. Though analysis is usually lacking, fact is there: and merger is a fact which it is difficult for even the most

¹. The data for 1919-1939 only is presented in this study, though the study covers a longer period. Preliminary results for the period 1880-1918 are referred to, where appropriate.

². For a full list, see Bibliography and Appendix A.
incompetent historian to miss. As a discrete economic event with widespread repercussions on the internal structure of the firm, it normally generated bulky and unmistakeable accumulations of documents, and indeed, it is sometimes the least skilful historian who conveniently, but unthinkingly, reproduces verbatim the dullest data enshrined in such documents, seeing this as his antiquarian duty. This often provides precisely the information which is required: for example, the exact date of the decision to merge or the exact amount of capital involved.

If series "A" were confined to business histories, however, there would inevitably be some gaps in coverage. Firms which have commissioned business histories are very much in a minority and, furthermore, they are not a random sample of the total population, but are heavily biased towards surviving firms. Scholarship is not free of market responses and studies of bankrupt firms necessarily depend on the spontaneous interest of the historian (and the chance survival of records) rather than on the lure of a commission. Again, large and medium-sized firms are more likely to commission a history than small ones in which inherited collective memories may be sufficient to satisfy the demand for knowledge about the past. Thus industries with typically small units provide little source material for series "A". Some correction can be made for this, however, by using the large amount of published and unpublished materials in the fields of industrial history and industrial economics and other related sources. The series thus draws on contemporary analyses of merger movements, reports by the Monopolies Commission on a number of merger-intensive industries and also reports of its predecessor committees on trusts of 1919 to 1921, as well as individual studies of mergers and industrial structure in several industries. This additional source material appreciably widened and deepened the coverage of series "A" so that, although it is still in no sense a random sample, the sources of bias in the selection of mergers were sufficiently diverse to reduce doubts about its use. Series "A" thus represents a summary measure of our existing knowledge on
mergers, as incorporated in a wide variety of sources, published and unpublished, but not hitherto collated.

It was decided to compile a separate series "B" from a financial periodical for the period 1919 to 1939, partly to provide a check on the coverage of series "A", and partly to improve the quality of the information. Initially, it was hoped to use the annual publications, the Stock Exchange Year Book and the Stock Exchange Official Intelligence (which were themselves amalgamated in 1933) to compile a list of companies disappearing each year and to select those where disappearance was due to merger for inclusion in an annual series. This procedure proved to be inadequate both in coverage and in the quality of the resultant data. It involved the omission of a large number of unquoted acquisitions and resulted in serious errors of dating (e.g. where acquired companies continued to receive separate entries) and of identification (e.g. where an internal capital reorganisation is counted as a merger when in fact only subsidiaries of a single parent company are involved). 1

Tests of the reliability and coverage of various financial newspapers were therefore carried out with a view to using them as the series "B" source. Three dailies 2 and eight periodicals 3 were examined for representative short periods and all mergers mentioned in them for those periods were worksheeted. Surprisingly, a weekly, the Investors' Chronicle, averaged a 96% coverage of the mergers mentioned in all the publications, a performance exceeding that of any other source taken singly. Those missed out were small, local mergers, and, although the Investors' Chronicle usually gave

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1. This was established by a comparison of merger data in works which have relied on the year books as a source (e.g. F.R. Jervis, The Economics of Mergers, 1971; Tabb, Accountancy Aspects of Takeover Bids), with series "A" data.


less information than the dailies, the information essential for the present purpose was normally provided. The high coverage of its reporting and the quality of its analysis is confirmed by the assessment of contemporary opinion. Series "B" was therefore compiled from the Investors' Chronicle. Every weekly issue between January 1919 and August 1940 was searched. It proved to be insufficient to cover only the "industrial markets" pages: the "local market reports", "new issues", "stockbroker's notebook" and advertisements were also searched and brought to light additional mergers and improved data. The issues of the Stock Exchange Year Book and the Stock Exchange Official Intelligence for the years adjacent to the merger date were also searched and provided further information on the acquiring and acquired firms for series "B".

A comparison of the worksheets from series "A" with those from series "B" indicates, as one might expect, a fuller coverage in series "B". However, the financial press is not without limitations as a source and series "B" was not in all respects superior. In the interwar period, for example, financial newspapers did not employ industrial correspondents as such but relied for intelligence on market reports and general stock exchange knowledge of commercial and industrial life; inevitably this produced some gaps in reporting. More seriously, companies were not obliged between the wars to admit publicly to the control of subsidiaries, and there were a number of secret acquisitions in the period which have only since come to light in the researches of business historians and under the probings of the Monopolies Commission. It was

1. Its masthead in 1929, for example, claimed the "largest net sales of any weekly financial newspaper". Mr. A.W. Shillady, currently Markets Editor, Financial Times and between the wars on the staff of the Financial News, confirms the high quality of the Investors' Chronicle between the wars. (Interview, 3 June 1970.)

2. The worksheeting of the Investors' Chronicle, from which series "B" was compiled by the author, was carried out by Mrs. P.D. Wright, with the financial support of the Nuffield Foundation and the Social Science Research Council.

possible to maintain secrecy of ownership by the use of nominee shareholders, a practice which was not effectively limited until the Companies Acts of 1948 and 1967. Series "A" incorporates a number of such acquisitions and also those by the significant number of large unquoted companies, especially subsidiaries of foreign parent companies, whose acquisitions are only recorded in the financial press where, for some extraneous reason, they are considered to be of interest to investors.

The accuracy and quality of the composite series made up from the worksheets of series "A" and "B" were also considerably improved by the use of the two sets of sources. Misinterpretation of prospectuses in the financial press was sometimes avoided, for example, when they could be checked against more detailed information in business histories about the previous history of the companies floated. Business histories using unreliable sources or misleadingly describing new factories as "acquisitions" could also be corrected by reference to series "B" data. The evidence submitted by firms to the Monopolies Commission about the size of their past acquisitions sometimes, for obvious reasons, tended to understatement and this tendency could be detected, and the correct size substituted, from series "B" worksheets. Dating has also been much improved by the comparisons of the series and it was possible to develop more meaningful standards of classification by comparing the data in the two series. Because the two series are thus in important senses complementary, the data on the worksheets of series "A" and "B" were not collated into separate final indexes but were rather transferred to a single set of work cards incorporating the most reliable information from both series.

The composite series is, broadly, limited to consolidations of, and acquisitions by, firms in manufacturing industry in the United Kingdom. Companies operating outside the United Kingdom were excluded from the series.

2. Up to 1921 the United Kingdom included the whole of Ireland.
unless they had significant assets in manufacturing industry in the United Kingdom. Acquisitions by British companies of foreign companies and by foreign companies of British companies and also consolidations of British companies operating abroad were omitted unless they involved the passing into one ownership of two United Kingdom subsidiaries of the companies.¹

Mergers of United Kingdom firms in the financial, agricultural, distribution, construction, transport and public utilities sectors also are excluded, since they may be expected to be subject to different economic or legislative influences than firms in manufacturing industry. However, acquisitions by manufacturing firms of firms in these non-manufacturing sectors were, in general, included as it was considered that they were relevant to a consideration of the determinants of the acquisitive behaviour of manufacturing firms and to the study of the role of mergers in the growth of large manufacturing firms.²

Manufacturing industry represents a reasonably homogeneous sector of the economy which it is meaningful to analyse separately in this way, and there is no reason to believe that the mergers of, say, the railway groups in 1921 can be usefully considered jointly with those in manufacturing. The line of separation thus seems both simple to draw and justifiable.

Some difficulty arises, however, in the treatment of the mining sector which has a significant degree of direct and indirect overlap with the manufacturing sector. Ironstone mines and ironworks, limestone quarries and cement works, or gypsum mines and plasterboard factories, were, for example, frequently owned by the same company and it was not always possible to distinguish them. Furthermore it was not clear that they would be subject to a

1. This is more misleading for the United Kingdom than for, say, the United States, for international mergers played a larger part in reducing competition in the domestic market or in gaining control of raw materials for United Kingdom companies.

2. However, a small number of acquisitions by manufacturing firms in these sectors were excluded where they were run as separate businesses, e.g. Uniliver's acquisitions of retail chains through Allied Suppliers, and Dunlop's secret acquisitions of tyre distributors.
wholly different set of economic influences, for they operated within much the same institutional framework as manufacturing industry. Accordingly, most mining and quarrying enterprises were, in fact, included in the series, though mergers between companies wholly or principally engaged in coal-mining were excluded because they were subject to the special legislative provisions for mergers in that industry.¹

In order to facilitate cross-section analysis each merger was classified on the summary cards according to the industry of the acquiring partner, or, in the case of consolidations, the industry of the larger partner. Where companies spanned several industries that to which the merger most significantly related or which accounted for the major part of the combining partners' business was chosen. The firms were allotted to one of the 17 manufacturing industry groups of the Standard Industrial Classification of 1958² according to the information on their product lines which was available on the series "A" and "B" worksheets.

It is desirable, though necessarily rather arbitrary, to define "merger" for the purpose of standardising the criteria for admission to the series. In this study, a merger is considered to have occurred when one company gains control of more than $50\%$ of the voting power of another (an acquisition) or where a new company is formed to take over more than $50\%$ of the voting power of each of two or more existing companies (a consolidation). The treatment of acquisitions and consolidations can be standardised by measuring both in terms of net firm disappearances so that whether company X acquires company Y or whether they are consolidated in a new company Z, the index will show only one firm disappearance. In essence this definition aims at approximating the economic definition of merger as a change in the boundary of the firm involving the disappearance of one or more firms as autonomous units and


achieved by an act of financial integration (rather than by competitive attrition and internal growth). It was necessary in some cases to modify adherence to the legal definition in order to approximate more closely to the economic definition. Thus the consolidation of two subsidiary companies of a single parent corporation and flotations of companies which had previously been under the same ownership and management was excluded from the series as being primarily legal or administrative rather than economic events.

The most common contemporary word for merger was probably "combination" but this did not correspond to the modern standardised meaning, for it included restrictive practices as well as merger. Other phrases describing the relations between companies - "associated with", "allied interests", "trade investments", "acquired" - were also used imprecisely in contemporary parlance and may or may not imply merger in individual cases. Nevertheless, it has generally been possible to resolve these doubts in particular cases and to apply the test of ownership of more than 50% of the voting power of a company. This conforms to the contemporary definition of a subsidiary in section 127 of the Companies Act 1929 and is the criterion of control adopted in concentration studies based on the census of production. An exception to the rule has been allowed only where the essence of a merger is clearly present and there is a clear change in the ownership of a bundle of working assets. The limited extent to which this licence for flexibility has been used is shown by the following cases of "near-mergers":

1) Trade Investments and Control through 50% or less of the shares

When ownership is widely dispersed it is not necessary to have a majority of the shares to secure control: a "trade investment" of 20% may be sufficient for effective control. However even when one company bought as much as 49% or 50% of the capital of another, it has

not been included as a merger.

ii) Joint Acquisitions

Where two firms acquired more than 50% of the voting control of a third firm a merger is recorded as if there were only one acquirer; but where three or more firms or a trade association made such a joint acquisition, it is excluded from the series.

iii) Asset Purchases

Sometimes (e.g. when a company is in liquidation) its assets are sold as a going concern but the company "shell" itself does not change hands. Such asset purchases have been counted as mergers where the price paid was substantial or there were other reasons for believing the assets to represent a going concern.

iv) Defunct Companies

Where a company is acquired but it is not operating (e.g. because the acquirer wishes to convert its factory to another use) this is not counted as a merger since it more clearly represents a transfer of land and buildings than of a working economic unit.

v) Sales of Subsidiaries between Companies

Sometimes a company sells off one or more of its operating subsidiaries or a significant portion of its assets to another company. Although there is not necessarily a "firm disappearance" in these cases, they have been included in the series as if there were.

vi) Personal and Family Takeovers

Where it is clear that a single dominant personality controls an enterprise, his personal takeovers are considered as if they were taken over by the major company controlled by him. Thus Morris's acquisition of Wolseley is dated in 1927 when he purchased it and not in 1936 when he formally transferred ownership to Morris Motors Ltd.¹

¹ Andrews and Brunner, Lord Nuffield, pp. 135-6. The acquisitions of Lord Furness, Lord Rank, the Richard Thomas family and the "press barons" have been similarly treated.
In general therefore, this composite definition of a merger excludes the purchase of minority interests but includes all changes in the effective boundary of the firm, financially, rather than legally, defined.

It is not immediately obvious whether numbers of firm disappearances or gross expenditure on acquisitions is the more appropriate measure of the volume of merger activity, and, as postwar evidence shows, the two indicators do not necessarily move in unison.¹ This is important since a major purpose of the index is to facilitate quantitative study of the cyclical behaviour of mergers as an aid to understanding the various causes of merger. The preference for a value index to be seen in much of the recent merger literature derives from a feeling that the index should reflect a higher figure if two companies with a market valuation of millions of pounds merge than if the merging companies are valued at only a few thousand pounds.² However, whilst this is clearly valuable in studies of the effects of mergers on concentration or on the growth of large firms, where the sizes of the partners are important, it is not unambiguous even for that purpose. An example will serve to show this ambiguity. If there are three companies, X, Y and Z with capitalisations respectively of £4m., £2m., and £1m., the value series will show discrepant results for very similar economic occurrences. For example, if X acquires first Y and then Z, £3m. will be shown as disappearing; whilst if Z first acquires Y and then X acquires (Y + Z), £5m. in all will be shown as disappearing.

By contrast the inadequacies of a number series can easily be overstated. If 10 firms each worth £100,000 are acquired it is arguable that this should be reflected by a higher index number than the acquisition of one firm worth

¹ Newbould, Management and Merger Activity, pp. 18-22.
² The mergers in the present series vary from the one that created I.C.I. in which the three disappearing firms were valued at almost £36m., to the acquisition by Press Cap Ltd., of the Straight Jane Hop Company for £2,000; the average size of firms disappearing being £354,540.
£1m., for it does reflect a correspondingly greater change in the number of independent decision-making units in the economy and a correspondingly greater number of decisions to merge. The number index also has the advantage of being in constant terms over the trade cycle: whilst an acquisition may cost a very different sum at cyclical peaks and troughs, it will remain one "firm disappearance".

There is, then, no unequivocally "correct" index of merger activity and our choice will be determined both by the availability of data and by the problem in hand. Where possible, data was assembled on both numbers and value for the present series, but, as will later become clear, the data on numbers is much more accurate and comprehensive than that on value. Accordingly the number index will be used in this study wherever possible in preference to the value series. The foregoing suggests that, though this is in origin a necessity, it may in some respects be counted a virtue.

Given our definition of merger the number series presents few problems. The difficulties of assembling the value series and the conventions adopted for overcoming them do however require exposition. Data was sometimes available on the price paid for acquisitions and for the market value of shares changing hands in consolidations. In these cases therefore it was possible to construct an index of the value of net firm disappearances, standardising the treatment of acquisitions and consolidations by treating the largest firm in consolidations as the acquirer. In some cases where there was a flotation of a consolidation, the only figures available for valuation were the notional purchase price or the total market value of the whole capital of the consolidated company. When the relative sizes of the

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1. Where the numbers of firms disappearing were not precisely known a guess was made taking in account the contextual phraseology and with a bias towards low estimation. Thus "several", "a few", "some" became two; "a number", "various", became three; and "a lot", "many", "a large number" became four.

2. In line with the revised treatment recently introduced by the Department of Industry and Trade for its current merger index, see Trade and Industry, 19 May 1971.
merger partners were not known it was necessary to use incidentally gathered information (e.g. relative outputs, relative authorised capital, general data on the average firm size in the industry) to estimate the portion of the total value to be attributed to the disappearing firms. Even for acquisitions the data was not always of the quality required for an expenditure series. For some companies it was not possible to calculate the price paid or the market value of the shares disappearing, and for these, the nominal value of the shares, an appropriate multiple of profit figures, or fractions of share issues or changes in the assets in subsidiaries indicated in the balance sheet of the acquiring company had to be used instead. Though this procedure is not formally satisfying because it mixes data which are, in principle, incompatible, it is the best that can be done with inevitably imperfect sources of information.

Sometimes companies gain control of other companies by acquiring something less than 100% of their capital. This can occur for a variety of reasons: a small portion of the capital may carry all the voting power; or a company may already have a large minority holding so that it can gain full control by acquiring only a small extra portion of the capital. Also whilst some companies stipulated as a condition of their bid that they gain, say, 90% or more acceptances, others were satisfied to control between 50% and 90%. For the value index, only the capital actually purchased was included, though in cases where there was no information it was assumed that there had been 100% acceptances, faute de mieux. A related problem is the wide differences in the gearing of companies and the question of whether to include the acquisition of preference shares and debentures in the value index. Again, however, the luxury of using data appropriate to the topic investigated is not always available to us, and we have generally used any information available. If the price paid includes debentures and preference shares (or

1. This is the relevant figure for a study of expenditure on acquisitions, though for concentration studies the full value is relevant.
if a consolidation acquires the debentures and preference shares of the merging partners) these have generally been included, but where they were not acquired — and since they did not usually carry control they often were not — they were excluded from the series.

It will be clear that a good deal of chance availability and subjective judgment determines the data incorporated in the value index. Even with the heroic guesses and aggregation of incompatible data it was possible to provide valuation figures for only 63% of the total number of firm disappearances in the series. Comparison of valuations derived independently from series "A" and "B" would also suggest serious reservations about the quality of the value data. It was not unusual for there to be discrepancies of 20% between, the two series and discrepancies of over 100% were registered in some cases where the cruder methods of estimation were used. The value series must therefore be used only with extreme caution and heavy qualification. However, large swings in it may, together with swings in the number series, be taken as a fair indicator of changes in the overall volume of merger activity.

There remains the problem of the dating of mergers. The decision to merge is rarely taken by both partners concurrently and the process of merger is likely to be fairly long drawn out, being a complex one of financial, managerial and legal readjustments. Most studies of mergers have adopted as a dating convention the date of completion of merger because that data is the most readily available. However, the completion date may well be several months after the decision to merge, and a decision chronology would be more relevant to causal analysis. A difficulty in this is that the initial decision to seek a merger partner may predate by a year or more the actual consummation of the merger. Furthermore it is usually not possible to date it except by reference to the archives of individual firms. For the purposes of the present series, a compromise between the availability of information and its relevance to the economic questions to be investigated was necessary, and mergers were therefore dated by the time of public announcement of intention.
to merge by the directors of the companies involved. This indicates that a serious intention has been formed by both parties and only rarely was such an announcement not followed by consummation of the merger.\(^1\) Where only a final announcement of the merger was made, as was often the case in the acquisition of private companies, the date of this announcement is taken to be equivalent to the announcement of intention to merge if it was spoken of as imminent or immediately preceding, or the previous month if it was spoken of as recently consummated. In the case of a consolidation which was subsequently publicly floated the decision date of the partners involved is taken, if available, but otherwise the date of announcement of the new issue is substituted.

In the majority of cases it was possible to derive information at quite a high level of disaggregation and the quarter was chosen as the unit of time within which mergers could be grouped. A certain amount of arbitrary allocation between quarters was necessary in borderline cases and for some mergers only the financial year or half-year was known and these have been spread evenly between the appropriate quarters. This procedure was unavoidable,\(^2\) but it will probably have had the effect of arbitrarily smoothing the cyclical pattern of mergers. There remained 775 firm disappearances by merger, one third of the total, which it was possible to allocate only to a calendar year, and these are therefore excluded from the quarterly data.

Information from the series "A" and "B" worksheets on the number of firms disappearing, price paid, industrial classification and date, for each

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1. All announcements of intention to merge were checked in the Stock Exchange Year Book, the Stock Exchange Official Intelligence, and other sources and were deleted from the series where they appeared not to have been consummated.

2. There were too many mergers for which no precise date was available for allocation to the date of mention (which would have biased the series towards the annual general meetings months) or for exclusion from the quarterly series. However where the date was not known to within the nearest year — as was the case in several hundred mergers, largely of small non-quoted companies — the merger was excluded from the series.
merger was collated on summary workcards,¹ which were then aggregated according to various classifications. The results are tabulated in various forms in subsequent chapters and in the appendices. Quarterly and annual series of firm disappearances by merger appear in various forms in chapters 8 and 10, and in Appendix B. Mergers are broken down by industrial classification in Appendix C, which is discussed in chapter 10. Appendix D tabulates the merger record of 82 large companies, and their contribution to merger waves and to increasing industrial concentration is the subject of chapter 11. The 128 largest recorded mergers (in each of which firm(s) valued at £1m. or more "disappeared") are tabulated in Appendix E. They are also classified by type - horizontal, vertical, and diversifying - and these categories are briefly discussed in chapter 9. Finally the merger record of every company into which 10 or more companies were recorded as "disappearing" between 1919 and 1939 is tabulated in Appendix F.

It should, however, be borne in mind that the composite series presented in these chapters and their related appendices are likely to underestimate the total amount of merger activity by manufacturing firms between the wars. Whilst there are probably some errors of commission - mergers will have been registered, for example, where in reality what is happening is the public flotation of companies which had been merged many years before - it is believed that these are, in general, greatly outnumbered by errors of omission. Many borderline cases of events which could have been mergers or indeed which certainly were but could not be dated to the nearest year, were omitted and reference books such as the Stock Exchange Year Book indicate many subsidiaries which probably represent past acquisitions but which do not appear as such in our sources. Though some managers in the 1930s began to reveal more to investors about acquisitions, and in some cases backdated their comments to the 1920s, there were no doubt many who continued to acquire

¹. The merger workcards are available for inspection on written application to the author.
private unquoted companies behind a veil of secrecy as yet unparted by the
business historian or the Monopolies Commission. This can be seen to some
extent in the data in Appendix D, which tabulates the full merger record of
82 large companies. Of the firm disappearances which these firms accounted
for between the wars, 20% were excluded from the series, largely on the
grounds that the information did not permit accurate dating or adequate
verification. In the case of smaller companies, of course, the coverage is
not likely to have been better.

One advantage of the construction of two independent series is that,
although the probabilities of each merger occurring in either series "A" or
series "B" are not known, the total finite population of mergers of which
the two series are independently-drawn samples can be estimated. If the
probability of any merger in the total population of mergers, n, appearing
in series "A" is $P_a$ and the probability of it appearing in series "B" is $P_b$
then, where $x$ is the number of mergers in series "A" $y$ the number in series
"B" and $z$ the number common to both series, we have:

\[
x = nP_a \quad \text{............... (1)}
\]

\[
y = nP_b \quad \text{............... (2)}
\]

\[
z = nP_a P_b \quad \text{............... (3)}
\]

and so

\[
n = \frac{x + y - z}{z} \quad \text{............... (4)}
\]

We know from the workcards that, of the total of 2,544 firm disappearances
registered in the present study, 882 (35%) appeared, in one form or
another in both series, 1,055 (41%) occurred only in series "B" and 607 (24%)
occurred only in series "A". Given this information, it would be possible
to calculate $x$, $y$ and $z$ in the above equations (and hence to derive an esti-
mate of the total merger population, whether included in the present series
or not) if it could be assumed that $P_a$ and $P_b$ in equation (3) were not

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1. I am indebted to John Kay for suggesting this method.
significantly correlated. Unfortunately it seems likely that the probability of a merger appearing in one series is significantly related to the probability of it appearing in the other series. Large mergers, for example, are more likely to appear in both series than small mergers: among mergers in which the firms disappearing were valued at £1m. or more as many as 91% appeared in both series. This problem can, however, be minimised by disaggregating the data by year and by size of merger. For each year, therefore, equation (4) was calculated separately for mergers in which the firms disappearing were valued at below £1m. and for those valued at £1m. or more, and the two results were then added together to provide an estimate of total firm disappearances in each year, adjusted for omissions. The annual adjusted totals are reported in Table B.1 of Appendix B. There will, of course, still be some correlation of the probabilities of mergers appearing in the series, and, though this method will have eliminated much of this effect, it should be remembered that these estimates remain minima. It appears that the series of observed disappearances (i.e. the simple aggregate of series "A" and series "B") is indeed a considerable underestimate: only 2,544 out of a probable minimum total of 3,749 firm disappearances, or only 68%, are in fact included in the raw series. However, inspection of the worksheets and a priori reasoning would together suggest that the general characteristics of the omissions might justify the selectivity of the raw series, which is used in subsequent chapters. There are likely to be only a few omissions in the large size class over £1m. and the probability of omission only becomes significant as the size of the merging firms is reduced. Size apart, the mergers of unquoted and private companies are probably less well covered

1. The total adjustment for omissions should also be higher to cater for those cases in which \( P_a \) or \( P_b \) is zero, e.g. for private companies which have neither commissioned business histories nor achieved notice in the financial press.

2. See Appendices D and E, below.
than those of quoted companies. Such omitted mergers will both be less important in their effect on the structure of industry, and, being perhaps more likely to exhibit individual behaviour patterns, may be less susceptible to general explanation than mergers of medium and large-sized quoted companies which heavily influence the totals of the raw series. Hence, though the series adjusted for omissions will be referred to where appropriate, it is the raw series which will principally be used in subsequent chapters. It should, however, be recognised throughout that the raw merger series is not a representative sample of mergers, either by the size or legal status of the firms involved, but rather a truncated selection of the varied range of interwar merger activity.
Chapter Eight
DESCRIPTION OF FINDINGS

The reason of the thing is not to be enquired after, till you are sure the thing itself be so. We commonly are at what's the reason of it? before we are sure of the thing.

(John Selden, Table Talk, 1689, p. cxxi.)

The two basic annual merger series generated by the statistical study outlined in the previous chapter are presented in Table 8.1 on the next page. The number of firms disappearing by merger in each year are tabulated in column 1; and the total annual values of those firm disappearances for which the price paid could be estimated (according to the conventions already described) are tabulated in column 3. Column 2 indicates the numbers of firm disappearances by merger in each year for which the value could be estimated. Only 1600 firm disappearances could in fact be valued out of the total of 2,544 which were recorded for the whole interwar period. The value series in column 3 is thus based on 944 less firm disappearances than the number series in column 1. It is a moot point how far the value series should be adjusted to take account of these omissions. A comparison of the numbers of firms for which in each year value data was and was not available (columns 2 and 4, respectively) indicates that their relative sizes fluctuate considerably. In 1929, for example, over three-quarters could be valued, but in 1922, 1923 and 1939 the proportion was less than a half. However, the mergers for which no value data were available from the financial press and other sources are likely to have been the smaller ones, and it is conceivable that the overall totals for merger values will not have been seriously affected by the omissions. A figure for the omitted values could be derived if an estimate of their relationship to the known values could be made. A maximum can be fixed by the use of data in Appendix E which shows that the 128 largest mergers accounted for £357m. of the values in column 3, and suggests that very few large mergers are in fact omitted from the series. If these mergers are omitted from the aggregate values for 1919-1939 it
Table 8.1. Merger Activity in British Manufacturing Industry 1919-1939

<table>
<thead>
<tr>
<th>Year</th>
<th>Firm Disappearances by Merger</th>
<th>Firm disappearances by Merger for which value data is available</th>
<th>Values of Firm Disappearances in col. 2 (£000)</th>
<th>Supposed values of Firm disappearances for which No Value Data is Available (£000)</th>
<th>Total supposed Values of Firm disappearances in col. 1 (£000)</th>
<th>Average Values of Firm disappearances in col. 3 as a % age of &quot;Total Investment Expenditure&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>1919</td>
<td>208</td>
<td>(130)</td>
<td>80,371</td>
<td>(78)</td>
<td>4,822</td>
<td>85,193</td>
</tr>
<tr>
<td>1920</td>
<td>264</td>
<td>(169)</td>
<td>54,032</td>
<td>(95)</td>
<td>3,037</td>
<td>57,069</td>
</tr>
<tr>
<td>1921</td>
<td>68</td>
<td>(39)</td>
<td>13,166</td>
<td>(29)</td>
<td>979</td>
<td>14,145</td>
</tr>
<tr>
<td>1922</td>
<td>47</td>
<td>(21)</td>
<td>9,313</td>
<td>(26)</td>
<td>1,153</td>
<td>10,466</td>
</tr>
<tr>
<td>1923</td>
<td>92</td>
<td>(43)</td>
<td>18,784</td>
<td>(49)</td>
<td>2,140</td>
<td>20,924</td>
</tr>
<tr>
<td>1924</td>
<td>89</td>
<td>(45)</td>
<td>10,272</td>
<td>(44)</td>
<td>1,005</td>
<td>11,277</td>
</tr>
<tr>
<td>1925</td>
<td>97</td>
<td>(54)</td>
<td>42,173</td>
<td>(43)</td>
<td>3,358</td>
<td>45,531</td>
</tr>
<tr>
<td>1926</td>
<td>102</td>
<td>(60)</td>
<td>64,920</td>
<td>(42)</td>
<td>4,544</td>
<td>69,464</td>
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<tr>
<td>1927</td>
<td>131</td>
<td>(86)</td>
<td>34,536</td>
<td>(45)</td>
<td>1,807</td>
<td>36,343</td>
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<tr>
<td>1928</td>
<td>188</td>
<td>(124)</td>
<td>39,472</td>
<td>(64)</td>
<td>2,037</td>
<td>41,509</td>
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<tr>
<td>1929</td>
<td>308</td>
<td>(244)</td>
<td>41,585</td>
<td>(64)</td>
<td>1,091</td>
<td>42,676</td>
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<tr>
<td>1930</td>
<td>120</td>
<td>(81)</td>
<td>25,137</td>
<td>(39)</td>
<td>1,210</td>
<td>26,347</td>
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<tr>
<td>1931</td>
<td>66</td>
<td>(40)</td>
<td>13,507</td>
<td>(26)</td>
<td>878</td>
<td>14,385</td>
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<td>1932</td>
<td>64</td>
<td>(39)</td>
<td>7,716</td>
<td>(25)</td>
<td>495</td>
<td>8,211</td>
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<tr>
<td>1933</td>
<td>67</td>
<td>(33)</td>
<td>12,019</td>
<td>(34)</td>
<td>1,238</td>
<td>13,257</td>
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<td>1934</td>
<td>93</td>
<td>(61)</td>
<td>14,726</td>
<td>(32)</td>
<td>772</td>
<td>15,498</td>
</tr>
<tr>
<td>1935</td>
<td>136</td>
<td>(100)</td>
<td>16,434</td>
<td>(36)</td>
<td>591</td>
<td>17,025</td>
</tr>
<tr>
<td>1936</td>
<td>138</td>
<td>(91)</td>
<td>24,872</td>
<td>(47)</td>
<td>1,285</td>
<td>26,157</td>
</tr>
<tr>
<td>1937</td>
<td>225</td>
<td>(69)</td>
<td>16,358</td>
<td>(56)</td>
<td>1,328</td>
<td>17,688</td>
</tr>
<tr>
<td>1938</td>
<td>79</td>
<td>(43)</td>
<td>17,307</td>
<td>(36)</td>
<td>1,449</td>
<td>18,756</td>
</tr>
<tr>
<td>1939</td>
<td>62</td>
<td>(28)</td>
<td>10,571</td>
<td>(34)</td>
<td>1,284</td>
<td>11,855</td>
</tr>
<tr>
<td></td>
<td>2,544</td>
<td>(1,600)</td>
<td>567,271</td>
<td>(944)</td>
<td>36,503</td>
<td>603,774</td>
</tr>
</tbody>
</table>

(1919-1939) (1920-1938)
Notes on the sources to Table 8.1

cols. 1, 2, 3: workcards of the present study, derived from series "A" and "B" worksheets, unadjusted for omissions.

col. 4: col. 1 minus col. 2.

col. 5: calculated, on the supposition that the average value of mergers for which no value data is available was one-tenth of the average value of mergers for which value data was available, i.e.

\[
\text{col. 5} = \frac{\text{col. 3} \times \text{col. 4}}{\text{col. 2} \times 10}
\]

col. 6: col. 3 + col. 5.

col. 7: col. 3 ÷ col. 2.

col. 8: calculated according to the formula:

\[
\text{col. 8} = \frac{\text{col. 3}}{(K + \text{col. 3})} \times 100
\]

where K is Feinstein's estimate of annual gross domestic capital formation in manufacturing industry (see B.R. Mitchell and P. Deane, Abstract of British Historical Statistics, Cambridge, 1962, p. 376). As the series is not available for the years 1919 and 1939 the percentage of "total investment expenditure" (i.e. (K + col. 3)) accounted for by merger values can be calculated only for the years 1920-1938.
appears that the average value of the smaller mergers remaining is only just over one quarter of the overall average: £95,000 compared with £355,000.

Making a further allowance for the tendency of the sources to report fewer values for smaller than for medium-sized mergers, a reasonable estimate of the omitted values would be that they were perhaps one-tenth of the average size of those included. If we assume that unknown values were, on average, one-tenth of the average values of mergers occurring in the same year, the additions which should be made to the values for each year can be seen in column 5 and the resultant total merger values in column 6. The increase in value is in no year greater than 12.4%, and for the whole interwar period the increase in values would be only £36.5m., that is only 6.4% more than the recorded values. An alternative assumption would be that the unknown values were a function of the industry of the acquiring firm. Assuming that the unknown values were one-tenth of the average values for their industry, the increase in values would, at £35.4m., or 6.2%, be even less. ¹ The assumption of values of one-tenth in both cases, is however, somewhat arbitrary and it may be too low (or indeed too high). It is mentioned here only as a general indication of the sensitivity of the data to assumptions about the omissions. In the discussion which follows, however, and in subsequent chapters, reference to value data is in all cases to the raw data on merger values in column 3 of Table 8.1 unadjusted for omissions. The tendency of the value data to underestimate the level of merger activity (and

¹ See Appendix C below.
possibly of fluctuations in it) to a greater (but unknown) extent than the series of numbers of firms disappearing should, therefore, be constantly borne in mind.

The two remaining columns of Table 8.1 give two further indicators of the characteristics of merger activity between the wars. The average price paid for firm disappearances in mergers is tabulated in column 7. The average value was £355,000 for the whole period, but there were considerable year-to-year fluctuations, the average in 1935 being less than half, and the average in 1926 being more than six times greater than the overall average size of firms disappearing.

The final column, column 8, provides an alternative measure of merger activity based on the main value series, indicating the proportional contribution of external growth (by acquisition and consolidation) to the total growth, internal and external, of manufacturing firms between the wars. The total merger values for each year in column 3 are expressed as a percentage of "total investment expenditure" (i.e. of expenditure on both mergers and real assets). It will be seen that, in so far as the value data can be relied upon as an indicator of total merger activity, the external growth component is always the smaller one, though in 1926 it reaches a high level of 47.4% of "total investment expenditure" by manufacturing firms, and during the whole period 1920-1938 the average merger values account for as much as 23.7% of the "total investment expenditure". The economic meaning which can be attached to this data is of course limited. Not only are the merger values subject to the reservations made in this and the previous chapter, but it should also be remembered that "total investment expenditure" is an artefact of the financial data not a fixed fund of real resources. Whilst individual firms may have a choice between expending their surplus cash flow on acquisitions or on real investment, the physical constraints on new investment in the economy as a whole differ in kind from the constraints on the overall level of merger activity: this relative indicator should not, therefore, be taken to imply a macroeconomic constant.
The broad annual patterns of merger activity indicated in the three major series in Table 8.1: numbers of firms disappearing (column 1), values of firms disappearing (column 3), and mergers as a percentage of "total investment expenditure" (column 8) are not identical, but certain common features are visible. Numbers and values peak in the postwar boom of 1919-1920 but by 1921 and 1922 slump to very low levels and this slump appears to take place relatively to other investment expenditure, as well as in absolute terms. All the series show a marked recovery in the later 1920s, but they differ in their peak years. The two value series peak earliest in 1926, though a high level of merger activity is maintained for some years thereafter, but the number series has a more gradual rise to a later, but equally pronounced peak of 308 firm disappearances in 1929. The discrepancy between the peak years of the number and value series can be eliminated by the exclusion of two large merger values and of firm disappearances in one large multi-firm consolidation. The two largest mergers of the interwar years - Distillers' acquisition of its John Walker and Buchanan-Dewar competitors in the whisky trade (in which the disappearing firms were worth £20m.), and the Imperial Chemical Industries consolidation of 1926 (in which three firms worth £36m. disappeared) - explain the peak in the value series in the years 1925-6; whilst in 1929, 70 of the firm disappearances are accounted for by the acquisitions of the Lancashire Cotton Corporation in that year. If these extreme observations are subtracted from the series, it will be seen that the second peak of both series then occurs in 1929.\(^1\)

Interwar merger activity was highly concentrated in the two merger waves of the postwar years and the late 1920s. In the first wave of 1919-20, 18.6% of the total firm disappearances and 23.7% of the total merger values occurred; whilst between 1925 and 1929 there occurred 32.5% of the total by number and 39.3% by value. Thus seven of the twenty-one interwar years - one-third of the time period covered - accounted for 51% of the total firm

\(^1\) The coefficient of correlation (corrected for degrees of freedom) between the two series thus adjusted, is 0.69.
disappearances by merger which were recorded and for 63% of their estimated values.

Though all three indicators of merger activity reached a significant peak in 1936, the merger activity of the 1930s was more subdued than in the earlier waves. The 1936 peak in numbers was some 55% lower than the peak of 1929, and the peak in values was some 69% lower than the exceptional year of 1919. The average price estimated to be paid for firms disappearing in the 1930s was only £231,000 compared with £403,000 in the 1919-1929 period. A similar impression of the reduced role of mergers in the 1930s is gained from a separate study of larger mergers which was made. Only 37 (29%) of the total of 128 mergers identified as involving firm disappearances of £1m. or more occurred between 1930 and 1939.

The different basis of compilation renders comparisons between the present merger series for Britain between the wars and series for earlier and later periods (or for foreign countries) extremely hazardous. It is difficult to assess precisely the degree to which series covering a long period are comparable, given the changing conventions of researchers and other statistical agencies and variations in the quality of public reporting of mergers and in the stringency of legal disclosure requirements. All estimates of merger activity, including the present series, appear to be minima, and there is an unknown total population of mergers of which the available series may represent only the tip of an iceberg. The problem is that, in contrast to the case of the iceberg, we have no grounds for presuming that the exposed "tip" which is visible in the merger statistics, is a constant proportion of the whole. If this presumption is made - the only ground for this being that the problem is by its nature incapable of solution - an imperfect comparison of interwar merger waves with those which came before and

1. This decline cannot be explained by the level of share prices. The unweighted arithmetic mean value of Moody's annual share price index rises from 54.9 in 1919-29 to 62.1 in 1930-39.
2. See Appendix E.
after becomes possible. The three interwar peaks of firm disappearances - 264 in 1920, 308 in 1929 and 138 in 1936 - do appear to establish their claim to be parts of merger waves of considerable significance. The previous merger peaks of 1888, 1899 and 1909 registered only 101, 240 and 60 firm disappearances respectively, for example, though the postwar peak of 510 disappearances in 1960 shows a higher level of firm disappearances.

Comparison with the value series over time raises the problem of corrections for the effects of changes in the price level. The peak years for mergers by value were 1919, with £80m. disappearing, and 1926, with £65m. disappearing (both at current prices). These were transformed into 1961 prices by applying Moodie's share price index to the data. The transformed values then indicated, at 1961 prices, £405m. disappearing in 1919 and £280m. in 1926. Since the actual figure for expenditure on acquisitions by manufacturing firms recorded by the Board of Trade in 1961 (the first peak

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1. The peak totals may be adjusted to allow for underestimation in series "A" and "B" by the method described in equation (4) (p. 172 above). The adjusted values are 336 firm disappearances in 1920, 431 in 1929, and 274 in 1936.

2. Provisional estimate from an unpublished merger series for 1880-1918 by the author. Since the source material used was less exhaustive than that used for the present inter-war series, it may be an underestimate relative to the present series.

3. Acquisitions of both unquoted and quoted companies largely by quoted companies and solely in manufacturing industry (Board of Trade Statistics Division, Acquisitions and Amalgamations of Quoted Companies 1954-1961, Summary and Industrial Group Tables, limited circulation, 1963). The series excludes asset purchases, consolidations in which new companies are formed and acquisitions by many unquoted companies, which are, in part, included in the interwar series. On the other hand the comparison may understate the importance of interwar mergers because of the increased representativeness of the quoted sector and improved financial publicity in the postwar period.

4. Alternatively the London and Cambridge Economic Service index of industrial ordinary share prices gives transformed values of £376m. and £278m. respectively. The use of a share price index may be criticised on the ground that it includes some net additions to real assets as well as the change in the level of asset prices. Using instead the London and Cambridge Economic Service index of capital goods prices as a proxy for asset prices produces transformed values of £224m. for 1919 and £238m. for 1926. However, the use of the share price index may be justified if one wishes to judge the importance of mergers relative to the changing national capital stock since it does to some (unknown) extent reflect the upward trend in that capital stock.
year of their value series for acquisitions beginning in 1954) was £330m., the merger waves between the war certainly appear to have been of historically significant proportions.¹

The comparison of mergers in peak years may, however, be misleading if interwar cycles of merger activity (like the general business cycle) exhibited more pronounced fluctuations than postwar merger cycles. Accordingly two like decades which each included only one merger peak were compared. The value of all acquisitions in the 1921-1930 period was transformed to 1954-1963 prices by a weighted average of Moodies share price index, the weights being the incidence of merger activity by value within the relevant periods. The transformed value of 1921-1930 mergers was £1,070m. compared with the £1,893m. actually registered as the cost of acquisitions by manufacturing firms in the 1954-63 period. This suggests that merger activity may indeed have been more cyclical between the wars than in recent years, and that comparison of peak years therefore overstates the importance of the interwar merger waves.

However, for some purposes, it may be desirable to take into account the fact that economic activity in general was at a lower level between the wars. This may be done by comparing expenditure on internal growth (i.e. by new investment in buildings, plant and machinery) with expenditure on external growth (i.e. by merger). Expenditure on mergers as a percentage of total business investment expenditure in manufacturing averaged 23.7% in the period 1920-1938.² This is in fact about the same level as that registered in postwar merger waves in both Britain and the United States.³ Whilst

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¹. The same limitations apply to value data comparisons as to comparisons of numbers, and, indeed, the omission of consolidations in the recent value data may produce more serious underestimation. The poor quality of the interwar value data should, however, also be recalled here: in particular the value data for 1919 covers only 63% of the firm disappearances and that for 1926 only 59% of the firm disappearances.

². See Table 8.1 above, col. 8.

³. Between 1954 and 1961 in the United Kingdom expenditure on acquisitions in manufacturing accounted for 18.3% of total expenditure on acquisitions and Contd.
there are, then, great difficulties in formulating comparisons between sta-
tistical series of merger activity compiled on different bases from sources of varying reliability and coverage, one conclusion would seem to be justi-
fied. The view which has been canvassed recently that, for example, the merger wave of 1954-1960 represented "a historically unprecedented spate of mergers and take-overs", can only be accepted with heavy qualification. It may, however, be remarked, parenthetically, that the most recent wave of merger activity in the British economy, as measured by the improved data of Newbould, with its peak in 1968 of 1,433 firm disappearances worth £3,560m. would indeed appear to stand out as of a different order of magnitude to previous merger waves. This discrepancy may be too large to be explained solely by improved data collection and changes in the price level.

An alternative way of ranking historical merger waves by their relative importance involves the identification of the date of important mergers in the history of large corporations. The majority of large corporations can point to at least one merger in which a large number of firms initially came together or which significantly increased the size of the firm. These may be dated according to the information in the workcards of the present merger series. A list was therefore made of the 82 largest companies by net assets in 1948. These are tabulated in Appendix D which also gives the date of their most important merger. The temporal pattern of these mergers is summarised in Table 8:2.


2. Newbould, Management and Merger Activity, p. 28. However, Newbould's data includes industries other than manufacturing.
Since more than one merger may be important in the development of the firm, the allocation of particular mergers to particular years was in some respects arbitrary. The founding consolidation of the Distillers Company in which six firms merged in 1877 was, for example, rejected in favour of the giant merger of 1925 when the company acquired Buchanan-Dewar and John Walker. In the case of some companies, however, it proved impossible to discriminate between a number of important mergers or to allocate a sustained pattern of acquisition to any one decade. A further group of companies appeared to grow almost exclusively internally. Of the remaining 51 allocable mergers about one-half occurred between 1920 and 1939, a third of the total in the 1920s alone. Among the leading firms whose most important merger occurred between the wars were Tube Investments, Metal Box, I.C.I., Unilever, A.E.I., Turner and Newall, Tate and Lyle, Joseph Lucas, Colvilles, Patons and Baldwins, Sears, Bass, Fisons, Lancashire Steel, Lancashire Cotton and Reckitt and Colman. Table 8.2 contrasts significantly with a comparable study of the major mergers among the 100 largest United States manufacturing corporations, which showed the decade 1895-1904 to be the most important
for mergers there. The intensity of the interwar merger waves revealed by this and by the aggregate merger statistics may, then, plausibly be viewed as a process by which firms in British manufacturing industry were "catching up" (as indeed the rationalisers were exhorting them to do) with a structure of industry in the United States which had been the result of a more intensive merger wave at the turn of the century.

The typical pattern of merger activity between the wars was not, however, that of multi-firm mergers between many companies operating in the same industry such as had dominated the merger waves in both Britain and America in the earlier period. By this time such giant multi-firm mergers had become a rare occurrence, as can be seen in Table 8.3. For these purposes a multi-firm merger is defined as a consolidation of five companies or the acquisition of four companies occurring within the same calendar year. All mergers which account for four or more firm disappearances in any one year, are thus included, the number of such mergers appearing in the centre column of Table 8.2 and the average number of firms involved in the right hand column. A more restrictive definition of the multi-firm merger as one involving twenty or more firms would, of course, reduce their numbers, and these are tabulated for purposes of comparison in the left hand column of Table 8.3. There was a continual decline in the average size of multi-firm mergers from 19.6 firms in the 1880s to 9.1 firms in the 1920s and 6.9 firms in the 1930s. The decline was largely due to the fall from fashion of the giant consolidation of twenty or more firms. Whereas before the First World War there had been a number of important instances of these


2. I.e. in each merger the total number of firm disappearances plus one.

3. It was probably also due to the greater efficiency of the improved inter-war series in picking up the smaller multi-firm mergers.
Table 8.3

THE DECLINE OF THE MULTI-FIRM MERGER

<table>
<thead>
<tr>
<th>Mergers Involving 20 or More Firms</th>
<th>Mergers Involving 5 or more firms</th>
<th>Average Number of Firms in Multi-Firm Mergers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1880-89</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>1890-99</td>
<td>6</td>
<td>28</td>
</tr>
<tr>
<td>1900-09</td>
<td>4</td>
<td>20</td>
</tr>
<tr>
<td>1910-19</td>
<td>2</td>
<td>24</td>
</tr>
<tr>
<td>1920-29</td>
<td>1</td>
<td>40</td>
</tr>
<tr>
<td>1930-39</td>
<td>0</td>
<td>18</td>
</tr>
</tbody>
</table>

Sources: 1880-1918, unpublished study by the author. 1919-1939, the present study.

giant mergers - the Wallpaper Manufacturers (31 firms), Associated Portland Cement (27), Bradford Dyers (22), Bleachers (53), the British Cotton and Wool Dyers (46), Calder's Yeast (42), Fine Spinners and Doublers (31) and the Calico Printers (59) - there was only one of them between the wars. This was the formation of the Lancashire Cotton Corporation which in 1929 consolidated some 70 firms, and proceeded in the immediately following years to acquire a further 26.

To some extent this decline was caused precisely by the reduction of opportunities for multi-firm mergers in the earlier merger waves, but clearly this explanation is of limited application for there were still many relatively unconcentrated industries in which opportunities for multi-firm mergers were far from exhausted but where they did not in fact occur. In these industries problems of management and fears of adverse publicity both appear to have played their part in inhibiting multi-firm mergers. That such motives were uppermost is suggested by comparisons with other advanced industrial economies where there was also a decline in the number of multi-firm mergers largely it appears because of fear of antitrust and of public criticism. ¹

In Britain managerial diseconomies of rapid growth had already created great financial problems for many of the earlier giant multi-firm mergers and this, together with interwar experience of the difficulties of an over-rapid rate of expansion, served, as we saw in chapter 3, to demonstrate to managers the inexpedience of the multi-firm merger, and of the rapid rate of growth of the firm which it implied. Though in Britain this was not reinforced by antitrust fears, there were some purely commercial advantages to a gradual programme of piecemeal acquisition over the instantaneous conversion of an industry from a competitive structure to the relative security of monopoly which had previously been favoured. Perhaps the best example of this is the growth of Lord Leverhulme's interests in the soap industry to form the basis of the modern Unilever enterprise in the United Kingdom. Widely criticised in the famous "Soap Trust" newspaper scandal of 1906, Leverhulme accepted the failure of his scheme for a multi-firm merger and retreated with only £91,000 compensation for libel from the press. Though abandoning the original scheme, he turned his energies to a steady programme of piecemeal acquisitions of other soap companies so that, by the 1920s, he had achieved precisely that position of dominance in the trade at which the initial project had aimed. ¹

This interpretation of the decline of the multi-firm merger is supported by an examination of the smaller multi-firm mergers and of the sequential multi-firm mergers of the interwar years. ⁴⁄₈ out of the 70 multi-firm mergers between 1919 and 1939 involved only 5, 6, or 7 firms and the majority of these had a capital of under £500,000, thus being well within the size range, within which (after initial problems of integration had been solved) efficient managerial controls could be set up without great

¹. Wilson, Unilever, v. 1, passim.
difficulty. The majority of those which did not conform to this size pattern did indeed meet managerial diseconomies of scale and of growth, and required extensive and costly managerial reorganisation. The Lancashire Cotton Corporation itself failed for some years to develop appropriate managerial controls, and British Ropes, a small consolidation of six companies in 1924 which acquired 22 competitors in the next three years, also suffered from managerial problems of reorganisation. In the majority of industries in which extensive merger activity took place, however, the pattern of acquisitions for the individual firm had to proceed at a more leisurely pace.

The statistics which are presented in Table 8.3 do not, it should be stressed, mean that multi-firm mergers gaining monopoly control of industries ceased in the interwar years, for there were many de facto multi-firm mergers, which yet did not qualify by the strict definition for inclusion in the table. This can be seen in Appendix F, which lists firms which were prominent acquirers between the wars. In all, 71 firms acquired ten or more firms between 1919 and 1939 according to the definitions used in that appendix. These firms acquired 1,192 (46%) of the firm disappearances which appear in the statistical series in Table 8.1. The average number of acquisitions per firm in this sample of firms extensively engaged in merger activity is thus 16.8 and if certain other firms which had to be excluded from the annual statistical series (e.g. because of poor dating information) are included the average number of acquisitions per firm rises to 20.5. Though some of these mergers did occur as multi-firm

1. Cf. the list of large mergers in Appendix E. The average number of firm disappearances per large merger was only 2.6 and only 22 of the 128 large mergers listed were multi-firm mergers (i.e. involved 4 or more firm disappearances). Of the 8 of these in which the firms disappearing were valued at £3m. or more, 5 (Amalgamated Industrials, Harpor Bean, Crosse and Blackwell, Jute Industries and Lancashire Cotton Corporation) are known to have encountered managerial difficulties, whilst 2 were consolidating a monopoly position (Turner and Newall and Wallpaper Manufacturers) and 1 was established with a government protected monopoly and subsidy (British Sugar Corporation).
consolidations of five or more companies, the great majority of them merged sequentially over a period of years. Thus the multi-firm merger can more properly be said to have adopted a different form than to have disappeared altogether. Firms adopting the sequential form of extensive acquisition could, of course, expect to reduce the managerial diseconomies of an excessive rate of growth and to avoid at least some of the opprobrium which accrued to the overt monopolist.
Studies of mergers conventionally distinguish between three basic types:

i) Horizontal - in which the merger partners operate at the same stage of production and sell in the same markets.

ii) Vertical - in which the partners are related as successive stages of the production process. Thus vertical integration can occur backwards by the acquisition of a company producing inputs, or forwards, for example by acquisition of a distributing company.

iii) Diversifying or Conglomerate - a residual category in which the merging firms neither produce competing products nor are actual or potential suppliers of each other. This category is sometimes further subdivided into "concentric marketing" in which there is a different technology but the same customers, "concentric technology" in which the technology is common to both but the markets different, and "conglomerate" in which there is no link of either customers or technology.

Classification, according to these categories in the interwar period is, however, severely handicapped by problems of information. Where two companies are referred to as being competitors (or their titles indicate that they are in the same industry) they may be classified as horizontal, but this procedure can in some cases be misleading: more precise investigation could reveal them to be vertically related or to be aiming merely to diversify their product range.

The most obvious horizontal mergers often turn out, on closer analysis, to have vertical or diversifying elements and mixed cases then begin to bedevil the classification. One's instinctive classification of the Imperial Chemical Industries merger of 1926 as a horizontal merger of four chemical manufac-
turers, for example, is unjustified since only two of the partners in fact had competing products, whilst, by contrast, there were many vertical links between them and the main purpose of at least two of the partners — Nobels and British Dyestuffs — was to achieve a more diversified product range within the industry. Again, the merger of the Distillers Company with Buchanan-Dewar and John Walker in 1925 at first appears to be a horizontal merger, but in fact was significantly vertical in that Distillers were motivated by a desire to prevent these firms from building their own distillery instead of confining themselves to the next vertical stage: the blending of whisky. Because of such difficulties it proved impossible to classify all mergers recorded in the present study by type. This study of the relative importance of the various types of merger is therefore based on a sample of large mergers, though literary evidence on smaller mergers will be presented where appropriate.

The ideal classification of mergers would aim at producing statistics of analytical as well as purely taxonomic value, and this is the ideal which was originally aimed at in the present study. It must, however, be remarked parenthetically at this stage of the presentation that, as the study progressed, it became obvious that there were considerable difficulties in applying economic analysis and that the value of classification was less than had originally been supposed. The traditions of classifying mergers in this way did, of course, have its origin in a feeling that horizontal mergers may, through their monopolistic effects, have a greater tendency to subvert the public good than other types.¹ It would, however, be improper to read such an interpretation into what follows, for it will be suggested that general theories about the economic determination of merger types derived, for example, from antitrust analysis have little explanatory value. The direction of merger,

whether horizontal, vertical or diversifying, is frequently determined by largely technical factors and is thus basically less susceptible than other aspects of merger activity to generalised explanations. A more appropriate method of study would be at the micro-level, though the study of individual industries and firms which would be necessary for this lies outside the scope of the present work. In so far as meaningful generalisations about the direction of merger activity is possible in the present context, the concept of the firm, which has been developed by Richardson, envisaging the firm as a bundle of technical skills, expanding in directions which exploit its comparative advantages in particular areas of competence would appear to provide a more fruitful line of approach than that derived from price theory and antitrust analysis.

The statistics on which the present study is based were drawn from a sample of large mergers. One hundred and twenty-eight large mergers were extracted from the general series by inspection of the workcards and are listed in Appendix E. The group represented all mergers in which the estimated price of the disappearing firms was £1m. or more. Though it is probably not inclusive of all mergers in this size group, there is reason to believe that it includes the great majority of large mergers. The allocation of each merger to one of the three classes - horizontal, vertical and diversifying - is indicated in Appendix E. It was possible to classify all the large mergers by type by consulting the financial press, business histories, and publications such as the Company Index and Industrial Classification\(^2\) to ascertain the product range of the merging partners and their relationship prior to, and subsequent to, merger. The aim of the classification was to indicate the predominant intention of the directors of the companies involved in the merger. Thus a merger of two brewers would nor-

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1. Richardson, "The Structure of Industry".
mally be allocated to the horizontal category. However, if there was some
evidence that the brewery of one of the merging partners was closed soon
after the merger, it was assumed that the main intention was vertical, that
is a desire to gain control of the company's tied houses rather than of its
manufacturing facilities. As again the I.C.I. merger of 1926, or the acquisi-
tion of the Macintosh group of companies by Dunlop in 1925 was classified as
diversifying since their principal aim was to diversify production within
the chemical and rubber industries respectively. On the other hand, I.C.I's
acquisition of British Copper Manufacturers, despite the companies' respec-
tive titles, was classed as horizontal since I.C.I. was already heavily en-
gaged in metal production at the time of the merger; and the acquisition
of Quasi-Arc, a firm manufacturing electric welding equipment, by British
Oxygen, which competed in the same market though with a technically different
product (in a different industrial classification), was classified as a
horizontal merger since it was clearly intended to gain control of a
competitor's product. The present study is thus not comparable with those
which treat all mergers within the same industry as horizontal but classify
those crossing the boundary between industries as vertical or diversifying.
The resulting classifications are in some degree arbitrary, for not all
mergers fall unequivocally into one class, but these categories at least
have the merit of economic relevance.

The results are tabulated in Table 9.1. Horizontal mergers were clearly
predominant in the interwar period, accounting for 75% of these large mergers,

1. This rule is not, of course, unequivocally correct, for it illustrates
an important conceptual problem. One director of the acquiring brewery
might express his company's intention in terms of the need to reduce excess
capacity in the industry by buying up and closing down other breweries and
a horizontal classification would thus seem more appropriate. On the other
hand, a fellow director might with equal justification say that his company
requires additional public house outlets for its new brewery and, because
of the tied house system, can only obtain these outlets by buying a competi-
tor, closing its older and less efficient brewery down and transferring the
demand from the acquired public houses to its own brewery. To this second
director, the intention is predominantly vertical.
Table 9.1
LARGE MERGERS BY TYPE 1919-1939

<table>
<thead>
<tr>
<th></th>
<th>All Classes</th>
<th>Vertical</th>
<th>Diversifying</th>
<th>Horizontal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Mergers</td>
<td>128</td>
<td>27</td>
<td>5</td>
<td>96</td>
</tr>
<tr>
<td>(100%)</td>
<td>(21.1%)</td>
<td>(3.9%)</td>
<td>(75.0%)</td>
<td></td>
</tr>
<tr>
<td>Number of Firms Dis-</td>
<td>338</td>
<td>42</td>
<td>16</td>
<td>280</td>
</tr>
<tr>
<td>appearing in the Mergers</td>
<td>(100%)</td>
<td>(12.4%)</td>
<td>(4.7%)</td>
<td>(82.8%)</td>
</tr>
<tr>
<td>Estimated Price Paid (£m.)</td>
<td>357.1</td>
<td>73.1</td>
<td>59.2</td>
<td>224.8</td>
</tr>
<tr>
<td>(100%)</td>
<td>(20.5%)</td>
<td>(16.6%)</td>
<td>(63.0%)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Appendix E, q.v. for a further industrial breakdown of the statistics.

and involving 83% of the total firms disappearing into them and 63% of their values. This accords with the general impression gained from inspection of the main series that the smaller mergers also were predominantly of the horizontal type between firms in the same industry. The result is not, perhaps surprising, in view of the reasons for mergers which we have sketched. Monopoly powers and economies of scale are more obviously available to horizontal mergers than to other types. Moreover, since industrial concentration was relatively low in 1919 there were many opportunities for the growth of the firm by acquisition and merger within its own industry, and, between the wars, there were no legal barriers to the attainment of a monopoly position through merger. Furthermore, firms in the same industry would be more likely to be sought out as acquirers of (and to feel qualified to acquire) family firms which were, for personal, financial or tax reasons, looking for a buyer, than would firms in other industries which were unaware of the opportunity or were unable to assess the profitability of such an entry into an unknown industry.

Nor is the low level of vertical merger unexpected, for contemporaries remarked upon the low level of vertical integration in Britain compared with
the United States.\(^1\) The high level of vertical mergers in the United States has been attributed by Stigler to the rigorous enforcement of antitrust against horizontal mergers,\(^2\) a consideration which would not apply in the United Kingdom between the wars. An explanation of the observed difference which would seem to be quantitatively more important, however, is the contrasting resource base of the two economies. Since, with few exceptions, Britain produced fewer raw materials than the United States, with its rich domestic supplies, a national merger series would be expected to show less vertical integration for Britain than for the United States. In fact there were many significant acquisitions of foreign raw material producers by British companies, for example of African trading companies by Unilever, of Rhodesian asbestos mines by Turner and Newall and of pulp and paper companies by the Amalgamated Press. These are, of course, quite excluded from the present series. Furthermore, since the series includes only acquisitions by firms with manufacturing assets, vertical integration is understated in so far as it is achieved through the acquisition of manufacturers by domestic firms in distribution or in mining.

The most common areas of vertical integration between manufacturing industries were between the various branches of the steel and steel-using industries and between newspaper publishers and newsprint manufacturers. A study of the industry groups to which companies making large vertical acquisitions belonged, which is fully tabulated in Appendix E, showed that vertical mergers were confined to a limited number of industries. Whereas there was only one industrial group which registered no large horizontal mergers, there were as many as seven - tobacco, electrical engineering, textiles, leather and fur, clothing and footwear, timber and furniture, and miscellaneous - which registered no large vertical mergers. Of the remaining

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1. E.g., Marquand, *Dynamics of Industrial Combination*, p. 66.
ten industrial groups, only three - metal manufacture, drink and paper, printing and publishing - registered more than two large vertical mergers over the whole interwar period. A similar impression of the concentration of large vertical mergers in a few industries can also be seen in the number of firms disappearing in vertical mergers and in their values. Vertical merger accounted for more than five firm disappearances only in the drink, metal manufacture and shipbuilding industries, and their values exceeded £10m. in only two industrial groups: drink and metal manufacture.

The decision to expand vertically was often determined by the technical economies of integrated plants; in the iron and steel industry, for example, by the saving of heat between successive stages of production. Frequently, however, integration was merely financial and managerial, and merger was not followed by the vertical integration of plants.¹ Further examination of such vertical mergers, both in Appendix E, and among the smaller vertical mergers which were worksheeted, suggested that there was a wide variety of motivations for vertical expansion. The special qualities of steel needed for the manufacture of tubes and of tin boxes by automatic machinery motivated Stewarts and Lloyds and the Metal Box Company to acquire some suppliers in order to gain direct control of quality. Stewarts and Lloyds also bought up some ironstone mines near their proposed new integrated tube plant at Corby in order to internalise the external economies of their expansion there.² There could also be opportunities for profitable vertical expansion into the supplying industry, if the supply of an input were monopolistically controlled. Inveresk Paper, for example, seeing English China Clays progressively monopolising the supply of one of their raw materials, acquired South Fraddon China Clays to ensure control of their supplies, and Lucas, troubled by the increasing price regulation amongst


their suppliers, acquired a small cable manufacturer in 1934 to fill their requirements. 1

The majority of the vertical mergers so far mentioned were backwards to raw materials suppliers, but firms also expanded vertically forwards. The steel firm Bolckow Vaughan, for example, suffering in 1923 from the overall depression of demand in the industry acquired the large constructional engineering firm, Redpath Brown and Company, with its important selling agencies in London, Manchester, Scotland and abroad. 2 Distributive chains, which were transforming the structure of retailing in Britain in this period, were also frequently acquired by manufacturers of consumer goods to secure outlets for their products. This integration of manufacturing and distribution appears to have been pursued largely by firms producing undifferentiated products which were traditionally distributed through specialist retail chains. Besides the more obvious examples which still survive, notably the acquisitions of competitors by brewers seeking to acquire control of tied houses, there were a number of examples specific to the interwar structure of retailing. Jurgens, for example, acquired Home and Colonial Stores as an outlet for its margarine at a time when these shops were more exclusively involved in the sale of a limited range of undifferentiated grocery products than they have since become. 3 Companies as varied as Dunlops, Wallpaper Manufacturers and Imperial Tobacco were also making smaller acquisitions of wholesale and retail outlets throughout the interwar years. 4

The class of diversifying mergers in Table 9:1 is much the smallest and is, moreover, dominated by the Dunlop and Imperial Chemical Industries

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1. R.M. Barton, The History of the Cornish China Clay Industry, Truro, 1966, p. 194; M.C., Electric Wiring Harnesses, p. 26. The price paid for such acquisitions will presumably reflect the monopoly benefits: it will therefore only be profitable to the acquirer if he is able to increase production by the acquired company and keep the cartel price (paid by his competitors) firm. He would then cheapen the cost of his own inputs and gain a competitive advantage over non-integrated rivals.


diversifications of their product range within their own industries. These two mergers accounted for almost two-thirds of the value of diversifying mergers in the sample. Mergers of the purely conglomerate type did not appear, at least not on a large scale. Now this is in some ways surprising, for, though investors are able to spread risks by diversifying their portfolios they may find some advantages in diversified companies; and, moreover, risk-spreading for managers is largely achieved through the diversification of their companies' product ranges, so that, with the divorce of ownership and control, the incentive to diversify might be expected to increase. There are a number of cases on record in business histories of firms casting about for new products and new acquisitions when demand for their traditional products is depressed. However when companies did engage in diversification they generally chose an area in which there was a significant use for their existing skills. Thus I.C.I., whose development department was constantly looking out for acquisitions, expanded largely by acquiring companies in the field of chemicals and metals technology, so that by 1935 it was among the top three firms in seven census trades—copper and brass, dyestuffs, miscellaneous chemicals, fertiliser, paint and varnish, explosives and non-metalliferous mines and quarries. Similarly groups like Dunlop and Tube Investments concentrated their acquisitions in areas whose technology they knew best. Marketing provided an alternative area of complementarity which determined the direction of diversification: Reckitt and Colman, Unilever, and Beechams were perhaps the most important industrial groups to exemplify this type of diversifying acquisition based on concentric marketing skills between the wars.

1. E.g., Haber, Chemical Industry 1900-1930, p. 375; Scott, Vickers, pp. 137-140.

2. Leak and Maizels, "Structure of British Industry", p. 159; FCGBA Archives, 3 Feb. 1930 Memorandum (by L.J. Barley?) Development Department, File No. 74.
Though the pure conglomerate merger was a rarity, the period is not entirely devoid of examples. There was something of a mania for financial reconstructions in conglomerate form in the boom of 1919-20 with the flotation of companies ranging from Amalgamated Industrials (a fusion of companies in collieries, brickworks, shipping, steam-fishing, steel, shipbuilding, marine insurance and cotton spinning with assets valued at over £12 million) to the local firm Bristol Industries (a merger of five companies with a varied range of products spanning cold storage, foundries and transport, and a capital of £250,000) and Amalgamated British Trades (with interests widely spread in general merchanting, cars and accessories, china and glassware and clothing manufacture and a capital of only £100,000). The majority of these conglomerate mergers represented the passing whims of promoting syndicates and either disintegrated or continued life as small but unspectacular holding companies. Only one company (outside the giants like I.C.I. which could in some respects be considered to approach the conglomerate form) was identified as consistently and successfully making acquisitions over a wide range of industries. This was Thomas W. Ward, a Sheffield company which acquired firms in coal, iron, steel, engineering, cars, chemicals, cement, quarrying and road materials. Though there were, in fact, vertical and technical complementarities between many of these products, Wards does seem to have had an eye to the "asset situation" and in some ways conformed to the modern paradigm of the successful conglomerate, frequently acquiring ailing companies and turning them into profitable enterprises, which were sometimes subsequently demerged by flotation as public companies.¹

A variety of factors may account for the limited role of vertical and diversifying mergers in Britain between the wars. In so far as vertical merger occurs in order to challenge monopoly supply conditions, its extent will, of course, depend partly on prior merger activity of a horizontal kind:

¹ E.g. Investors' Chronicle, 28 Dec. 1935, p. 1475. Such demergers by flotation did of course limit the ultimate conglomerate nature of the Ward enterprise.
the more monopolisation advances, the more vertical mergers there will be. Since the merger waves prior to the First World War had created monopoly conditions in relatively few industries and it was not until the interwar years themselves that distinctively oligopolistic conditions obtained over a wider range of industry, the preconditions for such vertical mergers were certainly less evident in our period than they have since become. However, oligopolistic merger is infectious in other ways also. In so far as it creates imperfections of competition it will encourage horizontal mergers aimed at appropriating demand so as to gain economies of large scale operation, as well as vertical mergers aimed to reduce the effects of the imperfections on consuming industries. It may also encourage horizontal mergers aimed simply at equalising bargaining power between the consuming and producing industry: "Industries which are in close relations with a combination may feel it necessary to protect their own interests by bargaining as a unit". Hence, alternative explanations must be adduced to account for the relatively low proportion of total merger activity which is vertically directed or diversifying.

Two major factors seemed to operate to inhibit such mergers in the inter-war years. Firstly, there was a commercial argument against vertical or diversifying expansion. This was that the firms in the industry thus entered could retaliate by entering the imperialist firm's field, thus increasing competition. This general fear was in some cases institutionalised in a mutual agreement to refrain from competitive integration and diversification. Thus Samuel Courtauld agreed in 1928 with Lord Melchett of I.C.I., that Courtaulds would "abstain from entering the silk [i.e. rayon] industry". Similar agreements appear to have existed between the combines in the various

2. Coleman, Courtaulds, v. 2, pp. 264-5, cf. p. 374. The agreement was not public and the City expected I.C.I. to enter the rayon industry, see Stock Exchange Gazette, 11 Jan. 1929, p. 45.
branches of textile finishing, electrical engineering and steel tube manufacture.¹

Where diversification by acquisition was nonetheless attempted the situation was often reversed by the action of the entered industry. The entry of the British Tyre and Rubber Co., into the rubber cable field by its acquisition in 1933 of the moribund Indian Rubber, Gutta Percha and Telegraph Works Co.Ltd., produced an offer from the Cable Makers' Association and, in 1937, in return for a ten-year agreement by B.T.R. to stay out of the cable industry £147,360 was paid to the company by four members of the C.M.A.² Again, when Blackwells and National Roofings Ltd. diversified into plasterboard the dominant firm in that industry, British Plaster Board, took over the company and closed down its plasterboard factories.³ Vertical integration met similar opposition from the entered industries. When the Metal Box Company integrated backwards to tinplate by buying the Eaglebush works, Richard Thomas retaliated by establishing a rival tin box company, a warning shot intended to inhibit further vertical expansion.⁴ In the soap industry, an agreement between I.C.I. (Brunner Mond) and Lever Brothers not to become respectively soap or alkali producers, had its origin in a war of integration in which they had each competitively entered the other's field. The problem was solved by the demerger of Crosfields and Gossages, Brunner Mond's soap subsidiaries, and their merger with Levers in 1919.⁵ When the problem for Levers re-emerged with the vertical entry of British Oil and Cake Mills

¹. M.C., Calico Printing, para 115 and Appendix B; Jones and Marriott, G.E.C., pp. 130, 181; Evely and Little, Concentration in British Industry, p. 122. See also Reader, I.C.I., v. 1, p. 150; R.L. Threlfall, 100 Years of Phosphorus Making, 1951, p. 211.

². M.C., Tyres, pp. 18-19.

³. J. Routley and H. Mattingley, A Saga of British Industry: the Story of the British Plasterboard Group, privately printed, 1959, p. 146. Paradoxically this committed the group to diversification within the roofing felt field, cf. ibid., pp. 9, 143.


into soap production in the 1920s, it was solved by the acquisition of B.O.C.M. and the running down of its soap production.¹

However, perhaps a more fundamental reason for the low level of vertical and diversifying mergers - and one which enabled firms successfully to deter such new entrants to the industry - was the real advantage of specialisation and the division of labour. Management skills are to some extent firm-specific and in this respect all mergers will meet some difficulty in the release of synergy from managerial comparative advantages in a merger. They are probably to an even greater extent industry-specific and many of the managements which ran into managerial diseconomies of scale between the wars were the victims of an overextended programme of diversification or vertical integration. Though a number of diversified and integrated enterprises, ranging from Vickers to Amalgamated Industrials, were built up by merger in the boom of 1919-1920, their financial difficulties contributed to a hardening of opinion against diversification in the 1920s,² and, throughout the 1930s, "rapid growth and extreme diversification of business" continued to be diagnosed as a cause of financial and managerial crises.³

The late 1920s and the early 1930s saw the reorganisation of a number of vertical mergers on horizontal lines: a result both of the managerial difficulties of vertical merger and of the decline of supply advantages which had been the occasion of many of these mergers in the boom of 1919-1920.⁴ The vertically integrated and diversified Vickers, Cammell Laird and Armstrong Whitworth groups, for example, were managerially⁵ de-merged into horizontally

2. E.g. Macmillan Evidence, qq 3610, 3621.
5. However the former controlling companies in these mergers retained the stock in the new joint subsidiaries thus formed. The effect was to maintain the merger in a financial sense whilst relinquishing the managerial control. It is not, therefore, in the strict sense, a demerger for the company (in these cases usually Vickers) which retains the majority shareholding in the joint subsi- Contd...
related groups: Vickers-Armstrong in armaments and naval shipbuilding, the English Steel Corporation in iron and steel, the Metropolitan-Cammell Carriage Wagon and Finance Company in railway rolling stock. Newspaper publishing groups also divested themselves of many of their vertically related papermaking mills by selling them off to Eric Bowater's new horizontal merger, the Bowater Paper Company. Thus many vertical and diversifying mergers of the earlier merger booms ended their life prematurely in disintegration and reorganisation: the dominance of the horizontal type of merger was thus asserted not only in its overall quantitative importance but in the higher incidence of subsequent demerger in vertical and diversifying mergers. Thus, though the economic conditions which have encouraged the postwar expansion of diversifying and vertical mergers were present in the interwar years, their effect was yet limited, and the difficulties of this form of industrial organisation were often more apparent than the advantages. Even when a purely horizontal form of expansion was not pursued firms appear to have pursued growth by acquisition with an eye to technical and marketing complementarities and the pure conglomerate had yet to emerge in its modern form.

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1. Such reorganisations were particularly common in the steel industries, e.g. Lancashire Steel Corporation, Colvilles and the British (Guest Keen and Baldwins) Iron and Steel Company; all had their origin in demergers aiming to reduce the extent of vertical integration and gain the advantages of horizontal amalgamation which by the middle of our period were generally considered to be the greater.
Chapter Ten

THE PATTERN OF MERGER ACTIVITY

Studies of mergers in Canada, Australia and the United States\(^1\) have revealed a pronounced cyclical pattern of merger activity and the merger cycle has further been found to be related to trade cycle turning points and to be particularly closely and positively correlated with stock exchange prices. A recent attempt to question the existence of a significant relationship between mergers and the business cycle in the United States has been convincingly rebutted,\(^2\) and in postwar Britain also it appears that takeover bids and mergers have been closely related to share prices and the trade cycle.\(^3\) The present chapter attempts to assess whether such a pattern is also found in merger activity in Britain between the wars.

There are, of course, large institutional differences which separate interwar Britain from the settings of these studies, and the suggestion has been made that interwar British mergers did not in fact exhibit a cyclical pattern.\(^4\) However, a cursory glance at the annual data on firm disappearances by merger presented in Table 8:1 above shows that interwar merger activity was in fact clearly cyclical with peaks of activity in 1920, 1929 and 1936 and troughs in 1922 and 1932. (The value series also shows a similar pattern if the exceptionally large mergers of 1925 and 1926 are omitted.) The cycle is

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3. Tabb, Accountancy Aspects of Takeover Bids, ch. 3; S. Aaronovitch, The Political Economy of Mergers in the U.K., 1958-1968, manuscript, ch. 3.3; but cf. Times Business News, 23 Feb. 1972, p. 16, which appears to suggest an inverse correlation between mergers and trade cycle indicators in contemporary West Germany.

shown graphically in Chart 10:1 in which the annual firm disappearances by merger between 1919 and 1939 are plotted. Merger activity appears to have been approximately five times more intense at the two major peaks than at the related troughs, and even at the lower peak of 1936 was twice as high as at the preceding trough. These turning points broadly coincide with the peaks and troughs of the trade cycle: the postwar boom and the reaction to it, the recovery of the later 1920s, then the stock exchange crisis of 1929 and the world slump of 1931, with the recovery of 1932-7; all can be discerned as parallels to the cycle of merger activity shown in Chart 10:1.

Chart 10.2, which is based on seasonally-adjusted quarterly data on firm disappearances by merger shows a similar, though less smooth, cyclical pattern. The two major peaks of activity again show clearly in 1920 (first quarter) and 1929 (second quarter), but the pattern at the troughs and at the third peak is less clear cut. Various methods of smoothing the curve by the use of moving averages were used but the pattern remained unclear, and this rendered turning point analysis somewhat difficult. One solution is to choose the turning point year in the annual data and take the lowest quarter within that year as the quarterly turning point, thus dating the peaks in 1920 (first quarter), 1929 (second quarter) and 1936 (second quarter) with troughs in 1922 (third quarter) and 1932 (second quarter). However, inspection of chart 10.2 in which these turning points are marked P and T (unqueried) shows that there were in fact lower troughs in 1921 (second quarter) and 1933 (second quarter) and a higher peak in 1937 (first quarter). These may be taken as alternative turning points and are marked P? and T? in chart 10.2, as are the possible minor peaks and troughs of the weaker cycle between 1924 and 1927. These subjectively, and somewhat unsatisfactorily identified turning points are shown in Table 10:1 (in brackets) together with the annually identified

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1. For a full tabulation of the quarterly merger data and details of the method of seasonal adjustment, see Appendix B.
Chart 10:2 Quarterly Firm Disappearances by Merger (Seasonally Adjusted) 1919–1939

Source: Appendix E

(p. 254 below)
major turning points (unbracketed). The turning points of the trade cycle are also given in the left-hand column of Table 10:1 and are marked on Chart 10:2 for purposes of comparison.

Table 10:1

<table>
<thead>
<tr>
<th>Trough</th>
<th>Year and Quarter</th>
<th>Peak</th>
<th>Trough</th>
<th>Year and Quarter</th>
<th>Peak</th>
<th>Trough</th>
<th>Year and Quarter</th>
<th>Peak</th>
<th>Trough</th>
<th>Year and Quarter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade Cycle Turning Points</td>
<td></td>
<td></td>
<td>Merger Cycle Turning Points</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Merger Cycle: The present study.

The two major peaks of merger activity in 1920 and 1929 each stand out as leading by one quarter, but away from these merger activity fluctuates considerably and no unequivocal lead or lag relationship between the turning points can be discerned. The Fechner-Weber index of directional correlation for between-quarter movements of the trade cycle and merger activity is only +0.19, a rather low figure.\(^1\) This is no doubt partly due to deficiencies of

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1. The Fechner-Weber index is \((C-D) / (C+D)\) where \(C\) is the number of periods in which directional movements coincide and \(D\) is the number of periods in which they diverge. Eis found a value of +0.46 for U.S. mergers between 1919 and 1930, see Eis, "Mergers and the Business Cycle: Comment", p. 91.
the data: it is difficult to date mergers precisely by quarter and many mer-
gers had to be excluded as undateable.¹ It is, however, possible to discern
a pattern of relationship between the peaks and troughs identified by more
subjective methods of inspection. Taking as a cue the lead at the major
peaks of 1920 and 1929 a general pattern of leading merger turning points
can be seen. Accepting the most nearly leading merger turning points as the
appropriate ones for this analysis (i.e. ignoring whether the turning point
is bracketed or unbracketed in Table 10:1), the merger turning points lead
at peaks by an average of 1.2 quarters and at troughs by an average of 1.25
quarters.

The pro-cyclical pattern of mergers may appear to conflict with some of
the accepted interpretations of the period as one of largely depression-
induced mergers. Marx's prediction that declining profits would cause an
increase in industrial concentration² suggests that mergers are more likely
to occur in depressions; and the view that mergers were "overwhelmingly
restrictive, defensive and protective",³ taking place in recessions to miti-
gate the effects of price competition,⁴ has frequently been expressed. The
interwar period was, of course, one of prolonged and persistent deficiency
of demand and despite the short-term cyclical upswings and underlying
economic growth, many industries were severely depressed throughout the
period. It may be correct to see merger activity within the period in these
traditional terms, if it can be shown that the short-term merger movements
which are revealed by the cyclical analysis, though the result of a trigger

¹. The Fechner-Weber index of directional correlation between the annual
merger totals and Feinstein's real national income series for 1919-1939 is
+0.3, and for 1919-1930 is+0.45. This may be partly due to the greater
coverage and reliability of the annual merger data.


⁴. Cook and Cohen, Effects of Mergers, p. 438; and see chapter 2, above.
mechanism in the upswing, were fundamentally induced by the overall depressed state of the economy. If mergers were exclusively or principally a phenomenon arising from depressed industrial conditions, one would expect them to be concentrated in the "staple" industries which faced a declining or slowly growing demand, rather than in the "new" industries which dominated the underlying growth element in the interwar economy. The existing literature appears to be divided on the precise industrial incidence of merger activity. Some assert that merger activity occurred largely in the old industries whilst firms in the new industries grew internally, whereas others with equal conviction contrast the reluctance of the old industries to merge with the avidity of the new ones to do so. The present statistical study can now throw some light on this conflict of opinion and Table 10.2 lists the merger record of each of 16 manufacturing industries ranked by the number of firm disappearances by merger for which they accounted. The two right hand columns in the Table rank the industries by their interwar record of growth of output and of employment, these being presumed to be appropriate indicators of the relative state of prosperity or depression of the various industries. No very clear pattern of the dominance of the depressed industries or of the prosperous industries appears in this data. Industries like textiles and shipbuilding, which are depressed staples, are ranked as second and thirteenth in merger activity, whilst the "new" industries like chemicals (fourth), electrical engineering (ninth) and vehicles (tenth) show a similar spread. Those indus-


4. Mergers are classified by the industry of the acquiring company. Of the 2,544 firm disappearances all appear in the ranking in Table 10.2 except 86 firm disappearances in "Miscellaneous Manufacturing", 80 in "Other Mining" and 22 which it was not possible to classify by industry because of lack of information.
### Table 10:2

INDUSTRY RANKING BY NUMBER OF FIRM DISAPPEARANCES BY MERGER, OUTPUT GROWTH AND EMPLOYMENT GROWTH 1919-1929

<table>
<thead>
<tr>
<th>Rank by Merger</th>
<th>No. of disappearances</th>
<th>Industry</th>
<th>Rank by output Growth Rate</th>
<th>Rank by Employment Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>326</td>
<td>Drink</td>
<td>16</td>
<td>7</td>
</tr>
<tr>
<td>2</td>
<td>309</td>
<td>Textiles</td>
<td>15</td>
<td>14</td>
</tr>
<tr>
<td>3</td>
<td>250</td>
<td>Metal Manufacture</td>
<td>14/3**</td>
<td>16/6**</td>
</tr>
<tr>
<td>4</td>
<td>234</td>
<td>Chemicals</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>5</td>
<td>233</td>
<td>Bricks, pottery, glass, cement</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>6</td>
<td>206</td>
<td>Food</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>7</td>
<td>201</td>
<td>Paper, printing and publishing</td>
<td>8</td>
<td>5</td>
</tr>
<tr>
<td>8</td>
<td>155</td>
<td>Non-electrical engineering</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>9</td>
<td>120</td>
<td>Electrical engineering</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>10=</td>
<td>100</td>
<td>(Vehicles</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Metal Goods n.e.s.)</td>
<td>9</td>
<td>10</td>
</tr>
<tr>
<td>12</td>
<td>44</td>
<td>Clothing and footwear</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>13</td>
<td>35</td>
<td>Shipbuilding and marine engineering</td>
<td>17</td>
<td>17</td>
</tr>
<tr>
<td>14</td>
<td>21</td>
<td>Tobacco</td>
<td>10</td>
<td>8</td>
</tr>
<tr>
<td>15</td>
<td>14</td>
<td>Timber, furniture, etc.</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>16</td>
<td>8</td>
<td>Leather, leather goods and fur</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>-</td>
<td>(188)</td>
<td>(Miscellaneous manufacturing, Unclassified and Other Mining)</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

2,544 = (Total in series)


* The growth rates for employment and output apply to 1920-38 only and in some cases the classifications are not directly comparable though adjustments would probably not substantially alter the ranking.

** Non-ferrous metals and iron and steel are linked together in the merger series but are separate in the output and employment series. The first ranking indicator in this column is for iron and steel, the second for non-ferrous metal manufacture.
tries which are at the foot of the ranking, like tobacco, timber and leather, are neither significantly depressed nor significantly prosperous and the low degree of merger activity in them can probably be explained in the case of tobacco by the relatively small number of firms in the industry and in the case of timber and leather by the rather low optimum scale of firms within these industries.

A similarly varied, but not identical pattern emerges from other rankings of industries by merger intensity. There is no clear rank correlation between economic conditions in the various industries and merger intensity by values, or by sub-periods, within the interwar years.¹ It would be desirable to provide also a relative measure of industry merger intensity, for example the proportion of the total number of firms (or of their total asset values) which were acquired. Whilst it is clear that this would change the pattern,² it is not possible to do this precisely because data on the number of firms in each industry is not readily available in a form compatible with the conventions used in the present study. However, the likely changes can be gauged from inspection of the numbers of "establishments" (i.e. plants) and of "returns" and "firms" (neither of which are firms in the generally adopted sense, but something between plants and firms) in the census of production data.³ Making the adjustments to Table 6.2 for the industries with which this would be possible, would elevate the low ranking electrical engineering and tobacco industries, which had a relatively small number of firms, to leading rank with drink and chemicals. Textiles would, however, fall to a middling rank to join vehicles and mechanical engineering there. Shipbuilding would rise

¹. See Appendix C for a full tabulation of this data.
³. Fifth Census of Production and Import Duties Act Inquiry, 1935, Final Reports, Parts I, II, III, 1938-1940. Some groups like the metal industries are not, however, comparable with the industrial definitions used in the present study.
to a higher rank, probably above them, but leather and clothing would retain their low rating. This revised ranking would thus place the two conspicuously "new" industries, chemicals and electrical engineering, with two "depressed" ones, shipbuilding and (less conspicuously) textiles, in relatively high positions. The analysis of sub-periods, suggests, however that the "depressed industries" registered a high proportion of their mergers in the postwar boom period and only gained high rankings in later years in exceptional circumstances such as the B.I.D.C. - backed formation of the Lancashire Cotton Corporation in 1929. It is clear, then, that it is misleading to discuss interwar merger activity solely as a function of the depression mentality of these years. The alternative hypothesis, suggested by the time series analysis finding of bunching of mergers in periods of relative prosperity, that mergers are part of a general process of the growth of the economy and of individual firms, rather than merely a trigger of fundamentally depression induced mergers, has not been refuted by this cross-section analysis. The finding of varying merger intensities in industries, old and new, is quite compatible with the previous finding of a positive association of a high level of economic activity and a high level of merger activity.

The phenomenon of mergers can, then, be seen over a wide range of industries and in a mixed range of economic conditions. It is thus plausible to view mergers as a general phenomenon requiring a general explanation. Various hypotheses have been advanced by scholars to account for the systematic pro-cyclical incidence of merger activity and these will now be critically examined. In particular, it will be necessary to assess their applicability to the interwar situation in the light of the institutional studies in previous chapters of the structure of (and changes in) the setting of merger activity. Finally some new hypotheses about the cyclical incidence of merger activity

1. See Appendix C, Tables C1-C4, C6-C9.
will be advanced, and the various hypotheses will be subjected to some simple econometric tests.

Economists, using their basic models of price determination under competition and under monopoly, have laid great stress on the reduction of competition as the chief purpose of mergers, and attempts have been made to reconcile this view with the observed merger cycle. It is argued, for example, that the propensity to monopolise will be greater in the upswing because profit expectations and thus the absolute increase in profits expected from monopolisation will be greater if the market is expanding. This will, of course, be true only under certain conditions. Absolute changes in profit expectations, rather than relative ones, would be important only where a threshold value, above which transaction costs such as search time and administration are exceeded, was crossed by such an absolute increase. A change in the relative profit expectations from monopoly and competition might, however, occur if the supply price of competitive firms increased slowly in the boom relatively to the anticipated profits of monopolisation. A further hypothesis based on the propensity to monopolise is that it is manifested in different forms at different stages of the cycle, for example as mergers during booms but as restrictive practices during slumps. Evidence for this is, however, hard to come by, and price theory provides no ground for assuming that it will be the case. Cartels themselves appear to prosper in upswings and to founder in depression and it is not clear why they should be more prone to regulate


prices monopolistically in depressions.¹ A more plausible hypothesis is that the relative attractiveness of acquisition of competitors and of their competitive elimination varies throughout the cycle. In a depression, given generally lower profit levels (and inferior access to the capital market or less favourable supply conditions for the victims) it would be easier to force competitors into unsustainable losses.²

An alternative line of approach derives from the fact that monopoly power is not valuable to the firm solely because it endows it with power to raise prices under static cost and demand conditions, but also, importantly, because monopoly control confers an advantage in forward investment planning over the relatively greater uncertainty of dynamic adjustment in competition. As a contemporary analyst of the trade cycle pointed out:

Combination by pooling information and prospective markets and so facilitating a common investment policy may be expected materially to reduce the temptations to overinvestment.³

Both complementary and competing investment plans are in fact more likely to be efficiently executed under conditions of monopoly or monopolistic collusion than under oligopolistic or pure competition.⁴ Mergers may, therefore, be undertaken when investment is being considered and co-ordination of investment plans is needed. This would in general be during the upswing of the trade cycle when demand is expanding. The tendency to cyclical variation of mergers for investment co-ordination would be reinforced by the existence of economies of scale in new plant because the expected incremental demand would

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¹. There may, however, be a tendency for schemes for restriction of capacity to be hatched in periods of overcapacity and depression, as, for example, in the cases of the National Shipbuilders' Security and the Locomotive Manufacturers' Association schemes.

². E.g., for the adoption of this policy by Courtaulds, see Coleman, Courtaulds, v. 2, pp. 330-36, but cf. p. 344 for its limited success.


in such cases best be solved by the building of only one additional plant of the optimum scale by a merged firm rather than of two suboptimal plants by the firms acting separately. ¹ (It would be necessary to merge in order to achieve the co-ordination of scale economies for example where there is a tacitly collusive adjustment mechanism such as the maintenance of market shares.) A further advantage would come in the financing of the expansion. Cheaper internal financing might be possible if the profits streams of two competing firms are pooled. As investment plans are formulated in the upswing, therefore, mergers for monopolistic co-ordination of investment in this special sense might be expected to increase; and, indeed, mergers did often precede significant expansions of capacity in one or more of the merging subsidiaries ² or were designed to forestall competing capital expenditure. ³ The need to co-ordinate investment plans can also induce vertical, as well as horizontal, mergers, where the relevant investment plans are of a complementary rather than a competing nature. ⁴ Supplying companies were sometimes unwilling to rely excessively on the demand from one customer, and thus companies which wished to increase their outputs from a supplier had to take them over and undertake the required investment directly themselves. ⁵

In this analysis mergers and new investment are treated as complementary activities: the intention to invest stimulates a merger, which then results

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¹. On the other hand economies of scale in the use of existing plant might also induce mergers in a downswing.


⁴. Richardson, Information and Investment, chapter 4.

in the consummation of investment. However the predictions about merger behaviour which might follow from this could be affected by a relationship postulated by some theorists which sees them not as complements but as alternatives to each other on a microeconomic level. When business expectations are optimistic managers will wish to increase investment but will be faced with a choice: whether, on the one hand, to invest in new building and machinery and thus expand internally or, alternatively, to acquire a company which provides the same expansion externally. If firms are indifferent between internal and external growth, the merger cycle will be identical to the investment cycle, being determined by factors such as the availability of funds, current capacity utilisation and the level of demand. ¹ The size of currently generated profits, in particular, might be expected to have a strong influence on a firm's investment in acquisitions. Nobels, for example, at the time of the I.C.I. merger in 1926 was clearly looking around for new investment projects into which to plough its retained profits, whilst the United Steel Companies, on the other hand, were unable to expand by acquisition, as advised by their technical consultants, because of financial constraints. ²

The merger cycle may, however, diverge from the investment cycle because of changes in the relative costs of internal and external growth in the course of the cycle. There may, for example, be bottlenecks in the supply of industrial buildings and machinery at the upper stages of the cycle so that acquisitions will then appear attractive relative to internal growth.

1. This is presumably the meaning of the contemporary explanation of the cycle by D.H. MacGregor (introduction to Liefmann, Cartels, Concerns and Trusts, p. XXV) that "combination is a form of enterprise". A strong correlation between profitability and growth is discernible in postwar data on firms (e.g. A. Singh and G. Whittington, Growth, Profitability and Valuation, Cambridge, 1968, p. 197), and there is evidence that interwar managers considered liquidity to be an important factor in investment decisions, see e.g. J.E. Meade and P.W.S. Andrews, "A Summary of Replies to Questions on Effects of Interest Rates", O.E.P., I, 1938, pp. 25-8, 30-1.

This hypothesis was examined by Professor Nelson in a study of United States merger between 1919 and 1961.\(^1\) Nelson found that merger peaks led internal investment peaks (measured by plant and equipment orders) whereas the opposite would be predicted by the hypothesis.\(^2\) The explanation of the absence of the expected lead-lag relationship is presumably that the cost of external expansion also rises with the demand for firms in the course of the trade cycle: temporary cyclical advantages (e.g. the speedier acquisition of capacity) of acquisition over new building would presumably be capitalised in the asking price of the victim firm.

Nevertheless, there is much plausible literary evidence that in Britain between the wars, when capacity utilisation was high and demand was expected to increase, firms did buy up competitors to gain capacity. The postwar boom of 1919-1920, for example, created shortages of a wide range of industrial machinery.\(^3\) Iron and steel firms, for example, were unable to secure the equipment, labour and materials for large new integrated plants and instead purchased small iron companies to secure the capacity they required.\(^4\) For much of the later part of the period, however, surplus capacity plagued many industries\(^5\) and the plausibility of this as a cause of the merger cycle declines. Indeed a converse situation to that postulated sometimes arose to stimulate merger: manufacturers of new industrial machinery were shunned because second-hand machinery was cheaper than new when the firms which owned


\(^2\) Nelson suggested that a decision rather than action chronology of mergers might produce the expected pattern. The present merger study is more nearly a decision chronology than the U.S. series which he used (the time of agreement rather than consummation being used for dating purposes), but machinery prices were still not found to behave in the expected way, see pp. 183-4, below.


\(^4\) Andrews and Brunner, Capital Development in Steel, pp. 133-6; for an example in another industry see Jones and Marriott, G.E.C., p. 83.

it were depressed and cheap to buy.¹

The weaknesses of "real" explanations of cyclical peaks of merger activity, together with the especially close correlation of merger activity and share prices which has been observed in other countries (and which will be confirmed for interwar Britain below) suggests that it would be worthwhile to examine purely financial factors in merger cycles. From the point of view of the acquiring company, it is surprising that the majority of acquisitions occur at a time of high share prices. One would expect that rational acquirers would operate largely in depressed stock markets when firms could be bought cheaply. Yet analysis has generally failed to show the expected inverse correlation: indeed the correlation is usually positive. Gort² has attempted to rationalise this observed relationship in terms of valuation discrepancies resulting from economic disturbances related to the rate of change of share prices. He argues that the rapid movement of share prices renders the future more uncertain (because predictions are usually based on experience of the recent past) thus increasing the variance of expectations, and also shifts the valuations of non-owners of shares to higher levels. Both these effects would, he suggests, increase the number of valuation discrepancies, thus producing willing buyers and sellers and boosting merger activity.

Three reservations must clearly be registered about Gort's interpretation, in general, and in its particular applicability to the interwar situation. Firstly, he makes a transition from quoting the findings of the U.S. investigators on the close correlation of share price levels and merger activity to suggesting that the rate of change of share prices would be correlated with mergers. The two are different and he makes no attempt to establish the existence of the supposed correlation with rate of change which his theory purports

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¹ Among others, the Lancashire Cotton Corporation, Lucas, Thomas Ward, Rootes and Lithgows, at various times expanded by acquiring firms at cheap prices to gain control of their assets.

to explain. Secondly, his explanation of why mergers are not high at
troughs as well as at peaks (as one would expect from his analysis) is that
stockholders at peaks will resist a management decision to take over firms
when they can buy the same firms on the open market more cheaply themselves.
However, this is of limited value since it would presumably also apply at
the peaks.1 The third weakness of Gort's thesis - and perhaps the most
fundamental when applied to British mergers between the wars - is that the
majority of companies then acquired were in fact not quoted and thus not
subject to the kind of influence postulated.

An alternative and more plausible hypothesis may, however, be advanced
about the causation of the valuation discrepancies which generated interwar
merger activity, which is compatible both with a positive correlation of
merger activity and share prices and with the institutional study of the
capital market in chapters 5 and 6 above. It has been suggested2 that the
shadow valuations placed on unquoted firms by owner-managers and other close
holders are less volatile than the values placed on public company shares by
shareholders. This asymmetry created an opportunity for profitable inter-
mediation in stock market booms of the demand and supply of firms: hence
the activity of company promoters who persuaded family companies to sell out
and potential shareholders to buy. Investors commonly failed to discount for
cylical factors in stock exchange booms3 and sellers of firms appear to have
been able to capitalise on this. New issues to acquire existing assets (many
of them involving merger) were highest in stock market upswings and declined

1. It is in any case doubtful, particularly in the interwar years, whether
shareholders had meaningful powers to resist when managements offered a
premium on the market price in bids for the shares of other companies.

2. Pp. 90–2, above.

both absolutely and relatively to total issues when the market slumped.¹

The rise in share prices also affected, through its impact on the share prices of existing companies, the propensity of industrialists to acquire unquoted companies. As the Economist pointed out, many merger schemes were devised not by "irresponsible wildcat promoters" but by "successful captains of industry".² As it was, for parallel reasons, easier in the upswing for existing quoted firms to unload new shares onto the market, the management of a quoted company could offer an unquoted company's shareholders cash raised on the market in payment. Alternatively, payment could be made in newly created, but saleable, high value shares in the company. There would thus be no serious financial barrier to acquisition during a stock market boom. Having lower expectations than shareholders in the boom, managers thus considered it cheaper to raise finance then and this frequently led to expansion by acquisition.³

This analysis is, however, inadequate to explain mergers between quoted companies, since, ceteris paribus, the valuation of potential quoted acquisitions would presumably share in the general market rise, yielding no parallel profit opportunity. Additional stock market factors may, however, operate here to frustrate the ceteris paribus condition. Two possibilities present themselves. One depends on the incidence of the practice, which was common, of reporting profits falsely by window dressing in slumps and understating profits in booms. Those firms in which cyclical variations were most smoothed by this practice would therefore be undervalued by the market in times of boom and might, if potential acquirers had better information than the market as a

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² Economist, 26 July 1930, p. 182.

³ Wilson, Unilever, v. 2, pp. 288-9; Jones and Marriott, G.E.C., p. 83, and cf. Matthews, Trade Cycle, pp. 141-4. The data was too sketchy to justify calculation of the changing proportion of the acquisition expenditure in shares and cash over the cycle, but generally the number of acquisitions for shares (or for cash raised by share issue) appeared to be highest near the peak levels of share prices, thus confirming this hypothesis.
whole, be subject to cash bids or offers of share exchanges from the companies accurately reporting increased profits. A further possibility, which it has been suggested may apply to the postwar period also, is that the dispersion of price-earnings ratios increases in a boom thus increasing the number of potential acquisition situations.

A further merger cycle hypothesis relates to the general price level, the cyclical component of which is related to the trade cycle. It has been suggested that many of the interwar vertical mergers backwards to suppliers "can only be explained on [the] basis of desire to avoid extreme prices of materials in a boom, in some cases a desire to ensure continuity of supplies". Now this interpretation poses a problem, for it would seem that the price at which a supplier could be purchased would reflect its expected earning capacity and thus provide no roundabout way to lower prices for inputs for the acquiring firm. The argument only makes sense in one of two situations: if either the acquiring industry had more optimistic expectations or, alternatively, if suppliers in a boom allocated raw material output to customers not by short-term price adjustments but by rationing. This does indeed seem to have been the case and mergers did take place to overcome the effects of this. In Scotland, for example, independent shipbuilders acquired their own steel company to secure supplies in 1920 when there was a shortage of shipbuilding steel. In later years, however, when

1. As would presumably be true, for example, of firms in the same industry.
6. J.L. Carvel, Stephens of Linthouse: A Record of 200 Years of Shipbuilding, 1750-1950, Glasgow, 1950, p. 116; and see Economist, 25 Oct. 1919, p. 781. The problem was aggravated if some firms were vertically integrated already and discriminated against outside consumers.
steel supplies were plentiful vertical disintegration set in in the steel and shipbuilding industries. There is considerable evidence from other companies and industries also that schemes for vertical acquisitions were commonly conceived in a boom but were frequently abandoned when prices began to turn downwards.

There is, then, no shortage of potential explanations of the cyclical behaviour of merger activity supported both by a priori reasoning and consistency with literary evidence of interwar mergers. Some simple models of the determinants of merger activity were therefore formulated on the basis of the above discussion and were subjected to some crude econometric tests. These are reported in Appendix G. The most promising equation reported there was one which related the rate of change of firm disappearances by merger to the rates of change of share prices and of wholesale prices and found it to be positively correlated with both. There was also a significant positive correlation of other indicators of merger activity with share prices and wholesale prices. A real variable, manufacturing production, did not perform well, the correlation being negative and often insignificant, though on quarterly data another real variable, business activity, becomes more significant if lagged by one or two quarters. The hypothesis that the

1. E.g. Carvel, op. cit., p. 129.
3. Appendix G, equation (3).
4. Appendix G, equations (1), (2), (9), (10).
5. Appendix G, equations (1)', (2)', (9)', (11)', (12)', (13). Inspection of the data suggests that the negative coefficient of the manufacturing production variable may be explained by the variation of trends in the variables rather than in their cyclical components.
6. In accordance with our cyclical turning point analysis: Appendix G, equations (4), (5), (6).
The relative importance of internal and external growth is determined by their relative costs as indicated respectively by machinery prices and share prices was tested, but was not confirmed: the coefficients being the opposite of those predicted.¹

If share prices (S) and wholesale prices (P) are used as the independent variables, and first differences are taken, some 81% of merger activity (M) can be "explained" by the following equation:

\[
\Delta M = -0.4 + 3.6 \Delta S + 4.7 \Delta P
\]
\[T = 4.6 \quad T = 5.4\]
\[(\text{Durbin Watson} = 2.3) \quad ²\]

The unexplained residual of 19% is perhaps not unreasonable given the nature of the phenomenon under investigation. Mergers are not an entirely homogeneous variable: it may be, for example, that diversifying or forward vertical mergers are more likely to be responses to economic downturns than horizontal or backward vertical mergers,³ yet all are grouped in our data. Moreover, the independent variables may be far from inclusive of all the determinants of merger activity. Among excluded variables, for example, there are tax changes, tariffs, the B.I.D.C. and government persuasiveness, the deaths of family owners, managerial diseconomies (or economies) of scale and technical changes. Whilst many of these influences may have been stable over time or limited in their effects, it would be surprising if they had not, at times, had some impact on variations in the dependent variable. Overall, however, the econometric results may be taken to confirm the conclusion of

¹. Appendix G, equation (13). This does not, of course, rule out the view that firms are influenced in the choice of growth path by the relative costs of the alternatives, but it does suggest that better proxies for the relative costs and/or a more complex economic model would be required to reveal such a relationship, if it does exist.

². Appendix G, equation (3), q.v.

³. Jewkes, "Factors in Industrial Integration", p. 632; Beesley, Concentration in Midland Metal Industries, p. 235.
investigators of mergers in other countries that stock exchange prices are closely related to merger activity.

The positive and significant relationship between mergers, share prices and wholesale prices would be predicted by two of the explanations of cyclical merger activity which were developed above: the valuation discrepancies between quoted and unquoted assets generated by Stock Exchange booms would account for the indicated role of share prices; and the impact of supply inelasticities and boom-time rationing on vertical acquisitions would account for the role of wholesale prices. However, the simple model of one-way causation implied by this, whilst it is perfectly acceptable on a micro-level where literary evidence can fully substantiate it for individual cases, cannot be accepted as a macro-economic explanation for it ignores the reverse effects of mergers on both the supposedly independent variables. Wholesale prices can be expected to rise, for example, if monopoly power increases as a result of merger activity; and mergers also clearly tend to increase the general level of share prices by creating expectations of increased monopoly power, of economies of scale, or of speculative profit. Only a simultaneous equation model allowing for this interrelation between the variables could do justice to the complexity of the interaction.

A further problem of interpreting the close correlation of share prices and wholesale prices with merger activity as a causative influence is that the variables may, in principle, not be causally related to each other at all, or may only be weakly so related. This would be possible if another variable had a strong influence on both prices and on merger activity, so that share prices or wholesale prices simply acted as proxies for them. The potentially relevant variables here will be recalled from our previous discussion. The need to coordinate competing investment plans will induce merger activity when the incentive to invest increases and this incentive will be positively

related to the level of wholesale prices which manufacturers are currently obtaining. Again, the levels of profits, and thus the cash available for investment in acquiring subsidiaries, will affect both the share prices and merger activity. In fact, most of the independent variables implied in the various theories of merger activity are related to each other and move fairly closely with the trade cycle, so that the problem of multicollinearity is a serious one. Any monocausal explanation based on the superior performance of share prices and wholesale prices as independent variables is, then, inadmissible since they may be acting as proxies for any of a wide range of other potential independent variables. A more complex model would be required to discriminate between the impacts of the various interrelated variables which can plausibly be advanced as among the likely cyclical determinants of merger activity between the wars.

1. E.g. unemployment and business saving were both found to perform well in the simple regressions in equations (14) and (15) of Appendix G. (However, when introduced into the multiple regressions of earlier equations as additional independent variables, they both had T-values below 1.)
Chapter Eleven

THE EFFECTS OF MERGERS ON INDUSTRIAL CONCENTRATION

The historian and the statistician use very different methods; fundamentally they have the same task.

(Adelman, "The Measurement of Industrial Concentration", p. 293)

Statistical reasoning is as yet imperfect and unsafe.

(MacGregor, Industrial Combination, p. 193.)

The preceding chapters have been concerned with analysing the factors which caused merger activity or which prevented mergers taking place. In the remaining two chapters the focus changes to the effects of mergers. Clearly an understanding of their causes can illuminate the effects of mergers: cause and effect as usually related in some way. This is not, however, to say that they are always perfectly related: the world in which men perfectly achieve their intentions, no more and no less, is very different from that in which we live. A merger may, for example, be conceived as a means of taking advantage of scale economies or of a stock exchange boom, but can nonetheless have the same effect of increasing monopoly power as a merger explicitly conceived for this purpose. Furthermore, mergers are not working alone: they interact with the total activities of enterprise in the economy, and their effects may be eliminated or dispersed by these other activities. A monopoly achieved through merger may, for example, be frustrated by the entry of new firms or by the invention of new products which compete in the same market. An assessment of the effects of mergers on the competitive structure of manufacturing industry presents a series of complex problems. The present chapter relates our statistical findings to the already extensive literature of industrial concentration. In the final chapter, which follows, the limitation of concentration data as an indicator of monopoly power is discussed and an assessment is made of the welfare effects of interwar merger waves.

The pioneering work in the measurement of historical changes in British industrial concentration is the classic study of Hart and
Prais.¹ Using market valuation as a measure of the size of quoted companies,² they were able, in an article notable for its ingenuity and elegance, to graph the cumulative percentage of firms against the cumulative percentage of market valuation to indicate changes in overall concentration between 1885 and 1950.

Figure 11.1. The Concentration of Quoted Firms in the U.K. 1885-1950

% of firms

% of market valuation


2. Market valuation is not as relevant to the question of market control as output but for historical periods it is the most accessible data. It appears that, for recent periods at least, there is a strong correlation between the various measures, see Hart and Prais, op.cit., Appendix B, and J.A. Bates, "Alternative Measures of the Size of Firms", in P.E. Hart, ed., Studies in Profit, Business Saving, and Investment, 1920-1962, v. 2, 1968, chap. 8. The objection raised by C.P. Kindleberger (in Economic Growth in France and Britain 1850-1950, 1964, p. 164), that sources of funds other than quoted capital determine firm size, can, in practice, be ignored, because the distortion is unlikely to be either substantial or systematically biased and will not therefore affect calculations of trend.
The diagonal through the origin in Figure 11.1 is the "Lorenz curve" of equal distribution: if each firm were of equal size the curve would lie on that line. The larger the proportion of market valuation accounted for by the largest firms (that is the higher the concentration) the more the Lorenz curves bulge outwards from the diagonal. It can be seen that, according to this measure, British industry became more concentrated in each of the four periods 1885-96, 1896-1907, 1907-1924 and 1924-39, but that around the time of the Second World War the trend was reversed and the 1939-50 period registered some deconcentration.

The same information is given in a slightly different form in Table 11.1.

Table 11.1

<table>
<thead>
<tr>
<th>Year</th>
<th>N</th>
<th>σ²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1885</td>
<td>60</td>
<td>4.17</td>
</tr>
<tr>
<td>1896</td>
<td>250</td>
<td>3.85</td>
</tr>
<tr>
<td>1907</td>
<td>569</td>
<td>3.79</td>
</tr>
<tr>
<td>1924</td>
<td>719</td>
<td>5.61</td>
</tr>
<tr>
<td>1939</td>
<td>1712</td>
<td>6.01</td>
</tr>
<tr>
<td>1950</td>
<td>2061</td>
<td>4.11</td>
</tr>
<tr>
<td>1955</td>
<td>2328</td>
<td>5.07</td>
</tr>
</tbody>
</table>


The first column shows the number of firms (N) on which each year's measure is calculated, and the second the variance of the logarithms of firms' sizes (σ²) which, like the Lorenz curve, reflects the dominance of large firms over others in the economy. The more the curve bulges outwards, the higher the variance and the higher the concentration. It thus shows

1. Since the observed distribution is approximately lognormal it is possible to use a single summary measure of this kind to describe it. However, the variance measure is misleading for 1885 and 1896, as a comparison of the graph with the table reveals.
trends in concentration identical to those shown by the Lorenz curves and, being carried forward to 1950-55, reveals that the earlier trend to higher concentration was then resumed. This upward trend is confirmed by later studies of the 1950s and 1960s.\(^1\) Whilst the direction of the changes in short and comparable periods can be taken as a reliable indication of trends in concentration within the terms of the study and the sample, comparisons of levels in widely separated years need not be taken too seriously. The inclusion of supplementary list quotations and the exclusion of sectors experiencing nationalisation in the 1955 data \((\sigma^2 = 5.07)\) as compared with the 1924 data \((\sigma^2 = 5.61)\), for example, render a conclusion that concentration actually decreased between 1924 and 1955 inadmissible.

The study has become the centre of a considerable controversy,\(^2\) but the appropriateness of the variance as a measure of concentration has been successfully defended by Hart and Prais.\(^3\) Nevertheless, their study is subject to severe limitations of an empirical kind. Being confined to companies quoted on the London Stock Exchange in the mining, manufacturing and distribution sectors,\(^4\) it omits some important sectors which were unquoted or quoted only

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4. More specifically, to firms with significant U.K. operations which appear in the "Iron Coal and Steel", "Commercial and Industrial" and "Breweries and Distilleries" classifications.
on the provincial stock exchanges, or prior to 1939, were on the London Supplementary List only. The provincial stock exchanges remained active until well into the interwar period, and the unquoted sector contained such important firms as Pilkingtons in the glass industry, Lithgows in shipbuilding, Vauxhalls in the car industry, and Esso in petroleum refining and importing. These exclusions suggest the possibility of a misinterpretation of levels of concentration. Moreover, the degree of omission is not uniform at each matrix date, for the quoted sector represents, as Hart and Prais admit, 1 a substantially increasing sector of the economy: trends as well as levels may therefore be misrepresented. As we saw in chapter 5 the transfer of firms from private or provincially quoted status to the London Stock Exchange proceeded in waves related to share price levels throughout the early decades of the twentieth century. Variations in the rates at which particular industries sought quotations in London inevitably influence the conclusions drawn from this truncated distribution. Breweries, for example, account for almost one quarter of the sample in 1907, but much less in later years as a wider range of businesses was transferred to London from the provincial exchanges which had specialised in local industries. The qualifications which must be made to the conclusions of Hart and Prais are thus considerable. Their results are perhaps best considered as a conceptually elegant, but empirically imperfect, corroboration of the untuitive perception that concentration has increased in the course of the twentieth century.

The problem of assessing the role of mergers in this increase in concentration is a complex one, bedevilled both by conceptual problems and by deficiencies of data. The logic of an ideal model would be that it would indicate the difference between the observed level of concentration at a terminal date and the concentration level which would have obtained if the mergers which took place in a specified prior period had not occurred. It

will be clear from an analysis of the causes of merger, that the interrelationships which such a model implies are complex. Mergers may, by facilitating the co-ordination of investment or by creating "synergy", contribute to internal as well as to external growth; or they may, contrariwise, if they create insurmountable managerial problems, make the internal growth negative. The monopolistic imperfections introduced into an industry's structure by merger may also have complementary effects on other variables affecting concentration. If monopoly profits are achieved through merger, for example, new entry may be induced, thus reducing concentration. On the other hand, if vertical integration is increased by merger it may have effects more than proportional to the sizes of the merging firms if it raises additional barriers to entry. Again, many acquisitions of near bankrupt "weak sellers" whilst they clearly affect concentration in the short run may merely speed up a process of exit which would in any case have been achieved by bankruptcy under competitive pressure in the longer run. Firms themselves recognise that merger is not just an alternative to internal growth and competitive elimination and see them rather as in important senses complementary: the acquisition of a competitor is frequently followed by investment in modernisation or extension of capacity. Thus, whilst an economy without mergers would no doubt be different from the one we know, it is a moot point whether this would appear conspicuously in lower levels of concentration or largely in a different mechanism of adjustment to similarly high levels of concentration.¹

It is clearly impossible to take account of all these complementary and dichotomous relationships in an empirical study because the requisite data is simply not available. A comparative static model is therefore usually

¹. As is suggested by the fact that a number of industries contain some firms which have grown exclusively by merger and some which have grown exclusively internally, e.g. Brown and Polson and Reckitt and Colman in starches. Also some international comparisons, disaggregated to the industry level, show similar concentration patterns achieved by different means.
employed as a simplification. Though such a model is uncomfortably remote from the dynamic reality of the role of merger in the transformation of the structure of the modern economy and contains unsupported implicit counterfactuals, it is at least a starting point for analysis. A simple counterfactual which poses few special data requirements is that, in the absence of merger, the relative sizes of the merging partners would have remained constant and that the merger is simply additive. This is the assumption implicit in the Hart and Prais study of the effect of mergers on their population of quoted firms between 1885 and 1950, in which they concluded that mergers made only a small contribution to increases in the variance measure of concentration.¹ It should be noted, however, that the caveats about comparative static models sounded above apply more strongly to their truncated sample of companies than to the general population. The acquisition of an unquoted company by a quoted firm may, for example, decrease the number of quoted company "births" by providing a way of raising capital, alternative to public flotation. A further special difficulty is that size estimates were not available to Hart and Prais for all years in which mergers occurred so that they were constrained, for example, to take the relative sizes of firms in 1924 as the basis for calculating the effects on concentration of all firms merging between 1924 and 1939.²

In the simple model employed by Hart and Prais, mergers influence the level of concentration in two ways; by reducing the number of firms, and by changing their size distribution. If, in a matrix of firms at a given date, those merging between that date and a terminal date and those not so merging are in the proportion $w_1 : w_2$, we have:

---

². This procedure may bias the estimate in either direction depending for example on growth rate differentials between merging firms caused by technical or demand factors, or a tendency for firms whose market shares are declining to sell out. Utton ("Effect of Mergers on Concentration", pp. 50-52) found that a result for a later period changed from 4% to 4% under the alternative procedure of summing of sizes at the end of the period.
\[ \sigma^2 = w_1 \sigma_1^2 + w_2 \sigma_2^2 + w_1 w_2 (\bar{x}_1 - \bar{x}_2)^2 \]  
(1)

where \( \sigma^2 \) is the variance resulting from combining the respective groups of merging and non-merging companies, the former with variances \( (\sigma_1^2) \) and means (\( \bar{x} \)) (after merger) denoted by subscript 1, the latter's by subscript 2. By comparing the variance thus obtained with that given by the actual matrix of firms observed at the two dates, we have an indicator of the importance in that period of mergers, relative to the other components of changes in industrial concentration: births, deaths (other than by merger), and internal growth. The effects of mergers on the number of firms can also be calculated by enumerating from the transition matrices the firms disappearing, and can be expressed as a percentage of the total number of firms at the first matrix date. Table 2 shows the results of such calculations.

Table 11.2.
THE EFFECTS OF MERGERS ON CONCENTRATION (according to Hart and Prais), 1885-1950

<table>
<thead>
<tr>
<th>(1)</th>
<th>(2)</th>
<th>(3)</th>
<th>(4)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Increase in concentration ( (\sigma^2) ) due to merger.</strong></td>
<td><strong>Col. 1 as a percentage of the total increase in concentration.</strong></td>
<td><strong>Firms disappearing by Merger</strong></td>
<td><strong>Col. 3 as a percentage of the population of firms.</strong></td>
</tr>
<tr>
<td>1885-96</td>
<td>No mergers in sample</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1896-1907</td>
<td>0.00</td>
<td>0%</td>
<td>6</td>
</tr>
<tr>
<td>1907-1924</td>
<td>0.07</td>
<td>4%</td>
<td>27</td>
</tr>
<tr>
<td>1924-39</td>
<td>0.08</td>
<td>8.3%</td>
<td>33</td>
</tr>
<tr>
<td>1939-50</td>
<td>0.12</td>
<td>5.3%</td>
<td>59</td>
</tr>
</tbody>
</table>

Source: Calculated from Hart and Prais, op. cit., pp. 154, 169.

Note: A negative value indicating that although the effect of merger was to increase \( \sigma^2 \), the actual trend of \( \sigma^2 \) was in the opposite direction over the period.

It will be seen that the percentage contribution of mergers to changes in the parameters of the Lorenz measure of concentration is indeed very small both for changes in the variance (col.2) and for changes in the number of firms (col. 4). This contrasts strongly with the results of studies of later
periods, when the percentage contribution of mergers, calculated by comparable methods, was higher by a large margin. Between 1954 and 1965, for example, the contribution of mergers to increased concentration was as high as 49%.\(^1\) The effects on the number of firms also appears to have been relatively larger then. Of 1,516 quoted companies in manufacturing industry with assets above £0.5m. in 1957, 600 had disappeared by merger in 1968,\(^2\) a fall of 40% in a shorter time period than those to which the lower percentages in column 4 relate.

It has been suggested that a fundamental change in the importance of mergers in the creation, and maintenance, of high levels of concentration in the economy may have occurred,\(^3\) and, indeed, it is certainly true that the merger wave of recent years has been a strong one with considerable structural effects. However, an alternative hypothesis is available, and, in view of the suggestion made above,\(^4\) that, however measured, the interwar merger waves were of comparable order of magnitude to many of those experienced in the postwar period, this hypothesis deserves detailed examination. A very considerable part of the "increase" in the effects of mergers, it may be suggested, is due not to a real change but to an increase in the reliability and coverage of the data. Hart and Prais deny the likelihood of this. Whilst admitting that "the greater portion of the amalgamations that take place in the economy will be due to the acquisition by quoted companies of other unquoted companies, or to the amalgamation of unquoted companies", they felt that it was only mergers between quoted companies which "may be expected to affect the level of concentration significantly", and hence that their sample (which, of course, by its

\(^1\) Utton, "Effect of Mergers on Concentration", p. 50.


\(^4\) Chapter 8, above.
very nature, only includes such mergers) was a meaningful one with which to
conduct the analysis. They concluded, on the basis of this, that interwar
changes in concentration occurred by a combined process of internal growth,
new entry and bankruptcy rather than by merger.

The constraints on internal growth as a means of achieving large changes
in the distribution of populations with strong age-dependent characteristics
are well-known. Nevertheless, that internal growth played a significant
role in the changes in concentration in Britain is implied in the finding of
Hart and Prais that increases in concentration are primarily due to changes
in the logarithmic variance of constant samples of companies (which are pre­
sumed to be unaffected by merger). This is rendered especially plausible by
the observed gradualism of the increases in the concentration parameters which
they registered. Very high rates of growth could be achieved by firms such
as Courtaulds or Morris, reaping economies of scale in fast-expanding indus­
tries, and relying little, if at all, on growth by merger, yet producing
significant changes in the measure of concentration. Merger is likely to assume
great importance only when there is a large and abrupt increase in overall
concentration as, for example, occurred in the United States between 1896 and
1905 when the largest 100 corporations increased their average size by a
factor of four, gaining control of 40% of the nation's industrial capital. Such discontinuous overall increases in concentration do not seem to have
occurred in the United Kingdom in any historical period.

The expectation of a smaller role for mergers in such gradual changes must

2. Marx, Capital, v. 1, pp. 627-8; Penrose, Theory of the Growth of the Firm,
chap. 8; J. Steindl, Random Processes in the Growth of Firms, 1965, passim.
3. D. Bunting and J. Barbour, "Interlocking Directorates in Large American
Corporations 1896-1964", B.H.R., XLV, 1971; p. 317, n. 1. Nevertheless, as we
have suggested above, there are also important managerial constraints on the
rate of growth of the firm by merger.
however be qualified, for within this gradual increase are concealed some very large and discontinuous shifts at a greater level of disaggregation. The increase in concentration in the quoted sector did not, it seems, stem from a tendency of large firms to grow fast relatively to small firms; rather was it the result of a wide dispersion of the growth rates of firms and thus a considerable degree of size mobility. This tendency was particularly strong between 1924 and 1939, when some 48% of the total population of firms more than doubled (or halved) the mean size in their size class, many large firms decreasing in relative size and being overtaken by new and fast-growing medium-sized firms. The rate of change for individual firms was therefore much greater than for the population as a whole, and the expectation that at least some of the change was achieved by merger thus becomes appreciably stronger.

It is, therefore, worth examining the Hart and Prais study more closely to assess the extent of underestimation of the contribution of mergers. Unfortunately the original tabulations of the study have not been preserved by the National Institute of Economic and Social Research (which sponsored the study) and it is thus not possible to do this precisely. It is clear from the data generated in the present study, however, that there was considerable underestimation both of mergers between companies quoted on the London Stock Exchange and of mergers involving unquoted companies.

The major reason for the omission of quoted company mergers is the entry of a firm into the quoted population after the matrix date. Thus Allied Cement (the "Red Triangle" Group) was not floated until shortly after 1924 and therefore it does not appear in the 1924 matrix. Between then and 1939 it acquired a number of quoted (as well as some unquoted) companies and was itself acquired


2. It is consistent with this, though perhaps only fortuitously so, that the limited data of Hart and Prais registers an increase in the contribution of mergers from 4% to over 8% in the 1924-39 period. This is roughly proportional to the increase in size mobility from 1.04 to 2.01 in the same period.
by the (quoted) Associated Portland Cement group. These mergers perforce appear in the transition matrices for 1924-1939 as deaths and internal growth. The seriousness of the omission of mergers of this type from transition matrices will be a function both of the time interval between the matrix dates and the rate at which companies are gaining quotations. On both counts the omission would be greater in the interwar years than for later periods.

Probably more serious, however, is the total omission from the transition matrices of companies which were quoted in the provinces or (up to 1939) on the London Supplementary List, or which were not quoted at all. These companies undoubtedly formed the majority of the total population of all firms and of merging firms in the interwar years. Mergers to gain access to public company finance and sales of family firms to quoted companies were the dominant form between the 1880s and the 1930s. Among such mergers were the large multi-firm amalgamations such as the Salt Union (1888, 64 firms) and United Alkali Company (1890, 48 firms), Jute Industries (1920, 6 firms) and the Lancashire Cotton Corporation (1929-30, 96 firms). Although such mergers had become smaller on average by the interwar years, they were still occurring, but throughout the whole period they are excluded from the Hart and Prais study. Moreover, unquoted companies not only formed the majority of the population of acquired and newly floated companies, but also formed an important, though probably decreasing, portion of the population of acquiring firms. Colvilles, for example, which made many acquisitions in the Scottish steel industry, arranged the majority of them prior to seeking a public quotation in 1934, and among the significant mergers between two unquoted companies was the fusion of Cadbury's and Fry's to form the British Cocoa and Chocolate Company in 1919. The view from the vantage point of the postwar period that mergers between unquoted companies will tend to be the least significant ones would appear, then, to be questionable.

The effect of these omissions is difficult to quantify given the different

1. It is unclear whether Hart and Prais were able to include all the companies which were quoted in 1924 and involved indirectly in such mergers (e.g. as subsidiaries of Allied) in their merger study. It would seem likely that data deficiencies led to some underestimation. However they are assumed to be included for present purposes.
basis on which the Hart and Prais study and the statistical series used in
the present work were constructed, but in number terms, it is clear that
the extent of the omission is gigantic;

Table 11.3
THE UNDERESTIMATION OF MERGERS BY HART AND PRAIS

<table>
<thead>
<tr>
<th>Year Period</th>
<th>Firm Disappearances (Hart and Prais)</th>
<th>Estimated Total of Firm Disappearances</th>
<th>Coverage of the Hart and Prais series (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1885-1895</td>
<td>0</td>
<td>792</td>
<td>0%</td>
</tr>
<tr>
<td>1896-1906</td>
<td>6</td>
<td>2096</td>
<td>0.3%</td>
</tr>
<tr>
<td>1907-1923</td>
<td>27</td>
<td>2013</td>
<td>1.3%</td>
</tr>
<tr>
<td>1924-1938</td>
<td>33</td>
<td>2599</td>
<td>1.3%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>66</td>
<td>7500</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

Sources: Col. 1: Hart and Prais, op.cit., with mergers occurring in the first quarter of 1896, 1907, 1924 and 1939 assumed to have occurred in the previous year, in order to standardise with the dating conventions of the present series.

Col. 2: 1885-1918 Series "A" provisional data, multiplied by two to allow for omissions.

1919-1938 Total merger population estimated from series "A" and "B" by the method of equation (4).

Col. 3: Col. 1 ÷ col. 2 x 100.

The Hart and Prais study thus covers less than 1% of the mergers in the period 1885-1938 and, though its reliability increases as the quoted sector becomes more representative, it still in 1924-1938 registered only 1.3% of the mergers.

1. The multiple which relates series "A" for 1919-1939 to the total firm disappearances calculated by equation (4) (see n. 2, below) for 1919-1939 is 2.518. The lower figure of 2 may, however, be justified because of the superior coverage of pre-1919 series "A" sources.

2. For an explanation of the method of correcting for omissions, see pp. 132-3, above. Even if raw series (i.e. observed mergers only) are used, the coverage of Hart and Prais for 1885-1938 remains as low as 1.5%. 
It is perhaps superfluous to remark that this test is biased in favour of the Hart and Praia study, since their figures are boosted by the inclusion of mergers in coal mining and distribution which are excluded from series "A" and "B".¹

Nevertheless, the proof of extensive omission does not unequivocally establish that the increase in concentration as defined by Hart and Praia was more influenced by merger than their study suggested. There are two objections to such a deduction.

Firstly, the average size of all firms disappearing may not have been as large as that of disappearing firms which were included. In 1968, to take a recent example for which data is available, there were only 140 quoted acquisitions compared with 458 non-quoted acquisitions but the average consideration paid for the quoted firms was £10.8m, a much higher figure than the £0.3m average for non-quoted companies.² Accordingly a detailed survey of large mergers in the series "A" and "B" worksheets was made, and is reported in Appendix E. By reference to the appropriate Stock Exchange Daily Official Lists it was possible to ascertain whether the effects of the 126 large mergers between 1919 and 1938 in which the firms disappearing were valued at £1m. or more could have been included in the Hart and Praia transition matrices. Whilst the largest merger recorded - that of I.C.I. in 1926 in which the

1. Statistics are not yet available from series "A" and "B" to cover mergers in the 1939-50 and 1950-55 periods for which estimates of the parameters of concentration exist. The low coverage still persisted however, for whilst there were 80 quoted company deaths (including deaths for reasons other than mergers) in 1950-55, quoted companies acquired as many as 275 companies in 1954 alone, the only comparable year for which merger data is available, see Hart, "Concentration in the U.K.", p. 278 and cf. Economic Trends, April 1963, p. x. However, since the matrix dates are closer and the quoted sector is more representative in the 1950s one would expect a lower level of underestimation than between the wars.

2. M.C., "General Observations of Mergers", annex to Unilever Ltd. and Allied Breweries Ltd., 1969, p. 43. 1968 was an exceptional year. Between 1954 and 1965, for example, the 643 acquisitions of public companies averaged £1.3m. whilst the 2,967 private companies acquired averaged £0.27m. so that, even in value terms, private acquisitions could still be of comparable importance to public ones.
market value of the firms disappearing exceeded £35m. - was indeed included, those omitted in fact exceeded both in number and value those included. Only 24 of the 126 large mergers identified in Appendix E were in fact included in the transition matrices and these were valued at only £123m. out of the total value of firms disappearing in large mergers in the relevant period of £350m. Though the average size of the large mergers included in the transition matrices (£5.1m.) was greater than the average size of those excluded (£2.2m.) it is clear that the transition matrices also include a number of mergers involving disappearing firms with a value below £1m. There can, then, be no doubt that the conclusions of the Hart and Prais study on the effects of mergers on concentration must be rejected as being based on a small sample of merger activity, and a sample for which, moreover, there are no grounds for presuming a coverage of the more important effects.

It would be improper, however, to infer from this negative finding that mergers were definitely of great significance as a source of increased concentration, for whilst the inclusion of more mergers in the transition matrices would clearly have had a considerable effect on the mean and number parameters of the distribution, their effect on the variance cannot be predicted from our present data. Whilst we have established that the change in the variance parameter of concentration attributed by Hart and Prais to births, deaths, and internal growth (as opposed to merger) is a residual which in fact includes a large number of mergers, it does not follow that mergers were the dominant element in changes in this residual or that mergers worked in the same direction as the residual as a whole. These latter propositions could only be established by transforming the 1924 matrix of firms by adding the

1. Hart and Prais show 33 firms disappearing between 1924 and 1938, whilst Appendix E suggests that only 19 large mergers occurring in that period were included in that figure. The remaining 14 probably included firms in distribution and coalmining but also some small or unsuccessful quoted companies in manufacturing with a low market valuation, cf. Hart and Prais, "Analysis of Business Concentration", p. 166n.
omissions to equation (1) on page 194 above. Neither the nature of the data nor the research time currently available admit of this procedure. However, even if it were possible, the population to which the data could be added would still exclude the important unquoted acquirers and be subject to all the conceptual problems raised earlier. It may, then, be doubted whether the expenditure of the research effort would be worthwhile.

The discussion so far has centred on the elegant, but empirically imperfect, relative measure of concentration devised by Hart and Prais, but a less ambitious absolute measure of concentration can also be used. Instead of attempting to summarise the whole size distribution of firms, as in measures derived from the Lorenz curve, one point on the curve may be isolated. An example is the inaugural study by Berle and Means of the share of the top 200 non-financial corporations in total corporate activity in the United States. Such an absolute measure has the great advantage that it is relatively easy to calculate and that, for historical periods, data on profit shares is available for the manufacturing sector as a whole and not just for a section of the quoted part of it. The results of a calculation of the share of the top fifty firms in total manufacturing profits are shown in Table 11.4.

1. E.g. Hart and Prais measured a company's size in terms of the market valuation of all its quoted capital; this is not the same as the price paid figure in series "A" and "B".

2. E.g. in order to achieve uniformity of treatment it would be necessary to transform all acquired company values back to a matrix date standard; ideally matrices would also be constructed for some intervening dates, to correct for the high rate of new quotations.


4. Profit may not be the ideal measure, though, for 1950, at least, it was reasonably correlated with other measures, see Hart and Prais, "Analysis of Business Concentration", p. 179.

5. The calculation was originally devised by Professor Hart and the new figures incorporate material developed by Professor Hart in his subsequent work on profits. Line 3 in Professor Hart's original calculation reads: 18%, 24%, 27%, 24%, see P.E. Hart, "Business Concentration in the United Kingdom", J.R.S.S., ser. A, CXXIII, 1960, p. 52.
Table 11.4

SHARE OF TOTAL MANUFACTURING PROFITS EARNED BY THE FIFTY LARGEST FIRMS 1908-1950

<table>
<thead>
<tr>
<th></th>
<th>1908-10</th>
<th>1924</th>
<th>1938-39</th>
<th>1950</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gross Profits of Largest 50 (£m.)</td>
<td>22</td>
<td>72</td>
<td>105</td>
<td>312</td>
</tr>
<tr>
<td>2. Total Gross Manufacturing Profits (£m.)</td>
<td>(a) 139</td>
<td>270</td>
<td>379</td>
<td>1319</td>
</tr>
<tr>
<td></td>
<td>(b) 109</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Gross 50-firm Profit Concentration Ratio (line 1 ÷ line 2 x 100)</td>
<td>(a) 16%</td>
<td>27%</td>
<td>28%</td>
<td>24%</td>
</tr>
<tr>
<td></td>
<td>(b) 22%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: Line 1: Hart, "Business Concentration in the U.K." p. 52
1924/39 - Hart, Studies in Profit Business Saving and Investment, v. 1, p. 21
1908/10 - see n. 3 below.

By this measure, it will be seen, there was a considerable increase in concentration between 1908-10 and 1939 (mostly before 1924), with a downward trend for 1939-50.¹ These results also must be interpreted with caution, for both the numerator and the denominator in the calculation are subject to substantial margins of error. The top 50 companies may not have been accurately pinpointed,² and line 1 will also clearly be affected by profit reporting policies of large companies which changed significantly over this period. The early figures in line 2 are particularly unreliable.³ The trend indicated for 1924-1939 may, then,

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¹. Since the 1948 Companies Act the quality of data has improved and it is possible to make reliable estimates of changes in absolute concentration ratios for later periods. These show a continuing upward trend in concentration, see S.J. Prais, "The Financial Experience of Giant Companies", E.J., LXVII, 1957, p. 257; Utton, Industrial Concentration, p. 88.

². It seems probable that a large, but declining, portion of the top 50 profit earners would be companies not among the top 100 London quoted companies (by market valuation) from which the "top 50" in Hart's study were drawn.

³. Line 2(a) is the "Gross True Income" computed for assessments for Schedule D in G.D.N. Worwick and D.G. Tipping, Profits in the British Economy 1909-1938, Oxford, 1967, p. 44, which is not directly comparable to the figures in line 1. Line 2(b) is the reliable profit figure for 1924 deflated by the Parkinson index of profits. The appropriateness of this as a deflator is questionable as it includes overseas companies, under-represents unquoted companies, over-

Contd.
be underestimated because of the increasing number of subsidiary companies in those years and the consequent under-reporting of profits. The probable margins of error suggested by these reservations are such that the data is reconcilable with an appreciably larger increase for 1924-39 and perhaps even for a stable or increasing ratio for 1939-50 rather than a decreasing one. However the result is consistent with that for the variance measure and the indicated increase in concentration is, moreover, not counter-intuitive.

The role of mergers in this increasing concentration cannot be directly calculated for the identity of the top 50 firms is not known. It is, however, possible to draw up a list of the largest manufacturing companies from postwar lists as a basis for a calculation of the effects of mergers on the growth of large firms. Appendix D lists the top 82 companies in manufacturing industry in 1948 by net assets. The great majority of the top 50 firms of 1939 will be included in this sample and, therefore, if it can be established that mergers played a significant role in the growth of these firms, the view represents highly cyclical industries and is weighted by 1935 values, see H. Parkinson, "British Industrial Profits: A Survey of Three Decades", Economist, 17 Dec. 1938, pp. 598-601, Table VI, and cf. P.E. Hart, Studies in Profit Business Saving and Investment, v. 1, pp. 32, 89-90. The figures for 1924 and 1938, however, come into the "B" category of accuracy, i.e. between 3 and 10% margins of error, a not unreasonable level compared with most historical data, though, it will be seen, one which could reverse the direction of change of concentration indicated in line 3!

1. On the other hand, this effect may have been counterbalanced by improved reporting procedures and the increased consolidation of accounts in the 1930s. However, an upward trend for the period between 1927 and 1949/50 is confirmed by alternative measures based on tax returns, see Hart, "Business Concentration in the U.K.", pp. 53-4.

2. The phrase "is consistent with" is used advisedly and cannot be taken to imply confirmation. A 50-firm market valuation absolute concentration ratio calculated from the data in the Hart and Prais study would in most periods show a decline, reflecting, of course, the change in the N parameter and the increasing representativeness of the sample. The measures would thus be perfectly reconcilable even if they had common populations and units of measurement, yet registered movements in opposite directions.

3. Only 10 for each year are named in Hart, "Business Concentration in the U.K.", p. 57.

4. The contribution of mergers to net assets will not coincide precisely with their contribution to profits. However, they are likely to be closely related.
that mergers have been an important source of high levels of concentration would be considerably strengthened.¹

A wide variety of patterns of merger activity amongst the large firms can be discerned in Appendix D. Internal growth was clearly of overwhelming importance for a sizeable proportion of them. Nine companies in all – Austin, Bovril, British Celanese, Consett Iron, J and P Coats, Ford, Guinness, Vauxhall and Whitbread – each registered no acquisitions, and a number of others, notably Courtaulds and Morris, had only a few, low-value acquisitions. Such cases are, however, outnumbered by the eighteen companies in which the growth obtained through consolidations and acquisitions was a crucial factor in determining their large size: Bass Ratcliffe, Beecham, Charrington, Colvilles, Distillers, Dorman Long, I.C.I., Ind Coope, Kemsley, Lancashire Cotton, Reckitt and Colman, Sears, Spillers, Stewarts and Lloyds, Taylor Walker, Turner and Newall, Vickers, and Wallpaper Manufacturers.² Indeed, in the aggregate, the largest firms accounted for a high proportion of inter-war merger activity. In all, 676 of the firm disappearances in the main series were direct "acquisitions" by the leading companies and there were also 212 "sub-acquisitions" (that is "acquisitions" by the acquired companies in the 1919-1939 period while they were still independent). Thus the leading 82 companies accounted for over one third of the total merger activity recorded in the present study; and reference back to the original worksheets suggests that even this may underestimate their role, for there were in

¹. However, it would not follow that the contribution of mergers to the Hart and Prais measure of concentration, \( \sigma^2 \), would be the same. \( \sigma^2 \) may increase because the largest firms have grown faster than small firms, thus increasing the variance of firm sizes. However, since the variance is a measure of dispersion from the mean, this need not be so. Concentration (\( \sigma^2 \)) can decrease even if large firms grow more slowly than others, if mergers are also creating more firms near to the mean size, thus reducing the overall variance, see S.J. Prais, "The Statistical Conditions for a Change in Business Concentration", Rev. Econ. Stat., XL, 1958.

². For each of these companies the recorded 1919-1939 acquisition values in Appendix D exceed 25% of their net assets in 1948.
addition 175 "acquisitions" and "sub-acquisitions" which were excluded from the main statistical series (e.g. because they could not be dated in any particular year).

An approximate indicator of the overall role of mergers in the growth of these firms is given by the proportion of their net assets in 1948 which can be "accounted for" by their merger activity between 1919 and 1939. This is a somewhat problematical measure since the net assets figure would normally exclude valuations for goodwill; through this would enter into merger transactions. Inflation between 1919-39 and 1948 will also affect the comparison. However it will suffice as a broad indicator. The total values for the 52% of their acquisitions for which value data was available, less the value of their recorded demergers, was calculated as £292m. This measured net growth by merger, unadjusted for undercounting, compares with their net asset value in 1948 of £1,765m. Thus 17% of their net assets in 1948 can be "accounted for" by recorded merger activity in the interwar years. This is a high figure, indicating a significant contribution by merger activity to the stock of assets of large firms. It would be illuminating to assess the contribution of the mergers not only to the level of net assets in 1948 but to their growth between 1919 and 1939. The firms included in the study did, of course, own a considerable range of assets in 1919 and the percentage contribution of mergers to their growth in subsequent years would thus have been much higher than the 17% contribution to the level of their net assets in 1948. Furthermore comparison with a previously reported find-


2. At one extreme a company with no mergers would, of course, register 0%; at the other end the Lancashire Cotton Corporation, a company which unquestionably owes the larger parts of its growth to merger activity, would register 63%.

3. See Table 8.1, p. 136, above.
ing that mergers accounted for 24% of the "total investment expenditure" (that is of the total growth of assets of all firms) certainly renders plausible the view that the contribution of merger activity to the growth in net assets of the larger firms was a relatively significant one, and, on reasonable assumptions, is compatible with the view that mergers were of proportionately greater importance for large firms than for smaller and medium-sized firms between 1919 and 1939.

This impression of the significance of the role of mergers is confirmed by an alternative approach to measuring industrial concentration. Instead of computing changes in the 50-firm absolute concentration ratio for the whole manufacturing sector, the calculation can be disaggregated, and each industry can be examined, the share of the top 3 firms in its total employment or output being noted. There are various ways of summarising such concentration ratios for the whole range of industries: for example the percentage of total employment accounted for by concentrated industries (say, with a 3-firm concentration ratio of 60% or more) can be compared at two points in time. This indicator of concentration need not, of course, reveal the same direction and magnitude of change as the measures of overall concentration but may diverge from it for a variety of reasons. Nevertheless for large changes the two indicators are likely to move in the same direction and if it can be established that mergers consistently contributed to the maintenance or increase of 3-firm concentration ratios between the wars, the plausibility of the reservations expressed about the conclusions of Hart and Prais will be increased.

1. E.g. Hart and Prais include the distribution sector, and the size of some companies in their sample partly reflects the size of overseas assets (e.g. Courtaulds and the American Viscose Corporation) both of which would be excluded from census of production data, from which 3-firm absolute concentration ratios are calculated. Also, changes in the lower tail of the distribution of firms will be reflected in the Hart and Prais variance measure but not in the 3-firm concentration ratios; and vertical integration and diversification will be more strongly reflected in overall measures than in an industrially disaggregated study.
A study by Evely and Little of the period 1935-1951 found a slight increase in concentration: the proportion of total employment accounted for by industries with a concentration ratio of 60% or more rising from 10% to 12%. For the years prior to 1935, however, we have no information of comparable quality - since censuses of production do not include this information prior to that date - and we rely on a reconstruction of scattered, less reliable, and only partially quantitative data for our knowledge of industry concentration levels in the earlier periods. It is, of course, dangerous to generalise about aggregate changes from the limited and biased sources which are available. Evidence of monopoly is in some ways more likely to be available on more recent than on historical periods, for the methods by which industrialists have built and maintained monopolistic positions gain notoriety now and are enshrined in reports of the Monopolies Commission. Yet whilst the rise of the large corporation is unmistakeable it is often forgotten that concurrently there has been an expansion of markets and a growth of new industries, many of which, like light engineering, have small firms. It is well to remember that American studies have shown a relatively stable level of concentration over long periods, yet similar non-quantitative evidence available for that country on monopoly power could easily, in default of more precise statistics, be taken as evidence of increasing concentration.


and medium-sized firms. The majority of large firms were in industries such as iron and steel and brewing where the market was also large, so that most British industries in fact still had an atomistic structure.\(^1\) By 1907, a number of industries had clearly developed higher concentration, many of them in the merger wave of 1898-1902.\(^2\) It seems probable, for example, that in 1907 the 3-firm concentration ratio exceeded 70\% in textile finishing, glass, wallpaper, salt, soda ash, sewing cotton, boot and shoe machinery, condensed milk, seed-crushing and cigarettes; and a number of other industries such as cement approached this level.\(^3\) By 1935 there were clearly a much larger number of industries in which the 3-firm concentration ratio exceeded 70\%.\(^4\)

Many of the highly concentrated industries at that date—non-ferrous metals, photographic apparatus, rayon, margarine, dyestuffs, refrigerating machinery, telephone apparatus, petroleum, gramophones, rubber tyres and so on—were "new" industries and in 1907 they had a much smaller output than in 1935. Clearly, such industries, even if they had a low or medium concentration ratio in 1907, would have had an impact on a weighted concentration ratio via their changing weight in the total as well as via internal trends in concentration. Industries which might be said to have had a tendency to concentration accounted for about 46\% of net output in 1907 as against 56\% in 1935.\(^5\) Whilst

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3. Estimates from series "A" worksheets, referring generally to output concentration. An industry is here defined less rigorously and probably more restrictively than in the Census thus registering a higher degree of concentration than is justified for comparative purposes.

4. Leak and Maizels, "Structure of British Industry", pp. 160, 196. 8\% of total employment in that year was accounted for by industries with 3-firm concentration ratios of 70\% and above.

5. For the purposes of this calculation, the seven broad trade groups with "average concentration ratios" above 25\% in 1935 (see Leak and Maizels, op. cit., p. 157) were considered to be those with a "tendency to concentrate". Net outputs were taken from First Census of Production of the United Kingdom (1907), Final Report, Cmd. 6320, 1912; Fifth Census of Production (1935), Final Summary Tables, Board of Trade Statistics Department, typescript, n.d.
the new industries undoubtedly provided fertile sources for the internal growth of large firms, some of them, as our statistical breakdown of merger activity revealed, also had high merger rates. Any increase in overall concentration in the period, even in these fast growing industries, must then to some extent be attributed to merger activity. In the gramophone industry, for example, which had a 3-firm concentration ratio of 81% in 1935, many of the new entrants of the 1926-1929 Stock Exchange boom were either merged into, or acquired by, Electrical and Musical Industries in subsequent years.

In industries which were already highly concentrated in 1907 mergers often served to maintain that position. Thus the Wallpaper Manufacturers' Association, a merger of 31 firms in 1899, which at that time, with 3 other firms, accounted for 98% of the wallpaper trade, bought up new entrants at intervals so that in 1935 the 3-firm concentration ratio for the industry remained above 90%. Whilst the number of multi-firm mergers - which, ceteris paribus, are the more likely to increase concentration - had declined by the interwar period, there were a large number of companies which were de facto nuclei of multi-firm mergers with ten or more acquisitions on a sequential basis. Moreover, in some industries between the wars there were already too few firms for a multi-firm merger to be possible, yet merger could increase concentration in these industries. In 1930, for example, the merger of two companies to form the Renold and Coventry Chain Company created a virtual monopoly of the output of transmission chains, and the Gimson Shoe Machinery Company with its (once appropriate) telegraphic address "Antitrust" was absorbed by British United Shoe Machinery.

In many industries which registered large increases in concentration between 1907 and 1935 and which in 1935 had a concentration ratio of 70% and above - cast iron and steel pipes, explosives and fireworks, incandescent

1. Appendix C.

2. Pp. 145-9, above, and Appendix F.
mantles, matches, polishes, primary batteries and accumulators, soap, spirit distilling, sugar and glucose, weighing machinery and wrought iron and steel tubes - inspection of series "A" and "B" worksheets reveals that mergers played a significant part. Had the industrial classification of the 1935 ratios been finer, it would have revealed more industries - industrial gases, plasterboard and china clay, for example - in which high concentrations had been built up by merger. A lower threshold level than 70% would also yield a larger list of industries in which mergers played their part in increasing concentration: cotton, bricks, flourmilling, linoleum, fertilisers, and some branches of the electrical engineering, mechanical engineering, steel and ironfounding trades.

The importance of horizontal mergers in the increase of concentration in individual industries is also confirmed by the breakdown of large mergers by type and by industry. Among the industries in which horizontal mergers involving the disappearance of large competitors were common between the wars, were food, drink, chemicals, metals, textiles, building materials and newspapers and publishing. These seven industrial groups accounted for over three-quarters of the horizontal mergers in manufacturing industry in which the firms disappearing were valued at £1m. or more, and for as much as 79% of the total value of such mergers.

There is, then, no reason to dissent from the conclusion of Evely and Little, who in 1960 remarked upon

... the major importance of external expansion in the highly concentrated trades. There are a few firms indeed among the leaders in the trades surveyed which were not created by merger or have not resorted to acquisition and merger at some stage during their development.

1. For a list of products in which concentration was much higher than industry concentration ratios would suggest, see Leak and Maizels, "Structure of British Industry", pp. 163-5.

2. See Tables E1 and E3 in Appendix E, below. For the role of mergers in the growth of individual firms in these industries see Appendices D and F.

3. Evely and Little, Concentration in British Industry, p. 129; see also Cook and Cohen, Effects of Mergers; Stigler, "The Economic Effects of Antitrust Laws"; M.C., Reports, 1950-1972, for extensive evidence in support of this conclusion.
The findings of the present study on the prevalence of merger activity and its importance in particular industries are consistent with this view. Whilst other determinants of increasing concentration – the internal growth of large firms and the expansion of new firms and new industries – have certainly had significant effects, it can be established that mergers have been sufficiently numerous and sufficiently important in their effect on the structure of manufacturing industry to render implausible the view advanced by Hart and Prais that mergers were not a significant cause of the overall increase in concentration. At the very least that case remains not proven. If one is willing, less rigorously, to accept the variety of imperfect evidence on the extent of merger activity, and on its effect on the growth of large firms and the concentration of individual industries, it seems that the attention traditionally devoted by historians and economists to the role of mergers in increasing concentration, far from being misplaced, accurately pinpointed an important source of structural change.
Chapter Twelve

Mergers in the Context of Interwar Economic Growth

Modern mergers are not created for the purposes of creating monopolies or for inflating prices. They are created for the purpose of realising the best economic results which both capital and labour will share to the best advantage. They enable varieties of industries to form an insurance against fluctuations of markets and prices in individual products.... Amalgamations mean progress, economy, strength, prosperity.

(Sir Alfred Mond, Industry and Politics, 1927, p. 217.)

From the standpoint of general utility there is all the difference between the promoter of a real new enterprise and the promoter of a combination or amalgamation. The former is calculated to increase wealth; the latter is rather likely to diminish it. The former is good for employment, the latter is likely to reduce it. The former increases the good things of the world and multiplies the conveniences of life. The latter aims at restricting them and so increasing their cost. One is addition, the other subtraction. One enlarges the world's resources and enriches the consumer by giving him something new; the other exploits him by establishing a monopoly and so forcing him to pay higher prices or to pay the old prices for inferior articles.

(F.W. Hirst, The Stock Exchange, 1932, p. 222.)

This chapter examines further the effects of mergers, assessing their contribution to, or subtraction from, the achievement of economic goals such as allocative efficiency and economic growth. The economic changes wrought by mergers have widespread repercussions. They increase overall concentration and the level of concentration in individual industries, and this is likely, ceteris paribus, to result in a reduction of competition in the economy. In turn, this may affect not only the distribution of income and the rate of economic growth but the quality of social and political life also. Individual liberty in a pluralist society has been said to depend to some extent on the dispersion of control of that society's assets, while rule by the few may depend on the unequal distribution of economic power. A bureaucratic, concentrated industrial structure may develop different political, social and economic goals than a familial, disaggregated structure; and, throughout the social scale, there is some evidence that alienation may
be more acute in such a society. Prophets of the future of Western capitalism have seen far-reaching social changes resulting from the evolution which we have described, and amongst interwar commentators there were, as now, both optimists and pessimists. In 1935, for example, the Times in a leader on "The Silent Social Revolution" opined that:

"Competition has disappeared over a large portion of the industrial field [and] the motive of profit, the mainspring of the capitalist system, has a decreasing importance... Service rather than profit will undoubtedly be the keynote of the age into which we are passing."¹

The questions about the relationships between economic, social and moral development raised by such inflated claims, though they were common, lie beyond the scope of the present work.² This chapter will be confined to an analysis of the effects of mergers in a narrow economic sense.

The economic effects of mergers³ are not, of course, unrelated to their causes. Ex ante, a number of potential benefits motivated merger activity and were reflected, we have seen, both in the generally favourable climate of opinion towards mergers and in the rise of security values which often followed merger proposals. Ex post, however, these expected benefits may have been realised only imperfectly or not at all.Furthermore, mergers may have been undertaken for a private benefit which may correspond to a social loss, as in those undertaken for the achievement of monopoly power. Others may have no implications for efficiency but purely distributional effects, as in those undertaken for the avoidance of taxation or for promotional profits.

¹. The Times, 25 March 1935.

². For a review of the sociological literature on this subject, see J. Child, The Business Enterprise in Modern Industrial Society, 1969.

³. What follows relates principally to horizontal mergers. Vertical mergers similarly may affect monopoly (though it is not clear whether they will increase or decrease this) and costs (economies of joint operation, diseconomies of reduced specialisation). The effects of diversifying mergers are more difficult to categorise, and, as they were not a predominant form between the wars, they are not discussed here.
Nevertheless, a first approximation to assessing the contribution of mergers to the economy in the interwar period is an assessment of their private profitability. The continuation of merger activity is *prima facie* evidence that private profitability was at least positive for, as D.H. MacGregor remarked, "... the extent to which combination makes for efficiency is a matter on which industrialists are the first experts". ¹

Our record of mergers over a wide range of industries shows that, whilst for some firms a foretaste of the managerial difficulties of merger was enough to stem enthusiasm, there were a large number of firms which persistently pursued a merger policy throughout the interwar years. It is, in principle, conceivable that errors were persistently made by managers in assessing future profitability, biasing their estimates in an upwards direction. The tendency to favour direct, internal "rational" management, the psychology of which we have analysed as an aspect of the "Rationalisation Movement", is a pervading one. Managers have a *déformation professionelle* in their belief in their own ability to manage a merger satisfactorily. This may explain why a number of studies of American mergers and of postwar mergers in Britain have shown a high failure rate of consolidations and significant losses for acquiring companies.² In the interwar period also the financial results of merged companies sometimes fell short of those promised³ and many

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¹. Introduction to Liefmann, Cartels, Concerns and Trusts, p. xi; see also his *Enterprise Purpose and Profit*, chap. 2.


³. E.g. Economist, 26 July 1930, p. 182. However, the view of F.R. Jervis (The Economics of Mergers, p. 51 and see p. 134) that "the more numerous are the less successful" is contradicted by our data and not confirmed by his: his examples of capital reductions by merged companies could be paralleled in the depressed interwar years by examples of unmerged companies forced into similar capital reductions.
mergers clearly failed to develop methods of managerial control appropriate to the maintenance and improvement of efficiency. The reasons behind these failures are various. Mergers in which family directors remained on the consolidated board often suffered from sour personal relations between directors unable to accept their loss of independence. Many of the more spectacular failures had been promoted by unscrupulous financiers and industrialists, or by honest but misguided ones who were overconfident, having fallen prey to the jargon of rationalisation without implementing its substance. On the other hand, many factors operated systematically in the promotion of the success of interwar mergers. The multi-firm mergers typical of the late nineteenth century which had almost inevitably run into managerial diseconomies of scale were superseded by the more gradual and controlled sequential acquisitions and mergers by "nuclear" firms of the interwar period. Moreover, the detailed pre-merger discussions at board level which were the rule prior to merger (rather than the hurriedly and forcibly consummated takeover bid) made for more rational assessment of the industrial logic of the decision and the planning of its implementation, thus making for successful postmerger integration. There is, then, some reason for accepting that the process of rationalisation may have had concrete achievements.

The existence of economies of scale to which access could be gained through rationalisation and new investment by merged companies is suggested by more substantial empirical evidence than the exhortations of rationalisers. The survivor technique of analysis - aptly summed up by William Lever in 1903 when he said that "if these combines result in cheaper production and more abundant supply, undertakings will be successful; if not, they will be failures" - is not conclusive but the tendency between the wars for the

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2. Since it fails to allow for the effects of monopoly and imperfect competition on the structure of surviving firms.
average size of both plants and firms to increase is suggestive of increasing returns to scale or at least of constant returns.\(^1\) This development was, of course, a result of the standardization and mechanization of manufacturing processes in many industries and of the growth of assembly line production. Whilst innovations such as the spread of cheap electric power might have worked in the reverse direction, and whilst there was clearly still a place for the small manufacturer,\(^2\) the broad tendency in many industries to increasing returns to scale cannot be mistaken.\(^3\) Though we lack a representative sample of contemporary engineering production functions akin to those recently produced by Dean and Pratten for modern industries,\(^4\) it seems clear from scattered contemporary evidence of engineers that there were considerable economies available.\(^5\) Many of the industries in which there were increasing returns to scale - which included margarine, cement, tinplate, tobacco, distilling, shipbuilding, forge and foundry pig iron, copper and brass\(^6\) - gained


\(^4\) C. Pratten and R.M. Dean, with the collaboration of A. Silberston, Economies of Large-Scale Production in British Industry, Cambridge, 1965.


access to them in part through the process of merger.

However, no doubt in the absence of these mergers the economies of scale could have been achieved by internal growth for, if the economies were considerable it is unlikely that one or more of the firms in an industry would not have taken the risk of unilaterally increasing its scale, and indeed in those industries where a fast expanding demand gave greater flexibility for the absorption of new capacity by the market, economies of scale were achieved in that way. Austin and Morris consistently grew internally to their dominant positions in the car industry,\(^1\) and Morphy-Richards when it set up a large-scale factory in 1936 immediately achieved a 40% cost advantage over its competitors and by 1939 had captured 20% of the market in thermostatically-controlled electric irons.\(^2\) Procter and Gamble were also able to break into the British soap market by the use of heavy advertising to expand the market share of Thomas Hedleys, their British subsidiary, in the 1930s.\(^3\) In many markets, however, gaining a share in the rapid growth of demand by price reduction or advertising was difficult because of barriers to internal growth and imperfections of competition, so that for companies in such areas "concentration of production could not take place without concentration of demand".\(^4\) Many factors,—consumer loyalty to particular producers, cartel quotas, market sharing agreements, the optimism and tenacity of marginal producers—combined to make it desirable in a wide range of industries for a merger to occur before old plants were integrated and new investment in largescale plants was undertaken.\(^5\) Even large companies might find it easier to

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4. The Chairman of Stewarts and Lloyds, Annual General Meeting, 18 May, 1938.
5. E.g. Evely and Little, Concentration in British Industry, p. 189.
build optimally sized plants by amalgamating their profits streams and coordinating their investment plans through merger, and there is certainly no evidence in industries such as cotton and shipbuilding that the alternative methods of rationalising capacity to cater for reduced levels of demand were very successful.¹

There are many examples of companies concentrating and specialising production in the most efficient plants after merger, and by such rationalisation improving the productivity of capital and converting redundant plants to new uses. Six months after the initial merger, for example, Nobel Industries Limited had closed 55% of its explosives capacity and was producing for a lower demand in the remaining plants at a cost reduction of 16%, having meanwhile diversified its remaining productive facilities into other profitable fields.² Similar rationalisation of production occurred in a wide range of industries, including chains, motor car electrical accessories, alkali, brewing and whisky distilling.³ Though some firms were on the other hand slow to adopt a programme of rationalisation after merger, it appears to be broadly plausible that in a number of areas mergers gave access to economies of scale which would otherwise have been inaccessible.

Against such benefits must be juxtaposed the social costs of the monopoly structure which mergers tend to create. Whether the efficiency gains of merger are passed on to the consumer in reduced prices and whether the industry continues to be run efficiently in the absence of competitive stimulus may

3. E.g., M.C., Electrical Equipment for Mechanically-Propelled Land Vehicles, pp. 25, 35, 282, 296, 303; I.C.I. Archives, Technical Department Report (Chemical Group) 1927; C.G. Renold, "Rationalisation of the Management of Companies under a Merger" in Sixth International Congress of Scientific Management, Development Section Papers, 1936; Church, Kenricks, pp. 179, 198; Wilson, Scotch, The Formative Years, p. 415; Investors' Chronicle, 8 Nov. 1930, p. 819.
crucially depend on the impact of mergers on the structure of industry.\(^1\) It is clear that mergers played a significant part in increasing industrial concentration, but it is less obvious what effect this concentrated structure had on the prevalence of monopolistic pricing.

The difficulty stems partly from the well-known deficiencies of concentration ratios as indicators of monopoly power.\(^2\) Co-ordination of a monopoly pricing policy between firms was practiced by a variety of expedients alternative to merger, ranging from tight cartels to "gentlemen's agreements", and these are not reflected in concentration data. Thus the merger of the United Alkali Company with Brunner Mond in 1926 increased concentration in the alkali section of the chemical industry, but it had little effect on pricing policy since the two companies already had a price agreement and did not compete.\(^3\) Moreover the price policy of highly concentrated industries could be constrained in other ways. The threat of new entry appears to have been an important deterrent to monopoly pricing and contemporaries laid great stress on this as a safeguard against the exploitation of the public by merged

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1. It will also, of course, depend on the "success" of mergers in the sense of their ability to exploit a monopoly. Probably with the development of market research and experience of different pricing levels, the capacity of monopolists, e.g. to successfully operate a policy of price discrimination, has increased.

2. The data required for other indicators of monopoly power, such as the divergence between price and long-run marginal cost, is often not available historically. The size mobility of firms has been suggested as an historical measure of competitiveness but is open to both practical and theoretical objections. Hart ("Business Concentration in the U.K.", pp. 56-7) found that some two-fifths of the top 50 firms (measured by profits) left that category in the 1930s and 1940s as compared with one-fifth earlier; but this is inadequate as an indicator, for much of the observed size mobility will be due to agglomerations of interests in mergers, to chance fluctuations in profits, and to the advent of new large companies to the quoted sector. If one takes a single industry such as brewing (with a consistently high proportion of quoted firms) the size mobility of firms, discounting for mergers, is in fact much less; see data in Hart, "On Measuring Business Concentration", pp. 228, 232-3, 241-2.

3. Subcommittee of the Committee on Trusts, The Lever Combine, Cmd. 1126, 1921, p. 16.
Many industries also exported a large percentage of their output and were subject to strong competition from imports in the home market so that their price policies were not as autonomous as domestic concentration ratios would suggest.

Nevertheless, there were clearly markets in which such "circumstantial safeguards" were insufficient to prevent monopoly exploitation and the consequent allocative inefficiency and distributional shifts. Rationalisers themselves admitted the likelihood of monopolistic output restriction, and in an age which was relatively free of doctrinaire "trust-busting" reactions, managers of rationalised firms boasted openly of their monopoly profits. Sir Charles Renold, for example, reported that "improved selling prices" resulting from the Renold and Coventry Chain Company merger accounted for £50,000 p.a. of the total merger "savings" of £90,300 p.a. Early reports by government investigators under the Profiteering Acts also revealed monopolistic pricing and since 1950 the historical investigations of the Monopolies Commission have shown that acquisitive behaviour of companies such as British Match, British Oxygen, Chloride Electrical Storage, Imperial Tobacco, and Wallpaper Manufacturers constituted a sustained attempt to achieve monopoly powers. By

1. E.g. Wilson, Unilever, v. 1, p. 247 and cf. the contemporary businessman who refused to merge because "a new business will spring up for every one that is merged" ("Why we did not join the Amalgamation", Business, Jan. 1928, p. 15). However there were significant entry barriers in some industries, see e.g. Evely and Little, Concentration, p. 135.


7. M.C., Matches; M.C., Industrial and Medical Gases; M.C., Motor Car Electrical Accessories; M.C., Tobacco; M.C., Wallpaper.
achieving this objective, a company like British Oxygen could by 1939 be earning a profit of 47% on costs and 25% on capital, and could provide shareholders with large dividends and capital gains.¹

In some respects, on the other hand, competition had actually increased over the interwar period, for markets had themselves changed. What the twentieth century has seen (but what concentration ratios fail to reveal) is a transformation of many local oligopolies into regional, national, or international oligopolies, as the size of markets has increased.² Many factors, among them urbanisation and the spread of universal education, national newspapers, advertising and broadcasting have helped to standardise demand and unify markets, but perhaps the most important change has been cheaper transport costs enabling larger plants to serve a wider area economically. Road-rail competition and technical improvements together reduced domestic transport costs³ and the new light industries which grew up in the Midlands and Greater London industrial belts tended to serve a national rather than a local market.⁴ Competition was also intensified by the reduction of barriers to entry through improvements in the capital market, the standardisation of manufacturing processes and management skills and the entry of diversifying domestic companies and international companies which

1. M.C., Industrial and Medical Gases, pp. 60-61, 117.
2. E.g., Edwards, Soap Industry, p. 143.
4. A.J. Wensley and P.S. Florence, "Recent Industrial Concentration", Rev. Econ. Stud., VII, 1940. A trend in the output mix to lighter consumer goods might also have broadened markets by reducing the importance of transport costs in total costs. S.R. Dennison (Location of Industry and the Depressed Areas, 1939, chap. 3) suggests that transport costs had been a slightly larger element in total costs before the First World War.
were increasing in number. ¹

Furthermore, the rise of new products, new processes, and new industries significantly increased interproduct and interindustry competition. Synthetics were substitutes for natural materials, new products competed with old: margarine with butter, rayon with cotton, air-fixed nitrogenous fertiliser and synthetic resins with natural chemicals, asbestos pipes with cast iron ones, wireless equipment with telecommunications cables, concrete with structural steel. ² Some large merged companies did attempt to bring this interproduct competition under control but with little success, ³ except when complete dominance went to one side: as in the victory of electric light bulbs over gas mantles. ⁴ Interproduct competition was intensified from the demand side as luxury spending grew with higher income levels and consumers faced a wider spectrum of potential purchases and thus the elasticity of substitution of the "average" product probably increased. ⁵ In many industries demand elasticities for the individual firm were also being increased by


3. I.C.I. Archives. 7/10/5D. (L.A. Munro, "Inter-Product Competition in the Chemical Industry", typescript dated 25 May 1931.)


5. J.B. Jefferys (Retail Trading in Britain 1850-1950, 1954, pp. 44-5), found that the proportion of retail purchases consisting of non-food, non-clothing items rose from 23.5% to 34% between 1910 and 1939; see also A. Loveday, Britain and World Trade, 1931, p. 99. Collective advertising of products was a corollary of this change, see "Advertising and the Public", Economist, 27 Feb. 1937, pp. 451-2.
standardisation which reduced product differentiation, particularly in the engineering and electrical trades where strong technical reasons for it existed, but also in products as diverse as the baking of bread and the tailoring of men's suits.

Low levels of capacity utilisation also increased the intensity of competition in the slump of the 1930s. Barriers to exit among which might be listed the optimism and tenacity of family firms and incumbent managements (and of the banks providing them with finance), limited economies of scale, durable and specialised capital equipment and cartel quotas - exacerbated the problem by inhibiting the operation of the bankruptcy mechanism of adjustment. Strong competitive pressures were thus created both in the old industries like cotton, where there was a very serious maladjustment of capacity to demand, and in new industries like rayon with high entry rates. Producers of investment goods were particularly badly hit by the extremely cyclical nature of their demand and "cut-throat" competition tended to develop in these industries forcing prices below long-run marginal cost.

In many cases, of course, it had been precisely such independent increases in "competitiveness" which had induced mergers aimed at neutralising them. Barriers to exit, for example, could be removed by merger followed by planned rationalisation within the firm. Again, as cheaper transport widened

2. Jefferys, Retail Trading in Britain, p. 69; however, a reverse trend took place in goods such as footwear, grocery, and chemists' goods.
3. This term does not seem to have entered the realm of formal economic terminology: it would, however, seem a useful concept for explaining this kind of imperfection of the mechanism of competition.
5. Liefmann, Cartels Concerns and Trusts, pp. 19-20.
6. This was especially valuable in industries like cotton which were overcapitalised, for within a merger it was possible to liquidate financial burdens whilst preserving the best plants, which often had been in the most overcapitalised firms. The bankruptcy mechanism was unable to discriminate in this way.
markets, flour milling migrated from inland locations to large port mills and gained national market power and scale economies through merger, whilst brewing firms secured a larger number of retail outlets by acquiring and closing breweries, retaining only their tied outlets.\textsuperscript{1} Similarly as transport improvements and new marketing techniques "nationalised" the market for soap, the major regional firms were gradually consolidated into Lever Brothers.\textsuperscript{2} The competition induced by standardisation was also frequently counteracted by price agreements or a merger of interests.\textsuperscript{3}

However, there were parallel economic changes which tended to increase the degree of monopoly in concert with (rather than in opposition to) the trend to merger and increasing concentration. Counterweighting the increased standardisation in some areas was an increased product differentiation in others, particularly in heavily advertised goods such as food, drink, medical supplies, cosmetics, and toilet preparations.\textsuperscript{4} In the forty years to 1929, the advertising industry had developed "from negligible beginnings into a great and highly organised industry",\textsuperscript{5} and branded goods, often backed by advertising, came to dominate many markets. Whereas before the First World War 95\% of dry grocery goods were taken from bulk and broken into small lots by the retailer, by 1936 only 25\% of them were thus sold.\textsuperscript{6} Furthermore, 

\begin{enumerate}
\item Fitzgerald, Industrial Combination, p. 131; J.E. Vaizey, The Brewing Industry, 1886-1951, an economic Study, 1960, passim.
\end{enumerate}
competitive pressure from abroad both in export markets and at home was
lessened by the declining share of imports and exports in national con-
sumption and production which resulted from world economic development and
the imposition of the tariff. Barriers to entry at home were also rising
with the increasing scale of plants and the spread of advertising and
vertical integration. Mergers probably aided rather than counteracted
these monopolistic tendencies. The relief of domestic producers from
foreign competition by tariff protection for example was accentuated by
international mergers and cartels, and, though businessmen claimed that
they merged in order to reduce market costs such as those of competitive
advertising, these costs often continued to rise under oligopolistic non-
price competition after merger.

For all these reasons, then, the statement that mergers reduced the
level of competitiveness in the British economy between the wars is broadly
plausible, though by no means clear-cut.

Even accepting that mergers increased monopoly, however, it does not
follow that this produced losses in allocative efficiency, for the rest of

1. K.W. Deutsch and K. Eckstein, "National Industrialisation and the Declin-
ing Share of the International Economic Sector 1890-1959", World Politics,
XIII, 1961; H. Clay, "The Place of Exports in British Industry after the War",
E.J., LII, 1942; W.A. Lewis, "International Competition in Manufactures",
A.E.R. Papers and Proceedings, XLVII, 1957; Maizels, Industrial Growth and
World Trade, p. 223. Nevertheless foreign competition remained an important
check on home monopolies, see Richardson, Economic Recovery, chap. 10;
G. MacDougall, "British and American Exports: A Study suggested by the Theory
of Comparative Costs", E.J., LXI, 1951; M.C., Rubber Footwear, p. 20.

2. The barriers arise because of the continuance of imperfections in the
capital market, and the increase in the minimum efficient scale of firms.

3. M.C., Matches, pp. 8, 15; Plummer, International Combines, chap. 5.


5. Wilson, Unilever, v. 1, p. 300, v. 3, pp. 106-7; The relationship of
mergers and advertising is rather unclear. For some of the recent, inconclu-
sive discussion, see e.g., H.W. Mann, J.A. Herring and J.W. Meecham,
"Advertising and Concentration: An Empirical Investigation", J.I.E., XVI,
the economy was very far from Pareto-optimality, and "second-best" analysis must be applied. Cartels, monopolies and various forms of regulation were present in many other sectors of the economy, notably public utilities and agriculture, and many of these competitive imperfections themselves contributed to merger activity. Merger in this sense can be envisaged not as the source of market imperfections but as part of the adjustment process to them. Large-scale buying power was frequently mentioned by rationalisers as an advantage of merger and mergers may, through increasing monopoly and monopsony power, have actually increased allocative efficiency by equalising bargaining powers.

In the distribution sector, the share of retail sales accounted for by co-operatives, department stores and multiple shops rose from around 20% in 1920 to around 35% in 1939, and within this sector there were a large number of mergers between multiples. This strengthened the bargaining powers of the large retail chains and may have neutralised some of the increases in the concentration of manufacturing industry. Department stores also expanded their turnover by internal growth and merger and group buying both by small retailers and industrial users also seems to have been developing. Similarly, developments in intermediate goods industries produced well-matched bargaining powers: the rise to dominance of Birfield, Lucas and Triplex in their respective branches of the car components industry, for example, was matched by their major customers, the large scale Austin and Morris enterprises. It

1. E.g., M.C., Industrial and Medical Gases, p. 58; Stamp, Some Economic Factors, pp. 163-4.
2. Jefferys, Retail Trading in Britain, p. 73.
3. Ibid., pp. 137, 187-8, 232, 272, 300, 356-7, 385, 409. Boots and W.H. Smith appear to be exceptions in showing predominantly internal growth, see ibid., p. 64.
4. E.g., Marks and Spencer grew from 126 stores with a £1,306,000 turnover in 1927 to 234 stores with a £23,448,000 turnover in 1939, see G. Rees, St. Michael, A History of Marks and Spencer, 1969, pp. 79, 125.
is not, however, clear that in such situations of bilateral monopoly or bilateral oligopoly the bargaining power of the two sides will necessarily act in the direction of reducing prices and increasing allocative efficiency. Levers, for example, in using its countervailing power, seemed to be less concerned about the price of the alkali it bought from the oligopolist supplier Brunner Mond than that the price it paid should be no higher than that paid by its major competitors in the soap industry.\(^1\) In distribution, the possibility of such joint maintenance of monopoly pricing could be institutionalised in a merger of manufacturers with retailing chains, as occurred in a number of industries.\(^2\) In such cases any countervailing power of the retail chains could, of course, be neutralised. Against this, retail firms which had the capital and managerial and technical expertise could enhance their bargaining power by themselves threatening vertical expansion into manufacturing, an expedient exemplified by the co-operative movement. In the soap industry, for example, the Co-operative Wholesale Society controlled over 10% of this oligopolistic market.\(^3\) However, the C.W.S. production range was restricted largely to food and household goods and it tended to be a significant force only in the unconcentrated trades.\(^4\) Though C.W.S. products gained an increasing share of retail co-operative sales and the number of C.W.S. factories was significantly expanded, the view that, through its countervailing power it exercised some restraining influence, is considerably weakened by evidence that it did in fact participate in a number of cartels.\(^5\)

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2. E.g., brewing, film-making, margarine.
5. P. Redfern, The New History of the C.W.S., 1938, pp. 533, 538-9; see also M.C., Matches, p. 25; [Balfour Committee] Factors, p. 120; P.E.P., Trade Associations, pp. 244-5.
The allocative effects of monopoly distortions are then difficult to determine both because of the ambiguity of trends in monopoly and because of the complications introduced by countervailing power into second-best analysis. It is, in fact, impossible to answer the question: was British manufacturing industry more or less competitive in 1939 than in 1919? However, even accepting that there were significant areas in which large monopoly profits were made and that mergers made an important contribution to the building of monopoly positions, the welfare loss would have been small relative to that from other sources of welfare loss in the economy, for the quantum of gain from reallocation in a perfectly competitive system replacing moderate levels of monopoly is likely to be quite small.¹ This has led a number of theorists to suggest that attention should be turned to the dynamic effects of competitive and monopoly structures on what, with a notable linguistic poverty, has been termed "X-efficiency", that is the lowering of production costs within the firm. As Leibenstein has pointed out, traditional price theory treats costs of production as a given quantity by reference to which prices are adjusted, yet the welfare gain from a push outwards towards the production possibility frontier by increased X-efficiency is normally greater than the gain from the achievement of a Pareto-optimal position within that frontier.²

Leibenstein and others have gone on to suggest that a reduction in competition will have important effects not only on allocative efficiency but also on X-efficiency and that the latter effects will provide the greatest source of benefits from reducing merger and monopoly.³ However, this remains


an unproven proposition, for both its system of logic and the empirical evidence for it are less well developed than for propositions about the allocative inefficiency of monopoly. Economics does, in fact, lack a proven theory of the relationship of the microeconomic structure of firms to the phenomenon of growth. Indeed, the evidence of interwar mergers suggests that it is not possible to predict a unique association between structure, conduct and X-efficiency performance.

The problem partly arises because "competitive" has a meaning, separate from and independent of its status as the antonym of monopoly; that is it can be a description of "rivalrous" behaviour, rather than of market structure. The implications of this meaning for economic efficiency have been worked out only informally and unsystematically. "Competitiveness" in this second sense could be the most important variable in improving X-efficiency, yet it may exist without a disaggregated structure of firms. An industry with a small number of large firms may exhibit more rivalrous behaviour than a highly disaggregated industry because rivalry is partly a function of the awareness by participants of the activities and achievements of the rivals. Paradoxically, this awareness (which is vital to constructive rivalry) is more likely to flourish in an oligopoly than in a perfectly competitive world of price-takers, a paradox which is reflected in the perverse contemporary usage of phrases such as "healthy competition" in praise of an industry practicing output and price controls.

Furthermore rivalry, being a subtle mixture of co-operation with competition, can be organised within the firm as well as by the market, and thus an


increase in concentration may not reduce the spirit of competitiveness. The rationalisation movement emphasised emulation of the excellent and insisted on the need to develop greater comparability of results internally as a means of measuring and achieving that excellence. Large firms reacted to this by developing new post-merger management structures which not only replaced the market competitive system by the firm, but also attempted to re-create under ideal conditions some of the clear-cut decision rules which the competitive system of resource allocation supposedly gave.

It is questionable [one enthusiast for rationalisation wrote] whether the competitive system provides scope for such direct and fruitful competition as this pitting of experts one against the other in their own field. Costs and processes are kept top secret, and no direct comparison is possible between the costs and efficiency of rival firms.... Organised competition [i.e. within the firm] pits like with like and measures their comparative efficiency with precision; the free play of the competitive system [i.e. the market] confers its rewards and punishments indiscriminately. Organised competition and the encouragement of initiative and enterprise are essential to the success of large-scale organisation.

Moreover, multidivisional and multiplant firms in principle possessed more knowledge and more meaningful interventionist and investment planning powers than the highly imperfect contemporary capital market and the evolution of these firms through mergers may therefore have offered an important source of increased X-efficiency.

Co-operative transfer of knowledge rather than competitive emulation of methods could also, in principle, be achieved more easily within the firm than through the market. If two plants of a single company have a comparative advantage respectively in manufacturing parts and in assembly (but must for technical reasons carry out both processes), it is possible for management to analyse the reasons for the cost discrepancies and to even out some of them by

1. Which, though as a measure of monopoly power imperfect, is, of course, a precise measure of the balance of administrative-managerial-firm and negotiated-contractual-market relations in the total process of economic decisionmaking.

spreading the appropriate knowledge. The market, by contrast, possesses no
signals for such diagnoses (the costs and prices of the final output of
both plants might be the same), and furthermore it places a premium on
secrecy which effectively prevents the spread of such knowledge: "the
difficulties of protecting the shareholders' rights prevent such an exchange
of information of ideas and management, unless there is close identification
of financial interests".¹ This can be seen in stark form in the case of
patents and technical knowledge. Whilst there were a number of patent pools
between firms which helped to spread knowledge, it was often found preferable
to pool patents, processes, and knowledge in a merger to reduce the secrecy
barriers and this undoubtedly produced an efficiency gain.² The advantage of
the firm over the market in this sort of transfer of knowledge was well
expressed by Sir Alfred Mond in military terms:

There must be more than a temporary armistice; there must be a
permanent peace. The cartel or combination which exists only
for a limited number of years is in reality nothing more than
an armistice in industrial warfare; and people are not going to
hand over arms and methods of warfare to those who in a few
years may be fighting them again.³

On the other hand, merger and the growth of the firm could also intro­
duce inefficiencies. Monopoly can induce internal misallocation of resources
by managers intent on living a quiet life and able to enjoy such discretion
because of the absence of the competitive spur. More research is needed on
the goal structure of managers in firms which did not pursue profit maximisa­
tion and on the success of firms in developing internal systems of control
and development of efficiency. Postwar evidence is suggestive of considerable

¹. I.C.I. Archives, Explosives Trades Ltd., Merger Committee Minutes, v. 1,
p. 58-61, letter to the President of the Board of Trade, dated 11 May 1917.
The market did have some ways of transferring knowledge, notably trade
journalism and management consultancy, but these were relatively poorly
developed in the interwar years.

². Rees, Trusts in British Industry, pp. 208-11; Muir, A History of Baker
Perkins, chap. 10; M.C., Industrial and Medical Gases, p. 74; Economist,
10 June 1939, pp. 612-3.

problems of efficiency in large-scale organisations. Checks used by managers on internal efficiency, such as interdivisional market pricing are notoriously weak, and recent comparisons of the profitability of large and medium-sized firms in the United Kingdom show an inverse relationship between size and rate of profit. A current study also raises doubts about whether American managers are more successful than shareholders in choosing profitable projects. However, whether the managers of interwar firms produced better controls on efficiency than the interwar stock market with its imprecise, badly informed, discontinuous, and sometimes downright fraudulent disciplines is an empirical question which can only be raised but cannot be answered without a fuller study of the contemporary evidence.

A further desideratum of the economic system, which would have commanded widespread contemporary acceptance, is the encouragement of innovation. Again the appropriate industrial structure for this cannot be precisely defined, though recent studies have concluded that a subtle blend of monopoly and competition is the most suitable one. Many inventions seem to have emanated from small, unmerged firms, but it may be that the process of innovation, requiring production and marketing skills to be combined with inventive ability, can best be institutionalised by large firms. Furthermore large-scale organised research, which often required merger and pooled expenditure, began

2. M.J. Barron, "Effect of the Size of the Firm on Profitability", Business Ratios, no. 1, Spring 1967; J.M. Samuels and D.T. Smyth, "Profits, Variability of Profits and Firm Size", Economica, XXXV, 1968. However the results may be distorted by the greater propensity of the large-firms to revalue their assets. See also Eatwell, "Growth, Profitability and Size".
to pay dividends between the wars, for example in the discovery in 1933 of polythene by I.C.I.¹

It was natural that in assessing the effects of the structural shifts in industry between the wars, rationalisers stressed the benefits rather than the costs, the gains rather than the losses. Many felt, or at least publicly claimed to feel, that monopoly, far from being harmful, actually increased efficiency and reduced prices. They saw this as both a direct result of scale economies and pooled research and knowledge, and as an indirect consequence of the ability of concentrated industrial structure to induce better performance. In justifying this view, retrospectively, they might have pointed to the growth of total factor productivity between the wars. The "residual" contribution to economic growth - which measured among other things some of the changes which they ascribed to merger: allocative improvements, scale economies, technical innovation, new methods, better management - changed from a negative quantity before the First World War (when the economy was less concentrated) to 1½ per annum between the wars.² It is not wholly fanciful to attribute some of this to mergers. Certainly the reverse hypothesis, that only industries with low concentration ratios and/or low merger rates showed great improvements in "residual" performance can be rejected: there appears to be no such systematic relationship between these variables.³

Yet the rationaliser looking back on the interwar years would also have to recognise that the persistence of a large pool of unemployment considerably reduced the social benefits of merger activity. The resource costs of

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¹ Richardson, "The New Industries Between the Wars", p. 367. By the 1930s I.C.I. was spending half a million pounds a year on research, see Economist, 15 April 1933, p. 830.


³ So, at least, a comparison of industry group average concentration ratios (Leak and Maizels, "The Structure of Industry", p. 157) and industry merger rates (Appendix C) with industrial "residual" performance (Aldcroft, loc.cit.) would suggest.
inefficient production were often very low when reallocation and improved efficiency resulted largely in the redundancy of labour for which no alternative employment was available. This was clearly the case in a number of interwar closures: the most tragic consequence being manifested in the depressed areas with high unemployment rates symbolised by Jarrow. The social distress and cries for political relief in the derelict communities emphasised the failure of an economic system which provided rewards for releasing labour and capital without providing them with an alternative use. The response of rationalisation could thus not provide a solution to the problem which lay at the heart of the depression of the interwar British economy. Though some rationalisers felt that cost reductions achieved by merger could (given income effects, high price elasticities, and no monopolistic pricing response) increase aggregate demand, it is not clear that these conditions generally applied; nor is it likely that merger by creating confidence and stability significantly increased demand through the investment multiplier. Most economists had grave doubts about the ability of mergers through rationalisation to decrease unemployment, and industrialists themselves frequently stressed that rationalisation would not always be


2. When full employment came into prospect in the post-war years, both the benefits of merger and the dangers of monopoly became more important considerations of economic policy, cf. Lucas, op.cit., p. 358; W.H. Beveridge, Full Employment in a Free Society, 1944, pp. 203-4.

3. It is not obvious that the (variously stated) contemporary view that monopoly leads to stability (see e.g. Marquand, Dynamics of Industrial Combination, chap. 13; Robertson, Industrial Fluctuation, p. 246) is correct; see, for a sceptical view, E.A.G. Robinson, Monopoly, 1941, chap. 7. On the other hand the argument that acquisitions reduce real investment because they are alternatives to internal expansion (e.g. Alberts and Segall, eds., Corporate Merger, p. 67; Reid, Mergers, Managers and the Economy, pp. 108-9) is, of course, fallacious, resting on a confusion between transfer payments and real effects.

profitable if demand could not be expanded. Above all, trade unions and other labour organisations, whilst accepting the principle that rationalisation could be beneficial, greatly distrusted particular schemes of rationalisation which they saw, often justifiably, as creating unemployment. Though the defenders of rationalisation successfully disposed of the view that it was the sole cause of unemployment, their argument that it could increase demand remained unproven. Only through Keynesian techniques of demand management, it seems, was a significant inroad to be made on the contemporary problem of unemployment.

It is possible, then, to provide a social cost-benefit analysis of the interwar merger waves in view of such complications of analysis, many of them unquantifiable. Our conclusion must therefore be an agnostic one. Nevertheless, the legend of the "uncompetitive decade" of the 1930s which grew up in the postwar era undoubtedly had some basis in fact, and the qualifications to this judgement which are implied in the foregoing need not be considered as a contribution to the rehabilitation of the performance of the interwar economy. Whilst it is not obvious that the disadvantageous results of mergers and monopoly in the interwar context were overwhelmingly large, it may be that their long term effect on attitudes of mind lasting into the postwar


2. Partly because of the ease of negotiating with large firms (e.g. Clapham, Economic History of Modern Britain, v. 2, p. 179; Robson, Cotton Industry, p. 307; cf. Economist, 8 July 1939, p. 80) and partly because of bilateral monopoly advantages (e.g. Liefmann, Cartels Concerns and Trusts, p. 80; Plummer, International Combines, p. 156; G.M. Colman, Capitalist Combines, 1927, pp. 58-61; Allen, "Monopoly and Competition", p. 104).

3. Carr and Taplin, Steel Industry, pp. 462-3, National Minority Movement, Another Year of Rationalisation, 1929; Macmillan Evidence, v. 2, pp. 62, 135, 319-20, qq 4617-28; miscellaneous Board of Trade files (e.g. BT/56/2, BT/56/25). The dualism of Labour's approach was gleefully exploited in Conservative propaganda material, see e.g. National Unionist Association, Answered!, 1923.

4. L. Urwick, "Rationalisation does not lead to Unemployment", typescript reply to Professor Gregory's 1930 British Association address (in the Ward Papers).
period - the anaemia of the competitive ethic which was then diagnosed - was a baneful one.¹ The costs which accrued from mergers were, however, in some degree compensated for by benefits. The balance of advantage can hardly be very much clearer to the historian than to contemporary businessmen, governments and observers, and, like the more analytical of these participants, he is obliged to recognise the duality and incalculability of many of the effects. Possessed of less information of a quantitative kind than many contemporaries, the historian is obliged to report the fact that some of them considered mergers to be at an optimum level, that some considered them to be too frequent, and that others, on the contrary, wanted to see their incidence increased. He can point out the fact that the anticipated economies of merger were frequently not realised, that there was a high incidence of merger failures, and that monopoly exploitation existed: all representing social loss. He can further see that many mergers were successful and gave access to economies of scale and of information. He can endorse the view expressed by rationalisers and socialists that the economy was working at a level well within its production possibility frontier and agree that changes in structure could have improved efficiency; but he must admit that he is not as certain as the rationaliser that mergers contributed unequivocally to such improvements.

Nevertheless, if precise quantification of competitiveness and its impact on economic welfare is elusive, the central feature of the growth of the large scale corporation as a significant institution of the modern economy is unmistakeable. With the concentration of capital, a development powerfully influenced by the merger activity we have described, the economy moved away from individualist market competition and moved closer towards that centralised economic control which Keynes and the liberals had advocated as a means of preserving the capitalist system and socialists had seen as a stage in its

¹ Cf. D.H. MacGregor, "Problems of Rationalisation", E.J., XL, 1930, p. 353: ("The time will come when this country is interested not in the restriction of output but in its extension").
overthrow. In place of the disaggregated market economy of the nineteenth century came the mixed economy of large corporations and an unequivocal movement towards greater co-ordination by non-market forces within a bureaucratic structure of decisionmaking. This change has had a significance extending far beyond the boundaries of economics and deep into social and political life. Between the wars, we have argued, men chose this system partly on ideal grounds, yet when, poised on the brink of war in 1939, they saw an economy typified by depression and an underdeveloped corporate structure, it must have fallen far short of many of those ideals. Even in the clearer perspective of the postwar years, the precise nature of these changes has remained a matter of fundamental political debate. If we have succeeded in explaining how and why the transformation which gave rise to this debate took place, we will have achieved our major purpose, but the wider questions raised by this transformation lie beyond the scope of this work and in the realm of the choice of an alternative future not by a past generation, but by the present one.

1. Chapter 2, above.

Appendix A

SUPPLEMENTARY BIBLIOGRAPHY OF SOURCES USED IN THE COMPILATION OF SERIES "A"

Series "A" was compiled for the period 1880-1954, as described in Chapter 7, from a large number of business and industrial histories and similar source materials. Many of these are listed in the Bibliography of the present work. This Appendix adds a list of sources which were not of sufficiently general interest to appear in the footnotes or select bibliography but were used as sources for series "A".1 Many of these works are privately printed, limited editions of histories of individual firms and are thus not generally available in copyright libraries. In many cases, however, they are available in local libraries or from the firms themselves.

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Appendix B

TIME SERIES OF MERGER ACTIVITY IN MANUFACTURING INDUSTRY,
1919-1939

Table B.1 presents the annual series for firm disappearances by merger, crudely adjusted for omissions, by the method described on pp. 132-3 above. The unadjusted data on observed firm disappearances by merger (the aggregate of series "A" and series "B") which is more fully reported in Table 8.1 above, is provided on the left hand side of the table for comparison. Table B.2 presents the unadjusted quarterly series of firm disappearances by merger in the left hand column. The totals of the quarterly series for each year are less than the annual figures in the left hand column of Table B.1 because it was not possible to date all mergers on a quarterly basis. The right hand column of Table B.2 presents the seasonally adjusted quarterly series which was used for the turning point analysis in chapter 10. The left hand column was divided by the following seasonal adjustment factors:

1st quarter 1.065
2nd quarter 0.907
3rd quarter 0.826
4th quarter 1.201

The quarterly data is reproduced here only for numbers of firm disappearances because merger values were found to fluctuate too widely in the short term to permit meaningful time-series analysis. They may, however, be obtained on application to the author.

1. The seasonal pattern appears to derive principally from a tendency of businessmen to shun merger activity in vacation months.

2. These seasonal adjustment factors were calculated from 4 term moving averages, centreing each value opposite the middle term by taking half of the extreme quarters.
Table B.1
ANNUAL SERIES OF FIRM DISAPPEARANCES BY MERGER, 1919-1939

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Observed Disappearances</th>
<th>Probable Total Disappearances</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(series &quot;A&quot; + series &quot;B&quot;)</td>
<td>(adjusted for omissions)</td>
</tr>
<tr>
<td>1919</td>
<td>208</td>
<td>268</td>
</tr>
<tr>
<td>1920</td>
<td>264</td>
<td>336</td>
</tr>
<tr>
<td>1921</td>
<td>68</td>
<td>78</td>
</tr>
<tr>
<td>1922</td>
<td>47</td>
<td>67</td>
</tr>
<tr>
<td>1923</td>
<td>92</td>
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<td>89</td>
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<td>131</td>
<td>180</td>
</tr>
<tr>
<td>1928</td>
<td>188</td>
<td>270</td>
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<tr>
<td>1929</td>
<td>308</td>
<td>431</td>
</tr>
<tr>
<td>1930</td>
<td>120</td>
<td>158</td>
</tr>
<tr>
<td>1931</td>
<td>66</td>
<td>101</td>
</tr>
<tr>
<td>1932</td>
<td>64</td>
<td>86</td>
</tr>
<tr>
<td>1933</td>
<td>67</td>
<td>92</td>
</tr>
<tr>
<td>1934</td>
<td>93</td>
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<td>1937</td>
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<td>1938</td>
<td>79</td>
<td>127</td>
</tr>
<tr>
<td>1939</td>
<td>62</td>
<td>257</td>
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1919-1939 2,544 3,749
Table B.2
QUARTERLY SERIES OF FIRM DISAPPEARANCES BY MERGER, 1919-1939

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<th>3rd</th>
<th>4th</th>
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<td>51</td>
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<tr>
<td>1920</td>
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<td>54</td>
<td>48</td>
<td>32</td>
<td>64</td>
<td>60</td>
<td>58</td>
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<td>14</td>
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<tr>
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<td>4</td>
<td>12</td>
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<td>4</td>
<td>12</td>
</tr>
<tr>
<td>1923</td>
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<td>7</td>
<td>8</td>
<td>26</td>
<td>14</td>
<td>7</td>
<td>8</td>
<td>26</td>
</tr>
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<td>1924</td>
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<td>17</td>
<td>22</td>
</tr>
<tr>
<td>1925</td>
<td>16</td>
<td>11</td>
<td>20</td>
<td>27</td>
<td>15</td>
<td>11</td>
<td>20</td>
<td>27</td>
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<tr>
<td>1926</td>
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<td>10</td>
<td>23</td>
<td>29</td>
<td>14</td>
<td>10</td>
<td>23</td>
<td>29</td>
</tr>
<tr>
<td>1927</td>
<td>19</td>
<td>32</td>
<td>23</td>
<td>50</td>
<td>18</td>
<td>32</td>
<td>23</td>
<td>50</td>
</tr>
<tr>
<td>1928</td>
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<td>49</td>
<td>50</td>
</tr>
<tr>
<td>1929</td>
<td>70</td>
<td>65</td>
<td>18</td>
<td>25</td>
<td>66</td>
<td>72</td>
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Basic Series

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<th>3rd</th>
<th>4th</th>
<th>1st</th>
<th>2nd</th>
<th>3rd</th>
<th>4th</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930</td>
<td>24</td>
<td>16</td>
<td>14</td>
<td>9</td>
<td>24</td>
<td>16</td>
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<td>8</td>
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<tr>
<td>1932</td>
<td>8</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td>8</td>
<td>6</td>
<td>7</td>
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<tr>
<td>1933</td>
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<td>12</td>
<td>15</td>
<td>26</td>
<td>34</td>
<td>31</td>
<td>33</td>
</tr>
<tr>
<td>1935</td>
<td>28</td>
<td>31</td>
<td>11</td>
<td>32</td>
<td>26</td>
<td>34</td>
<td>31</td>
<td>33</td>
</tr>
<tr>
<td>1936</td>
<td>25</td>
<td>32</td>
<td>16</td>
<td>26</td>
<td>25</td>
<td>32</td>
<td>16</td>
<td>26</td>
</tr>
<tr>
<td>1937</td>
<td>45</td>
<td>14</td>
<td>19</td>
<td>22</td>
<td>45</td>
<td>14</td>
<td>19</td>
<td>22</td>
</tr>
<tr>
<td>1938</td>
<td>14</td>
<td>8</td>
<td>32</td>
<td>9</td>
<td>14</td>
<td>8</td>
<td>32</td>
<td>9</td>
</tr>
<tr>
<td>1939</td>
<td>10</td>
<td>12</td>
<td>8</td>
<td>3</td>
<td>10</td>
<td>12</td>
<td>8</td>
<td>3</td>
</tr>
</tbody>
</table>

Seasonally-Adjusted Series
Appendix C

INDUSTRIAL BREAKDOWN OF MERGER ACTIVITY 1919-1939

Table 10.2 above tabulates the industrial breakdown of mergers as measured by numbers of firms disappearing for the whole period 1919-1939. This appendix provides a further industrial breakdown of merger activity for sub-periods, and by values for the whole period and for sub-periods, according to the conventions adopted in defining mergers and in allotting them to particular industrial classifications described in chapter 7. Tables C1 - C4 break down the numbers of firm disappearances into four sub-periods. Table C.5 tabulates an industrial breakdown of mergers by the known values of firms disappearing between 1919 and 1939, and this is also broken down further into sub-periods in Tables C.6 - C.9. It will be remembered that values were only estimated for 62.5% of the total disappearances by merger. The data in Tables C.5 - C.9 is thus less reliable than that for numbers of firms disappearing in Tables 10.2 and C.1-C.4. The proportion of firm disappearances in each industry for which the value data was in fact available is indicated in parentheses after each industry in Table C.5; and an adjusted value for each industry (calculated on the assumption that the firm disappearances for which no value data was available were on average one-tenth of the mean value of the disappearing firms for which data was available) is presented in Table C.10. The differences in ranking on this assumption are small: a comparison of the rank orders in Tables C.5 and C.10 indicates that only six industries change rank, all of them by one rank only. The remaining tables were derived separately from information on large mergers (i.e. those involving firm disappearances valued at £1m. or more) tabulated in Appendix E below. Table C.11 gives the number of such large mergers in each industry and Table C.12 their values.
### Table C.1

**INDUSTRY RANKING BY NUMBER 1919-1924**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Industry</th>
<th>Number of Disappearances</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drink</td>
<td>112</td>
</tr>
<tr>
<td>2</td>
<td>Metal manufacture</td>
<td>57</td>
</tr>
<tr>
<td>3</td>
<td>Textiles</td>
<td>91</td>
</tr>
<tr>
<td>4</td>
<td>Chemicals</td>
<td>78</td>
</tr>
<tr>
<td>5</td>
<td>Food</td>
<td>71</td>
</tr>
<tr>
<td>6</td>
<td>Bricks, pottery, glass, cement</td>
<td>62</td>
</tr>
<tr>
<td>7</td>
<td>Non-electrical engineering</td>
<td>50</td>
</tr>
<tr>
<td>8</td>
<td>Paper, printing, publishing</td>
<td>45</td>
</tr>
<tr>
<td>9</td>
<td>Metal goods</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>(not elsewhere specified)</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Vehicles</td>
<td>31</td>
</tr>
<tr>
<td>11</td>
<td>Shipbuilding and marine engineering</td>
<td>24</td>
</tr>
<tr>
<td>12</td>
<td>Unclassified</td>
<td>20</td>
</tr>
<tr>
<td>13</td>
<td>Miscellaneous manufacturing</td>
<td>18</td>
</tr>
<tr>
<td>14</td>
<td>Electrical engineering</td>
<td>10</td>
</tr>
<tr>
<td>15 =</td>
<td>(Clothing and footwear)</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>(Other mining)</td>
<td></td>
</tr>
<tr>
<td>17 =</td>
<td>(Tobacco)</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>(Timber, furniture)</td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Leather, leather goods and fur</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>768</strong></td>
</tr>
</tbody>
</table>
Table C.2

INDUSTRY RANKING BY NUMBER 1925-1929

<table>
<thead>
<tr>
<th>Rank</th>
<th>Industry</th>
<th>Number of Disappearances</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Textiles</td>
<td>147</td>
</tr>
<tr>
<td>2</td>
<td>Drink</td>
<td>124</td>
</tr>
<tr>
<td>3</td>
<td>Chemicals</td>
<td>90</td>
</tr>
<tr>
<td>4</td>
<td>Paper, printing and publishing</td>
<td>85</td>
</tr>
<tr>
<td>5</td>
<td>Bricks, pottery, glass, cement</td>
<td>65</td>
</tr>
<tr>
<td>6</td>
<td>Metal manufacture</td>
<td>49</td>
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<tr>
<td>7</td>
<td>Food</td>
<td>47</td>
</tr>
<tr>
<td>8</td>
<td>Electrical engineering</td>
<td>44</td>
</tr>
<tr>
<td>9</td>
<td>Non-electrical engineering</td>
<td>36</td>
</tr>
<tr>
<td>10</td>
<td>Miscellaneous manufacturing</td>
<td>26</td>
</tr>
<tr>
<td></td>
<td>(Other mining)</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Metal goods</td>
<td>24</td>
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<tr>
<td></td>
<td>(not elsewhere specified)</td>
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</tr>
<tr>
<td>13</td>
<td>Clothing and footwear</td>
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</tr>
<tr>
<td>14</td>
<td>Vehicles</td>
<td>21</td>
</tr>
<tr>
<td>15</td>
<td>Tobacco</td>
<td>9</td>
</tr>
<tr>
<td>16</td>
<td>Shipbuilding and marine engineering</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>(Leather, leather goods, fur)</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Timber, furniture, etc.</td>
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</tr>
<tr>
<td>19</td>
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<td>Number of Disappearances</td>
</tr>
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<td>---------------------------------------</td>
<td>--------------------------</td>
</tr>
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<td>Metal manufacture</td>
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</tr>
<tr>
<td>2</td>
<td>Drink</td>
<td>45</td>
</tr>
<tr>
<td>3</td>
<td>Bricks, pottery, glass, cement</td>
<td>42</td>
</tr>
<tr>
<td>4</td>
<td>(Food)</td>
<td>38</td>
</tr>
<tr>
<td>6</td>
<td>Chemicals</td>
<td>37</td>
</tr>
<tr>
<td>7</td>
<td>Paper, printing and publishing</td>
<td>36</td>
</tr>
<tr>
<td>8</td>
<td>Vehicles</td>
<td>21</td>
</tr>
<tr>
<td>9</td>
<td>Electrical engineering</td>
<td>20</td>
</tr>
<tr>
<td>10</td>
<td>(Metal goods (not elsewhere specified)</td>
<td>19</td>
</tr>
<tr>
<td>11</td>
<td>(Miscellaneous manufacturing)</td>
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<td>(Non-electrical engineering)</td>
<td>17</td>
</tr>
<tr>
<td>13</td>
<td>(Other mining)</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Clothing and footwear</td>
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</tr>
<tr>
<td>15</td>
<td>Tobacco</td>
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<td>Shipbuilding and marine engineering</td>
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<td>52</td>
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<td>Food</td>
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<tr>
<td>6</td>
<td>Drink</td>
<td>45</td>
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<tr>
<td>7</td>
<td>Paper, printing and publishing</td>
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<td>Textiles</td>
<td>33</td>
</tr>
<tr>
<td>9</td>
<td>Other mining</td>
<td>30</td>
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<td>Metal goods (not elsewhere specified)</td>
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<tr>
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<td>23</td>
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<tr>
<td>14</td>
<td>Clothing and footwear</td>
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<tr>
<td>15</td>
<td>Timber, furniture, etc.</td>
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<td>16</td>
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</tr>
<tr>
<td>17</td>
<td>Tobacco</td>
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<td>(Unclassified</td>
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</tr>
<tr>
<td></td>
<td>Total</td>
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### Table C.5

**INDUSTRY RANKING BY KNOWN VALUES OF FIRM DISAPPEARANCES, 1919-1939**

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<th>Rank</th>
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<th>Values (£m.)</th>
</tr>
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<td>Drink (62%)</td>
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<tr>
<td>2</td>
<td>Chemicals (58%)</td>
<td>82,380</td>
</tr>
<tr>
<td>3</td>
<td>Metal manufacture (60%)</td>
<td>65,910</td>
</tr>
<tr>
<td>4</td>
<td>Food (64%)</td>
<td>51,829</td>
</tr>
<tr>
<td>5</td>
<td>Paper, printing and publishing (56%)</td>
<td>50,879</td>
</tr>
<tr>
<td>6</td>
<td>Textiles (74%)</td>
<td>40,430</td>
</tr>
<tr>
<td>7</td>
<td>Bricks, pottery, glass, cement (70%)</td>
<td>40,110</td>
</tr>
<tr>
<td>8</td>
<td>Shipbuilding (66%)</td>
<td>30,758</td>
</tr>
<tr>
<td>9</td>
<td>Non-electrical engineering (57%)</td>
<td>22,113</td>
</tr>
<tr>
<td>10</td>
<td>Vehicles (75%)</td>
<td>19,253</td>
</tr>
<tr>
<td>11</td>
<td>Electrical engineering (60%)</td>
<td>19,002</td>
</tr>
<tr>
<td>12</td>
<td>Miscellaneous manufacturing (54%)</td>
<td>13,307</td>
</tr>
<tr>
<td>13</td>
<td>Metal goods (53%) (not elsewhere specified)</td>
<td>9,651</td>
</tr>
<tr>
<td>14</td>
<td>Tobacco (43%)</td>
<td>7,649</td>
</tr>
<tr>
<td>15</td>
<td>Unclassified (86%)</td>
<td>6,761</td>
</tr>
<tr>
<td>16</td>
<td>Clothing and footwear (66%)</td>
<td>5,607</td>
</tr>
<tr>
<td>17</td>
<td>Other mining (60%)</td>
<td>4,020</td>
</tr>
<tr>
<td>18</td>
<td>Leather, leather goods and fur (88%)</td>
<td>1,974</td>
</tr>
<tr>
<td>19</td>
<td>Timber, furniture, etc. (64%)</td>
<td>1,470</td>
</tr>
</tbody>
</table>

**Total (63%)**

567,271
### Table C.6

**INDUSTRY RANKING BY KNOWN VALUES OF FIRM DISAPPEARANCES 1919-1924**

<table>
<thead>
<tr>
<th>Rank</th>
<th>Industry</th>
<th>Values (£m.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Textiles</td>
<td>25.337</td>
</tr>
<tr>
<td>2</td>
<td>Shipbuilding and marine engineering</td>
<td>24.587</td>
</tr>
<tr>
<td>3</td>
<td>Metal manufacture</td>
<td>23.790</td>
</tr>
<tr>
<td>4</td>
<td>Chemicals</td>
<td>17.592</td>
</tr>
<tr>
<td>5</td>
<td>Food</td>
<td>15.595</td>
</tr>
<tr>
<td>6</td>
<td>Paper, printing and publishing</td>
<td>15.157</td>
</tr>
<tr>
<td>7</td>
<td>Drink</td>
<td>13.855</td>
</tr>
<tr>
<td>8</td>
<td>Bricks, pottery, glass, cement</td>
<td>11.419</td>
</tr>
<tr>
<td>9</td>
<td>Non-electrical engineering</td>
<td>11.018</td>
</tr>
<tr>
<td>10</td>
<td>Vehicles</td>
<td>9.107</td>
</tr>
<tr>
<td>11</td>
<td>Unclassified</td>
<td>6.735</td>
</tr>
<tr>
<td>12</td>
<td>Metal goods (not elsewhere specified)</td>
<td>4.657</td>
</tr>
<tr>
<td>13</td>
<td>Miscellaneous manufacturing</td>
<td>3.194</td>
</tr>
<tr>
<td>14</td>
<td>Electrical engineering</td>
<td>1.787</td>
</tr>
<tr>
<td>15</td>
<td>Leather, leather goods and fur</td>
<td>1.750</td>
</tr>
<tr>
<td>16</td>
<td>Clothing and footwear</td>
<td>.238</td>
</tr>
<tr>
<td>17</td>
<td>Timber, furniture etc.</td>
<td>.120</td>
</tr>
<tr>
<td>18</td>
<td>(Tobacco) (Other mining)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>185.938</strong></td>
</tr>
</tbody>
</table>
Table C.7

INDUSTRY RANKING BY KNOWN VALUES OF FIRM DISAPPEARANCES, 1925-1929

<table>
<thead>
<tr>
<th>Rank</th>
<th>Industry</th>
<th>Values (£m.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drink</td>
<td>52.630</td>
</tr>
<tr>
<td>2</td>
<td>Chemicals</td>
<td>49.490</td>
</tr>
<tr>
<td>3</td>
<td>Paper, printing and publishing</td>
<td>28.204</td>
</tr>
<tr>
<td>4</td>
<td>Food</td>
<td>17.299</td>
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<tr>
<td>5</td>
<td>Metal manufacture</td>
<td>13.079</td>
</tr>
<tr>
<td>6</td>
<td>Textiles</td>
<td>11.615</td>
</tr>
<tr>
<td>7</td>
<td>Bricks, pottery, glass, cement</td>
<td>10.349</td>
</tr>
<tr>
<td>8</td>
<td>Electrical engineering</td>
<td>7.248</td>
</tr>
<tr>
<td>9</td>
<td>Tobacco</td>
<td>6.164</td>
</tr>
<tr>
<td>10</td>
<td>Miscellaneous manufacturing</td>
<td>5.999</td>
</tr>
<tr>
<td>11</td>
<td>Vehicles</td>
<td>4.864</td>
</tr>
<tr>
<td>12</td>
<td>Clothing and footwear</td>
<td>4.757</td>
</tr>
<tr>
<td>13</td>
<td>Shipbuilding and marine engineering</td>
<td>4.600</td>
</tr>
<tr>
<td>14</td>
<td>Non-electrical engineering</td>
<td>3.129</td>
</tr>
<tr>
<td>15</td>
<td>Metal goods</td>
<td>1.497</td>
</tr>
<tr>
<td></td>
<td>(not elsewhere specified)</td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>Other mining</td>
<td>1.492</td>
</tr>
<tr>
<td>17</td>
<td>Leather, leather goods and fur</td>
<td>.150</td>
</tr>
<tr>
<td>18</td>
<td>Timber, furniture, etc.</td>
<td>.120</td>
</tr>
<tr>
<td>19</td>
<td>Unclassified</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>222.686</strong></td>
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</table>
## Table C.8

### Industry Ranking by Known Values of Firm Disappearances, 1930-1934

<table>
<thead>
<tr>
<th>Rank</th>
<th>Industry</th>
<th>Values (£m.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Drink</td>
<td>18.201</td>
</tr>
<tr>
<td>2</td>
<td>Electrical engineering</td>
<td>6.858</td>
</tr>
<tr>
<td>3</td>
<td>Bricks, pottery, glass, cement</td>
<td>5.285</td>
</tr>
<tr>
<td>4</td>
<td>Paper, printing and publishing</td>
<td>5.000</td>
</tr>
<tr>
<td>5</td>
<td>Food</td>
<td>4.943</td>
</tr>
<tr>
<td>6</td>
<td>Chemicals</td>
<td>4.912</td>
</tr>
<tr>
<td>7</td>
<td>Non-electrical engineering</td>
<td>4.533</td>
</tr>
<tr>
<td>8</td>
<td>Miscellaneous manufacturing</td>
<td>3.610</td>
</tr>
<tr>
<td>9</td>
<td>Metal Manufacture</td>
<td>9.051</td>
</tr>
<tr>
<td>10</td>
<td>Textiles</td>
<td>2.698</td>
</tr>
<tr>
<td>11</td>
<td>Metal goods</td>
<td>2.105</td>
</tr>
<tr>
<td></td>
<td>(not elsewhere specified)</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Vehicles</td>
<td>2.039</td>
</tr>
<tr>
<td>13</td>
<td>Other mining</td>
<td>1.362</td>
</tr>
<tr>
<td>14</td>
<td>Tobacco</td>
<td>1.250</td>
</tr>
<tr>
<td>15</td>
<td>Shipbuilding and marine engineering</td>
<td>.876</td>
</tr>
<tr>
<td>16</td>
<td>Clothing and footwear</td>
<td>.324</td>
</tr>
<tr>
<td>17=</td>
<td>(Leather, leather goods and fur)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(Timber, furniture, etc.)</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>(Unclassified)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>73.105</td>
</tr>
<tr>
<td>Rank</td>
<td>Industry</td>
<td>Values (£m)</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>1</td>
<td>Metal manufacture</td>
<td>19.990</td>
</tr>
<tr>
<td>2</td>
<td>Food</td>
<td>13.962</td>
</tr>
<tr>
<td>3</td>
<td>Bricks, pottery, glass, cement</td>
<td>13.087</td>
</tr>
<tr>
<td>4</td>
<td>Drink</td>
<td>10.462</td>
</tr>
<tr>
<td>5</td>
<td>Chemicals</td>
<td>10.336</td>
</tr>
<tr>
<td>6</td>
<td>Non-electrical engineering</td>
<td>3.383</td>
</tr>
<tr>
<td>7</td>
<td>Vehicles</td>
<td>3.243</td>
</tr>
<tr>
<td>8</td>
<td>Electrical engineering</td>
<td>3.109</td>
</tr>
<tr>
<td>9</td>
<td>Paper, printing and publishing</td>
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</tr>
<tr>
<td>10</td>
<td>Metal goods (not elsewhere specified)</td>
<td>1.392</td>
</tr>
<tr>
<td>11</td>
<td>Other mining</td>
<td>1.166</td>
</tr>
<tr>
<td>12</td>
<td>Textiles</td>
<td>.760</td>
</tr>
<tr>
<td>13</td>
<td>Shipbuilding and marine engineering</td>
<td>.695</td>
</tr>
<tr>
<td>14</td>
<td>Miscellaneous manufacturing</td>
<td>.496</td>
</tr>
<tr>
<td>15</td>
<td>Clothing and footwear</td>
<td>.288</td>
</tr>
<tr>
<td>16</td>
<td>Tobacco</td>
<td>.235</td>
</tr>
<tr>
<td>17</td>
<td>Timber, furniture, etc.</td>
<td>.230</td>
</tr>
<tr>
<td>18</td>
<td>Leather, leather goods and fur</td>
<td>.074</td>
</tr>
<tr>
<td>19</td>
<td>Unclassified</td>
<td>.026</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>85.542</td>
</tr>
<tr>
<td>Rank</td>
<td>Industry</td>
<td>Values (£m)</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------</td>
<td>-------------</td>
</tr>
<tr>
<td>1</td>
<td>Drink</td>
<td>101.010</td>
</tr>
<tr>
<td>2</td>
<td>Chemicals</td>
<td>88.421</td>
</tr>
<tr>
<td>3</td>
<td>Metal Manufacture</td>
<td>70.452</td>
</tr>
<tr>
<td>4</td>
<td>Paper, printing and publishing</td>
<td>56.242</td>
</tr>
<tr>
<td>5</td>
<td>Food</td>
<td>54.734</td>
</tr>
<tr>
<td>6</td>
<td>Bricks, pottery, glass, cement</td>
<td>41.868</td>
</tr>
<tr>
<td>7</td>
<td>Textiles</td>
<td>41.819</td>
</tr>
<tr>
<td>8</td>
<td>Shipbuilding and marine engineering</td>
<td>32.353</td>
</tr>
<tr>
<td>9</td>
<td>Non-Electrical Engineering</td>
<td>23.797</td>
</tr>
<tr>
<td>10</td>
<td>Electrical Engineering</td>
<td>20.269</td>
</tr>
<tr>
<td>11</td>
<td>Vehicles</td>
<td>19.895</td>
</tr>
<tr>
<td>12</td>
<td>Miscellaneous Manufacturing</td>
<td>14.464</td>
</tr>
<tr>
<td>13</td>
<td>Metal Goods (not elsewhere specified)</td>
<td>10.507</td>
</tr>
<tr>
<td>14</td>
<td>Tobacco</td>
<td>8.669</td>
</tr>
<tr>
<td>15</td>
<td>Unclassified</td>
<td>6.868</td>
</tr>
<tr>
<td>16</td>
<td>Clothing and Footwear</td>
<td>5.897</td>
</tr>
<tr>
<td>17</td>
<td>Other Mining</td>
<td>4.288</td>
</tr>
<tr>
<td>18</td>
<td>Leather, leather goods and fur</td>
<td>2.002</td>
</tr>
<tr>
<td>19</td>
<td>Timber, furniture</td>
<td>0.496</td>
</tr>
<tr>
<td>Rank</td>
<td>Industry</td>
<td>Number of Mergers</td>
</tr>
<tr>
<td>------</td>
<td>-----------------------------------------</td>
<td>-------------------</td>
</tr>
<tr>
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<td>Metal Manufacture</td>
<td>19</td>
</tr>
<tr>
<td>2</td>
<td>Drink</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>Chemicals</td>
<td>15</td>
</tr>
<tr>
<td>4</td>
<td>Food</td>
<td>14</td>
</tr>
<tr>
<td>5</td>
<td>Paper, printing and publishing</td>
<td>13</td>
</tr>
<tr>
<td>6 =</td>
<td>Textiles</td>
<td>10</td>
</tr>
<tr>
<td>8 =</td>
<td>Bricks, Pottery, Glass, Cement</td>
<td>10</td>
</tr>
<tr>
<td>12</td>
<td>Non-Electrical Engineering</td>
<td>5</td>
</tr>
<tr>
<td>13 =</td>
<td>Electrical Engineering</td>
<td>5</td>
</tr>
<tr>
<td>15 =</td>
<td>Shipbuilding and Marine Engineering</td>
<td>5</td>
</tr>
<tr>
<td>18</td>
<td>Miscellaneous Manufacturing</td>
<td>4</td>
</tr>
<tr>
<td>13</td>
<td>Tobacco</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>Metal Goods (not elsewhere specified)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Leather, Leather Goods, and Fur</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Clothing and Footwear</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Unclassified</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Timber, Furniture, etc.</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>128</td>
</tr>
</tbody>
</table>
Table C.12

INDUSTRY RANKING BY THE VALUES OF FIRMS DISAPPEARING IN MERGERS IN WHICH SUCH FIRMS WERE VALUED AT £1M. OR MORE, 1919-1939

<table>
<thead>
<tr>
<th>Rank</th>
<th>Industry</th>
<th>Estimated Price Paid for the Firms Disappearing in the Large Mergers (£M)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Chemicals</td>
<td>64.2</td>
</tr>
<tr>
<td>2</td>
<td>Drink</td>
<td>52.4</td>
</tr>
<tr>
<td>3</td>
<td>Metal Manufacture</td>
<td>42.2</td>
</tr>
<tr>
<td>4</td>
<td>Food</td>
<td>36.0</td>
</tr>
<tr>
<td>5</td>
<td>Paper, printing, and publishing</td>
<td>32.7</td>
</tr>
<tr>
<td>6</td>
<td>Shipbuilding and Marine Engineering</td>
<td>24.2</td>
</tr>
<tr>
<td>7</td>
<td>Textiles</td>
<td>23.9</td>
</tr>
<tr>
<td>8</td>
<td>Bricks, Pottery, Glass, Cement</td>
<td>21.6</td>
</tr>
<tr>
<td>9</td>
<td>Non-electrical Engineering</td>
<td>12.2</td>
</tr>
<tr>
<td>10</td>
<td>Electrical Engineering</td>
<td>9.7</td>
</tr>
<tr>
<td>11</td>
<td>Miscellaneous manufacturing</td>
<td>9.5</td>
</tr>
<tr>
<td>12</td>
<td>Vehicles</td>
<td>8.8</td>
</tr>
<tr>
<td>13</td>
<td>Unclassified</td>
<td>6.5</td>
</tr>
<tr>
<td>14</td>
<td>Tobacco</td>
<td>5.8</td>
</tr>
<tr>
<td>15</td>
<td>Clothing and Footwear</td>
<td>4.0</td>
</tr>
<tr>
<td>16</td>
<td>Metal Goods (not elsewhere specified)</td>
<td>2.4</td>
</tr>
<tr>
<td>17</td>
<td>Leather, Leather goods and Fur</td>
<td>1.0</td>
</tr>
<tr>
<td>18</td>
<td>Timber, Furniture, etc.</td>
<td>-</td>
</tr>
</tbody>
</table>

Total | 357.1
Appendix D

THE MERGER RECORD OF THE TOP EIGHTY-TWO COMPANIES IN MANUFACTURING INDUSTRY, 1919-1939

A list of the 101 largest companies in British industry by net assets in 1948 was obtained. 19 of these were excluded from the present study because they were not significantly involved in manufacturing, leaving a total of 62 which could have participated in the merger activity described. These, the largest manufacturing firms by net assets in 1948, are listed below in alphabetical order. The net assets in 1948 of each company are given in column 3, and the date of its major merger in column 2. The remaining six columns of the table summarise the interwar merger record of these companies, the data being abstracted from the workcards and worksheets of series "A" and "B".

Column 4 lists the number of firm disappearances between 1919 and 1939 accounted for directly by each firm. Though these are referred to as "acquisitions", this term is used loosely and includes firm disappearances in consolidations as well as in acquisitions more strictly defined. Below the number of "acquisitions" there appears an estimate of the price paid for them. It will be remembered, however, that value data is not available for all acquisitions. Where it is based on less than the total number of acquisitions for that company the number on which it is based is specified, or, if no value data is available at all, the letters n.v. appear. Thus it can be seen from the table that the Amalgamated Press "acquired" 3 companies for which no value data was available, Ansell's Brewery "acquired" 4 companies for £1,342,000 and A.E.I. acquired 4 companies, three for £2,241,000 and one which could not be valued. (These conventions are also applied to the value data in subsequent columns.)


2. See pp. 143-5 above, for a summary chronology of major mergers.
If an indicator of the total number of firms absorbed by large companies within a specified period is required, it may be desirable also to include "sub-acquisitions", and these appear in column 6. A "sub-acquisition" for these purposes is a company which was absorbed between 1919 and 1939 by a company which was itself absorbed by one of the companies in column 1 in that period. Thus Associated Portland Cement acquired the "Red Triangle" group in 1932, this appearing as one "acquisition" in column 4, but, since that group had itself been built up by merger since 1924, its acquisitions contribute also to the "sub-acquisitions" of Associated Portland in column 6. All the "acquisitions" and "sub-acquisitions" in columns 4 and 6 appear in the main merger series of Table 8.1 above. However, for the purposes of assessing the role of mergers in the growth of firms, looser conventions may be appropriate. In particular, some mergers were known to have taken place in the interwar years but had to be excluded from the main merger series (e.g. because they could not be precisely dated, or because the companies acquired were operating abroad). These mergers are included in columns 5 and 7 (for "acquisitions" and "sub-acquisitions" respectively) to provide a balancing item to correct for the over-rigorous standards applied in the major study.

The only mergers included in either the "acquisitions" or "sub-acquisitions" columns, it should be emphasised, are those occurring between 1919 and 1939. If a longer period had been chosen, the numbers may, of course, have been more than proportionately increased. I.C.I. "acquired" or "sub-acquired" a total of 63 companies. However, inspection of series "A" worksheets for earlier years indicates that, if the period 1880-1939 were

1. A special situation arises in the case of three companies - British Insulated Callender's Cable, Steel Company of Wales, and Richard Thomas and Baldwins. These were formed in mergers occurring after 1939, and thus have no direct "acquisitions" between 1919 and 1939. For the purpose of the present analysis, therefore, the merging subsidiaries are listed separately below each main company title and their "acquisitions" and "sub-acquisitions" between 1919 and 1939 appear in the "sub-acquisitions" columns only.
substituted, the total would rise to 298. This implies that almost 300 firms, which had at some stage between 1880 and 1939 been independent decision-making units in the economy, had, by 1939, been absorbed into the operating divisions of I.C.I.

The growth of firms is affected positively by acquisitions but also negatively by demergers and these are also included in the table as a balancing item. The worksheets were checked for demergers and those which came to light are listed in column 8. They appear to have been rare relative to mergers: only 1 demerger was recorded for every 17 "acquisitions" and every 6 "sub-acquisitions". Finally, column 9 shows the net growth by merger of each firm in the list between 1919 and 1939. This is the total recorded expenditure on "acquisitions" (columns 4 and 5) less the recorded value of demerged subsidiaries (column 8).

The figures in this appendix, and the comments in chapter 11 based on them, must be approached with caution. They are subject to all the difficulties of interwar merger statistics alluded to in chapter 7. The value data is, for example, incomplete. Only 66% of the in-series firm disappearances, 17% of other firm disappearances and 44% of demergers in this Appendix could in fact be valued, and thus the calculation of net growth by merger contains an element whose effect is unknown but conceivably large. There are, moreover, special problems. The value data available on the worksheets, for example, is the price paid at the time of acquisition for the shares which gave control. Thus if a company owned 30% of the shares of a second company, then made a

1. Much of the higher figure is accounted for by the 64 "sub-acquisitions" via the United Alkali Company and the 70 "sub-acquisitions" via the Salt Union, accumulated by those companies largely in the 1880-90 merger boom, but not absorbed into I.C.I. until 1926 and 1937 respectively.

2. Value data has not generally been provided for "sub-acquisitions" since their values are, in effect, already included in the figure for "acquisitions". "Sub-acquisitions" are thus not included in this calculation, except for the three firms which had their major merger after 1939, in which case they become relevant to a study of growth by merger between 1919 and 1939.
successful bid for 40% more (thus gaining control) and in later years acquired the remaining 30% on the open market, only 40% of the true contribution is likely to be reflected in the data. Problems also arise in the demerger data when, despite a demerger (by the strict definition of 50% control) having occurred, the former owning company retains a large minority interest yet the data indicates a complete demerger. Mis-estimation of this kind might be expected to cancel out, but some distorting factors will be systematically biased in one direction. The contribution of merger will, for example, be biased upwards by their tendency to occur at cyclical peaks, when prices are inflated. On the other hand, they will be biased downwards by the many unrecorded mergers, or mergers for which no value estimates were available. The effects of inflation and asset revaluations by 1948 would also impart a downward bias to the net contribution of mergers in column 9 when it is related to the net assets figure in column 3, as it is in chapter 11. Because of weaknesses in the data, such a percentage net contribution of mergers to net assets in 1948 is not calculated for individual companies, for such a calculation would seriously distort individual cases. However, the totals listed for all 82 companies at the foot of the table, because of balancing effects in large samples, can be accepted with greater (though still limited) confidence.
## THE MERGER RECORD OF LARGE COMPANIES

<table>
<thead>
<tr>
<th>Name</th>
<th>1 Date of Merger</th>
<th>2 Net Assets in 1948 (£m)</th>
<th>3 &quot;Acquisitions&quot; 1919-1939 (numbers and values in £m)</th>
<th>4 &quot;Sub-Acquisitions&quot; 1919-1939 (numbers)</th>
<th>5 Demergers 1919-1939 (numbers and values in £m)</th>
<th>6 Net Growth by Merger 1919-1939 (£m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amalgamated Press 1</td>
<td>-</td>
<td>16.5</td>
<td>3 (n.v.)</td>
<td>1</td>
<td>-</td>
<td>-</td>
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<tr>
<td>Ansell's Brewery</td>
<td>-</td>
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<td>4 (1.342)</td>
<td>3</td>
<td>-</td>
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<tr>
<td>Associated Electrical Industries</td>
<td>1928</td>
<td>27.4</td>
<td>4 (3=2.241)</td>
<td>-</td>
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<td>2.241</td>
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<tr>
<td>Associated Newspapers 2</td>
<td>-</td>
<td>9.6</td>
<td>15 (3=5.269)</td>
<td>2 (n.v.)</td>
<td>6</td>
<td>6</td>
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<tr>
<td>Austin Motors</td>
<td>-</td>
<td>20.2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Babcock and Wilcox</td>
<td>-</td>
<td>8.6</td>
<td>2 (1=0.250)</td>
<td>-</td>
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</table>

1. Between 1926 and 1937 the Amalgamated Press was a subsidiary of Allied Newspapers (=Kemsley Newspapers, q.v.) and its acquisitions in that period are treated as Kemsley acquisitions, and not here.

2. Difficulties arise in separating the interests of Lord Rothermere and of the Daily Mail Trust from those of Associated Newspapers. Acquisitions by Northcliffe Newspapers Ltd., between 1928 and 1932 (when both companies were under the control of Rothermere) are included as Associated acquisitions, though Northcliffe Newspapers did not formally become a subsidiary of Associated until 1932. Rothermere's purchase and subsequent sale of the Maiton interests to Allied Newspapers (q.v.) appear as one Associated acquisition, but as three demergers (since they were sold in lots at three different times). The sale of Amalgamated by Rothermere in 1926 has not been counted as an Associated demerger.
<table>
<thead>
<tr>
<th>Company</th>
<th>Year</th>
<th>Share</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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<td>Barclay Perkins and Co.</td>
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<td>Bass Ratcliff &amp; Gretton</td>
<td>1926</td>
<td>18.6</td>
<td>3</td>
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<td>Beecham Group</td>
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<td>18.2</td>
<td>9</td>
<td>7</td>
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<td>Birmingham Small Arms</td>
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<td>Bleachers' Association</td>
<td>1900</td>
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<td>4</td>
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<td>Boots Pure Drug</td>
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<td>Bowater Paper Corporation</td>
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<tr>
<td>Bradford Dyers Association</td>
<td>1898</td>
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<td>23</td>
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<td>British Aluminium Company</td>
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<td>1918</td>
<td>23.8</td>
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<td>2</td>
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<tr>
<td>British Insulated Callenders 1945 Cables</td>
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<td>14.1</td>
<td>19</td>
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<tr>
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<td></td>
<td>(10=3.060)</td>
<td>(n.v.)</td>
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<tr>
<td>Company</td>
<td>Year</td>
<td>1925</td>
<td>1926</td>
<td>1930/36</td>
<td>1933</td>
<td>1899</td>
</tr>
<tr>
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<td>------</td>
<td>------</td>
<td>------</td>
<td>---------</td>
<td>------</td>
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<tr>
<td>British Oxygen</td>
<td>-</td>
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<td>John Brown and Co.</td>
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<tr>
<td>Montague Burton</td>
<td>-</td>
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<tr>
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<tr>
<td>Carreras</td>
<td>-</td>
<td>11.3</td>
<td></td>
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<tr>
<td>Charrington and Co.</td>
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<td>15.6</td>
<td></td>
<td></td>
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<tr>
<td>J &amp; P Coats</td>
<td>1896</td>
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<td>Colvilles</td>
<td>1930/36</td>
<td>14.5</td>
<td></td>
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<tr>
<td>Consett Iron Co.</td>
<td>-</td>
<td>9.9</td>
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<td></td>
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<tr>
<td>Courage and Co.</td>
<td>-</td>
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<td></td>
<td></td>
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<tr>
<td>Courtaulds</td>
<td>-</td>
<td>62.9</td>
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<tr>
<td>Distillers Co.</td>
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<td></td>
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<tr>
<td>Dorman Long</td>
<td>-</td>
<td>17.5</td>
<td></td>
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<td>Dunlop Rubber Co.</td>
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<td>47.6</td>
<td></td>
<td></td>
<td></td>
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1. All David Colville acquisitions prior to 1930 are treated as acquisitions by the parent company Harland and Wolff, in this Appendix, and not here.
<table>
<thead>
<tr>
<th>Company Name</th>
<th>Acquisitions/Year(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>English Electric Company</td>
<td>1919</td>
</tr>
<tr>
<td>Fine Spinners &amp; Doublers</td>
<td>1929</td>
</tr>
<tr>
<td>Pissons</td>
<td>1929</td>
</tr>
<tr>
<td>Ford Motor Company</td>
<td>1918</td>
</tr>
<tr>
<td>General Electric Co.</td>
<td>1930</td>
</tr>
<tr>
<td>Goodlass Wall and Lead</td>
<td>1900 - 1902</td>
</tr>
<tr>
<td>Guest Keen &amp; Nettlefolds</td>
<td>1900 - 1902</td>
</tr>
<tr>
<td>A Guinness &amp; Co</td>
<td>1900 - 1902</td>
</tr>
<tr>
<td>Harland and Wolff</td>
<td>1935</td>
</tr>
<tr>
<td>Hawker Siddeley Group</td>
<td>1935</td>
</tr>
<tr>
<td>Imperial Tobacco Co²</td>
<td>1901</td>
</tr>
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</table>

1. Gallaher was taken over by Imperial Tobacco (q.v.) in 1932 and controlled by that company until 1936. Its acquisitions during that period are included under the other company, and not here.
2. British (GKH-Baldwins) Iron and Steel is included under Steel Company of Wales, q.v., and not here.
3. Includes acquisitions by Gallaher between 1932 and 1939.
The Merger Record of Large Companies (Contd.)

<table>
<thead>
<tr>
<th>Name</th>
<th>1934</th>
<th>1924-25</th>
<th>1929</th>
<th>1930</th>
<th>1925-26</th>
<th>1921</th>
<th>1898</th>
<th>1920</th>
<th>1926</th>
<th>1925-26</th>
<th>1931-33</th>
<th>1934-35</th>
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</thead>
<tbody>
<tr>
<td>Coope &amp; Allsopp</td>
<td>21.1</td>
<td>11</td>
<td>9</td>
<td>8.7</td>
<td>9</td>
<td>10.8</td>
<td>11.6</td>
<td>20.2</td>
<td>10.8</td>
<td>11.6</td>
<td>26.1</td>
<td>7.942</td>
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<tr>
<td>(emsley Newspapers)</td>
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<td>(9=7.942)</td>
<td>(14=21.136)</td>
<td>(98=5.690)</td>
<td>(1.320)</td>
<td>(11=2.109)</td>
<td>(3=0.331)</td>
<td>(3=1.636)</td>
<td>8.5</td>
<td>(5=1.594)</td>
<td>(3=1.730)</td>
<td>(3=3.033)</td>
</tr>
<tr>
<td>Lancashire Cotton Corporation</td>
<td></td>
<td>20.3</td>
<td>27</td>
<td>106</td>
<td>-</td>
<td>-</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3 -</td>
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<td>-</td>
<td>106</td>
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<td>5.690</td>
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<td>13</td>
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<td>13</td>
<td>13</td>
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<td>7</td>
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<td>(1924-1926)</td>
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</tr>
<tr>
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<td>11.6</td>
<td>3</td>
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<td>7</td>
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<tr>
<td>Patons &amp; Baldwins</td>
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<td>8.7</td>
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<td>(1920)</td>
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<td></td>
<td>8.5</td>
<td>6</td>
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<td>-</td>
<td>-</td>
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<td>1.594</td>
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<td>Platt Bros. &amp; Co. (Holdings)</td>
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<td>1</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.730</td>
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<tr>
<td>(1931-1933)</td>
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<tr>
<td>Ranks</td>
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</tbody>
</table>

1. Kemsley Newspapers had its origin in the formation of Allied Newspapers by the Berry Brothers (later the Lords Kemsley and Camrose) in 1924. Acquisitions by the Berry brothers between 1919 and 1924 have been treated as Kemsley acquisitions. The brothers split up in 1937, Lord Camrose taking the Amalgamated Press interests (q.v.); this split is treated here as a Kemsley demerger.
### The Merger Record of Large Companies (Contd.)

<table>
<thead>
<tr>
<th>Company</th>
<th>Year</th>
<th>Value</th>
<th>Value of Acquisitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reckitt &amp; Colman</td>
<td>1938</td>
<td>12.0</td>
<td>(3=3.516) (n.v.)</td>
</tr>
<tr>
<td>Rowntree &amp; Co.</td>
<td></td>
<td>8.4</td>
<td>(0.020) (n.v.)</td>
</tr>
<tr>
<td>J. Sears &amp; Co. (True Form Boot Co)</td>
<td>1928</td>
<td>8.2</td>
<td>(4.000)</td>
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<tr>
<td>Spillers</td>
<td></td>
<td>12.2</td>
<td>(12=4,009) (n.v.)</td>
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<tr>
<td>Steel Company of Wales</td>
<td>1947</td>
<td>27.5</td>
<td></td>
</tr>
<tr>
<td>(Richard Thomas and Baldwins)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Guest Keen-Baldwins)</td>
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<td></td>
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<tr>
<td>(Llanelly Associated Tinplate)</td>
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<td>Stewarts &amp; Lloyds</td>
<td>1902</td>
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<td>(8=11.996) (0.146)</td>
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<tr>
<td>John Summers &amp; Sons</td>
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1. Acquisitions by Richard Thomas and Baldwins, *n.v.*, some of whose assets were merged into the Steel Company of Wales in 1947 are listed separately under that company and not here.
### The Merger Record of Large Companies (Contd)

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Appendix E

ONE HUNDRED AND TWENTY EIGHT LARGE MERGERS

This list of large mergers includes each merger whose workcard for the present study indicated that the price paid for the disappearing firm(s) was £1m. or more. The names of the acquiring (or consolidating) firm is given in column 1 and the name(s) of the acquired (or consolidated) firm(s) in column 3. Column 2 indicates whether the merger was in the form of an acquisition or a consolidation. The number of firms disappearing and the price paid (rounded to the nearest £100,000) appear in columns 6 and 7, respectively. The firms are classified by industry group in column 4, according to the Standard Industrial Classification of 1958. (A key to the industry group numbers appears at the head of the list of mergers below.) Where only one number is given this indicates the industry to which the merger as a whole was allotted, according to the conventions described in chapter 7. Where a fraction is given, the numerator indicates the industry of the acquiring firm and the denominator that of the acquired firm. In column 5 the mergers are described as horizontal (H), vertical (V) or diversifying (D) according to the conventions described in chapter 9; and column 8 indicates whether, according to the evidence available on series "A" and "B" worksheets, the mergers are or are not included in the study of industrial concentration by Hart and Prais which is discussed fully in chapter 11. The 128 large mergers which appear in this list include 13% of the firm disappearances by merger of the main series and 65% of the values recorded in it. It should be remembered, however, that this is likely to be only a sample (albeit a very large sample) rather than a complete list of large interwar mergers. That there were mergers unrecorded here which yet exceeded £1m. in value is suggested by the additional entries produced for this list by series "A" (6 in all) which were not registered by series "B": it seems likely that future publications in business history will bring more
examples to light. Furthermore there would be more additions to the list if an alternative definition of value were adopted: for example if the whole capital of the acquired company (rather than the price paid for the portion actually acquired at the time of merger) were taken as the criterion of value.

The mergers in the list are arranged in chronological order by year and, within years, by the names of the acquiring or consolidating firm in alphabetical order. The distribution of mergers and of firm disappearances by merger, by industry and by type, is summarised in three statistical tables which appear at the end of the list of mergers.

---

1. Five mergers in the list appeared only in series "B".
KEY TO INDUSTRIAL GROUPS (see column 4)

1. Food
2. Drink
3. Tobacco
4. Chemicals
5. Metal Manufacture
6. Non-Electrical Engineering
7. Electrical Engineering
8. Shipbuilding and Marine Engineering
9. Vehicles
10. Metal Goods (not elsewhere specified)
11. Textiles
12. Leather, leather goods and fur
13. Clothing and Footwear
14. Bricks, pottery, glass, cement
15. Timber, Furniture, etc.
16. Paper, printing and publishing
17. Miscellaneous Manufacturing
20. Coal Mining (applies only to acquired firms)
21. Other Mining
25. Distribution
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<th>Name of Acquiring or Consolidating Firm</th>
<th>Acquisition (a) or Consolidation (c)</th>
<th>Name of Acquired or Consolidated Firm(s)</th>
<th>Industry</th>
<th>Horizontal, Vertical or Diversifying</th>
<th>Number of Firms Disappearing</th>
<th>Estimated Values of Firms Disappearing (£m)</th>
<th>Included in Hart &amp; Prais Transition Matrices</th>
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<td>A.G.E. Electric Motors</td>
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<td>Cork Steamship &amp; Ulter Steamship, Clyde Shipbuilding and Engineering, Murdoch and Murray, W. Whitwell and Co, 7 others in collieries, brickworks, cotton, fishing and finance</td>
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<td>D</td>
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<td>Crosses and Winkworth Ward and Walker Lord, Hampton and Lord Bamber Bridge Spinning Ainsworths</td>
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| Year | Company 1                      | Company 2                      | No. | Type | Industry 1                                      | Industry 2                                      | Merged?
|------|-------------------------------|-------------------------------|-----|------|------------------------------------------------|------------------------------------------------|---------
| 1926 | Allied Newspapers             | Daily Sketch and Sunday Herald | 16  | H    | 1                                              | 1.3                                            | No      
| 1926 | Bass Ratcliffe & Gretton      | Worthington                   | 2   | H    | 1                                              | 2.9                                            | Yes     
| 1926 | Hoare & Co                    | City of London Brewery        | 2   | V    | 1                                              | 1.9                                            | No      
| 1926 | Imperial Chemical Industries  | Brunner Mond                  | 4   | D    | 3                                              | 35.9                                           | Yes     
| 1926 | Inveresk Paper                | Ellerman Periodicals          | 16  | V    | 3                                              | 3.3                                            | No      
| 1926 | Manbré and Garton             | Garton and Sons               | 1   | H    | 1                                              | 2.3                                            | No      
| 1927 | Allied Newspapers             | Edward Lloyd                  | 16  | V    | 1                                              | 3.2                                            | No      
| 1927 | Bass Ratcliffe & Gretton      | Thomas Salt & Co              | 2   | H    | 1                                              | 1.3                                            | Yes     
| 1927 | British Match Corporation     | Bryant & May                  | 17  | H    | 1                                              | 2.7                                            | No      
| 1927 | Matthew Brown                 | Nuttall & Co                  | 2   | H    | 1                                              | 1.1                                            | No      
| 1927 | Distillers                    | White Horse Distilleries      | 2   | H    | 1                                              | 1.6                                            | No      
| 1927 | Margarine Union               | Jurgens                       | 1   | H    | 1                                              | 4.9                                            | Yes     
| 1927 | Vickers-Armstrong             | Vickers                       | 8   | H    | 1                                              | 4.5                                            | No      

Notes:
- a: Acquired
- c: Created

Industry Details:
- Imperial Chemical Industries: Brunner Mond, Nobel Industries, British Dyestuffs Corp., United Alkali Co
- Inveresk Paper (Illustrated Newspapers): Ellerman Periodicals, Graphic and Bystander, Horton Kirby Paper Mills
- Manbré and Garton: Garton and Sons, Manbré Sugar & Malt
- British Match Corporation: Bryant & May, J. J. Masters (Swedish Match)
- Vickers-Armstrong: Sir W.G. Armstrong Whitworth (shipbuilding, heavy steel and armaments interests only)
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<td></td>
<td></td>
<td></td>
<td>Scottish Iron &amp; Steel</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1939</td>
<td>Stewarts &amp; Lloyds</td>
<td>5</td>
<td>Stanton Ironworks Co</td>
<td>6.1</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* As their matrix date is 31st March, the Hart and Prais sample for 1924-1939 does not relate to mergers of the last three quarters of 1939.
Appendix E: Summary Tables

The tables which follow summarise the distribution of large mergers by industry and by type and are based on the information in columns 4 and 5 of the preceding list of large mergers in manufacturing. Where mergers have been classified in more than one industrial group in the list they are allotted to the industry keyed in the numerator, that is to the industry of the acquiring company. Table E.1 provides a disaggregation by the number of mergers, Table E.2 by the numbers of firms disappearing and Table E.3 by the price paid for the firms disappearing. The distribution of mergers by type is more fully discussed in chapter 9, and the distribution by industry is treated further in Appendix C and in chapter 10.
<table>
<thead>
<tr>
<th>Industry</th>
<th>All Types</th>
<th>Horizontal</th>
<th>Vertical</th>
<th>Diversifying</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>14</td>
<td>12</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Drink</td>
<td>16</td>
<td>10</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Tobacco</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chemicals</td>
<td>15</td>
<td>13</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Metal Manufacture</td>
<td>19</td>
<td>12</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Non-Electrical Engineering</td>
<td>5</td>
<td>4</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Shipbuilding, etc.</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Vehicles</td>
<td>5</td>
<td>3</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Metal Goods n.e.s.</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Textiles</td>
<td>10</td>
<td>10</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Leather etc.</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Clothing and Footwear</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bricks etc.</td>
<td>10</td>
<td>7</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Timber, Furniture, etc.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Paper, printing, etc.</td>
<td>13</td>
<td>10</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>4</td>
<td>3</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Unclassified</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Total, all industries</td>
<td>128</td>
<td>96</td>
<td>27</td>
<td>5</td>
</tr>
<tr>
<td>Industry</td>
<td>All Types</td>
<td>Horizontal</td>
<td>Vertical</td>
<td>Diversifying</td>
</tr>
<tr>
<td>---------------------------</td>
<td>-----------</td>
<td>------------</td>
<td>----------</td>
<td>--------------</td>
</tr>
<tr>
<td>Food</td>
<td>32</td>
<td>30</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>Drink</td>
<td>17</td>
<td>11</td>
<td>6</td>
<td>0</td>
</tr>
<tr>
<td>Tobacco</td>
<td>2</td>
<td>2</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chemicals</td>
<td>31</td>
<td>27</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>Metal Manufacture</td>
<td>37</td>
<td>24</td>
<td>13</td>
<td>0</td>
</tr>
<tr>
<td>Non-Electrical Engineering</td>
<td>21</td>
<td>20</td>
<td>1</td>
<td>0</td>
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<td>Electrical Engineering</td>
<td>5</td>
<td>5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Shipbuilding, etc.</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Vehicles</td>
<td>11</td>
<td>3</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Metal Goods n.e.s.</td>
<td>8</td>
<td>6</td>
<td>2</td>
<td>0</td>
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<tr>
<td>Textiles</td>
<td>116</td>
<td>116</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Leather, etc.</td>
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<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Clothing and Footwear</td>
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<td>1</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bricks, etc.</td>
<td>17</td>
<td>14</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Timber, Furniture, etc.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Paper, printing, etc.</td>
<td>21</td>
<td>15</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Miscellaneous</td>
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<td>0</td>
</tr>
<tr>
<td>Unclassified</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td><strong>Total, all industries</strong></td>
<td><strong>338</strong></td>
<td><strong>280</strong></td>
<td><strong>42</strong></td>
<td><strong>16</strong></td>
</tr>
</tbody>
</table>
Table E.3

PRICES PAID FOR THE FIRMS DISAPPEARING IN THE LARGE Mergers (£m)

<table>
<thead>
<tr>
<th>Industry</th>
<th>All Types</th>
<th>Horizontal</th>
<th>Vertical</th>
<th>Diversifying</th>
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</thead>
<tbody>
<tr>
<td>Food</td>
<td>36.0</td>
<td>33.0</td>
<td>3.0</td>
<td>0</td>
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<tr>
<td>Drink</td>
<td>52.4</td>
<td>21.0</td>
<td>31.4</td>
<td>0</td>
</tr>
<tr>
<td>Tobacco</td>
<td>5.8</td>
<td>5.8</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Chemicals</td>
<td>64.2</td>
<td>27.2</td>
<td>1.1</td>
<td>35.9</td>
</tr>
<tr>
<td>Metal Manufacture</td>
<td>42.2</td>
<td>30.3</td>
<td>11.9</td>
<td>0</td>
</tr>
<tr>
<td>Non-Electrical Engineering</td>
<td>12.2</td>
<td>7.2</td>
<td>5.0</td>
<td>0</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>9.7</td>
<td>9.7</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Shipbuilding, etc.</td>
<td>24.2</td>
<td>7.0</td>
<td>4.2</td>
<td>13.0</td>
</tr>
<tr>
<td>Vehicles</td>
<td>3.8</td>
<td>4.4</td>
<td>4.4</td>
<td>0</td>
</tr>
<tr>
<td>Metal Goods n.e.s.</td>
<td>2.4</td>
<td>1.4</td>
<td>1.0</td>
<td>0</td>
</tr>
<tr>
<td>Textiles</td>
<td>23.9</td>
<td>23.9</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Leather, etc.</td>
<td>1.0</td>
<td>1.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Clothing and Footwear</td>
<td>4.0</td>
<td>4.0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Bricks, etc.</td>
<td>21.6</td>
<td>17.2</td>
<td>3.1</td>
<td>1.3</td>
</tr>
<tr>
<td>Timber, Furniture, etc.</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Paper, Printing, etc.</td>
<td>32.7</td>
<td>24.7</td>
<td>8.0</td>
<td>0</td>
</tr>
<tr>
<td>Miscellaneous</td>
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<td>2.5</td>
</tr>
<tr>
<td>Unclassified</td>
<td>6.5</td>
<td>0</td>
<td>0</td>
<td>6.5</td>
</tr>
<tr>
<td>Total, all industries</td>
<td>357.1</td>
<td>224.8</td>
<td>73.1</td>
<td>59.2</td>
</tr>
</tbody>
</table>
Appendix F

COMPANIES "ACQUIRING" OR "SUB-ACQUIRING" TEN OR MORE FIRMS,
1919 - 1939

The index cards of the worksheets of series "A" and "B" were searched and all firms which between 1919 and 1939 had "acquired" or "sub-acquired" 10 or more firms (whether or not these were included in the main interwar merger series in Table 8.1 or not) were identified. 71 companies came into this category and these appear in the two lists below. 36 of them, those in the first list, also appear in Appendix D above, being amongst the largest 82 firms in manufacturing industry in 1948. The remaining 35, in the second list, 2 were smaller, varying from Roads Reconstruction at the lower extreme to medium-sized companies such as Allied Ironfounders and Electric and Musical Industries. The left hand column of each list indicates the number of firms which were absorbed by each company between 1919 and 1939 and were included in the main series, and the right hand column adds those which were excluded from the main series (e.g. because they could not be precisely dated or because the acquired company operated abroad). Altogether, the 71 firms in the two lists had between 1919 and 1939 absorbed, directly or indirectly, 1,455 companies and as many as 1,192 of these appear in the interwar merger series. These firms thus acquired an average of 16.8 firms each (20.5 each, if acquisitions not in the series are also included), accounting for 46% of the total firm disappearances by merger between the wars registered in the present study. The majority of the companies appears to have survived to form the nucleus of important postwar firms. However, three of them - Agricultural and General Engineers, Amalgamated Industrials, and Armstrong-Siddeley - are known to have disintegrated, and by 1939 many of their subsidiaries had been dispersed to other firms. The implications of the patterns of merger activity revealed in

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1. For the meaning of these terms, see Appendix D.

2. One of these firms, company "A", cannot be named because of a confidentiality undertaking given by the author to the company concerned.
these lists are discussed further in chapters 8 and 11.
Companies in Appendix D (Large Companies)

<table>
<thead>
<tr>
<th>Name of Company</th>
<th>Total Firm Disappearances accounted for by its &quot;Acquisitions&quot; and &quot;Sub-Acquisitions&quot; in the main merger series</th>
<th>Total Firm Disappearances accounted for by its &quot;Acquisitions&quot; and &quot;Sub-Acquisitions&quot; not in the main merger series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allied Newspapers</td>
<td>30</td>
<td>7</td>
</tr>
<tr>
<td>Ansells</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Associated Newspapers</td>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>Associated Portland Cement</td>
<td>20</td>
<td>3</td>
</tr>
<tr>
<td>Baldwins</td>
<td>9</td>
<td>4</td>
</tr>
<tr>
<td>Beecham Group</td>
<td>16</td>
<td>2</td>
</tr>
<tr>
<td>Bradford Dyers' Association</td>
<td>23</td>
<td>-</td>
</tr>
<tr>
<td>British Match Corporation</td>
<td>12</td>
<td>1</td>
</tr>
<tr>
<td>British Oxygen</td>
<td>12</td>
<td>3</td>
</tr>
<tr>
<td>Charringtons</td>
<td>10</td>
<td>-</td>
</tr>
<tr>
<td>Distillers Company</td>
<td>55</td>
<td>6</td>
</tr>
<tr>
<td>Dunlop</td>
<td>11</td>
<td>19</td>
</tr>
<tr>
<td>Fisons</td>
<td>23</td>
<td>-</td>
</tr>
<tr>
<td>General Electric Co</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Goodlass Wall &amp; Lead Industries</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td>Guest Keen &amp; Nettlefold</td>
<td>12</td>
<td>8</td>
</tr>
<tr>
<td>Imperial Chemical Industries</td>
<td>51</td>
<td>12</td>
</tr>
<tr>
<td>Imperial Tobacco</td>
<td>12</td>
<td>6</td>
</tr>
<tr>
<td>Ind Coope &amp; Allsop</td>
<td>17</td>
<td>2</td>
</tr>
<tr>
<td>Lancashire Cotton Corporation</td>
<td>106</td>
<td>-</td>
</tr>
<tr>
<td>Joseph Lucas</td>
<td>14</td>
<td>1</td>
</tr>
<tr>
<td>Metal Box</td>
<td>18</td>
<td>3</td>
</tr>
<tr>
<td>Morris Motors</td>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>Ranks</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>Beckitt &amp; Colman</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Spillers</td>
<td>16</td>
<td>5</td>
</tr>
<tr>
<td>Stewarts &amp; Lloyds</td>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>Taylor Walker</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Richard Thomas</td>
<td>23</td>
<td>5</td>
</tr>
<tr>
<td>Tube Investments</td>
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<td>1</td>
</tr>
<tr>
<td>Turner &amp; Newall</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>Unilever</td>
<td>32</td>
<td>19</td>
</tr>
<tr>
<td>Vickers</td>
<td>16</td>
<td>-</td>
</tr>
<tr>
<td>Walker Cain</td>
<td>71</td>
<td>-</td>
</tr>
<tr>
<td>Wall Paper Manufacturers</td>
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<td>4</td>
</tr>
<tr>
<td>Wiggins Teape</td>
<td>21</td>
<td>1</td>
</tr>
</tbody>
</table>

Total, 36 companies: 730 139
### Companies not in Appendix D (Smaller Companies)

<table>
<thead>
<tr>
<th>Name of Company</th>
<th>Total Firm Disappearances accounted for by its &quot;Acquisitions&quot; and &quot;Sub-Acquisitions&quot; in the main merger series</th>
<th>Total Firm Disappearances accounted for by its &quot;Acquisitions&quot; and &quot;Sub-Acquisitions&quot; not in the main merger series</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company &quot;A&quot;</td>
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<td>49</td>
</tr>
<tr>
<td>Agricultural and General Engineers</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>Allied Bakeries</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Allied Ironfounders</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Amalgamated Industrials</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Armstrong-Siddeley</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>Barton &amp; Sons</td>
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<td></td>
</tr>
<tr>
<td>British Glass Industries</td>
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<td></td>
</tr>
<tr>
<td>British Plaster Board</td>
<td>18</td>
<td>1</td>
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<tr>
<td>British Ropes</td>
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<td></td>
</tr>
<tr>
<td>J. Brockhouse</td>
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<td></td>
</tr>
<tr>
<td>Card Clothing &amp; Belting</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>Chloride Electrical Storage</td>
<td>15</td>
<td>1</td>
</tr>
<tr>
<td>Combined Egyptian Mills</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>Crosse &amp; Blackwell</td>
<td>8</td>
<td>3</td>
</tr>
<tr>
<td>Doccu</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Electrical and Musical Industries</td>
<td>4</td>
<td>16</td>
</tr>
<tr>
<td>English Clays, Lovering, Pochin</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Federated Foundries</td>
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<td></td>
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<tr>
<td>General Refractories</td>
<td>14</td>
<td>5</td>
</tr>
<tr>
<td>Joshua Hoyle</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Hutchinson</td>
<td>3</td>
<td>12</td>
</tr>
<tr>
<td>Ilford</td>
<td>3</td>
<td>9</td>
</tr>
<tr>
<td>Inveresk Paper</td>
<td>30</td>
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</tr>
<tr>
<td>London Brick &amp; Forders</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Lanbre &amp; Garton</td>
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</tr>
<tr>
<td>Odhams</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Pinchin Johnson</td>
<td>9</td>
<td>6</td>
</tr>
<tr>
<td>Roads Reconstruction</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>Rootes</td>
<td>10</td>
<td>1</td>
</tr>
<tr>
<td>Sheffield Steel Products</td>
<td>17</td>
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</tr>
<tr>
<td>United Caterers</td>
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<td></td>
</tr>
<tr>
<td>United Cattle Products</td>
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<td></td>
</tr>
<tr>
<td>Thos. W. Ward</td>
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<td>2</td>
</tr>
<tr>
<td>Yorkshire Amalgamated Products</td>
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<td></td>
</tr>
<tr>
<td><strong>Total, 35 companies</strong></td>
<td><strong>462</strong></td>
<td><strong>124</strong></td>
</tr>
</tbody>
</table>

**GRAND TOTAL, 71 companies**

|                       | 1,192 | 263 |
Appendix G
ECONOMETRIC MODELS OF INTERWAR MERGER ACTIVITY

This appendix gives details of the variables used and the parameters estimated in the various models of merger activity discussed in Chapter 10.

Four indicators of merger activity were defined:

\( M_d \): annual firm disappearances by merger, based on the main series in Table 8:1. The total for 1929 was reduced from 308 to 238 to eliminate the exceptional occurrence of the formation of the Lancashire Cotton Corporation in that year.

\( M_v \): annual values of firm disappearances for merger for which value data was available, based on the main series in table 8:1. In order to reduce the distortion in individual years caused by exceptionally large mergers, the totals for 1925 and 1926 were reduced by the values of the Distillers and I.C.I. mergers, respectively.

\( M_q \): quarterly firm disappearances by merger, based on the main series in appendix B. The quarterly series is based on a less reliable sample but allows the number of observations to be increased.

\( M_o \): growth by merger as a proportion of "total investment expenditure", based on the series in Table 8:1 above. In contrast to \( M_v \), this series is not adjusted to eliminate extreme values in 1925-6.

Several other indicators of merger activity (including uncorrected number and value series, and series based on series "A" only or series "B" only or on mergers appearing in both series "A" and series "B") were tried in an experimental set of regressions, but in each case were found to produce less satisfactory coefficients of correlation than the chosen variables. There are sound reasons based both on the quality of the data and the hypotheses tested for preferring the \( M_d \) variable, since it indicates the
number of decisions by acquiring or consolidating firms to accept merger. Though it would be desirable, for various purposes, to separate into various categories—quoted and unquoted, or horizontal and other acquisitions for example—this is not possible with the present data. However, the aggregates are probably sufficiently homogeneous to be used as a meaningful dependent variable.

The independent variables were:

S: Moodies Services Ltd. Share Price Index. (For the quarterly series, an unweighted arithmetic mean of the monthly index was used.)


A: Business Activity: the Economist index. This was used as a quarterly real production variable. It consists of a weighted geometric mean of 14 statistical series including employment, bank clearings, buildings, transport, and consumption. The base of the series was changed in July 1936 and for the purposes of the present study the two series were spliced at January 1935. For further details of the index see Economist Monthly Trade Supplement, passim, especially 29 June 1935, p. 45. The series is available only for the first quarter of 1920 to the second quarter of 1939.


1. Though, for a contrary view, suggesting that a relative measure, such as $M$, is the more relevant one for testing hypotheses about the macroeconomic determination of merger activity, see Penrose, Theory of the Growth of the Firm, pp. 240-2.

U: Unemployment: from London and Cambridge Economic Service, *Key Statistics*, Table E. The series were spliced at 1922 for the purposes of the present analysis.

The parameters of 15 equations were estimated and these are reproduced below. The superscripts by the dependent variables indicate the time period for which the analysis was carried out and are determined by the periods for which data on the independent variables were available; except in equations (7) and (8), where they merely indicate that a shorter time period was used because it improved the goodness of fit.¹

\[ M_{d1919-1938} = -169 + 4.8S - 3.1W + 3.3P \tag{1} \]
\[ R^2 = 0.76 \quad DW = 1.1 \quad SE = 30 \]

\[ M_{d1919-1939} = -231 + 3.5S + 3.8P \tag{2} \]
\[ R^2 = 0.73 \quad DW = 0.76 \quad SE = 31 \]

\[ M_{d1919-1939} = -0.4 + 3.6 \Delta S + 4.7 \Delta P \tag{3} \]
\[ R^2 = 0.81 \quad DW = 2.3 \quad SE = 27 \]

¹ Other equations were also re-estimated omitting the years 1919, 1920 and 1939 in order to eliminate the effects of exceptional postwar boom and war preparations periods, but the goodness of fit was significantly improved only in the case of equations (7) and (8).
\[ M_{q}^{1920-1939} = -5.6 + 0.6S - 0.03A \]
\[ R^2 = 0.20 \quad DW = 0.73 \quad SE = 13 \]

\[ M_{q}^{1920-1939} = -1.1 + 0.7S - 0.06A_{t-1} \]
\[ R^2 = 0.24 \quad DW = 0.86 \quad SE = 12 \]

\[ M_{q}^{1920-1939} = 1.4 + 0.7S - 0.08A_{t-2} \]
\[ R^2 = 0.31 \quad DW = 1.0 \quad SE = 11 \]

\[ M_{q}^{1921-1938} = -9.3 + 0.79S - 0.06A \]
\[ R^2 = 0.40 \quad DW = 1.3 \quad SE = 10 \]

\[ M_{q}^{1921-1938} = -18 + 0.63S \]
\[ R^2 = 0.39 \quad DW = 1.2 \quad SE = 10 \]

\[ M_{v}^{1919-1938} = -35,278 + 1,241S - 1,308O + 954P \]
\[ R^2 = 0.69 \quad DW = 1.1 \quad SE = 9,963 \]
\[ \Delta M_{1919-1938} = -2.498 + 1.118 \Delta S - 722 \Delta O + 590 \Delta P \quad \cdots \cdots (10) \]

\[ R^2 = 0.42 \quad DW = 1.03 \quad SE = 10,177 \]

(Partial Correlation Coefficient of \( \Delta M \) and \( \Delta S \) = 0.70)

\[ \Sigma_{1920-1938} = 27 + 1.18 - 1.90 + 0.008 \rho \quad \cdots \cdots (11) \]

\[ R^2 = 0.51 \quad DW = 1.56 \quad SE = 7.2 \]

\[ \Sigma_{1920-1938} = 28 + 1.18 - 1.90 \quad \cdots \cdots (12) \]

\[ R^2 = 0.51 \quad DW = 1.57 \quad SE = 7.0 \]

\[ \Sigma_{1920-1938} = 48 + 0.97 S - 1.82 O - 0.13 C \quad \cdots \cdots (13) \]

\[ R^2 = 0.56 \quad DW = 1.59 \quad SE = 6.9 \]

\[ \Sigma_{1920-1938} = -6.6 + 1.7 B \quad \cdots \cdots (14) \]

\[ R^2 = 0.50 \quad DW = 0.99 \quad SE = 41 \]

\[ \Sigma_{1919-1939} = 228 - 8.6 U \quad \cdots \cdots (15) \]

\[ R^2 = 0.48 \quad DW = 0.81 \quad SE = 43 \]
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This bibliography includes all the works mentioned in the footnotes to the text and also a selected number of additional publications which were particularly useful in the study of interwar merger activity. They are arranged in three sections: manuscript sources, interviews, and other (mainly printed) sources. For a supplementary list of books used in the compilation of series "A" see Appendix A.

A. Manuscript Sources

i) Public Record Office

Board of Trade Papers (P.R.O. B.T.)

Cabinet papers (P.R.O. CAB.)

ii) Other Archives and Private Collections

[Note. Some archival collections listed still form part of the working records of companies or are in the hands of private individuals. A listing in this bibliography should not be taken to imply public access.]

Asquith Papers (Bodleian Library, Oxford)

Baldwin Papers (University Library, Cambridge)

Bankers Industrial Development Company and Securities Management Trust Archives (Bank of England, London)

Cole Papers (Nuffield College Library, Oxford)

Imperial Chemical Industries Archives (including the archives of Nobel Industries, Brunner Mond, United Alkali, British Dyestuffs, and Finance Corporation of Great Britain and America)

(I.C.I., Millbank, London)

Lancashire Cotton Corporation Archives (Courtaulds Ltd., Manchester)

Management Research Group Papers, see Ward Papers

Mond Papers (1st Lord Melchett) (C/o. Lord Melchett, British Steel Corporation, London)


Post Office Corporation Archives (Post Office Corporation, London)

Simon Papers (Lord Simon of Wythenshawe) (Central Library, Manchester)

Vickers Archives (Vickers Ltd., Millbank, London)

Ward Papers (including Management Research Group Papers) (C/o. Harry Ward, 4 Lindsay Close, Epsom, Surrey)
B. Interviews

[The author arranged interviews in 1969 and 1970 with a number of men who had been active in industrial policymaking and related activities between the wars. In this list, the principal role of each interviewee for the appropriate period is indicated in brackets after his name.]

Lord Hurcomb (Permanent Secretary, Ministry of Transport, 1927-1937)
Professor J.H. Jones (Professor of Economics, University of Leeds, 1919-1946)
A.W. Shillady (financial journalist)
Viscount Swinton (formerly Sir Philip Lloyd-Greame) (President of the Board of Trade, 1924-1929)
Colonel Lyndall F. Urwick (rationaliser, joint founder of Urwick Orr and Partners)
Harry Ward (organiser-co-ordinator of Management Research Group No. 1.)
Sir Laurence Watkinson (civil servant, Board of Trade, 1931-1946)
Dr. Harold Whitehead (management consultant)
Sir Horace Wilson (Chief Industrial Adviser to H.M.G., 1930-1939)
Arthur P. Young (Chairman, Confederation of Management Associations, 1938-1940)

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