

ECONOMIC THEORY AND MERGER BEHAVIOUR

BY

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# ECONOMIC THEORY AND MERGER BEHAVIOUR

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## SUMMARY

### Aim of the Research

The purpose of the thesis was to seek a general explanation of merger activity.

### Methodology

A multitude of explanatory theories existed and it was deemed necessary to determine explicitly the criterion to be used in developing a general theory of mergers. An analysis of major categories of merger theory indicated that the analysis of motive is essential to the provision of an adequate explanation.

The theory of the managerial firm was chosen for analysis since it is both logically prior to market explanations and richer in motivational possibilities.

Difficulties in testing a theory had been exposed by "growth of knowledge" methodologists. It was decided to utilise the propositions for theory testing and development proposed by Lakatos.

Two samples of firms were drawn: quoted companies engaged in the supply of consumer goods from 1970 to 1978, and 100 firms engaged in merger activity in 1978 or 1979 and a control group of 50 firms not involved in mergers. Univariate statistical analysis, multiple regression and discriminant analysis were then involved in determining the financial and structural characteristics of firms with respect to merger behaviour.

## Findings

The claim by Lakatos that knowledge could be advanced in a rational and progressive manner was not substantiated.

The view that growth and profit are opposing aims of the managerial firm was rejected.

Takeover victims could not be identified with failing firms.

Shareholders do not benefit from increasing growth and profits proportionately.

The theory of the managerial firm (distinguished from that found in the literature) receives some support.

Shareholders seem more concerned with security than is compatible with wealth maximisation theory.

Merger activity is best understood as a normal form of investment activity.

The development of merger theory requires further analysis of the growth strategies of firms in oligopolistic markets under uncertainty.

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## INTRODUCTION

The preliminary reading for this thesis was begun in 1973, and at that time merger activity had accelerated from modest beginnings in the 1950s through a decade of increasing activity in the 1960s to unprecedented heights by 1972 and 1973, whether one measured the impact in terms of numbers or the value of assets acquired.

This had been accompanied by evidence of increasing concentration in many manufacturing industries, and the demonstration that the 100 largest enterprises controlled 41% of manufacturing net output (Prais, 173/1976) by 1972 led to the conclusion that a major structural change was taking place in British industry. Various research studies indicated that mergers and acquisitions were responsible for about 50% of the change in concentration over the 1960s (Aaronovitch and Sawyer, 27/1975 and Prais, 173/1976) and that amalgamations had become the major source of the death of firms in the 1960s (Singh, 198/1971).

The motive for undertaking the research was in the first place to seek the underlying causes of this important factor in industrial change and was also partially inspired by the oft quoted dictum of J. Markham in an earlier survey of merger activity in the U.S.A. that "the paths of economic theory and merger literature have rarely crossed" (Markham, page 143, 142/1955).

Examination of the evidence, however, led to contradictory conclusions to those implied by Markham's dictum. The situation was not one of an absence of hypotheses concerning why mergers and takeovers occurred, but rather of discovering a plethora of theories. The problem was not to seek to develop some initial explanatory theory,

but rather to find some way of imposing order upon a series of different conceptual frameworks. Why should any one framework be superior to any other? How did one distinguish between theories in order to determine that one theory was likely to be more fruitful in explaining the behaviour?

At the same time, it became clear that answers to this sort of problem were being attempted by a group of philosophers working on the problems of the growth of knowledge in the physical sciences. Taking the undoubted success of the physical sciences in gaining increasing understanding of physical reality, a number of attempts were being made to explain how these successes had been gained. Popper (171/1963), Lakatos (122/1978) and Laudan (124/1977) were expressly involved in searching for methodological rules which would enable theory development to be carried out in a rational and progressive way. The situation was not lacking in controversy, and there was opposition to the view that the path of scientific progress could be made subject to rational processes. This opposition was prominently lead by Kuhn (119/1962) who argued for the significance of the social environment in which scientists worked, and Feyerabend (68/1975) who cast doubt on whether theories could ever be successfully compared because the meaning of observation statements intended to test the theory were inherently linked to the theory itself, thus making theories "incommensurable".

Despite the obvious differences between the natural sciences and a social science such as economics, it was considered that Lakatos's formulation of how to evaluate theories (in which he sought to counter many of the criticisms made of the earlier work of Popper) could be



utilised in this research in order to find a way through the maze of merger hypotheses and hopefully make progress in the understanding of merger behaviour. The Lakatos propositions were, briefly :-

- a) That no theory ever stands by itself but is a part of a larger network of theories (what he termed a "research programme").
- b) That no theory is ever evaluated in isolation but must be analysed in terms of a rival theory.
- c) That the hallmarks of a good theory are the way it can accommodate the facts already explained by an earlier theory and at the same time can predict "novel facts" not dealt with by the competing explanations.

Initially there was no commitment to any particular framework for the analysis of merger behaviour. One common method of analysis is to consider the form of merger, investigating the nature of horizontal, vertical and conglomerate amalgamations. Another useful approach is to examine the gains from merger, categorising them as either "real" (i.e. the appropriation of physical assets) or financial (i.e. exploiting discrepancies in the valuation of assets).

Both forms of analysis imposed order upon difficult material, but mergers in practice are made up of a medley of aims and intentions which do not naturally fit into such classifications. Other modes of attack upon the problem, such as (a) case studies, (b) technical analysis of such matters as bidding procedures or the effect of mergers on share valuation, or (c) the asking of specific questions on such matters as welfare implications, the profitability of

mergers or their contribution to concentration, lack generality and do not directly deal with problems of causation.

It became clear that the analysis of cause in the social sciences cannot be divorced from the problem of the purpose of the activity. Analysis takes two major forms, and there is constant controversy about the value of the two procedures. In sociology, holistic theories are developed under the structural/functionalist paradigm which strive to explain behaviour in terms of social forces. The method is not unknown in economics, where Marxist theory adopts this system of explanation. Traditionally, the bulk of economic theory has been built on "methodological individualism", that is, that a limited range of motivations has been ascribed to participants in the economic system (e.g. consumers, producers, Government, etc.) and from these motivations rational arguments are used to justify theories governing interactions. This argument is the basis of the conclusion of Chapter 2 that a motivational theory of causation is the surest way of discriminating between theories of merger behaviour.

Since the 1920s the neo-classical theory of the firm has suffered some severe setbacks. The growth in size of firms (and other economic institutions) has increased the complexity of the relationships, permitted greater discretion to be exercised and also increased the uncertainty of the environment. As a result, difficulties in defining the constraints under which firms operate (which is necessary to any quantitative and determinate means of analysis of firm/market relationships) has forced attention to be concentrated on the actual firm as against any ideal model of an average enterprise. This has made the study of the motivation underlying a firm's behaviour even more significant.

Since empirical research has cast doubt upon the profitability of merger activity, and analysis in a perfect market context had found mergers to be an inadequate way of combining earning streams compared with those open to the individual investor (see Alberts, 29/1966), theories based on profit maximising behaviour faced a serious anomaly; it was therefore the growth theory of the managerial firm which was selected as the "research programme" to be followed.

The work of Robin Marris (144/1963, 145/1964 and 146/1971) was used as the most adequate representation of this type of theory. This was not only because the theory had been worked out in Marris in greater detail than in other works, nor because a theory of takeovers was intrinsic to his account, but because, unlike other growth theorists, such as Baumol (36/1962) and J.H. Williamson (223/1966), his account was cast in terms of long run policy decisions. Merger behaviour is obviously a type of investment activity which can only be understood by assessing the effect of asset accumulation over a long period of time. Chapter 3 concerns itself with the growth theory of the firm. It especially seeks to deal with the growth maximisation theory as a competitor in explaining merger behaviour to the profit maximising theory, and thus act as a test for the Lakatos proposition that only such theory contrast permits decisions on the value of a theory to be made.

In order to assess the growth maximisation theory as a source of understanding of merger behaviour, two samples of firms were drawn and subject to statistical analysis. The overall purpose of the empirical analysis was to test how successfully certain chosen structural and financial characteristics of acquired and acquiring companies conformed to that theory.

The first sample of firms consisted of all independent companies, quoted on the Stock Exchange in 1970, contained within the categories devoted to the production of Consumer Durable and Non-Durable Goods in the Stock Exchange Year Book for that year. All firms who survived to 1978 were analysed over the nine year period and the fate of firms who failed to survive was also traced. The purpose of this sample was to survey the relevant characteristics and experience of these firms over a lengthy time span. Since taken-over firms vanished from the sample, only limited comparisons could be made of victim firms, and the main conclusions of this group relate to acquiring companies.

In order to provide further analysis of the nature of acquired companies, a further sample of industrial/commercial enterprises involved in merger activity in 1978 and 1979 was taken. This consisted of 50 acquiring companies, 50 acquired companies and a control group of 50 enterprises which were not involved in merger activity.

Chapter 1 provides some historical background concerning merger activity prior to 1970 and also describes some of the trends in total activity which occurred during the sample period up to 1978. A subsidiary aim of this Chapter is to demonstrate that the samples chosen were representative ones insofar as they reflected the general experience of the period.

The concerns of Chapters 2 and 3 are with two inter-related themes. The first of these is the manner in which merger theories have been employed as analytical "tools" in the research literature, culminating towards the end of Chapter 3 in a detailed examination of motivational classifications of the activity with special reference to the managerial theories of the firm. But this investigation raises the issue of how useful the various conceptual schemes of analysis have been, or

potentially could be. This problem then begs an answer to the question of how we should define "usefulness" in such a context, and leads naturally to the recent controversies in the methodological literature of whether there are rational strategies by which progress may be assured in scientific research, and by analogy research in the social sciences. Therefore interwoven into the two chapters is the second major focus of interest, which is the extent to which philosophical theories of the growth of knowledge in science may be employed fruitfully to discriminate between theories of takeover activity in order to decide which of the theoretical schemes of analysis afford the best opportunity to contribute to the development of understanding of merger behaviour.

Chapters 4 and 5 use univariate and multivariate statistical methods respectively to examine the profile of acquiring, acquired and the control groups of firms, and use the results to test the growth theory of the firm as a motivational theory of use in explaining merger behaviour.

Chapter 6 presents the conclusions of the thesis with regard to the value of the growth maximisation hypothesis in understanding merger behaviour and the worth of the Lakatos prescriptions as a guide to theory development.

CHAPTER 1

AN ANALYSIS OF MERGER ACTIVITY

## 1.0. AIM OF THE CHAPTER

The purpose of this chapter is twofold. First, it is to examine the record of takeover activity in the period 1960 to 1978. This will provide the historical setting for the study and permit explanation of the main features of merger activity. Secondly, it will describe the sources of data used in the research. By the juxtaposition of these two themes it is hoped to demonstrate the appropriateness of the data sources and thus provide a justification of those sources in the more detailed analysis of takeover behaviour to be found in the succeeding chapters.

## 1.1. INTRODUCTION

### 1.1.1. Definitions

The terms "mergers" and "takeovers" occur frequently in the literature as almost interchangeable words. This is technically incorrect. Takeover refers to a situation where one firm purchases another firm from its shareholders and control of the enlarged company thus brought into being lies with the acquiring firm. A merger arises when two existing companies are brought together to form a new entity, jointly controlled by the two partners according to the agreed terms of the amalgamation. In practice, the distinction is a matter of legal form and not a description of the behaviour involved. Mergers are often

a kindly way of making a takeover and a takeover bid is frequently welcomed and even invited in some instances by the acquired firm. Consequently, within this study no importance will be attached to the difference between the two methods of uniting companies. Both methods will be incorporated within the general classification of acquisitions. Within the text the terms merger and acquisition will be used as synonyms. It will be left to the context of the passage to indicate those instances where the distinct legal forms are intended.

As an example of the lack of essential meaning in the use of the terms "merger" and "takeover", one may instance the merger in 1968 between the General Electric Company and the English Electric Company. As is made clear in the account given by Jones and Marriott (103/1970) the English Electric Company chose to merge with the General Electric Company in order to avoid an unwelcome takeover bid by Plessey. The merger was a takeover in all but name, as was shown by the fact that the new name of the joint firms "The General Electric and English Electric Companies" which was established in 1968 had reverted to "The General Electric Company" within two years.

Even as a legal form, mergers are a very small percentage of all acquisitions. Evidence of this is provided in Table 1.1.



TABLE 1.1.

RELATIVE PROPORTIONS OF MERGERS AND TAKEOVERS 1970-1978  
(INDUSTRIAL AND COMMERCIAL COMPANIES)

<u>Year</u>	<u>Number of Acquisitions (including Mergers)</u>	<u>Number of Mergers</u>	<u>Number of Mergers as a Percentage of Total Acquisitions</u>
1970	793	6	0.8%
1971	884	0	0%
1972	1,210	7	0.6%
1973	1,205	2	0.2%
1974	504	1	0.2%
1975	315	3	1.0%
1976	353	1	0.3%
1977	481	2	0.4%
1978	567	3	0.5%
	<u>TOTALS</u>	<u>25</u>	<u>4.0%</u>
	<u>AVERAGE</u>	<u>2.8</u>	<u>0.4%</u>

SOURCE: Business Monitor M Q7. 4th Quarter 1979.

### 1.1.2. Early History of Merger Activity

The history of acquisition activity in the United Kingdom prior to 1960 is only relevant to this study insofar as certain features which can be recognised in the earlier period recur. It is therefore worthwhile to give a brief summary of that history and to indicate the nature of these features. The best and most comprehensive coverage of this period is to be found in Hannah (85/1974) and Hannah and Kay (86/1977). An excellent survey of the American experience between 1895 and 1956 is to be found in Nelson (164/1959).

Data collected by Hannah and Kay and Nelson on annual firm disappearances due to merger indicate that merger activity has followed a coincidental cyclical pattern in both the United Kingdom and the U.S.A. This activity reached a simultaneous peak in 1899 and 1929 in both countries, and troughs occurred in 1909 and 1940 (U.K.) and 1915 and 1939 (U.S.A.). The latest upturn in the frequency of acquisitions began in 1950 in both cases. We can see from our own data (Table 1.2, page 23) that the U.K. series for industrial and commercial companies reached its pinnacle in 1972, while data produced by the American Federal Trade Commission covering large acquisitions (large being defined as firms with assets over 10 million dollars) in manufacturing and mining reached its climax

in 1970. In the U.K. the line has climbed again to reach a total of 567 mergers and acquisitions in 1978 and fallen back to 452 by 1981. This suggests this mode of firm development may be diminishing in importance.

The similarities should not, however, blind us to important differences between the experience of the two nations. The scale of acquisition frequency was much greater in the American situation, both in 1899 and 1929. In the United States, 979 firms disappeared through merger in 1899, while the number of firms vanishing through merger in the United Kingdom was 255. Moreover, whereas in 1929 Nelson's figures indicate just over 1,000 companies being acquired, the comparable figure for the United Kingdom was 431 in 1929. A trend line drawn through the American data between 1895 and 1950 would be approximately straight, while the same line applied to the U.K. experience would be monotonically increasing from a low level.

Some concept of the change in scale of the U.K. experience can be gathered from comparing Hannah's estimate (85/1974) that during the whole of the period 1880-1918 there were 1,093 mergers, compared with the 1,210 acquisitions reported for the single year of 1927 by the Business Statistics Office. Care should be taken in judging this comparison. In the earlier period mergers often involved the consolidation of a large number of companies. For example, the Salt Union in 1888 involved in one single merger 63 firms, and between 1890 and 1899 there were

six mergers where 20 or more firms were consolidated into a single entity, and 28 embracing 5 or more firms. Both Hannah's and Weston's figures show that multi-firm mergers declined sharply from the turn of the century onwards and the later data quoted refers to single firm acquisitions.

Both Hannah and Weston confirm the importance of the consolidation movement in the turn of the century merger episode and its decline over the course of the century. What is referred to, however, is the simultaneous consolidation of a large number of firms at one moment in time. Such consolidations now occur in a sequential fashion though the ultimate effect is not very different. As an example taken from a multitude of possible such examples, Whitbread and Company made the following acquisitions over the time span 1958 to 1969 :

- (a) Scarsdale Brewery (1958)
- (b) Tennant Brothers (1961)
- (c) Norman and Pring (1962)  
Starkey Knight (1962)  
Flower (1962)
- (d) Dutton's Blackburn (1963)  
J.Nimmo (1963)
- (e) West Country Breweries (1964)
- (f) Thresher and Company (1965)  
E. Lacon and Company (1965)

- (g) Rhymney Breweries (1966)  
James Thomson Company (1966)
- (h) Threlfalls Chesters (1967)  
Evans Evans Bevan (1967)  
Archibald Campbell (1967)  
Fremlins (1967)
- (i) Bentley (1968)  
Richard Whitaker (1968)
- (j) John Young (1969)  
R.White and Sons (1969)  
Strong of Romsey (1969)

(Source: K.H.Hawkins and C.L.Pass (90/1979).

The strongest contrast between early American and British experience is that not only was the scale different but that the British mergers were heavily concentrated in the sectors of textiles and brewing (Hannah: 85/1974), whereas it was widely spread among many industrial groups in the U.S.A. (Nelson:164/1959). Hannah, in his 1974 article, proposed that the difference is due to the lack of monopoly regulation by Government in the U.K. in comparison with the U.S.A. where control of the situation commenced with the Sherman Act of 1890 and was reinforced with the passing of the Clayton Act and the Federal Trade Commission Act in 1914. The first legislation of this nature in the United Kingdom was the Monopolies and Restrictive Practices

Act of 1948; prior to this, reliance was placed on the common law doctrines on restraint of trade and conspiracy. One possible hypothesis to explain the acceleration of acquisitive behaviour in more recent times in the British Isles is that firms achieved co-operative control of markets through cartels and price-fixing agreements in earlier times which method was increasingly denied them latterly, especially since the passage of the Restrictive Trade Practices Act of 1956.

Two features of this early history need to be singled out for attention, since they reappear in the modern data. The first of these is the international occurrence of the phenomena. The close parallels between the cycles of merger frequency in the U.K. and the U.S.A. are clear. The sharp upward trend in merger activity following the Second World War can also be noted with respect to the Netherlands, Sweden, West Germany, Australia, France and Canada. Many commentators have been lead by this to suggest that there may be a strong relationship between the trade cycle and merger activity, see for example J.J.McGowan (150/1971).

The second aspect which is worth remarking is the fact that merger activity throughout the whole period appears to correlate highly with rising stockmarkets, although it is an open question whether the true correlation is with the increase in share prices or with the buoyant

investment conditions implied by the increase in share prices.

Nelson (164/1959) observes:-

"Comparison of the timing of the merger cycles with cycles in other specific economic series permitted identification of those elements in a general business cycle that might be directly related to merger activity. Peaks in the expansion of merger activity were found to be closest in timing to those in industrial stock prices, stock market trading, and new business incorporations. Mergers were found to lead by a substantial interval the peaks in industrial production and the reference cycle."

Hannah (85/1974) echoes this view with respect to British circumstances:

"Inspection of the data on merger peaks and troughs and comparison with the peaks and troughs of the indices of share prices and manufacturing production tend to suggest that both were positively related."

His calculations show a simple correlation of 0.79 between numbers of mergers occurring in 1880 to 1918 and an index of share prices, and 0.54 with respect to numbers of mergers over that time and an index of manufacturing productions.

Using data on expenditure on acquisitions for British Industry from 1949 to 1966, Professor Verma (215/1972) found that the index of industrial production explained a large part of variation in merger activity. The share price index was, however, found to be a less important variable.



## 1.2. RECORD OF ACQUISITIONS 1960 TO 1978

### 1.2.1. Sources of Data

The research which forms the basis of this study is limited to acquisitions which took place between 1970 and 1978. It is based on two samples, the first being all independent companies in the Durable and Non-Durable Consumer Goods Category recorded in the Stock Exchange Year Book for 1970 which traces the acquisitions occurring between 1970 and 1978, and the second which considers a group of takeovers which took place in 1977 and 1978. Further details of these samples are contained in a later section of this chapter. Nevertheless, it was considered appropriate to use Government statistics to display a longer run of figures commencing in 1960 for two reasons:-

- (a) to permit analysis of a longer time sequence in order to examine the characteristics of takeover activity in relation to trends in that activity;
- (b) to demonstrate that the samples used are fairly representative of the current takeover situation.

Since the publication of the Business Monitor "Acquisitions and Mergers of Industrial and Commercial Companies" in May 1971, there has been an extensive series of statistics available on a quarterly basis covering acquisitions by industrial and commercial companies in

the United Kingdom. This includes somewhat more limited information on takeovers and mergers by U.K. companies of foreign companies and the acquisition of U.K. companies by foreign companies. Acquisitions by financial companies such as insurance and banking are not included, although details of these can be found in the Central Statistical Office's monthly publications "Financial Statistics". Prior to this the longest consistent series on acquisitions is derived from the Department of Trade and Industry (as it then was) analysis of quoted company accounts stretching back to 1954. Details of merger activity are to be found prior to 1971 in various editions of "Economic Trends" and the Board of Trade Journal (now entitled "British Business"). Certain changes in definition and scope of the statistics have occurred between 1960 and 1978, but fortunately the third quarter issue of the Business Monitor for 1971 has provided a linked series going back to 1960. A discussion of the changes in the series prior to 1969 (which was the time of the last major change in this series) can be found in "Trade and Industry" in the edition of the 26 August 1971 (24/1971).

In considering the 18 years of merger activity, it should be noted that there was a serious change made in 1969 to the way in which the data was collected. Before that date the series was based on the analysis carried

out by the Board of Trade of public companies quoted (except for a few important exceptions) on a United Kingdom Stock Exchange. This analysis related to companies engaged mainly in the United Kingdom in manufacturing, distribution, construction, transport and certain other services. Companies whose main interests were in agriculture, shipping, insurance, banking, finance and property and those operating wholly or mainly overseas were not included. From 1961 the population was confined to quoted companies with assets of £0.5 million or income of £50,000 or more per year.

From 1969 onwards, mainly in order to overcome the delays imposed on the publication of results by variations in accounting periods and their reporting, the figures are now based on reports in the financial press concerning industrial and commercial companies. As a result, the data is much more up-to-date, covers a wider range of firms, and relates to the calendar year and not the variable accounting year. Small takeovers which do not receive a mention in the press are missed by this system.

In order to indicate the effect of the change, it will be observed in Tables 1.2. and 1.3. that two figures are quoted for the number of acquisitions in 1969. This is to allow the reader to judge the impact of the different methods of collecting the information. Whether in fact

this is useful illustration of the result of the varying methods depends on the extent to which 1969 was a representative year. It can be seen from the table which follows (Table 1.2.) that the number of acquisitions based on press reports in 1969 was lower than those derived from the analysis of company accounts in that year. Since the new series was claimed to have a wider coverage than the previous one, this claim is not entirely supported in practice for this year. If one compares the two 1969 figures for acquisition expenditure, it can be seen that the revised figure is 15% greater than the earlier one. This suggests that the analysis of company accounts included a large number of very small firms that were acquired that would not normally attract the attention of newspapers and journals. The later figure is therefore probably a better guide to the behaviour of medium sized to large enterprises.

Tables 1.2. and 1.3. (following) present the data in two forms. One related to the count of the number of firms involved, the other to the expenditure on acquisitions and mergers. By comparing these two tables it is possible to perceive not only the changes in intensity of acquisitions from year to year but also the extent to which it involved large and small sizes of enterprises. Sufficient has already been said about the manner in which the number of

TABLE 1.2.

ACQUISITIONS AND MERGERS OF INDUSTRIAL AND COMMERCIAL COMPANIES 1960-1978

<u>YEAR</u>	<u>TOTAL NUMBER OF ACQUISITIONS AND MERGERS</u>	<u>ACQUISITIONS</u>	<u>MERGERS</u>
1960	739	736	3
1961	639	632	7
1962	640	636	4
1963	888	885	3
1964	940	939	1
1965	1,000	995	5
1966	807	805	2
1967	763	763	-
1968	946	942	4
1969	906	904	2

CHANGE OF SERIES FROM ONE BASED ON QUOTED COMPANY ACCOUNTS TO ONE DRAWN FROM PRESS REPORTS ON ALL INDUSTRIAL AND COMMERCIAL COMPANIES.

1969	846	844	2
1970	793	787	6
1971	884	884	-
1972	1,210	1,203	7
1973	1,205	1,203	2
1974	504	503	1
1975	315	312	3
1976	353	352	1
1977	481	479	2
1978	567	564	3

SOURCES: BUSINESS MONITOR M7  
TRADE AND INDUSTRY FOR 1960-1964.

TABLE 1.3.

EXPENDITURE ON ACQUISITIONS AND MERGERS OF INDUSTRIAL AND COMMERCIAL  
COMPANIES 1960-1978  
(£ million)

<u>YEAR</u>	<u>TOTAL NUMBER OF ACQUISITIONS AND MERGERS</u>	<u>ACQUISITIONS</u>	<u>MERGERS</u>
1960	358	338	20
1961	521	368	153
1962	370	336	34
1963	352	329	23
1964	505	502	3
1965	517	507	10
1966	500	447	53
1967	822	822	-
1968	1,946	1,774	172
1969	935	927	8

CHANGE OF SERIES FROM ONE BASED ON QUOTED COMPANY ACCOUNTS TO ONE DRAWN FROM PRESS REPORTS ON ALL INDUSTRIAL AND COMMERCIAL COMPANIES.

1969	1,069	1,061	8
1970	1,122	1,080	42
1971	911	911	-
1972	2,532	2,523	9
1973	1,304	1,302	2
1974	508	500	8
1975	291	285	6
1976	448	448	-
1977	824	794	30
1978	1,140	1,090	50

SOURCES: BUSINESS MONITOR M7.  
TRADE AND INDUSTRY FOR 1960-1964.

acquisitions are identified in the statistics. Some further detail is, however, required in respect of the expenditure on acquisitions and mergers.

The post-1969 series relates to expenditure on the company acquired using market values, that is the cash paid or the market price at the date of issue of shares or loan stock (including the value of warrants to subscribe for issues of ordinary shares). In some cases market values are not available because the company taken over is unlisted, in which case the net book value of the acquired company is utilised. Where payment is made over a period, the full value is recorded in the period when the transaction was finalised. However, it should be noted that this is not the same as an estimate of the value of a business taken over. In many cases an acquiring firm will have a stake in a potential victim prior to the time of making a bid. Under the rules established by the Panel on Takeovers and Mergers, a firm may acquire up to 30% of the shares carrying voting rights of a company without being required to make a full unconditional offer for that company as a whole (Rule 34, City Code on Takeovers and Mergers (9/1981)). Such a holding enables a predator company to monitor the performance of a potential victim, even to the extent of gaining a seat on the Board of Directors, and thus gaining detailed information. It is

in fact a fairly common practice, especially where motives for acquisition of a company may relate to gaining possession of a customer or supplying firm as a trade investment in order to establish a relationship with the firm in question as an associate company.

In the earlier period up to 1969, the valuation was based similarly on market value excluding any previous investment. Where such a value was not available, as in the case of unlisted companies, then the estimate is based on the nominal value of the shares acquired.

The timing of the report was in the original series dependent on the date of the publication of accounts. After the revision it is related to the date at which a bid is declared unconditional. Since some bids turn into long-running battles and last for up to six months, there is often a great difference between the date at which an offer is first made and the time of its acceptance.

There is a dissimilar manner of valuing mergers in the old and new series. Prior to 1969 the merger of two companies A and B in order to form C was treated as an acquisition by C of A and B. Post-1969 a merger of A and B to form C is treated as an acquisition by the larger company (let us assume it is A) of B (assumed to be the smaller company), and therefore the valuation entered into the report is of B only. <sup>(1)</sup> This could make a

(1) Board of Trade Journal "Acquisitions and Mergers of Companies in 1968" 14 March 1969. (5/1969).



considerable difference to the figures for expenditure on acquisitions. Consideration of the expenditure figures in Table 1.3 for mergers (strictly defined) shows that either there were much larger firms involved in merging between 1960 and 1969 in comparison with the following period up to 1978, or that one is witnessing a change in the way data is handled, and on the basis of this paragraph it is probable that the latter view is the correct one.

### 1.2.2. Analysis of Data

Consideration of Table 1.2. shows that, from 1960 to a peak of 1,210 total acquisitions in 1972, and 1,205 acquisitions in 1973, there has been a steady rise in the number of acquisitions occurring. The trend line over this period possesses a linear regression coefficient of 29.3, indicating that there was an average year by year growth of 29 additional acquisitions as each of the 14 years passed, or alternatively that there was a 50% increase in acquisitions from about an average of 660 per year in 1960 to over 1,000 by 1972.

After 1973 there was a sharp fall in the incidence of acquisitions to a low point of 353 in 1976. The number of acquisitions started to climb again but failed to reach in any year between 1974 and 1978, the level of activity recorded in any single year between 1960 and 1973.<sup>(2)</sup> On the other hand, mergers treated as a separate form from acquisitions, average over the whole 19 year period from 1960 to 1978 of about 3 per year remained fairly constant in number. The trend line has a negative slope of 0.1 per year, indicating a slight fall in popularity for this form of amalgamation. If one works out the correlation coefficient between acquisitions and mergers (both treated as distinct forms), it is found to have a value of 0.2, indicating little relationship between the two forms. This

(2) At the time of writing (March 1982) the annual number of acquisitions and mergers has started to decline again from a peak of 567 in 1978 which is a lower number than that achieved in any year in the 1960s.

implies that if the cyclical behaviour of acquisitions is related to prosperity and depression in the economy, as has been hypothesised, then agreed consolidation of two firms by merger must obey different logical rules and probably reflects the needs of firms to deal with their structural deficiencies rather than a search for investment opportunities to increase profitability or growth.

The statistics of expenditure on acquisitions and mergers of industrial and commercial companies from 1960 to 1978 exhibit a parallel pattern (see Table 1.3.). There is a gradual climb to a peak of expenditure attained in 1972 and then a sharp fall in the following year. The two series are not, however, identical. The subsidiary peak in Table 1.2. for the number of total acquisitions for 1973 melts away when expressed in money terms. The total acquisitions expenditure of 1968 gives that year a prominence not previously discerned. The pinnacle is achieved in both the numbers table and the expenditure table in 1972, but the financial peak is almost 100% higher than its near neighbours in time. The climb back following the 1973 fall is much faster, and by 1978 the magnitude of expenditure is analogous to that occurring around the start of the decade. The size of expenditure on the merger form of acquisition is clearly greater in the period to 1969 than after this date, though an explanation of why this is probably arising more from the

definition of mergers than a real difference, has been already suggested in this chapter.

The correlation between the total acquisitions number series and financial series is 0.58. This is not very high and suggests that there may be a great deal of difference in the size of firms being acquired, but the expenditure reports may have been much affected by inflation which was a growing problem over the time involved. Both these problems are explored in Tables 1.4. and 1.5.

Table 1.4. uses the Retail Price Index to express the expenditure on acquisitions and mergers in 1970 prices. The use of the Retail Price Index in order to adjust a series of acquisition expenditures is unusual in the literature. An index of share prices is more normally employed, presumably on the basis that the correct measure of the cost of purchasing a company is the value of share prices at the appropriate time. Such an index does not measure the effect of inflation very accurately, if in fact the number of acquisitions is correlated with the price of common shares, as is argued for example by Weston (218/1953) and Hannah (85/1974). The effect of such correlation would be that one series at its high and low points would be being adjusted by another index whose high and low points would be coincident with it. It is therefore proposed that the use of the Index of Retail Prices is a superior measure of

TABLE 1.4.

EXPENDITURE ON ACQUISITIONS AND MERGERS OF INDUSTRIAL  
AND COMMERCIAL COMPANIES 1960-1978 DEFLATED BY THE INDEX OF RETAIL PRICES

<u>YEAR</u>	<u>TOTAL ACQUISITIONS AND MERGERS</u>	<u>TOTAL EXPENDITURE ON ACQUISITIONS AND MERGERS</u> (£ million)	<u>RETAIL PRICE INDEX ANNUAL AVERAGES</u> 1970 = 100	<u>TOTAL EXPENDITURE ON ACQUISITIONS AND MERGERS EXPRESSED IN 1970 PRICES</u> (5 million)
1960	739	358	67.2	532.7
1961	639	521	69.5	749.6
1962	640	370	72.5	510.3
1963	888	352	73.9	476.3
1964	940	505	76.3	661.9
1965	1,000	517	80.0	646.2
1966	807	500	83.1	601.7
1967	763	822	85.2	964.8
1968	946	1,946	89.2	2,181.6
1969	876*	1,002*	94.0	1,066.0
1970	793	1,122	100.0	1,122.0
1971	884	911	109.4	832.7
1972	1,210	2,532	117.2	2,160.4
1973	1,205	1,304	128.0	1,018.8
1974	504	509	148.5	342.1
1975	315	291	184.4	157.8
1976	353	448	215.0	208.4
1977	481	824	249.1	330.8
1978	567	1,140	269.8	422.5

\* Average of point where 2 series connect.

SOURCES: ACQUISITIONS. BUSINESS MONITOR M7  
INDEX OF RETAIL PRICES. ECONOMIC TRENDS.

TABLE 1.5.

EXPENDITURE ON ACQUISITIONS AND MERGERS OF INDUSTRIAL  
AND COMMERCIAL COMPANIES 1960-1978 RELATED TO THE AVERAGE SIZE OF VICTIMS

<u>YEAR</u>	<u>TOTAL ACQUISITIONS AND MERGERS</u>	<u>TOTAL EXPENDITURE ON ACQUISITIONS AND MERGERS</u>	<u>TOTAL EXPENDITURE ON ACQUISITIONS &amp; MERGERS EXPRESSED IN 1970 PRICES</u>	<u>AVERAGE SIZE OF VICTIM</u>	<u>AVERAGE SIZE OF VICTIM EXPRESSED IN 1970 PRICES</u>
		(£ million)	(£ million)	(£ m)	(5 million)
1960	739	358	535	0.5	0.7
1961	639	521	750	0.8	1.2
1962	640	370	510	0.6	0.8
1963	888	352	476	0.4	0.5
1964	940	505	662	0.5	0.7
1965	1,000	517	646	0.5	0.6
1966	807	500	602	0.6	0.7
1967	763	822	965	1.1	1.3
1968	946	1,946	2,182	2.1	2.3
1969	876*	1,002*	1,066	1.1	1.2
1970	793	1,122	1,122	1.4	1.4
1971	884	911	833	1.0	0.9
1972	1,210	2,532	2,160	2.1	1.8
1973	1,205	1,304	1,019	1.1	0.8
1974	504	508	342	1.0	0.7
1975	315	291	158	0.9	0.5
1976	353	448	208	1.3	0.6
1977	481	824	331	1.7	0.7
1978	567	1,140	422	2.0	0.7

\* Average of point where 2 series connect.

SOURCE : BUSINESS MONITOR M7.

inflation in the circumstance. The effect of using the expenditure figures adjusted to a 1970 price base is to improve the correlation between the total number of acquisitions (including mergers) and the amended expenditure figures from a value of 0.58 noted in the preceding paragraph to 0.7. The use of the corrected expenditure figures does not change the general shape of the series which still indicates a rising series that reaches its climax in the 1960-1978 period in 1972 and then falls. It does, however, produce a much more moderate rise between 1974 and 1978 than is to be derived from the original expenditure series. (3)

The average size of victim over the time span is calculated in Table 1.5. This is done in two ways; first on all by dividing the total number of acquisitions and mergers into the original expenditure data, and secondly by dividing the number of mergers and acquisitions into a measure of expenditure worked out in terms of the 1970 prices. Using the original measure of expenditure the average size of firms taken over was £1.1 million, whereas the deflated measure indicates a size of £0.95 million.

One conclusion that can be drawn from both sets of figures is that during an interval, contained by the years 1967 to 1973, at a time when merger activity had accelerated, the average size of firm acquired also increased. The

(3) The acquisition by value of expenditure series was also tested using the Gross Domestic Product at Market Prices Index (1970 = 100). The use of the G.D.P. as a deflator did not change the conclusion in any material respect from those arrived at above.

average for the series in current prices was £1.4 million and for the other using a 1970 price base was also £1.4 million. The interpretation of this would, however, differ from the subsequent behaviour of each run of figures. After 1973 the size of the acquired business remains high in the original series. Analysis of the two sequences 1960 to 1969 and 1969 to 1978<sup>(4)</sup> suggests that after 1967 the size of victims permanently increased. From 1960 to 1969 the average acquired firm cost £0.8 million, and from 1969 to 1978 this rose to £1.4 million. Except for the fact that the sharp jump occurred in 1967 and not 1969, we might have been led to believe that we were witnessing an effect deriving from the method of calculating the data, since the analysis of the accounts of quoted companies would have undoubtedly caught a number of small acquisitions which would have escaped the count based on press reports.

The adjusted series lends itself to another interpretation. In this case after a sharp jump in 1967 there was an equally sharp fall in 1973 in the amount involved in an average acquisition. From 1973 onwards the expenditure falls to a level similar to that preceding the 1967-1973 increase. Calculation shows that the average victim size in this set of figures was £1.0 million from 1960 to 1969 and £0.9 million thereafter. We are led, therefore, to the view that there

(4) The year 1969 is used to end one sequence and to start the next. Thus 1969 is used twice; this is because it has been derived from an average of the two figures quoted in the Business Monitor M7 and therefore represents an average in relation to the methods of calculating the series.



was, in reality, a period when the average size of acquisition did increase, forming a peak in that series. If, however, the size of firm being taken over increases at a time when merger activity is also at a high level, certain other inferences follow.

It is a matter of general observation that an acquired firm is seldom smaller in size than its victim. Aaronovitch and Sawyer (27/1975) found that acquiring firms were nearly always larger than the acquired firms. This proved to be true from their evidence in 78 cases out of 86. From this, two possible conclusions follow: either that large firms (defined as those with a net asset value of £50 million or over)<sup>(5)</sup> began to increase the size of acquisition that they were willing to undertake, or that a number of large firms not previously heavily involved in takeover activity began to be more active.

It is known that the very heavy expenditure on acquisitions which occurred in 1968 reflects a small number of very large mergers and acquisitions. In this year 7 such acquisitions accounted for about half of the total consideration ("Mergers. A Guide to Board of Trade Practice" (17/1969)). These were :

(5) The Annual Abstract of Statistics (1976) indicates in its analysis of listed companies (i.e. those involved in manufacturing, distribution and construction with some services) that the average size (measured in net assets) of such companies was £9.4 million in 1966 and £12.8 million in 1969.

	<u>Total Expenditure £ million</u>
1) The merger of British Motor Holdings with Leyland Motor Corporation to form British Leyland Motor Corporation Ltd.	455
2) General Electric Company acquisition of English Electric Company	277
3) Thorn Electrical Industries' acquisition of Radio Rentals	185.8
4) Allied Breweries' acquisition of Showerings Vine Products and Whiteways	100.1
5) Land Securities Investment Trust acquisition of City Centre Properties	71.9
6) English Sewing Cotton merger with Calico Printers Association to form English Calico Ltd.	67.7
7) Rank Hovis McDougall's acquisition of Cerebos	60.3
TOTAL	<u>£1,217.8 million</u>

Source: Board of Trade Journal 4/14 March 1969.

To this indication that larger size of acquisitions by major companies was an important factor must be added other evidence that the number of large companies involved in merger also increased.

In a paper prepared by the staff of the Monopolies Commission for the Department of Trade and Industry ("A Survey of Mergers 1958-1968" (18/1970)), an analysis was made of the size of acquiring companies (measured by net asset value) in terms of the net asset values of acquisitions made. A summary of the table shows :

TABLE 1.6.

DISTRIBUTION OF MERGERS (NET ASSETS) BY SIZE  
CATEGORIES OF ACQUIRING COMPANIES 1958-1968

<u>Acquiring Companies</u> <u>Net Assets Category</u>	<u>PERCENTAGE OF TOTAL NET ASSET VALUES PER PERIOD</u>					
	<u>1958/60</u>	<u>1961/63</u>	<u>1964/65</u>	<u>1966</u>	<u>1967</u>	<u>1968</u>
£50 million to £200 million	27%	25%	46%	58%	82%	73%
£10 million to £50 million	39%	46%	25%	16%	5%	13%
£0 million to £10 million	34%	29%	29%	26%	13%	14%
TOTALS	100%	100%	100%	100%	100%	100%

These figures indicate an increasing trend by large companies (i.e. over £50 million) to engage in merger activity.

It is possible to examine whether the size of company being acquired has increased over the period by devising a series based on Trade and Industry reports to 1970 and

on the Business Monitor M7 for years after 1970. Table 1.7 was constructed on this basis. From the table one might seem entitled to conclude that after 1966 the number of companies with a net asset value of £5 million or over having become a larger proportion of the total distribution and that there was a persisting tendency for larger firms to be acquired. This inference is not, however, sustainable when inflation is taken into account. The figures have been re-worked from 1971 to 1977 using 1970 price values and on the further assumption that the number of acquisitions between £5 million and £25 million were evenly spread over that range. The results of these amendments are shown in Table 1.8.

Again we are led to the belief that not only did the number of acquisitions subside after 1973, but also so did the number of larger takeovers also fall. The resumed pattern in terms of smaller firms forming almost 98% of all activity became again common after the sudden upsurge in activity between 1967 and 1973.

It is well recognised that being taken over is something that predominantly happens to small firms. Figures drawn from Trade and Industry (various issues) show on analysis that 80% of all acquisitions between 1962 and 1970 involved a consideration of less than £0.5 million and that between 1971 and 1974, 90% required an expenditure of less than £2 million.

TABLE 1.7.

SIZE DISTRIBUTION OF COMPANIES ACQUIRED 1962-1977

YEAR	NUMBER OF ACQUISITIONS INVOLVING AN EXPENDITURE OF :-				
	<u>Up to £5 million</u>	<u>% of total</u>	<u>Over £5 million</u>	<u>% of total</u>	<u>TOTAL NUMBER</u>
1962	627	98%	13	2%	640
1963	874	98%	14	2%	888
1964	918	98%	22	2%	940
1965	984	98%	16	2%	1,000
1966	789	98%	18	2%	807
1967	729	96%	34	4%	763
1968	882	93%	64	7%	946
1969 (Old series)	869	96%	38	4%	907
1969 (New series)	799	94%	47	6%	846
1970	756	95%	37	5%	793
1971	844	95%	40	5%	884
1972	1,140	94%	70	6%	1,210
1973	1,148	95%	57	5%	1,205
1974	485	96%	19	4%	504
1975	302	96%	13	4%	315
1976	335	95%	18	5%	353
1977	443	92%	38	8%	481

SOURCES: FIGURES TO 1970 FROM TRADE AND INDUSTRY  
 FIGURES FOLLOWING 1970 FROM BUSINESS MONITOR M7.

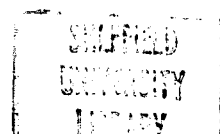
TABLE 1.8 (AMENDMENT TO TABLE 1.7)

SIZE DISTRIBUTION OF COMPANIES ACQUIRED 1962-1977

<u>YEAR</u>	<u>NUMBER OF ACQUISITIONS UP TO £5 MILLION</u> (Expressed in 1970 prices)	<u>% OF TOTAL</u>	<u>NUMBER OF ACQUISITIONS OVER £5 MILLION</u> (Expressed in 1970 prices)	<u>% OF TOTAL</u>	<u>TOTAL NUMBER</u>
1971	848	96%	36	4%	884
1972	1,150	95%	60	5%	1,210
1973	1,161	96%	44	4%	1,205
1974	491	97%	13	3%	504
1975	308	98%	7	2%	315
1976	345	98%	8	2%	353
1977	466	97%	15	3%	481

On the basis of the findings of this section, the probable judgement must be that over the longer term there appears to be a fairly consistent pattern in which smaller firms represent about 98% of all acquisitions and only 2% of acquisitions fall into a higher category. For these purposes a smaller size of firm being defined as valued at less than £5 million in net asset terms expressed in 1970 prices. There does, however, appear to have been a peak of activity which occurred between 1967 and 1973 in which not only did the number of acquisitions significantly increase, but also the average size of victim.

The period around 1970 has been characterised in the literature as one of "merger mania". The expression is a form of words and tells us nothing about what actually happened, except to indicate that activity intensified. Why did activity intensify during this period? It is the purpose of the next section to explore some possible causes and consequent explanations.



### 1.3. A CONSIDERATION OF ISSUES ARISING FROM THE ANALYSIS OF THE 1960 - 1978 DATA

#### 1.3.1. The Cyclical Behaviour of Merger Activity

It has long been recognised that merger activity occurs in a cyclical fashion. Earlier in this chapter the work of Nelson (164/1959), Hannah (85/1974), McGowan (150/1971) and Verma (215/1972) has already been referred to in the context of the history of merger activity, each of whom has sought to establish some relationship between the fluctuating frequency of mergers and the business cycle. Weston came to the same conclusion in "The Role of Mergers in the Growth of Large Firms (218/1953). Nelson returned to make a close analysis of the relationship between business cycle factors and the growth of firms (165/1966).

Since the evidence set out in the previous section appears to indicate that between 1960 and 1978 a merger pattern with cyclical features existed, it was decided to compare this pattern with that displayed by indices of Industrial Production and Stock Prices. Two possible choices present themselves as indicators of merger behaviour. The first of these is the Total Number of Mergers and Acquisitions which is used in Table 1.9, and the second the Value of Total Expenditure on Mergers and Acquisitions which occurs in Table 1.10.



TABLE 1.9

NUMBER OF MERGERS. INDEX OF INDUSTRIAL PRODUCTION AND  
FINANCIAL TIMES INDEX OF INDUSTRIAL ORDINARY SHARES 1960-1978

<u>YEAR</u>	<u>TOTAL ACQUISITIONS AND MERGERS</u>	<u>INDEX OF INDUSTRIAL PRODUCTION</u> +	<u>FINANCIAL TIMES INDEX OF INDUSTRIAL ORDINARY SHARES</u>
		1975 = 100	1935 = 100
1960	739	75.5	318.6
1961	639	76.5	319.8
1962	640	77.2	285.5
1963	888	79.4	316.9
1964	940	86.1	346.9
1965	1,000	88.8	337.3
1966	807	90.1	331.9
1967	763	91.2	355.0
1968	946	97.0	463.3
1969	876*	99.6	419.8
1970	793	99.7	361.0
1971	884	99.7	386.2
1972	1,210	101.8	503.8
1973	1,205	109.3	435.6
1974	504	105.2	251.2
1975	315	100.0	311.0
1976	353	100.7	368.0
1977	481	102.0	452.3
1978	567	104.1	479.4

+ Includes all industries other than those engaged in the extraction of oil and gas.

\* Average of point where 2 series connect.

SOURCES: BUSINESS MONITOR M7  
ECONOMIC TRENDS (ANNUAL SUPPLEMENT).

TABLE 1.10

TOTAL EXPENDITURE ON MERGERS, INDEX OF INDUSTRIAL  
PRODUCTION AND FINANCIAL TIMES INDEX OF INDUSTRIAL  
ORDINARY SHARES 1960-1978

<u>YEAR</u>	<u>TOTAL EXPENDITURE ON ACQUISITIONS AND MERGERS</u> (£ million)	<u>INDEX OF INDUSTRIAL PRODUCTION</u> + 1975 = 100	<u>FINANCIAL TIMES INDEX OF INDUSTRIAL ORDINARY SHARES</u> 1935 = 100
1960	358	75.5	318.6
1961	521	76.5	319.8
1962	370	77.2	285.5
1963	352	79.4	316.9
1964	505	86.1	346.9
1965	517	88.8	337.3
1966	500	90.1	331.9
1967	822	91.2	355.0
1968	1,946	97.0	463.3
1969	1,002*	99.6	419.8
1970	1,122	99.7	361.0
1971	911	99.7	386.2
1972	2,532	101.8	503.8
1973	1,304	109.3	435.6
1974	508	105.2	251.2
1975	291	100.0	311.0
1976	448	100.7	368.0
1977	824	102.0	452.3
1978	1,140	104.1	479.4

+ Includes all industries other than those engaged in the extraction of oil and gas.

\* Average of point where 2 series connect.

SOURCES: BUSINESS MONITOR M7  
ECONOMIC TRENDS (ANNUAL SUPPLEMENT).

TABLE 1.11.

CORRELATION COEFFICIENTS BETWEEN ACQUISITIONS, EXPENDITURE  
ON ACQUISITIONS, INDEX OF INDUSTRIAL PRODUCTION AND  
FINANCIAL TIMES INDEX OF INDUSTRIAL ORDINARY SHARES

<u>MERGER/ ACQUISITION MEASURE</u>	<u>RELATED VARIABLE</u>	<u>CORRELATION COEFFICIENT</u>	<u>CORRELATION COEFFICIENT SQUARED</u>	<u>SIGNIFICANCE LEVEL OF CORRELATION COEFFICIENT</u>
Number of mergers and acquisitions.	Index of Industrial Production.	- 0.004	0.0002	0.49
Number of mergers and acquisitions.	Financial Times Index of Industrial Ordinary Shares.	+ 0.390	0.152	0.05
Expenditure on mergers and acquisitions.	Index of Industrial Production.	+ 0.491	0.241	0.02
Expenditure on mergers and acquisitions.	Financial Times Index of Industrial Ordinary Shares.	+ 0.822	0.676	0.0001

The choice is not without significance. The correlation between the two merger series (i.e. number of mergers and expenditure) is 0.576. The significance level of this correlation is high (0.005) and the last section has established that the difference is due to the size of firm being acquired at different stages of the cycle. The correlation between series is set out in Table 1.11.

The correlation between the number of mergers and the Financial Times Index, and Expenditure on Mergers and the Index of Production and F.T. Index are all significant at the 5% level. The correlation between the Expenditure series and the Share Index was highly significant. <sup>(6)</sup> There does therefore appear to be evidence that merger behaviour increases during buoyant phases of business expansion and declines when prosperity declines.

The observation that an increase in share prices during a rising stock market is correlated with an intensification of merger activity demands an explanation. Gort (82/1969) has proposed a theory based on value discrepancy between the share price of acquirers and acquired companies. In brief, this theory suggests that in a period of growth of markets (which the stock market boom is reflecting) the existing stock of information on the prospects of companies is rendered obsolete, and as a result some companies (presumably the more inefficient ones) have stock

(6) Nelson (147/1959) found cyclical deviations in the number of mergers occurring per year between 1895 and 1954 to be positively correlated with the deviations in stock price, the correlation coefficient being 0.47.

market prices which undervalue their assets, and other companies may use a merger in order to purchase those assets as an alternative to internal investment. The major reason advanced for the undervaluation consequent upon information confusion is that new technology makes the prediction of costs and benefits uncertain.

Crucial objections can be raised against this theory :

- a) If technology has introduced new uncertainties into the process of predicting the future, why should not these uncertainties be equally shared amongst all firms? Only if convincing reasons for asymmetry in the distribution of information can be produced can this objection be overcome.
- b) If technological change has expressed itself in demand for a uniquely new product, there can be little sense in merging to duplicate existing facilities since the plant to manufacture the new product requires to be developed *ab initio*. How can a merger, which merely redistributes control over existing physical capacity, add anything of value in this circumstance?
- c) A share price represents not only a valuation of existing assets but also a commentary on future expectations. It is perfectly possible that an existing collection of assets may have an alternative use which could increase earnings, but why should the shareholders

of the potential victim company not foresee the alternative use and therefore incorporate that possibility in the asking price for takeover? Even where they may have overlooked the opportunity, the announcement of a bid which may take several months to consummate, from a bidder whose identity will be revealed, should offer indicators of what the alternative use might turn out to be.

A solution to these difficulties requires three assumptions:-

- i) that however efficient a market may be when considered in terms of financial information, there may be asymmetry in the distribution of knowledge concerning new technology;
- ii) that investment via merger and internal investment are not mutually exclusive categories but overlapping categories;
- iii) that since the present value of expected economic rents will fall over time due to the working of the competitive process, the speed with which new products are introduced or cost saving technologies developed may be significant in the estimation of economic value.

Assumption (i) would appear reasonable in view of the secrecy which surrounds research until patent protection is secured. Assumption (ii) is supported by the fact that innovation (as opposed to invention) relates existing production facilities to

new knowledge. The third assumption is no more than a description of the competitive process and assumes that over time equilibrium will be established and economic rents (except for factors in total inelastic supply) will disappear.

On the presumption that new technology will take the form of either new products or more efficient processes, two examples will illustrate the working of these assumptions :-

#### New Product

A firm engaged in the manufacture of domestic washing machines develops a new computer controlled model. The rising market indicates increasing demand. Either the firm may lay down a factory in a new greenfield site or purchase (possibly by takeover) an existing factory which produces washing machines and which can be adapted to incorporate the electronic innovations by minimum investment.

#### New Process

A chemical company's research laboratories have perfected a new process for manufacture of plastic. The adaptation of existing facilities secured by means of a merger could enable it to secure a larger share of the existing market or meet new demand by reducing cost.

Both examples depend on imperfections in the dissemination of product/production information and the proposition that merger plus adaptation will be cheaper than internal investment. Both would permit value discrepancies to arise. Whether the relationship between technological development and merger is, in fact, as outlined would lead to an investigation outside the scope of the present study.

The contrast between the low, non-significant correlation between the number of acquisitions and the index of industrial production and the highly significant, much enhanced correlation between the series showing expenditure on acquisitions and the index of industrial production invites comment. One possible answer is that the index of industrial production is lagged, reacting much more slowly to growth opportunities than the numerical merger series. However, as market demand continues to grow, larger firms enter the takeover market and the gap between the series showing an increase in expenditure on victims (which Table 1.7 shows to involve also an increase in the size of firms being acquired) and the index of industrial production diminishes. The intervention of large firms may be deduced from the enhanced size of victims. This suggestion that large firms are slower to involve themselves in merger activity, may arise from caution as to the maintenance of market growth or could indicate an element of defensive behaviour aimed to protect their existing markets.



In order to check the worth of using the Retail Price Index as a deflating adjustment, a further calculation was made concerning the association between a deflated series on Expenditures on Acquisitions and a deflated Financial Times Industrial Ordinary Shares Index. The correlation held but was lower than that between the unadjusted figures at 0.6. The possible interpretation of this result will be referred to below as we consider the meaning of these correlations.

It is the purpose of a later chapter to explore the character of merger theory, but it is not possible to offer an interpretation of the preceding results without making some brief reference to it.

Merger theory can be usefully classified into two main branches. Both offer alternative explanations of the way in which an increase in profitability is sought by the amalgamation of two or more independent enterprises. Neither explanation is mutually exclusive and both factors may be at work at the same time and reflected in the same acquisition. The first of these may be named the "real effects" model and the second the "financial effects" model.

In the "real effects" model the intention of the takeover is to achieve gain by the absorption of tangible and intangible assets. Under this rubric a firm will attempt

to gain control of additional productive resources, property, a skilled workforce, new retail outlets, a marketing organisation or a distribution system. It may seek to appropriate under-utilised cash balances or buy an effective management team. Access may be secured to research "know-how", patents, brand names or the customer goodwill of a business as a whole, entry to a new market or the incorporation of an increment in the share of the existing market. This latter type of motive is the one nearly always found when a merger is discussed in the financial press.

The "financial effects" model strives to ensure a growth in profitability by lowering the cost of capital, through the combination of the capital structure of two formerly independent concerns. For example, the capture of tax losses permits a company with adequate profits to offset these losses against unused capital allowances (H.M.S.O. 15/1978), the greater safety of investment in a larger combination should permit funds to be raised at lower cost. Meeks (pages 57 and 58, 153/1977) points out that the issue of shares to finance a takeover, because it involves a set ratio between the shares of the two firms, is a more certain operation than raising cash for equity for physical investment and greater certainty is associated with lower cost. (7)

The most well-known examples of this type of financial gain are associated with the tactics of Sir Charles Clore and Slater Walker, where a high share price (reflecting a high price/earnings ratio) is used to acquire control of a firm whose share price does not represent the full value

(7) But, as Meeks himself points out, the crucial variable in the case of a share for share exchange is the exchange rate between the acquirer's and victim's shares and this reduction in uncertainty will only obtain if, despite haphazard changes in the level of the market, the relative position of the two shares remains the same. (Meeks, page 57, 153/1977).

of its assets, after takeover, assets are sold to increase profits and thus bolster the high share price for further acquisitions.

The "real" explanation for the association between merger frequency and an index of Production and an index of Share Price is well illustrated in Nelson's article "Business Cycle Factors in the Choice between Internal and External Growth" (165/1966). He portrays mergers as a competing form of growth to internal investment. In Nelson (164/1959) he had put forward an argument that mergers would tend to occur when a firm had exhausted its profitable opportunities for internal investment:

"The desire for merger may be less urgent if the various firms are operating at less than full capacity, and independent, immediate and profitable expansion may be possible. The merger may be accomplished only when the expansion of the various firms has proceeded to the point at which they are operating at full capacity".

(Nelson: "Merger Movements in American Industry 1895-1956" (164/1959)).

However, in his 1966 paper he looked at the relationship between the timing of peaks of activity with respect to merger activity, manufacturers' new equipment orders and industrial building construction contracts, the latter

two series being analogues for internal investment. His finding that the merger peaks preceded the internal investment peaks led him to revise the view of his earlier work and come to the conclusion that in a situation of expansion, mergers are a way of achieving growth quickly with a possible subsidiary explanation that new investment of a physical kind takes longer to mature and thus shows later in time than completed mergers.

This increase in pace of growth argument for the enhanced level of mergers during the expanding phase of the business cycle is one possible explanation of the correlations with production and share prices that occurred between 1960 and 1978.

M.Gort, in his article "An Economic Disturbance Theory of Mergers" (82/1969) previously cited, adopts the "financial model" viewpoint. He suggests that

"before proceeding to search for special explanation of mergers, we would do well to see whether there is anything to explain beyond the phenomenon of normal turnover in income-producing assets".

His argument is that mergers occur when there are discrepancies in the valuation of income producing assets arising from differences in expectations about future income streams and the risks associated with expected income. Such discrepancies lead to the under-valuation of companies

which thus become "bargains" for acquiring firms. He relates the cause of such discrepancies to two factors:

- a) rapid changes in technology, and
- b) movements in security prices.

He then associates the coincidence of the upward trend in share prices to the acceleration in the number of takeovers by suggesting that the expectations of managers and long term investors are less volatile than those of speculators and other short term investors. Therefore in times of rapidly increasing share prices there is a larger opportunity for valuation discrepancies to occur and hence the correlation found.

Therefore, we can possibly explain the cyclical associations by reason of the increasing number of bargains to be found in the upward phase of the cycle.

Gort's argument requires further examination. It depends on the proposition that heterogeneity of expectation can persist in a financial market concerning the valuation of a company. Modern financial theory is founded on the basis, however, that value discrepancies cannot survive in a perfect capital market which will cause price differences to be eliminated by arbitrage.

A merger will take place, according to Gort's supposition, when an acquiring firm A estimates the present value of the expected earnings of firm B to be greater than the present value of these estimated earnings in the opinion of the shareholders of firm B. This conflict of opinion may arise from two causes:-

- a) the expected earnings of B as perceived by A are larger than the firm B thinks;
- b) the stockholders of A use a lower discount rate than the stockholders of B in calculating the present value of the earnings.

In symbols let :

$E$  = Expected earnings of Company B.

$E(A)$  = Expected earnings of Company B as estimated by A.

$E(B)$  = Expected earnings of Company B as estimated by B.

$K(A)$  = The Discount Rate used to determine the present value of E by A.

$K(B)$  = The Discount Rate used to determine the present value of E by B.

$P(A)$  = The present value of E to A which is equivalent to the price which Company A will pay for Company B.

$P(B)$  = The present value of E to B which is equivalent to the price at which the shareholders of B will sell their company.

Then A's demand price for B will be :-

$$P(A) = \frac{E(A)}{K(A)} \quad \text{(Equation 1.1)}$$

B's selling price will be :-

$$P(B) = \frac{E(B)}{K(B)} \quad \text{(Equation 1.2)}$$

Value discrepancy will arise when :-

$$P(A) > P(B) \quad \text{(Equation 1.3)}$$

which implies that :-

$$E(A) > E(B) \text{ assuming } K(A) = K(B)$$

or

$$K(A) < K(B) \text{ assuming } E(A) = E(B).$$

The additional case where  $E(A) > E(B)$  and  $K(A) < K(B)$  and various permutations of this case are ignored since it does not affect the argument.

Case One.  $E(A) > E(B)$ . The Discount Rate for Both Firms being Equal

In this circumstance A's shareholders will find the shares of B under-priced. This will induce them to buy B's shares causing the price of B's shares to increase. B's shareholders will either sell shares in view of the enhanced price or hold their shares but revise their expectation of earnings. This process will continue until all stockholders maintain the same view of B's earning potential.

Case Two.  $K(A) < K(B)$ . The Estimate of Earnings being Equal

Under this condition, A's shareholders will consider B to be under-priced. Given that A's shareholders are seeking to maximise their wealth, then shares in A will be sold and the money used to buy shares in B. As a result, the price of A's shares will fall and the price of B's shares will rise. In consequence of this, A's shareholders will increase their rate of discount and B's shareholders lower theirs until the two rates of discount are equivalent.

In short, valuation discrepancies of the above type cannot be sustained in perfect capital markets where there is certainty, complete information and no transaction costs or other imperfections.

Therefore Gort's "bargain" thesis can only be justified if a plausible explanation can be offered concerning imperfections in the capital market which disrupt the arbitrage mechanisms outlined.

Two possibilities present themselves :-

- a) Technological information which can be applied in the conditions of market growth is imperfectly distributed between companies. (This has already been discussed a few pages earlier).
- b) There may be delays in achieving the equilibrium created by arbitrage. These delays may be especially significant in markets showing strong growth characteristics. As Gort himself says :

"Changes in technology may lead to new products or new processes of production. Demand for new products are difficult to predict from past experience, and so are costs. Conversely when production processes change frequently future costs are difficult to forecast from past costs. In short, when technology changes rapidly, the record of the past necessarily contributes less to the formation of predictions about income."  
(Gort (82/1969)).

The confusion suggested by Gort may take some time to subside, thus allowing value discrepancies to exist for a time.



It appears to be plausible to assume that managers, having developed their investment plans over a long time scale, see in a rising price of the firm's shares an opportunity to invest at reduced cost. If bargains can be found, arising possibly just from different rates at which share prices take off, then the high price at that time of the acquirer's shares make for a lowering of investment costs. This view is consistent with the fact that the correlations between merger frequency and the production index is lower and less significant whether mergers are measured by number or by expenditure. The fact that the correlation between a deflated expenditure on mergers series and a deflated share price index is lower than the correlation in current prices of the same series supports the financial explanation since it implies that the inflation of prices may have a part in the explanation and it is well known that inflation lowers costs to borrowers in real terms, providing that the rate of inflation has not been anticipated and incorporated into the rate of interest. Although there is evidence that during the 1960s there was growing awareness of the "money illusion" (for example, increasing militancy amongst unions in pressing wage claims), it is probable that the expectations of rates of inflation lagged the actual rates since these rates continued to accelerate to reach unprecedented heights in the United Kingdom in the mid-1970s.

The following tentative conclusions appear warranted from the analysis of this section:

- a) that the relationship between merger activity and the business cycle detected in earlier studies of mergers seems to have recurred during the period 1960-1978;<sup>(8)</sup>
- b) that the correlation between the merger series and the Index of Industrial Production and the Financial Times Index of Industrial Ordinary Shares is best explained on the assumption that rises and falls in share prices cause mergers to fluctuate in harmony because of the effects on the cost of investment;
- c) that when merger frequency increases, it expresses itself partly in the acquired firms becoming larger in size and the acquiring firms also showing the same size increase.

(8) An article by Maule (149/1968) in which he concludes that "the available evidence supports the view that merger cycles are not timed closely with business cycles" refers to the problem of the leading and lagging of merger series in relation to the business cycle and does not refute the general association set out above.

### 1.3.2. Mergers and Insolvency

In order to analyse further the characteristics of acquisitive behaviour during the years 1960 to 1978, a comparison was made with respect to the trends in insolvency statistics during that time span. There are several reasons for expecting some sort of relationship to manifest itself.

In the first place, it is generally believed that company liquidations increase during depressed business conditions and decrease with the improvement in business circumstances. Therefore if there is a possible link with a putative business cycle, and if on the argument of the previous section a similar connection is revealed with acquisition trends, then we would expect to discover an analogous association between liquidations and takeovers. Table 1.12 sets out the data underlying this hypothesis.

Secondly, if the competitive process is to operate efficiently, then one would anticipate that firms which were not profitably employing the resources allocated to them might yield up these resources not only by means of compulsory and voluntary liquidations but also be compelled to place these assets into the hands of more vigorous enterprises. This is the view expressed by Dewey (58/1961) when he suggests that "mergers are a civilised alternative to bankruptcy".

Finally, it is possible that when firms are ailing,

TABLE 1.12

NUMBERS AND EXPENDITURE ON MERGERS AND COMPULSORY LIQUIDATIONS 1960-1978

<u>YEAR</u>	<u>TOTAL ACQUISITIONS AND MERGERS</u>	<u>TOTAL EXPENDITURE ON ACQUISITIONS AND MERGERS</u> (£ million)	<u>COMPANY LIQUIDATIONS (COMPULSORY)</u> <sup>+</sup>
1960	739	358	525
1961	639	521	612
1962	640	370	718
1963	888	352	729
1964	940	505	724
1965	1,000	517	805
1966	807	500	934
1967	763	822	1,230
1968	946	1,946	1,108
1969	876 <sup>*</sup>	1,002 <sup>*</sup>	1,181
1970	793	1,122	1,269
1971	884	911	1,166
1972	1,210	2,532	1,150
1973	1,205	1,304	1,080
1974	504	508	1,395
1975	315	291	2,287
1976	353	448	2,511
1977	481	824	2,425
1978	567	1,140	2,265

+ For England and Wales.

\* Average of point where 2 series connect.

SOURCES: BUSINESS MONITOR M7  
ANNUAL ABSTRACT OF STATISTICS.

either through facing difficult competitive conditions and/or an obsolescence in their product range, they may wish to use mergers as a means of revitalising themselves by entering more profitable or growth-orientated industries. This is a view expressed by Weston and Mansinghka (219/1971).

Insolvency normally occurs when a company or person is unable to pay debts on a due date. It is included in the statistics produced by the Department of Trade when it is voluntarily acknowledged or determined by the Courts. Compulsory liquidations of companies arise from "winding up" orders following a petition to the Courts. A "creditors voluntary liquidation" is not the subject of legal proceedings but stems from an arrangement between company and creditors. "Members voluntary liquidation" is produced when a company terminates its own existence. The various types of liquidation occur, as may be seen from an examination of the statistics in the ratio :

Compulsory liquidations	-	2
Voluntary liquidations	-	3
Members Liquidations	-	4.

Table 1.12 uses the compulsory liquidation statistics for England and Wales over the relevant time.

A glance at the Table shows that compulsory liquidations have not followed a fluctuating path between 1960 and 1978 but instead show a rising trend. The correlations are set

out in Table 1.13.

TABLE 1.13

CORRELATION COEFFICIENTS. ACQUISITIONS, EXPENDITURE ON  
ACQUISITIONS AND COMPULSORY LIQUIDATIONS

<u>MERGER/ ACQUISITION MEASURE</u>	<u>RELATED VARIABLE</u>	<u>CORRELATION COEFFICIENT</u>	<u>CORRELATION COEFFICIENT SQUARED</u>	<u>SIGNIFICANCE LEVEL OF CORRELATION COEFFICIENT</u>
Number of mergers/ acquisitions.	Compulsory liquidations.	- 0.64	0.40	0.002.
Expenditure on mergers/ acquisition.	Compulsory liquidations.	0.04	0.001	0.442

SOURCE: Derived from Table 1.11.

The Department of Industry, in an analysis of Insolvency Statistics in 1975 (13/1975) covering the years 1960 to 1974, observes that company liquidations are cyclical with a fall in profits generally associated with a rise in liquidations. However, the Department of Industry could not find a convincing statistical relationship even when various lagged relationships were tested. They relate their failure to the fact that their statistics on Gross

Trading Profits relates to all companies with a few large company accounting for a considerable proportion of the total. Insolvency statistics, on the other hand, tend to reflect the behaviour of a large number of small firms.

This explanation accords with the previous analysis set out in section 1.3.(1) and the correlation coefficients in Table 1.13. There is a low correlation and a non-significant result between the Expenditure and the Insolvency figures. This is in agreement with the view that the Expenditure data reflects the effect of a larger size of business being acquired by acquirers of more than average dimension when merger activity intensifies. However, the effect of business conditions on acquisitions and insolvencies is successfully related at a high level of significance when numbers of acquisitions is used. The number of acquisitions data must of necessity reflect the large number of small firm takeovers that are known to occur.

The negative sign of the correlation shows that liquidations are high when mergers are low in frequency. Two possible explanations suggest themselves for this. One is that liquidations occur during depressed business conditions and since mergers occur in the rising part of the business cycle there is no strong link between the two processes. In this view mergers are about growth and not about the transfer of badly utilised resources. This seems to be the most likely construction.

However, it is not possible to discount entirely the interpretation that insolvencies occur with a regular frequency through all stages of the cycle, but they reveal themselves in the liquidation statistics during the down-phase of the cycle and in the merger data in the up-phase. R.L.Conn examined the problem of failing firms (51/1976) with reference to conglomerate mergers, and found no evidence that there was any significant difference between the pre-merger profitability of acquired and acquiring firms, and equally he found no support for the hypothesis that acquiring firms are in declining industries. Therefore the collapse of small firms has probably little to do with fluctuations in merger activity. This conclusion is not, of course, a verdict on the problem of whether firms which employ their assets so as to achieve below average returns are the potential victims of mergers; it is only a verdict on what happens when the smaller size of firm employs its assets disastrously.

It is therefore possible to add to the three previous conclusions:

- d) there is no evidence that takeovers are significantly involved as a factor in providing an alternative to liquidation procedures.



### 1.3.3. The Business Cycle Hypothesis Re-examined

The term "business cycle" (or alternatively "trade cycle") refers to oscillations in economic activity marked by alternate phases of high and low levels of investment, output and employment. They were a well marked feature of industrial life in the nineteenth century, but since the Depression of the 1930s, Government measures to control demand appear to have moderated their amplitude and shortened their periodicity. There has been some argument that they have ceased to exist. Nevertheless, each month the issue of Economic Trends produces charts showing leading, lagged and coincident series of cyclical indicators using a reference chronology of peaks and troughs representing growth cycles in the United Kingdom economy.

The analysis of merger activity in Sections 1.4. and 1.6. presumes the existence of such a cycle. There does seem undoubted evidence of correlations between indicators of business activity. There is obviously no tangible entity denoted by the term "business cycle" and the value of such a concept depends on whether it is a useful construct for the examination of economic data. More specifically for the purpose of this thesis, is it a fruitful method of analysing merger activity? By "useful" and "fruitful" in this context is meant - is there sufficiently stable correlation between merger activity and other indices for

hypothesis concerning the meaning of this behaviour to be developed?<sup>(9)</sup> In order to test the usefulness of the concept, multiple regression analysis was applied to the merger activity series (both by number and by expenditure) to see whether the independent variables of product, share value and insolvencies had sufficient regularity of association to serve the purpose of analysis. Table 1.14 sets out the results of this analysis.

The multiple correlations are seen to be high, explaining 80% and 90% of the variation in the two equations. The level of significance of these correlations leave little doubt as to their being a real rather than a chance effect. We can therefore accept that there is a strong predictive relationship between these series taken collectively. This further strengthens the conclusions of the previous section by demonstrating that the concept of a business cycle is a valid way of examining merger phenomena.

(9) It is the current practice in the United Kingdom and in the U.S.A. to calculate a composite index of various cycles of indicators in order to produce a "reference cycle" which can be identified with the "business cycle". The remarks above are not related to such a sophisticated construct, but to the general tendency for certain indicators of economic prosperity or depression to move in harmony.

TABLE 1.14.

MULTIPLE REGRESSION ANALYSIS OF MERGER SERIES AND INDEX OF  
INDUSTRIAL PRODUCTION, FINANCIAL TIMES INDEX OF INDUSTRIAL  
ORDINARY SHARES AND INSOLVENCY STATISTICS. 1960-1978

REGRESSION COEFFICIENTS FOR INDEPENDENT VARIABLES

<u>DEPENDENT VARIABLE</u>	<u>INDEX OF INDUSTRIAL PRODUCTION</u>	<u>F.T.INDEX OF INDUSTRIAL ORDINARY SHARES</u>	<u>NUMBER OF COMPULSORY LIQUIDATIONS</u>	<u>CONSTANT TERM</u>
A. Annual total number of mergers and acquisitions.	10.7 (2.9)	1.8 (0.4)	- 0.4 (0.04)	- 361.3 (214.0)
MULTIPLE CORRELATION COEFFICIENT			= 0.948	
MULTIPLE CORRELATION COEFFICIENT SQUARED			= 0.899	
F TEST. LEVEL OF SIGNIFICANCE			= < 0.001	
B. Annual expenditure on mergers and acquisitions	21.5 (9.4)	6.4 (1.1)	- 0.4 (0.1)	- 3002.6 (686.5)
MULTIPLE CORRELATION COEFFICIENT			= 0.989	
MULTIPLE CORRELATION COEFFICIENT SQUARED			= 0.9781	
F TEST. LEVEL OF SIGNIFICANCE			= < 0.001.	

N.B. Figures in brackets show standard error of estimates of regression coefficients.

SOURCES: BUSINESS MONITOR M7.  
ECONOMIC TRENDS  
ANNUAL ABSTRACT OF STATISTICS.

#### 1.3.4. Types of Expenditure and Categories of Takeover

The bid for a company is normally couched in terms of cash, ordinary shares, preference shares and fixed interest securities. Very often an offer is made of some combination of securities. In some cases the loan stock offered is convertible to equity within a given span of time or includes a warrant permitting the purchase of common shares at a given exercise price. In certain cases the City Code on Takeovers and Mergers under Rules 33 and 34 (9/1981) requires that a cash alternative accompany the offer, however expressed.

Cash is the simplest instrument for making a bid but suffers from two disadvantages. The offerer must be in a position to raise cash either from its reserves or by means of mortgage or overdraft, or by the issue of shares or loan stock. This may be difficult for a company whose assets are not liquid in form and which finds that funds may only be raised on unfavourable terms because, for example, of a high interest level on borrowed money. The second difficulty is that cash offers become immediately liable to capital gains tax if accepted by individuals, or corporation tax if the offeree is a company. Such liability is deferred in the case of bids using shares until such time as the shares are sold.

A share for share exchange avoids the costs of raising funds by the predator firm but involves difficult problems of valuation. If the valuation of the shares of both acquirer and acquiree is not correctly established, then the shareholders of the bidding firm may find themselves suffering from a dilution of earnings subsequently. Since there is such uncertainty attached to the valuation process, it may be necessary to include an attractive premium on the price in order to persuade the shareholders of the victim company to accept the "paper" transaction. Newbould found in his study of bidding behaviour (1966/1970) an unrealistic premium in relation to the pricing of bids.

Preference shares are not often used as a medium for takeover because they attract corporation tax on interest paid, unlike loans which can be treated as a cost to the company.

Unsecured loan stock requires care when used as consideration in a takeover lest the debt ratio of the acquiring company becomes too large, thus damaging the interests of existing debtors of the company and reducing the share price by appropriating too large a portion of the company's income in interest payments. It is generally held that Section 54 of the Companies Act 1948 restricts the use of secured loans in making acquisitions since it does not allow "a company to give financial assistance for

the purchase of or subscription for its own shares whether by provision of security or otherwise".

Table 1.15 sets out the percentages of consideration paid in cash or shares and fixed interest securities. It can be clearly seen from the figures that during the time of merger "boom" the proportion of cash in the consideration fell only to rise again as the intensity of merger activity decreased. The correlation between expenditure on mergers and acquisitions and the proportion of cash used in the purchase was found to be - 0.7. If we also take into account a study by Firth (69/1976) based on takeovers in 1973 and 1974, that the ratio of acquisitions being financed by equity shares and convertible loan stocks increased as the size of the acquisition became larger (which finding is also confirmed by Newbould's study (166/1970) of takeovers in 1967 and 1968), the argument of the previous section is strengthened. That argument was that an important factor in explaining the high level of merger activity between 1967 and 1973 was that a high level of share prices during that time induced larger takeover bids to be attempted because of the reduction in the cost of takeover (via the high share price) and the possible valuation discrepancies arising within a rapidly changing share market.

Table 1.16 illustrates the types of mergers taking place between 1965 and 1973 on the basis of figures to be

TABLE 1.15

CATEGORIES OF EXPENDITURE ON ACQUISITIONS AND MERGERS  
WITHIN THE UNITED KINGDOM

PAYMENT FOR COMPANIES ACQUIRED

AS PER CENT OF TOTAL CONSIDERATION

<u>YEAR</u>	<u>CASH</u>	<u>SHARES AND FIXED INTEREST SECURITIES</u>
1960	42%	58%
1961	38%	62%
1962		
1963		
1964	61%	39%
1965	48%	52%
1966	41%	59%
1967	33%	67%
1968	12%	88%
1969	28%	72%
1970	22%	78%
1971	31%	69%
1972	20%	80%
1973	53%	47%
1974	68%	32%
1975	59%	41%
1976	72%	28%
1977	57%	43%
1978	56%	44%

SOURCES: ECONOMIC TRENDS, VOL.114. APRIL 1963  
BOARD OF TRADE JOURNAL. NOVEMBER 1968  
BOARD OF TRADE JOURNAL. MARCH 1969  
BUSINESS MONITOR M7.

TABLE 1.16

INDUSTRIAL, COMMERCIAL AND FINANCIAL MERGERS CLASSIFIED  
BY TYPE 1965-1973

<u>YEAR</u>	<u>TYPE OF INTEGRATION</u>		<u>PERCENTS OF TOTAL</u>
	<u>HORIZONTAL</u>	<u>VERTICAL</u>	<u>DIVERSIFIED</u>
<u>1965</u>			
By number	78%	12%	10%
By value	75%	13%	12%
<u>1966</u>			
By number	76%	12%	12%
By value	84%	9%	7%
<u>1967</u>			
By number	86%	5%	9%
By value	91%	4%	5%
<u>1968</u>			
By number	81%	4%	15%
By value	79%	4%	17%
<u>1969</u>			
By number	80%	2%	18%
By value	83%	1%	16%
<u>1970</u>			
By number	84%	1%	15%
By value	70%	-	30%
<u>1971</u>			
By number	75%	6%	19%
By value	62%	4%	34%
<u>1972</u>			
By number	65%	7%	28%
By value	40%	9%	51%
<u>1973</u>			
By number	79%	5%	16%
By value	87%	4%	9%

SOURCE: TRADE AND INDUSTRY, 17 JANUARY 1974.



found in Trade and Industry (25/1974). Acquisitions are commonly divided into three categories:-

- a) Horizontal - where the firm taken over is a competitor producing a product which is a close substitute for that produced by the acquiring company.
- b) Vertical - where the firms involved are at different stages of the process of producing and marketing a common article or service. Typically it arises from the purchase of a supplier or a distributor.
- c) Diversified/Conglomerate - the two terms are more or less synonymous, although the latter term has an implication of diversification undertaken by large firms with a pejorative connotation that there has been an undesirable increase in market power. In the American literature, conglomerate mergers are often sub-divided into those involving product extension where dissimilar products are added to an existing market, and market extension where the number of markets in which the same product is sold is increased. There remain, of course, pure conglomerates where there is neither product nor marketing affinity.

One of the difficulties with this division is that an amalgamation may contain elements of more than one of these categories. More worrying is the problem that the distinction between horizontal and diversified acquisitions depends upon how industries are classified. If that classification is narrow, then diversification is consequently increased and vice versa when the class is extended. There is some evidence (Cowling et al. 54/1980) that the classification used by the Office of Fair Trading (which was used in the compilation of Table 1.16) is much narrower than that which would result from the Minimum List Headings of the Standard Industrial Classification. As a result, probably some tendency to overestimate the extent of diversification is reflected in Table 1.16.

Over the whole period displayed in that table, the average percentage of mergers of each type were:-

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TABLE 1.17 AVERAGE PERCENTAGE OF MERGERS OF EACH TYPE

	<u>BY NUMBER</u>	<u>BY VALUE</u>
a) Horizontal	78.2%	74.6%
b) Vertical	6.0%	5.3%
c) Diversified	15.8%	20.1%

---

From this we can see that the predominant form of acquisition is horizontal, followed by diversified and

then vertical takeovers. This finding is confirmed by Singh who studied 488 quoted companies in the period 1948-1960 (198/1971) and found about 60% of the amalgamations were within the same industry group, and Newbould (166/1970) who reported that of 407 identified mergers in 1967 and 1968, over 80% were horizontal.

If we divide the annual data into two groups, as in Table 1.18, from 1965-1968, and 1969 to 1973, there are indications that the diversified type of activity has increased:

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TABLE 1.18

A. ANALYSIS BY NUMBER OF MERGERS AND ACQUISITIONS

	<u>Horizontal</u>	<u>Vertical</u>	<u>Diversified</u>
1965-1968	80.25%	8.25%	11.5%
1969-1973	76.6%	4.2%	19.2%

B. ANALYSIS BY VALUE OF TOTAL MERGERS AND ACQUISITIONS

	<u>Horizontal</u>	<u>Vertical</u>	<u>Diversified</u>
1965-1968	82.25%	7.5%	10.25%
1969-1973	68.4%	3.6%	28.0%

---

An earlier analysis by Utton (212/1969) for the years 1954 to 1965 which revealed that out of 643 quoted company amalgamations only 9.3% by number and 15.9% by value were diversified, suggests that there does seem some

warrant for the view that over the recent past the number of horizontal and vertical mergers have been decreasing, giving way to increasing diversification in takeovers. One striking feature of the data is the way in which the value measure is larger than the number measure by a considerable amount from 1969 to 1973 for diversified acquisitions, suggesting that the size of firm being taken over in this way was considerably larger than for horizontal and vertical mergers in the same period.

There is a marked contrast to the situation in the U.S.A. where according to figures produced by Reid (181/1968) between 1948 and 1968 the number of conglomerate mergers went from 58.7% to 80.2%. This difference between the two countries is normally attributable to the difficulties posed for horizontal and vertical mergers in America by the anti-trust legislation.

#### 1.4. THE SAMPLING FRAMEWORK USED IN THE STUDY

It is acknowledged in research that the theory which is under scrutiny defines, to a large extent, what constitutes a "fact", since theory not only indicates what aspects of the maelstrom of reality should be singled out for attention but also dictates to a large extent the way in which variables should be constructed in order to elucidate the theory. In short, theory provides the conceptual framework for the undertaking. The purpose of the research also delineates the sampling frame.

The research aim of this study was to seek out general reasons underlying merger activity and to relate these to some consistent pattern of firm behaviour. Since there are several different (but not necessarily conflicting) theories of the firm, the research inevitably became both a test of differing hypotheses about the nature and motivations of firms and also an explanation of merger activity in relation to these hypotheses. This matter is dealt with more fully in a later chapter. For present purposes it suffices to say that the sample should be drawn from a representative group of companies. This implies that the company selected should be neither too large nor too small, but be chosen in proportion to the range of sizes existing within the population of all firms. Immediately, however, practical difficulties arise.

The firm in economic theory is a decision taking unit based on the combination of factors of production, land, labour, capital and management. In practice, it takes many different forms, stretching from the sole proprietor of an unincorporated business

to a large holding company. A business unit which does not incorporate itself under the Companies Act does not gain the privilege of limited liability. However, there are certain tax advantages for very small enterprises arising from the fact that they are not liable to Corporation Tax which makes it advantageous not to seek to change its status. Nevertheless, it is sensible because of the primitive organisational form of the unincorporated business to exclude it from consideration. If, however, we define a company as one registered under the Companies Acts of 1948 and 1967 (or some earlier version of that Act) there are still difficulties to be faced. Companies may have either Private or Public status.

Private companies have certain privileges which offer a degree of privacy denied to public companies. They do not have to issue a prospectus when increasing their capital, need not have more than two members and can make directorial appointments more easily. Prior to the Companies Act of 1967, it was possible to be excused from filing financial accounts, though this is now no longer permitted. A private company is, however, not able to offer shares or debentures to the public, is restricted in the manner in which it transfers shares, and must limit the number of its members to 50 (excluding employees).

There are in existence a very large number of private companies although their share of the total assets of limited liability companies is comparatively small. In 1976 the Department of Trade, with which all companies must register, reported the existence of 690,897 companies of which 16,716 were public (i.e. 2.4%) and 674,181

(i.e. 97.6%) were private. With this must be contrasted the finding of the Monopolies Commission staff (18/1970) in their "Survey of Mergers 1958-1968" that if one considered companies with a net asset size of £0.5 million or greater, with a quotation on a federated Stock Exchange in 1961, and engaged in manufacturing, construction, transport, distribution and miscellaneous services, then the leading 200 firms in 1968 in rank order by size accounted for 80% of the net assets of all firms within that sample.

The Bolton Committee Report (6/1971) on Small Firms estimated that according to their definitions of small firms (e.g. for manufacturing, 200 employees; for retailing, £50,000 annual turnover or less, etc.) there were 820,000 small firms. Collectively they employed about 4.4 million people and accounted for 14% of Gross National Product and 18% of the net output of the private sector of the economy. "The Times" on 17 April 1980 quoted an estimate of 4,500,000 employees in the small firm sector with a total turnover of £57,000 million which represented 20% of U.K. corporate turnover.

All this testimony indicates that the majority of firms in the United Kingdom are small and that collectively they account for only a small part of the wealth creating activities of the corporate sector. They have one other significant drawback which is that little published information exists on their activities. There is some justification, therefore, for excluding small firms either as unincorporated businesses or as registered private companies from the sampling frame. It is well known that small firms have great difficulty in raising capital. Their mortality rate is higher,

the Bolton Committee Report (6/1971) estimated that between 1963 and 1970, 23% of the small firms (using the Bolton definition) in manufacturing and construction ceased to exist either by going into liquidation, ceasing to trade or being taken over. Although there is a great number of acquisitions made in this sector, especially by public companies making takeover raids, the reasons for takeover are very different. The Bolton Report (Table 2.XI) reports that the two most important reasons for acquisitions within the category were:

Financial Failure 37%

Succession Problems 24%

and that a further 14% were attributable to the need for making Estate Duty payments. These reasons differ considerably from those found in the mainstream literature on acquisitions between publicly quoted companies. For example, both Newbould (166/1970) and Singh (199/1975) find no significant difference between the profitability of acquired and acquiring firms in contrast to the 37% financial failures recorded above. Care should be taken, since not all private firms are small. The John Lewis Partnership employs total net assets of £170 million and the Wellcome Foundation of £273 million, as recorded in "The Times 1000" (23 /1979) for 1979-80. Both are private companies.



1.4.1. The Consumer Durable/Non-Durable Goods Sample

For the reasons related above, but also because of the need to have access to publicly available runs of financial data over an extended period, it was decided that the sampling frame should consist of public companies quoted on a United Kingdom Stock Exchange (in 1973 the local stock exchanges amalgamated with the London Stock Exchange).

The Stock Exchange Official Year Book for 1970 was selected and from the "Classification of Securities Section" all firms listed under the Category Headings of Consumer Durables and Consumer Non-Durables were noted. This produced a total of 1,047 firms. Examination of the main text of the Year Book demonstrated that the classification section excluded all subsidiary firms, foreign firms with quotations and companies whose common equity was not quoted (i.e. only loan stock was quoted). In order to obtain a listing on a Stock Exchange in 1970 a company required the following characteristics:

- a) The securities quoted had to have an initial aggregate market value of £250,000 (raised to £500,000 in 1973)
- b) Any individual security must have an initial market capitalisation of £100,000 (increased to £200,000 in 1973).
- c) 35% of the equity had to be in the hands of the general public (reduced subsequently to 25%).

By implication, therefore, these amounts represent the lower cut-off point of firms in the sample.

The firms under the main headings Consumer Durables and Non-Durables are sub-divided into various categories such as Light Electronics, Leisure, Packaging and Paper, etc., according to a scheme prepared by the Institute of Actuaries and published in the Stock Exchange Weekly Official Intelligence (which includes details of any changes in classification as they occur). This scheme is based on the main purposes of the enterprise as stated in the annual accounts of each company. The sample was sub-divided into 30 categories. A full list of these categories and the number of firms in each category is to be found in Appendix A.

The range of companies under the Consumer Durable and Non-Durable headings was chosen because it represented a wide range of companies involving manufacturing (light electronics, motor components, motor vehicles, paper, clothing, etc.), retailing (food, stores, mail order, motor distribution) and services (hotels, leisure, publishing and printing, etc.) to ensure the sample reflected a wide area of industrial/commercial activity. In addition, firms not contained in the list in 1970 but which were found to have existed on a U.K. Stock Exchange other than London and which were entered into the Consumer Goods Durable and Non-Durable categories upon the 1973 amalgamation of

Stock Exchanges in the United Kingdom, provided they had a public quotation in their common equity in 1970, were added back to the list.

The following categories of companies were therefore excluded from the sample:

Banks

Financial Trusts/Lands

Insurance

Investment and Unit Trusts

Mines

Oil

Property

Rubber

Shipping

Tea and Coffee

Waterworks

Other Utilities (Railways, Canals,

Docks, Tramways, Electric Lighting,

Telegraph, Power Supply, Gas).

It was considered that acquisitions by financial and property companies, and companies engaged in commodities and utilities would make for extreme heterogeneity in the study and would involve an international dimension in many instances that would make the research impracticable by reason of the time and resources available.

Also excluded, though not for the reason given above in the last paragraph, were other areas contained within the commercial/industrial company heading, namely capital goods manufacture, heavy engineering, chemicals and pharmaceuticals, office equipment, industrial holding companies and certain miscellaneous categories. These were not selected because it was felt that the groups of companies chosen were an adequate representation of the industrial/commercial sector. The holding companies were specifically excluded since the target for examination was not to be the extremely large firms with conglomerate structures. Such firms have been the centre for a great deal of attention in the literature because of the emphasis on increasing concentration within the economy. These firms may well however represent an extreme in motivation and organisation which will cast little light on the behaviour of the average enterprise.

In 1979 (Stock Exchange Fact Book (22/1979) we find that there were 1,973 firms listed in the Commercial and Industrial and Breweries/Distillers Groups. There were a total of 2,746 companies in all categories. Thus the Industrial/Commercial/Breweries group comprised 72% of total quoted independent firms (excluding subsidiaries and foreign companies). Thus 1,047 firms would represent 53% of the totality of firms in the industrial classification and 38% of the totality of all publicly quoted companies.

Since the Stock Exchange Year Book is an annual publication, it is possible to trace certain characteristics of companies over a long period of time. The other main source of company data, the Extel Statistical Service, because of frequent up-dating of reports and the destruction of earlier records, did not provide a sufficiently lengthy run of information. Moodies Investment Handbooks, a favoured source in earlier studies, unfortunately discontinued publication of its U.K. volumes in the mid-1970s and so were not suitable.

Each company from the 1,047 sample was traced through each successive edition of the Stock Exchange Year Book from the 1970 volume to the 1978/79 edition, or to the point of its earlier demise. A number of firms in the 1970 list were withdrawn from the analysis, mainly because on examination they turned out to be subsidiaries but also because

- i) they were reorganised in the period;
- ii) they failed to produce accounts during one of the chosen years (for reasons other than liquidation);
- iii) they changed category over the nine year period;
- iv) they became public in 1970 and entered the Stock Exchange record with no description of the 1970 accounts.

This reduced the original sample of 1,047 firms to 953, a net loss of 94 firms or 8.9% of the total. Appendix B

lists the total of 1,047 firms by name and category. It should be noted that the firms' names are those used in 1970 since many businesses changed their names over the period, for example "Ditchburns" which in 1973 became "Adda International" only to adopt the title "Comfort International" in 1978. This phenomenon of altering designations proved to be a constant difficulty, and the use of Dun and Bradstreet's publication "Who Owns Whom" was invaluable in the task of establishing identities (61/annual). Appendix C shows the 30 categories, the number of firms in each category, the number of companies excluded from the sample by category and the fate of the remainder in each group between 1970 and 1978.

From the Stock Exchange Year Books, six variables were calculated to represent:

- a) Size of company
- b) Growth of company
- c) Directorial control of company
- d) An Index of Takeover Activity for each group
- e) Index of increase in Shareholder Wealth over the period for each company
- f) Rate of Return on net assets for each company.

A full definition of the calculations is contained in Appendix A, and the rationalisation for their use is contained in a later chapter.

The time period chosen, 1970 to 1978, was selected because it contributed to the research record a sample over a different time period from those found in other major studies. The latest detailed study of mergers was Meeks (153/1977) dealing with the years 1948 to 1971, and Singh in his further study (199/1975) covered the span from 1963 to 1970. It was hoped to sample over a ten year period, but the categorisation of firms in the Stock Exchange Year Books was radically altered in 1970 making comparisons with 1969 difficult; therefore a nine year period was accepted. The passage of time between 1970 and 1978 proved to be particularly apt since it covered both a time of high and low merger intensity.

In determining the value of variables, there is a particular problem with respect to the timing of accounts. The publication of annual accounts occurs throughout the calendar year, although there is a tendency for accounting years to end clustering round March, December and September. There is also a period of about six months between the ending of the accounting year for a firm and the issue of those accounts around the time of the Annual General Meeting. There had therefore to be a consistent rule for the start and end of the period with respect to the accounting year. In order to qualify as 1970 accounts, they had to be published between June 1969 and June 1970, and 1978 accounts were those falling between June 1977

and June 1978. Therefore if we allow for an average of six months between financial year close and issue of accounts, the calculations reflect the financial experience of the years 1969 to 1977. The data was then placed on file on an ICL 1906A Computer at the University of Manchester Regional Computing Centre and transferred to a CDC 7600 for analysis.



1.4.2. The Comparison Sample: Victims, Predators and Neutrals

Although the Stock Exchange Year Books provided an excellent supply of continuous data by the nature of the source, it was somewhat limited in range. In order to explore a wider array of financial characteristics of acquiring and acquired firms, a second sample was located. This consisted of 50 companies who were taken over in the years 1978 and 1979, and 50 companies who were acquirers in those years. Additionally, a further 50 examples were selected of firms who had not either been taken over or acquired any victims in those years and also had been free of such actions in the five prior years. The total of 150 companies are, for convenience, referred to respectively as the "victim group", the "predator group" and the "neutral group".

The purpose of the neutral group was to provide a control group which would provide the possibility of sharp contrasts between predators and victims. In no way can the "neutrals" be regarded as average firms. It may be reasonably normal not to be the subject of a takeover bid carried to fruition in a six year period, but it represents a high degree of restraint not to acquire firms of small size during such a time span. Nevertheless, it was reasoned that a stark contrast might be obtained either with victims and/or predators, and if that contrast failed to materialise, it would make such a failure more emphatic in effect and increase the probability that the result was more assured.

The total 150 businesses which made up the sample were all quoted on the U.K. Stock Exchange. Foreign firms were excluded. Only companies which were embraced by the classification of Industrial and Commercial Companies (including Breweries) were accepted; the sample is therefore slightly broader in compass than the Consumer Durable/Non-Durable sample since it includes some firms in the engineering and capital goods manufacturing category. Thus companies involved in finance, property, commodities, mines, oil and overseas trade were barred from entry. The list of companies chosen will be found in Appendix D.

The companies involved in mergers were culled from the Annual Review of Takeovers and Mergers in the Investors Chronicle (99/1979), which is published in the January of each year (commencing in 1979) and which reports on all successful bids for quoted companies which became conditional during the preceding year. It was hoped to limit the sample to one year, 1978, initially, but in order to stay within the industrial/commercial classification it became necessary to extend the sample over two years. The non-acquired/non-acquiring group were taken from the Stock Exchange Year Books after checking their absence of takeover activity (either as originators or recipients) in any form. These "neutral" companies were matched with "victims" and "predators" timewise, that is to say the proportion of neutrals who were examined for the period

of five years prior to 1978 and five years prior to 1979 were approximately equivalent to the proportion of predators and victims taken collectively whose takeover incident occurred either in 1978 or 1979. No attempt was made to match for specific industry classification within the industrial/commercial grouping and visual inspection of Appendix D will show that there was a higher proportion of Stores and Breweries among the "neutrals" whereas manufacturing companies were more frequent in the "predator" or "victim" classes. No attempt was made to match for any characteristic such as size, since the purpose of the comparisons was to reveal the presence or absence of differences in these characteristics. There was no ordering of "predator" firms into raiders and non-raiders as was done by Kuehn (118/1975) on the basis of the number of takeovers made in the six years, since the aim was to discover the features involved in average takeover situations amongst quoted companies, and whether raider characteristics were important was left to the pure chance of the sample. No elaborate random method was devised in taking the sample; the members were enlisted in alphabetical order as they became eligible by satisfying the criterion outlined. List sampling, as this method is called, is known to have certain defects, such as a tendency for the letter M to include a large number of Scottish companies (because of the "Mac" prefix) but such objections were not considered serious.

Once the individual companies had been elected, their accounts for the five years prior to the merger situation but not including the year of acquisition were scrutinised. In the case of "neutrals" this was the five years prior to 1978 or 1979 (depending on the terminating year fixed as previously described). The acquisition year itself was not used since the research was about the nature of firms who became predators or victims and not about how they fared at the point of takeover. An equally valid objection is the fact that the accounts published in the period immediately following an acquisition often incorporate the results of the joint firms, making them useless for identification purposes.

The accounts over five years were obtained by visiting the Company Registry Offices in Cardiff, where microfilms were made of each relevant set of accounts. Once obtained, the set of accounts for each company in each group were analysed with respect to the following 14 variables. A full description of the definition of these variables is to be found in Appendix E. The reasons for the use of these particular variables are given in a later chapter.

- a) A measure of Size based on net assets.
- b) A measure of Growth, being the compound growth rate of net assets.
- c) A measure of Retention of funds as a ratio to net profit after tax.

- d) A measure of Gross Retention of funds, which is formed from adding depreciation to retentions and expressing as a ratio to net profits after tax.
- e) A measure of the extent of Directorial Control of voting shares.
- f) A measure of Profitability which is a ratio of net profit after tax to total shareholder funds.
- g) A measure of Gearing using long term loans as a ratio of total shareholder funds.
- h) A measure of the employment of External Funds divided by net asset size.
- i) A measure of the Average Valuation Ratio which is the market value of the company's equity divided by net asset value, averaged over a 5 year span.
- j) A measure of the Change in the Valuation Ratio over the five year period.
- k) A measure of the Final Valuation Ratio in the year preceding takeover or being acquired.
- l) An index of the change in the Wealth of Shareholders over the five year period.
- m) A measure of the Profit Margin defined as trading profit to turnover.
- n) A measure of Liquidity being liquid funds divided by total shareholder funds.

The data produced was then transferred by a terminal link from the University of Keele to a permanent file stored in an ICL 1906 A computer at the University of Manchester Regional Computing Centre and transferred to a CDC 7600 computer at U.M.R.C.C. for processing when required.

1.4.3. An Analysis of Merger Activity in the Consumer Durable/  
Non-Durable Sample

The sample based on predators, victims and neutrals has not been selected in reference to any historical context, its value lies in the distinguishing of characteristics peculiar to firms involved in acquisitions. The sample of 1,047 firms in the Consumer Durable/Non-Durable Sample and their fate over the years 1970 to 1978 does, however, offer an opportunity to reflect on the incidence of merger over a period of historical time. An analysis of that history will afford an opportunity to judge the extent to which that sample conforms to the lessons drawn from the earlier part of this chapter dealing with merger activity in the United Kingdom in general and also to display some additional features not previously commented upon.

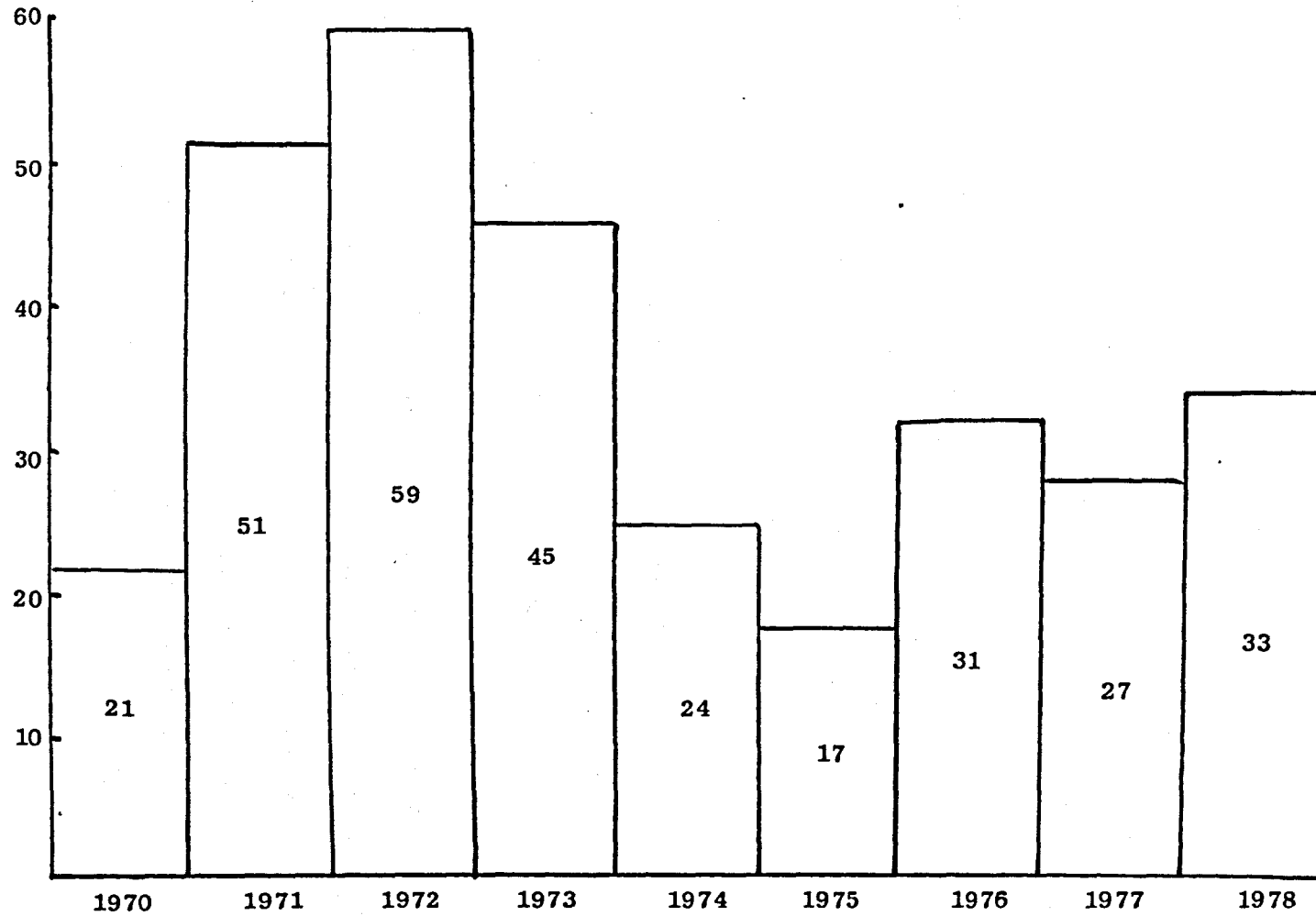
In the form of a histogram, Table 1.19 illustrates the number of acquisitions made within the sample over the period. It can be seen that the pattern of acquisitions reflects the general experience of merger activity in the U.K. A peak of takeovers took place in 1972, the pace slackened over 1974 and 1975, and then started to accelerate again towards the end of the period. The only abnormal feature of the figure is the low number of victims reported for 1970. This statistic may have been affected by a start-up effect in the data collection. It will be recalled that the firms were selected on the basis of entries in

TABLE 1.19.

CONSUMER DURABLE/NON-DURABLE SAMPLE (1970-1978)

DISTRIBUTION OF ACQUISITIONS BY YEAR WITHIN SAMPLE

(TOTAL NUMBER OF TAKEOVERS = 308)





the Stock Exchange Year Book in 1970, but where a firm quoted on a local Stock Exchange appeared at a date later than 1970 but nevertheless proved to have been in existence as a public quoted enterprise in 1970, then it was added back into the data. However, such a firm which was acquired between 1970 and 1973 would not have any chance to make an entrance at a later date and therefore be lost from the account. The chart is set out on the basis of number of takeovers without reference to the expenditure on acquisitions. Although the data collected would have permitted such analysis, it was not thought to be worthwhile. This was because the previously stated hypothesis was that the value of acquired firms increased during the peaks of activity more sharply than the number. Such an increase in value presumably derives from a switch from the takeover of small private firms to a greater emphasis on the takeover of quoted firms, but since the entire sample is composed of quoted firms, no light would be shed on this transfer by detailing the expenditures involved.

It has previously been remarked that most takeovers involve a publicly quoted company bidding for a small private firm. Table 1.20 supplies the evidence with respect to the acquiring behaviour of firms within the sample.

It can be seen that 953 firms in the sample took over a total of 1,597 businesses. Of the firms taken over,

TABLE 1.20

ANALYSIS OF ACQUISITION OF QUOTED, UNQUOTED AND FOREIGN FIRMS BY CATEGORY OF PREDATOR, 1970-1978

CATEGORY	NUMBER OF QUOTED FIRMS TAKEN OVER	NUMBER OF UNQUOTED FIRMS TAKEN OVER	NUMBER OF FOREIGN FIRMS TAKEN OVER	TOTAL NUMBER OF TAKEOVERS	NUMBER OF FIRMS IN CATEGORY IN 1970
Light Electronics	12	48	6	66	35
Radio and TV Rental	1	6	1	8	4
Floor Covering	3	12	2	17	22
Furniture and Bedding	1	16	0	17	31
Household Appliances	2	9	3	14	18
Kitchen and Tableware	2	34	0	36	18
Motor Components	11	83	11	105	41
Motor Distributors	12	134	5	151	50
Motor Vehicles	1	11	0	12	18
Breweries	14	19	1	34	38
Wines and Spirits	2	11	0	13	17
Hotels and Caterers	12	73	2	87	36
Leisure	24	96	11	131	64
General Food Manufacturing	19	78	7	104	58
Milling & Flour Confectionery	3	19	3	25	11
Food Retailing	21	48	2	71	42
Newspapers and Periodicals	1	7	0	8	12
Publishing and Printing	6	46	7	59	40
Packaging and Paper	23	59	3	85	47
Departmental Stores	10	41	2	53	28
Furnishing Stores	2	3	0	5	10

TABLE 1.20 (Continued)

## ANALYSIS OF ACQUISITION OF QUOTED, UNQUOTED AND FOREIGN FIRMS BY CATEGORY OF PREDATOR, 1970-1978 (Continued)

CATEGORY	NUMBER OF QUOTED FIRMS TAKEN OVER	NUMBER OF UNQUOTED FIRMS TAKEN OVER	NUMBER OF FOREIGN FIRMS TAKEN OVER	TOTAL NUMBER OF TAKEOVERS	NUMBER OF FIRMS IN CATEGORY IN 1970
Stores: Mail Order	2	5	0	7	9
Stores: Multiple	16	41	5	62	46
Clothing	18	138	7	163	92
Cotton and Synthetic	5	20	0	25	21
Wool	10	29	0	39	34
Miscellaneous Textiles	15	70	1	86	56
Tobacco	8	16	0	24	7
Footwear	6	52	4	62	35
Toys and Games	0	25	3	28	13
TOTALS	262	1,249	86	1,597	953

262 (16.4%) were quoted companies, 86 (5.3%) were foreign and 1,249 (78.2%) were unquoted (and therefore, in the main, private undertakings).

423 of the 953 sample enterprises acquired one or more firms, 530 made no such conquest. Thus, slightly less than half (44.4% in fact) were involved in takeover, and 55.6% were not implicated over the nine year period.

One surprising fact that emerged from closer scrutiny was that of the 423 firms involved in acquisitions, 101 were companies that later failed owing to being taken over themselves or by being liquidated. Since the 953 firms divide into 598 who continued in existence throughout the period and 355 who failed during that time, about twice as many continuing firms (54%) participated in making acquisitions than the proportion of failed firms so engaged (28.4%). However, of the 1,597 firms acquired, the 101 failed companies took over 356 and the remaining 1,241 were possessed by 322 continuing companies.

Therefore:

Average number of firms acquired

$$\text{by each failed firm} = \frac{356}{101} = 3.5$$

Average number of firms acquired

$$\text{by each continuing company} = \frac{1,241}{322} = 3.8.$$

Since the failed firms by definition did not complete the run of 9 years, and if we assume that on average the

failed firms lasted only 50% of the 9 year period, there is an implication that firms who were endangered were twice as aggressive as continuing companies. At the minimum it can be asserted that acquiring behaviour is no antidote to the risk of failure.

Further evidence of the aggression by firms whose survival is in doubt lies in the fact that analysis of the figures shows that 7% of the continuing companies made acquisitions of 5 or more firms, whereas the corresponding percentage for failed firms was 8%. Again the observation that failed firms did not last over the 9 years indicates that in the shortened period available they were more intensively engaged. It should be re-emphasised that the taken over count includes both quoted and unquoted companies as well as foreign firms. The failed firms took over 52 quoted businesses as against 210 by the continuing group, and 14 foreign companies as compared with 72. Since there are 3 continuing companies engaged in merger activity for every 1 failing company, and since the continuing companies took over 4 times as many quoted firms and 5 times as many foreign enterprises, it is clear that the balance of activity with failing firms is tilted towards the smaller unquoted firm.

From Table 1.20 we may read that of the 1,597 takeovers undertaken by members of the sample between 1970 and 1978, about 5% (86) were of foreign firms. This compares with

the 6% of acquisitions revealed in Table 1.21. The same table shows, however, that in value terms the expenditure on foreign acquisitions was about 11.5% of total acquisition expenditure. The inward effect (i.e. takeover of U.K. companies by foreign companies) was much smaller, about 2% by number and 6% by value. Calculations based on the Consumer Durable/Non-Durable Sample showed that of the 307 takeovers of sample firms, 28 were foreign, namely :-

U.S.A and Canada	-	16
Irish Government	-	1
E.E.C. Countries	-	5
Other Overseas Countries	-	6
		—
Total		28
		—

This was about 9% of the total. It is possible that companies within the Consumer Durable/Non-Durable categories were more attractive than other types of firms to foreign buyers.

It is clear, in whatever way one interprets the figures, that merger activity in the U.K. economy is largely internally generated, and that one may argue the causes of such activity without, at the moment, having to pay any great amount of attention to the international dimension of such activity.

One serious defect of the data on which Table 1.21 is based is worth some attention. That is that the count

TABLE 1.21

INTERNATIONAL ASPECTS OF U.K. TAKEOVER ACTIVITY 1969-1979

	<u>Number of Companies Acquired</u>	<u>Expenditure on Companies Acquired</u>	<u>Average Expenditure per Firm Acquired</u>
(a)	<u>Within U.K.</u>	<u>Within U.K.</u>	
	7,692	£11,805.4 million	£1.5 million
(b)	<u>Within U.K. by foreign firm</u>	<u>Within U.K. by foreign firm</u>	
	156	£723.9 million	£4.6 million
(c)	<u>Overseas<sup>+</sup> by U.K. firms</u>	<u>Overseas<sup>+</sup> by U.K. firms</u>	
	529	£1,540.4 million	£2.9 million

+ including E.E.C.

SOURCE: BUSINESS MONITOR M7.

NOTE: See text for certain problems with data interpretation.

of foreign firms being acquired by U.K. companies and of U.K. enterprises being taken over by foreign firms excludes all cases where a subsidiary of a foreign firm acquires a U.K. company (which is included in the general figures for U.K. acquisitions), and where a subsidiary of a U.K. firm located abroad purchases a foreign firm (which is totally missing from the data). Also, since the Business Monitor returns are culled from newspaper reports in the British press, there is a greater likelihood of the takeover of small overseas and E.E.C. firms not being reported. For the latter reason, it is probable that the difference in average size of firm being taken over which is shown as £2.9 million for foreign firms as against £1.5 million for U.K. firms, is more a reflection of data collection defects than a substantial piece of information. The same objection does not, however, lie against the statistic showing that the average size of U.K. company acquired by a foreign firm was about £4.6 million. There is no reason why the size of firm being taken over by a foreign or a U.K. company should suffer from a differential threshold with respect to reports in the British press. It is even possible that because of the slight xenophobia which affects most European nations, the reverse might be true. Therefore, subject to the aforementioned caution that subsidiaries of foreign company already located within the U.K. making acquisitions are not classified as



takeovers by foreign firms, there do seem to be indications that foreign acquisitions are substantially larger in size than U.K. ones.

Takeovers have been classified into three major types: Horizontal, Vertical and Diversified (or conglomerate). In section 1.3.(4) of this chapter, it has been remarked that there is an increasing tendency for the number of diversified mergers to grow (the same being true if expenditure is the measure), although horizontal mergers predominate. This contrasts with the situation in the U.S.A. where, by 1968, about 80% of all mergers were conglomerate in some form (U.S. Federal Trade Commission (26/1969)). The reason for the difference between the two countries is usually attributed to the strength of U.S.A. anti-trust legislation which dates from the turn of the century, as against the British legislation which only really started to take root in 1948 with the passage of the Monopolies and Restrictive Practices Act of that year, it being more likely that horizontal and vertical mergers would fall foul of anti-trust legislation than diversified mergers.

Table 1.22 based on the category of predator making acquisition within the 1970-1978 sample does not, however, bear out this view. Of the 307 takeovers that occurred, on average 20.2% were made by firms within category

## PROPORTION OF TAKEOVERS WITH PREDATORS INTERNAL AND EXTERNAL TO THE INDUSTRIAL CATEGORY

CATEGORY	PERCENT OF TAKEOVERS WITHIN INDUSTRIAL CATEGORY	PERCENT OF TAKEOVERS WITH PREDATOR EXTERNAL TO INDUSTRIAL CATEGORY	CATEGORY	PERCENT OF TAKEOVERS WITHIN INDUSTRIAL CATEGORY	PERCENT OF TAKEOVERS WITH PREDATOR EXTERNAL TO INDUSTRIAL CATEGORY
Light Electronics/ Radio & TV	50.0%	50.0%	Packaging and Paper	30.8%	69.2%
Radio and TV Rental	0%	100.0%	Departmental Stores	33.3%	66.7%
Floor Coverings	0%	100.0%	Furnishing Stores	33.3%	66.7%
Furniture and Bedding	16.7%	83.3%	Stores: Mail Order	33.3%	66.7%
Household Appliances	0%	100.0%	Stores: Multiple	27.3%	72.7%
Kitchen and Tableware	0%	100.0%	Clothing	28.6%	71.4%
Motor Components	16.7%	83.3%	Cotton and Synthetic	0%	100.0%
Motor Distributors	21.0%	79.0%	Wool	66.7%	33.3%
Motor Vehicles	42.9%	57.1%	Miscellaneous Textiles	17.7%	82.3%
Breweries	25.0%	75.0%	Tobacco	0%	100.0%
Wines and Spirits	28.6%	71.4%	Footwear	27.3%	72.7%
Hotels and Caterers	7.1%	92.9%	Toys and Games	0%	100.0%
Leisure	32.0%	68.0%			
General Food Manufacturing	24.0%	76.0%	AVERAGE	20.2%	79.8%
Milling & Flour Confectionery	0%	100.0%	STANDARD DEVIATION	17.4%	17.4%
Food Retailing	33.3%	66.7%			
Newspaper and Periodicals	0%	100.0%			
Publishing and Printing	10.0%	90.0%			

TOTAL NUMBER OF TAKEOVERS ANALYSED = 307.

on other members of that category, as against 79.8% which involved acquisitions by firms outside of the victim's category. The statistics are based on numbers of takeovers and not expenditures, although since all the acquisitions are of quoted firms, the finding does not suffer from the confusions that often arise when the takeovers of large numbers of small unquoted firms are accumulated with the acquisitions of quoted companies. The conclusion must be amended to take into account the fact that 9% of the predators were foreign companies and 13% were themselves private and unquoted firms (which therefore defy classification). Subtracting the percentages, there still remains a verdict that 58% of the mergers were either diversified or vertical. Since vertical mergers are not common, and if we accept the proportion of 8% as the maximum for vertical mergers stated in Section 1.3.(4) of this chapter, we are still left with the uncomfortable conclusion that 50% of mergers were diversified, as against 20% horizontal.

The standard problem of assessing diversification is the problem that, depending on how narrowly or widely a category is drawn, so the proportion of diversified activity rises or falls. Almost all the studies of diversification are based on the use of the Standard Industrial Classification, whereas the categories of this study are based on the schedule organised by the Institute of Actuaries.

The standard Industrial Classification, used extensively in Government statistics in order to ensure uniformity of treatment, divides economic activity into 27 major sub-divisions called orders. These are very wide groupings and hence favour the horizontal classification of mergers. If we consider Order III, Food, Drink and Tobacco, which bears direct comparison with industrial sectors within the 1970-1978 sample, then it can be seen to include 5 of the Stock Exchange Listing Groups, namely :

Breweries; Wines and Spirits; General Food  
Manufacture; Milling, Flour, Confectionery;  
Tobacco.

Any takeovers within these 5 headings would rank as diversified for purposes of this study, and horizontal if the S.I.C. coding was being employed. Therefore there is no necessary conflict with Singh's finding (198/1971) that of 488 quoted companies in manufacturing reported acquired between 1948 and 1960 almost 60% were horizontal in form.<sup>(10)</sup> More disturbing is Kuehn's ruling (118/1975) that in a sample of 593 takeovers between 1957 and 1969 less than 8% could be classified as diversified. Kuehn used the same Stock Exchange classifications as this study, and the disparity in judgements is alarmingly wide. Kuehn used a greater number of categories, and one possible explanation is that additional categories (mainly in

(10) Although Singh used the S.I.C. classification in the passage from which this is quoted, he divided the Orders into industries and so Order III was broken down into Food, Drink and Tobacco industries.

engineering, capital goods, chemicals, holding companies, shipping, oil, pharmaceuticals and office machinery), were more prone to within-category merger than the Consumer Durable and Non-Durable groups. However, the balance of argument must surely be that between 1970 and 1978 the diversified type of merger did increase in importance but the exact extent of the shift must await further research.

1.4.4. An Analysis of Death Rates and Causes within Categories

Prior to 1950 the major cause of death of quoted firms in the U.K. was liquidation. The support for this statement can be found in the study by Hart and Prais (87/1956). Singh (198/1971) signalled the arrival of a new situation in the period 1954 to 1960, where liquidations accounted for the deaths of only 9.5% of his sample, as against 75% due to acquisitions. The figures displayed in Table 1.23 indicate that using the average loss per category, 13% of the failures were by liquidation, and the remaining 87% arose from takeover. In no category did loss by liquidation ever exceed takeover losses. It must be emphasised that these figures represent the average of loss by category and the losses per category are not weighted by the number of firms in each category. Slight differences arise if we look at the total losses. If we consider the total 1,047 firms taken as the sample, 72 were rejected because they proved to be subsidiaries. Of the remaining 975 firms <sup>(11)</sup>:

	22 were excluded because of reorganisations or loss of quotation
	48 were liquidated
	307 were acquired
Total	<hr/> 375 <hr/>

(11) The figure of 953 firms quoted in Table 1.20 consists of 975 firms less the 22 not included in the sample because of reorganisation or loss of quotation.

## INCIDENCE OF TAKEOVER AND FAILURE IN 30 INDUSTRIAL/COMMERCIAL CATEGORIES (1970-1978)

CATEGORY	PERCENTAGE OF FIRMS CONTINUING THROUGH PERIOD	PERCENTAGE OF FIRMS TAKEN OVER	PERCENTAGE OF FIRMS FAILING THROUGH INSOLVENCY	CATEGORY	PERCENTAGE OF FIRMS CONTINUING THROUGH PERIOD	PERCENTAGE OF FIRMS TAKEN OVER	PERCENTAGE OF FIRMS FAILING THROUGH INSOLVENCY
Light Electronics/ Radio/TV	64.7%	29.4%	5.9%	Food Retailing	48.7%	46.2%	5.1%
Radio and TV Rental	75.0%	25.0%	0%	Newspapers & Periodicals	66.7%	33.3%	0%
Floor Coverings	68.2%	22.7%	9.1%	Publishing & Printing	73.0%	27.0%	0%
Furniture & Bedding	72.0%	24.0%	4.0%	Packaging and Paper	65.9%	29.5%	4.5%
Household Appliances	47.1%	41.2%	11.8%	Departmental Stores	56.0%	36.0%	8.0%
Kitchen & Tableware	56.3%	37.5%	6.3%	Furnishing Stores	66.7%	33.3%	0%
Motor Components	44.1%	52.9%	2.9%	Stores: Mail Order	50.0%	37.5%	12.5%
Motor Distribution	59.2%	38.8%	2.0%	Stores: Multiple	68.4%	28.9%	2.6%
Motor Vehicles	56.3%	37.5%	6.3%	Clothing	62.8%	22.1%	15.1%
Breweries	65.7%	34.3%	0%	Cotton & Synthetic	25.0%	62.5%	12.5%
Wines and Spirits	50.0%	43.8%	6.3%	Wool	60.0%	33.3%	6.7%
Hotels and Caterers	51.7%	48.3%	0%	Miscellaneous Textiles	60.0%	34.0%	6.0%
Leisure	51.8%	44.6%	3.6%	Tobacco	60.0%	40.0%	0%
General Food Manufacturing	50.0%	48.0%	2.0%	Footwear	54.3%	31.4%	14.3%
Milling and Flour Confectionery	50.0%	40.0%	10.0%	Toys & Games	75.0%	16.7%	8.3%
				AVERAGE PERCENTAGE	58.5%	36.0%	5.5%

A CHI SQUARED TEST OF DIFFERENCE BETWEEN CATEGORIES SHOWED THE DIFFERENCES WERE SIGNIFICANT AT THE 1% LEVEL.

TOTAL NUMBER OF FIRMS IN SAMPLE = 953.

On this basis, 13% of failures were liquidations and 82% represent acquisitions. We might reasonably suspect that some of the 22 exclusions from the sample probably also eventually fell into receivership, but since their subsequent history was not traced, no such deduction can be made. The change in percentages does not alter the conclusion that takeover is the predominant factor in ending the existence of the life of quoted companies.

Of course, acquired firms may still in the main continue to exist, though under a changed title and new managers. Even the physical assets of liquidated companies are normally bought by competing businesses. So in terms of assets employed, these deaths do not represent necessarily a loss to industry as a whole. The figures do, however, have a bearing on the issue of increasing concentration within U.K. industry.

It has been argued, by for example Ma (138/1960), that the liquidations recorded grossly understate the actual score, since many takeovers are possibly only alternatives to liquidation. The point has already been dealt with in Section 1.3.2 of this chapter where the lack of difference between the profit record of acquirers and victims found in previous research seems to preclude this judgement as a general rule, although the observation may be true in specific instances.



In order to test further this conclusion, a non-parametric test (Spearman's Method of Rank Differences) was made of the correlation between the proportions of takeovers and liquidations within each category. The reasoning behind the test was that if takeover and liquidation were alternative methods of dealing with distress, we would expect to find that some categories facing difficult market conditions for their product or service would have high values for takeovers and liquidations, and the opposite effect would occur for industrial groups experiencing prosperous market conditions. The correlation found of 0.168, with its implied coefficient of determination of less than 3%, provides little support for the conclusion.

The birth process was not specifically examined in this study. Firms gaining a listing on the Stock Exchange in 1970 and after were not incorporated in the analysis and no count was kept of their number. The issue was not judged to be of importance to the purposes of this research, although it is of importance to the question of whether market concentration is being increased by merger activity. There is a general acknowledgement that the number of independent firms with a quotation on the U.K. Stock Exchange has declined over the decades which commenced in 1960. This decline has been attributed to two causes:

- (a) One of the requirements for a listing on the U.K. Stock Exchange is that 25% of the equity capital must be in the hands of the public. This normally involves an "offer for sale" where shares are offered at a fixed price by an issuing house which underwrites the offer and therefore accepts the risk that the venture may not be successful. This is a costly affair. The Committee to Review the Functioning of Financial Institutions (8/HMSO/1978) estimated that in order to raise £2 million in Ordinary Shares the total cost (which includes legal fees, printing, fees to Stock Exchange, costs of advertising, underwriters' commission and Broker's commission) would amount to £152,900, or 7.6% of the total.
- (b) The ease with which a company with a Stock Exchange quotation may be taken over, despite having a good record of profitability, has deterred companies from seeking a listing.

In order to check on this decline in quoted companies, a comparison was made between the number of firms in each of the main categories of the Stock Exchange Year Books for 1970 and 1978/79. The categories covered included all sections dealing with companies except for Waterworks and Equity Stocks denominated in a foreign currency or

a currency of an overseas sterling area. The listings were drawn from the Appendices showing the "Classification of Listed Companies by Actuaries Security Groups" which excludes subsidiaries, foreign companies and firms not listing their equity shares. From the details disclosed in Table 1.24, we can see that the number of listed firms suffered an overall decline of 28.6%. The categories within which the 1970-1978 sample was framed, namely Consumer Goods (Durable and Non-Durable) showed a loss of about 21% (based on the weighted average). The matter is not, however, quite as simple as this. Between 1970 and 1978 new firms were admitted to listings (as well as a few firms previously quoted on local Stock Exchanges who became listed in the Stock Exchange Year Books after the amalgamation of Stock Exchanges in 1973). From the evidence of Table 1.23 we can note that within the Consumer Goods section about 41% of firms were lost to takeover and liquidation. Since the net decline was 20%, we may reasonably infer that 20% of new quotations were made in the period.

From the Stock Exchange Year Book appendix dealing with "Registrations under the Companies Acts since 1862" it is possible to calculate that on average 50,500 new companies were registered under the Companies Acts in England, Scotland and Wales for every year between 1970

TABLE 1.24

CHANGE IN LISTING OF COMPANIES ON THE U.K. STOCK EXCHANGE 1970-1978

SOURCE: STOCK EXCHANGE YEAR BOOKS FOR 1970 AND 1978/1979.

NOTE: The figures exclude subsidiaries, foreign firms and firms not listing their Equity Shares.

<u>CATEGORY</u>	<u>FIRMS LISTED IN 1970</u>	<u>FIRMS LISTED IN 1978</u>	<u>LOSS (-) OR GAIN (+)</u>
<b>A. CAPITAL GOODS</b>			
Cold Formed, Fastenings and Turned Parts	Not separated from other engineering categories.	8	Not applicable
Bricks and Roof Tiling	14	9	- 5
Builders Merchants	24	17	- 7
Building Materials	51	36	- 15
Cement and Concrete	11	8	- 3
Paint	11	11	Nil
Timber	29	19	- 10
Contracting and Construction	130	99	- 31
Electricals (Electronics and Radio)	43	34	- 9
Boilermakers	6	2	- 4
Founders and Stampers	20	25	+ 5
Industrial Plant, Engines and Compressors	49	34	- 15
Mechanical Handling	15	15	Nil
Pumps and Valves	11	9	- 2
Steel and Chemical Plant	16	12	- 4
Wires and Ropes	10	8	- 2
Miscellaneous Engineering	143	91	- 52
Machine Tools	36	25	- 11
Miscellaneous Engineering Contractors	12	13	+ 1
Heating and Ventilation	15	4	- 11
Instruments	21	12	- 9
Metallurgy	26	21	- 5
Special Steels	16	17	+ 1
Miscellaneous Metal Forming	Not separated from other engineering categories.	7	Not applicable
<b>TOTAL CAPITAL GOODS</b>	<b>709</b>	<b>536</b>	<b>-173</b>
	<b>REDUCTION OF 24.4%</b>		

<u>CATEGORY</u>	<u>FIRMS LISTED IN 1970</u>	<u>FIRMS LISTED IN 1978</u>	<u>LOSS (-) OR GAIN (+)</u>
<b>B. <u>CONSUMER GOODS (DURABLE)</u></b>			
Electronics and Radio	37	29	- 8
Radio and TV Rental	5	5	Nil
Floor Covering	20	16	- 4
Furniture and Bedding	27	27	Nil
Household Appliances	18	11	- 7
Kitchen and Tableware	18	13	- 5
Motor Components	41	29	- 12
Motor Distributors	49	44	- 5
Motor Vehicles	20	15	- 5
<b>TOTAL CONSUMER GOODS (DURABLES)</b>	<b>235</b>	<b>189</b>	<b>46</b>
			<b>REDUCTION OF 19.6%</b>
<b>C. <u>CONSUMER GOODS (NON-DURABLE)</u></b>			
Breweries	36	27	- 9
Wines and Spirits	21	13	- 8
Hotels and Caterers	35	23	- 12
Leisure	62	46	- 16
General Food Manufacturing	54	41	- 13
Milling and Flour Confectionery	11	8	- 3
Food Retailing	40	29	- 11
Newspapers	17	12	- 5
Publishing and Printing	33	30	- 3
Packaging and Paper	47	38	- 9
Departmental Stores	26	18	- 8
Furnishing Stores	11	13	+ 2
Stores: Mail Order	8	7	- 1
Stores: Multiple	39	46	+ 7
Clothing	92	75	- 17
Cotton and Synthetics	19	17	- 2
Wool	37	23	- 14
Miscellaneous Textiles	56	40	- 16
Tobacco	9	7	- 2
Footwear	37	25	- 12
Toys and Games	11	8	- 3
<b>TOTAL CONSUMER GOODS (NON-DURABLE)</b>	<b>701</b>	<b>546</b>	<b>155</b>
			<b>REDUCTION OF 22.1%</b>

<u>CATEGORY</u>	<u>FIRMS LISTED IN 1970</u>	<u>FIRMS LISTED IN 1978</u>	<u>LOSS (-) OR GAIN (+)</u>
<b>D. <u>OTHER GROUPS</u></b>			
Plastics and Rubber Fabrication	7	13	+ 6
Drugs and Pharmacy	17	12	- 5
General Chemicals	32	29	- 3
Office Equipment	22	16	- 6
Oil	14	16	+ 2
Shipping	38	21	- 17
Freight and Fuel Handling and Manufacture	32	21	- 11
Industrial Holding Companies	94	108	+ 14
Laundries and Cleaners	16	11	- 5
Miscellaneous Categories not separated in 1970 data	45	38	- 7
<b>TOTAL OTHER GROUPS</b>	<b>317</b>	<b>285</b>	<b>- 32</b>
	<b>REDUCTION OF 10.1%</b>		
<b>E. <u>FINANCIAL GROUPS</u></b>			
Banks	6	6	Nil
Foreign Banks	15	7	- 8
Discount	11	11	Nil
Hire Purchase	11	11	Nil
Insurance (Life)	10	10	Nil
Insurance (Composite)	16	9	- 7
Insurance (Brokers)	13	13	Nil
Investment Trusts	292	205	- 87
Merchant Banks	19	15	- 4
Property	129	94	- 35
Financial Trusts, etc.	39	65	+ 26
<b>TOTAL FINANCIAL GROUPS</b>	<b>561</b>	<b>446</b>	<b>-115</b>
	<b>REDUCTION OF 20.5%</b>		
<b>F. <u>COMMODITY GROUPS</u></b>			
Rubbers	97	34	- 63
Teas	107	25	- 82
Copper	9	2	- 7
Mining Finance	40	9	- 31
Tin	35	18	- 17
Diamonds	9	Not listed. Not applicable.	

<u>CATEGORY</u>	<u>FIRMS LISTED IN 1970</u>	<u>FIRMS LISTED IN 1978</u>	<u>LOSS (-) OR GAIN (+)</u>
F. <u>COMMODITY GROUPS (Continued)</u>			
Gold	62	3	- 59
Miscellaneous Mines	24	6	- 18
Overseas Trade	92	42	- 50
	<hr/>		
TOTAL COMMODITY GROUPS	475	139	-336
	REDUCTION OF 70.7%		
	<hr/>		
OVERALL TOTALS	2,998	2,141	-857
	REDUCTION OF 28.6%		
	<hr/> <hr/>		

and 1978. This is more than adequate to replace the net loss revealed in Table 1.24 of 857 quoted firms. Of course, most firms registered are private and only a small proportion ever seek the right to raise capital from the public at large (on the 31st December 1979 the number of companies on the registers in Great Britain was 726,677, of which 16,015 were public and 710,662 private). Even so, if we assume that the 2% of registered companies become public, as is implied by the 1979 count, then there is a potential for about 9,000 new public companies from the 454,500 new creations between 1970 and 1978 (accepting that there is often a lag of many years between registration and gaining status as a public company, and accepting also that not all public companies actually seek a quotation). We can therefore agree with the view that there was a decline in the number of companies requesting a listing on the U.K. Stock Exchange and hence the view that mergers have been a significant factor in the growth concentration in the U.K. economy since it has already been established that mergers are the major source of loss of quoted firms.



## 1.5. PROBLEMS ARISING FROM THE USE OF ACCOUNTING DATA

### 1.5.1. Variations in Accounts

The data used in this thesis was drawn almost exclusively from the published accounts of companies with the major exception of the analysis of Stock Exchange share prices required to establish market value and the increase or decrease in shareholder's wealth. The accounting information was derived directly from the accounts in the case of the Predator/Victim/Neutral sample, and indirectly in the case of the Durable/Non-Durable Consumer Goods firms sample, where various issues of the Stock Exchange Official Year Book were consulted, supplemented by analyses in the Investors Chronicle and Extel cards.

There are, however, reservations which must be expressed with respect to the interpretation of data derived from published accounts.

One problem arises from the fact that firms have variable accounting years. Typically, the accounting year runs from December to December, March to March and July to July, although any yearly period is open for the firm's choice. This makes for difficulty in defining what is meant by, say, the accounts of Firm X for 1971. Although this fact makes for immense complexity when a close study of accounting data is being made, especially with respect to changes in legislation governing tax levels, it was not considered to be a serious handicap in this study. This was for two reasons: (a) because most of the variables

constructed from the data were averages based on a run of several years, and (b) refuge could be sought in the view of Marris that the variables under study were to be set at long run levels by policy, and although to some extent this is an obvious simplification designed to make the theory more amenable to mathematical manipulation, in a sense it plays a vital function in the theory since a firm which allowed these variables of importance to the theory (such as retention rates, profit rates, etc.) to fluctuate wildly, would make it impossible to label firms as "profit maximisers" and "growth maximisers".

It was, however, necessary to make a firm decision as to an exact rule with regard to the relationship of the accounting year, and the observations entered into the data analysis under headings relating to given years. The rule adopted will be illustrated with respect to the Consumer Durable/Non-Durable sample, though by analogy the rule was also used with reference to the Predator/Victim/Neutral sample.

In order to qualify as accounting information with respect to the year 1970, a firm's accounting year had to commence not earlier than 1st July 1969 and not later than 30th June 1970. In order to be entered in the record of 1978, a firm's accounting year had to begin not earlier than 1st July 1977 and not later than 30th June 1978. It can be seen, therefore, that the year 1970 in the statistical analysis could include activities that began as much as 6 months before 1970 or ended 6 months into 1971. In the most extreme case under the heading 1970, one could

be comparing a firm whose accounting year ran from 1st July 1969 to 1st July 1970 with another company which was reporting activities generated during the period 30th June 1970 to 30th June 1971. There would be no escape from this dilemma by using the terminology 1969/1970, since this is a two-year period and accounts cover only 12 months, so the comparability would still present difficulties. Consideration was given to the device of adapting accounts to make them fit a calendar year framework, but since the accounts would already contain the results of timing decisions made by the accountants who prepared them under the "accrual" concept regarding receipts and expenditures, and no simple method appeared available to "doctor" the accounts to make them fit a procrustean framework without making the remedy worse than the disease. The use of interim accounts which most companies publish half-yearly (a few of the larger enterprises, quarterly) was explored, but there are such differences in the detail reported that they did not seem to offer a prospect of using them to secure conformity, especially in view of the fact that there was extreme difficulty in locating such accounts 7 to 8 years after their publication. There was, for example, no record of them in the microfilm data produced by the Company Registry<sup>(12)</sup>. Therefore, due caution must be exercised in making reference to the years reported in the thesis.

(12) There is no statutory provision requiring the production of interim reports; however, companies whose securities are listed on the Stock Exchange are required to produce them by the listing agreement. Interim statements are not audited.

There is considerable variation in accounting practice. Although the Companies Acts impose an obligation to report a great deal of information, and although custom and precedent tend to impose broadly similar patterns, the amount of detail disclosed and its classification depends ultimately on the judgement of the Directors of the company as to what is necessary to give a "true and fair view" of the affairs of the Company. There is also a wide scope in accounting practice for subjective judgements to be made on methods of attaching money values to assets and liabilities. The opportunities for this are many and varied. Although most companies use the straight line (i.e. fixed instalment) method of depreciation, there are several other acceptable methods such as declining balance, sum of the year's digits, the production unit, the annuity and the sinking fund methods. Although "goodwill" is normally written off immediately against reserves, this practice is not universal. There are differences in the treatment of research and development; the conservative practice is to write it off as it occurs, but it may be offset against future expenditure. Since 1976 (with the introduction of the Statement of Standard Accounting Practice 9/76), it has become accepted that the value of stocks and work in progress should incorporate fixed overheads, but prior to this period it was open to companies to value such goods excluding overheads. Even under SSAP 9, there is great latitude open on valuing contractual work in progress, depending on whether it is considered that the profit attributable to the part of the contract

completed should be added into the accounts, or whether it is considered prudent not to do so because "the outcome cannot be assessed with reasonable certainty".

The examples given of account variation are by no means exhaustive (the difference between leasing and outright purchase of capital equipment, which is a different legal form of what is generally in substance the same activity, has not been mentioned for example). The production of Statements of Standard Accounting Practice issued by the Accounting Standards Committee, will no doubt make for greater uniformity in the future, but the Committee was only set up in 1970 and during the period covered by the research the SSAPs were being issued (there were 18 statements in being by September 1980), so that they would only affect the accounts reported towards the end of the sample period. The accounting policies of companies with reference to the most important sources of variations has been required since November 1971 (Statement of Standard Accounting Practice No.2), but it was judged to be impracticable to seek to adjust accounts in the light of this information.

#### 1.5.2. The Effects of Inflation on Accounting Reports

Another source of distortion in accounts stems from the results of inflation. Historical cost accounting works adequately in a period of stable prices, and the scope for subject judgement on the value of assets is reasonably circumscribed.

The book value of assets, in the absence of inflation, is a fair guide to the value of a business, but this breaks down during times of rapidly increasing prices. This occurs because depreciation is based on historical cost of assets and aims to recover the original amount invested in the assets during its probable life, but in inflationary periods this sum is insufficient to enable the asset to be replaced, which then threatens the ongoing life of the business, since profits will be overstated and too liberal a distribution of those profits could actually lead to the capital of the business being reduced, as well as leading to a taxation charge on profits which is partly a tax on the capital of the enterprise. Other disturbing effects on accounts published under the historic cost convention in terms of inflation are reflected in costs of sales which underestimate the expense of stock consumed, thus falsely boosting profits; and also working capital needs periodic replenishment to enable it to meet the needs of the business to finance debtors and provide cash for the running of the business, thus making it necessary for a company to invest in additional liquidity.

During the period over which the samples were taken, inflation was exceptionally severe. Between 1968 and 1978 the value of the £ was reduced by two-thirds. The year to year inflation based on the Index of Retail Prices is displayed in Table 1.25.

TABLE 1.25

INFLATION RATES 1969-1979

<u>Year</u>	<u>Percentage Increase in Inflation over Previous Year</u>
1969	5.4
1970	6.4
1971	9.4
1972	7.1
1973	9.2
1974	16.1
1975	24.2
1976	16.5
1977	15.8
1978	8.3
1979	13.4

1974 = 100

SOURCE: Index of Retail Prices. Annual Abstract  
of Statistics 1980.

In practice it is doubtful whether the dire effects of capital destruction did in fact occur to the extent suggested by the figures since inflation was obviously increasingly anticipated during the period (the liquidity crises of 1974 and 1975 when bank borrowing rose to unprecedented heights was probably an exception to this since the inflation rate, under the influence of the sharp rise in energy prices, was of a magnitude which was not foreseen). Evidence of this is provided by Kay and King (105/1980) who, on page 194 of the second edition of their book, show how mainstream corporation tax was avoided by large companies who, in 1978/1979, in over 50% of the instances, paid no mainstream corporation tax at all, and who in the remainder, rarely exceeded 30% payment levels, demonstrating that firms were able to offset the ravages of inflation on their cash flow using the reliefs provided by Government through accelerated inflation provisions and tax relief on stock values. However, the distortion in accounts would remain, to cause difficulty in measuring profit rates and growth rates, and in comparing those rates between firms, Cutler and Westwick, in the March edition of "Accountancy" (55/1973), using "Current Purchasing Power Accounting" (now fallen into disfavour with the accountancy profession and replaced by "Current Cost Accounting") demonstrated the differing effect on inflation on the earnings per share reported by selected companies, and showed that the true (i.e. adjusted for change in price levels) E.P.S. values were overestimated for



Manufacturing, Banks and Retail businesses but underestimated for Breweries and Insurance companies (who have large property elements in their portfolios).

The effects of inflation are particularly serious with regard to any investigation of Marris's theory, since the valuation ratio which plays an important part in that theory depends on a contrast between the book value of net assets and the market value of the company, and because the growth rate of net assets and the financing of that growth rate from retained profits are so central to his narrative. The managerial theory of the firm fundamentally rests on the assumption that the firm has discretion over its use of funds; if in fact firms were seriously threatened by a shortage of funds due to the demands of high inflation, then that discretion would have vanished, and with it the very phenomena which the research was meant to discover. These factors must be taken into account in judging the results of the empirical work set out in this and the succeeding chapter.

### 1.5.3. Stock Market Volatility

In measuring shareholder wealth in both the selected samples, the increase or decrease in share price depends not only on the wealth forecasts incorporated in the price at the start and end of the period, but also on general market expectations. If either sample period were such that share values were generally low at the start of the period and high at the end, then the wealth

(or loss) would be reflecting change of expectation as well as real factors producing prospects of increased or decreased dividend flows. The reverse situation would occur if the share purchases were made in boom conditions and sold in a depressed stock market situation.

Should a sample of share prices be drawn in either of the above circumstances, then the performance of the firm would have been confused with changes in the mood of investors between optimism and pessimism. A correction to share price data to show deviations from some index of market fortunes would then be necessary.

Examination of the Financial Times Industrial Ordinary Index over the sample periods showed that in both cases the assumed holding period of the shares were from peak to peak of that index. In the case of the Consumer Durable/Non-Durable Goods Sample, shares were bought in 1969 when the index had an average value of around 450 and were sold in 1978 when the level was about 470. The period of share purchase for the Comparison Sample (i.e. 1972 and 1973) found the Ordinary Index averaging 440 and the 1978 level was as stated above. In the first case between the relevant years the index completed a shallow cycle from 1969 to 1972/1973 and a cycle with a much deeper amplitude from 1972/1973 to the last half of 1977 and 1978. The Comparison Sample, of course, covered the same final cycle. It was therefore judged to be unnecessary to standardise the share price data to account for stock market oscillations.

## 1.6. AN EXAMINATION OF THE "CETERIS PARIBUS" CLAUSE

One of the difficulties associated with economic investigations is that the classical conditions for controlled experiment, where all variables other than the ones being studied are held constant, do not prevail. The ubiquitous "ceteris paribus" clause is then added to the argument, as much in the nature of a charm to ward off evil as with any hope that in some way special conditions did not prevail to cause difficulty in interpreting the findings.

### 1.6.1. Dividend Restraint

A study of the growth motivation of firms is made especially difficult because Government has intervened continually since the 1950s with the intention of aiding and assisting companies to grow (if not actually trying to force them to grow) by various policies constraining dividend payout.

Dividend restraint was in operation during the periods in which the samples were taken (i.e. from 1970 to 1978) in two forms. From 1965 to 1973 a company paid tax at a specified rate (at around 40% for most of the period) on all its profits whether distributed or retained, but in addition was required to deduct income tax at the standard rate on dividends paid. Thus undistributed profits were taxed at a lower rate than those distributed. From April 1973, discrimination ceased, and under the imputation system companies paid a fixed rate of tax on all profits but no longer were required to deduct dividends. (The requirement to pay advanced corporation tax

on dividends paid, introduced a timing difference as to when tax became due, but does not alter the situation materially). However, the change did not necessarily usher in a new era of freedom for firms to come to a straight financial judgement on the optimum relationship between the payout of dividends and retentions.

From July 1966 to December 1969 some control of dividend payout was in operation. The 1966 restraint required that there was to be no increase in dividends over a twelve month period; from 1967 to 1968 companies were requested to exercise moderation, and from then until 1970 there was an imposition of a 3.5% ceiling on dividend increases. For two years voluntary restraint was requested of companies, until in 1972 under the Counter Inflation Act of that year, companies were forbidden to declare dividends in excess of the dividends paid in the previous year. Later the legislation was amended to limit the rise in the sum distributed in any account year (initially at 5% and later amended to 12.5%), and this control continued in force until 1979.

The position from 1970 to 1978 was not unique; differential rates of tax on dividend payouts had been in force from 1947 to 1958 and, as pointed out above, from 1965 to 1973. The 1972 to 1979 measures of dividend restraint do appear to be a particularly virulent form of the disease. Whether in fact dividends were significantly damped down during the sample

period is difficult to decide. The increases permissible do not appear ungenerous during a time when it is known that company profitability, as measured by the replacement cost rate of return after deducting stock appreciation, fell heavily during these years. It is even probable that the fixing of a limit to dividend increases put pressure on companies to make an increase which, up to that target, could have been higher than they thought desirable. (13)

#### 1.6.2. Government Investment Allowances

The fact of Government discrimination against payment of dividends is only the reverse side of the coin to the efforts that Governments were making in the post-war world to encourage growth. The way in which Government has supported the retention by means of differential tax on profits retained and profits distributed (in favour of the former) has already been briefly described. In the period since the war, the Government has also increased the availability of retained profits for investment by offering a variety of allowances. The purpose of these allowances was to permit a faster write down of depreciation and hence recovery of the investment funds over a shorter passage of time. Prior to the start of the sample period in 1970<sup>(14)</sup>, a system of investment grants were in operation with respect to manufacturing industry for expenditure

(13) However, the Times (25 March 1980) reported that dividends increased markedly after the withdrawal of dividend control in July 1979. Between the first and second half of 1979 dividends rose by 70%.

(14) Since the system did not change until October 1970, because of the way in which the accounting period was related to a given year in the sample, the first year figures would arise in situations in which the investment grant system was still in force.

on new plant and equipment (service industries were restricted to initial allowances, although a higher rate of 30% was introduced in 1966 when the concession began), amounting to 20% of the total cost initially, rising to 25% in 1967 and falling back to 20% in 1969. Initial grants were paid irrespective of any tax relief, although the part of the cost of the asset which was available for tax relief through depreciation was reduced by the amount of the grant. In 1970 a new system of first year allowances was brought into being, in which expenditure on plant and machinery was eligible for a first year allowance of 60% and a standard rate of write down for depreciation purposes of 25%. By March 1972, this rate of initial allowance had been raised to 100% (80% between September 1971 and March 1972). Capital expenditure on plant and machinery in development areas, which had always been subject to different and more favourable treatment, was granted free depreciation and covered a wider range of assets. This latter change has remained in force and was current during the years covered by the sample. Accelerated depreciation in this form obviously increases the funds available to the firm, and moreover until such time as the total savings on the depreciation costs became eligible for tax, represents an interest free loan from the Government.

Governments have thus created conditions in which firms are encouraged to adopt a growth maximisation stance. In the

first place, by restricting dividend payouts and thus encouraging retention,<sup>(15)</sup> and in the second place by funding investment with what amounts to tax free loans. Moreover, firms, in the manner attributed to the growth maximising firm, are persuaded to over-invest (i.e. to invest funds beyond the point where the rate of return for an investment of the given class of risk is justified), since such investment does not have to pay the market rate of return for the use of external funds and, in addition, a company which invests continuously creates a deferred tax source which may never have to be paid until the rate of investment starts to slow down. The only requirement to make this magic formula for growth operational, is to ensure that sufficient profits are made to permit the tax relief to be earned. In the continuous investment case, although over-investment could be taking place below its "opportunity cost", this would not be evident to the investor in the shares of the company, since a low return which would be reported in the accounts without deduction of interest for the use of that money, would stand comparison with other returns in the market place which would have to bear the price of borrowed funds before being entered as profit in the accounts. The argument is similar to the one to be made against the use of funds by a firm arising from retention from profit which are employed in a manner which means that earnings are not recovering their "opportunity cost";

(15) Baumol et al (37/1970) suggest that the return on new capital is from four to five times higher than on retained profits.

what is being asserted is that if a firm is pursuing such a demand-growth pattern then the Government, by its taxation policies, is actively assisting this process. Thomas (Chapter 8, 208/1978) reports that following the introduction of corporation tax, the proportion of income paid in tax rises to around 16% in 1970 but by 1973 had fallen to just over 8% and by 1976 to 5%. Meanwhile the ratio of capital allowances to gross trading profits shows an opposite trend rising from under 40% in the period 1966-1970 to over 74% in 1971-1976.

Prest (176/1975, page 341) says that initial allowances amount to "a free gift if insufficient income is earned to repay them, a larger gift if the business continues to grow, and a growing gift if the business grows at an increasing rate".

### 1.6.3. The Profits Crisis

Another source of disturbance in the sample period running from 1970 to 1978, which may have affected the results of the investigation and nullified the "ceteris paribus" clause relates to the "profit/inflation" crisis of these years.<sup>(16)</sup> If one examines the rates of return of industrial and commercial companies (deducting North Sea Oil profits) expressed as gross trading profits less stock appreciation and capital consumption at replacement cost as a percentage of net capital stock at current replacement cost, i.e. approximating to a "real" rate of return; it will be seen that the pre-tax rate

(16) In a seminar on Profitability held on 1st April 1980 (W.E.Martin, 148/1981) the dramatic fall in the level of profit share/profitability in the U.K. since 1973 was acknowledged. Possible causes of the decline in the longer term (dating from about the mid-1950s) included:-  
a) a fall in the marginal productivity of physical capital;  
b) a shift in market power from "capitalists" to "labour";  
c) a crowding out by the public sector.  
No consensus of view was arrived at by the seminar.



of return has fallen from an average of about 10% from 1966 to 1969, to 5.8% from 1970 to 1977 (see Caves and Krause, 45/1980, Table 16, page 253)).<sup>(17)</sup> There is general agreement that such rates of return failed to keep abreast of inflation during the later period, and in 1974 led to the "liquidity crisis" of that year, causing the Government to rush through legislation to reduce taxation on stock appreciation and also for there to be a heavy reliance on short term loans (principally bank overdrafts). As a result, reliance on internal sources of funding fell from the 90% which had been common during the decade up to 1960, to 80% from 1971 to 1976 (Thomas, 208/1978, Table 11.1, page 310). It should be noted, however, that this fall in the use of internal sources had been gradually occurring throughout the 1960s (1961-1965 internal funds represented 84% of total sources; 1966-1970 represented 81% of total sources).

The greater the reliance on external sources of funding, the less strong is the argument that firms are able to grow while earning a low rate of return on funds, since they are unable to avoid the scrutiny of the external suppliers of such funds. Although such funding, even at 20%, is not necessarily large; in a period of economic stringency it is probable that the use of such marginal funds were essential to the survival of firms, and that therefore they were willing to demonstrate to the lenders that their use of funds was justifiable. Since Banks were major lenders during this period, one would have expected the scrutiny to have been sharp.

(17) The Bank of England estimated a decline in company profitability in the manufacturing section from about 18% return on capital in 1960 to 4% in 1978. (Bank of England Quarterly Bulletin, 2 December 1978).

The significance of this latter point is that the managerial theory of the firm is one that depends fundamentally upon the ability to exercise discretion of the management team, and this ability must have been to some extent jeopardised during the period.

#### 1.6.4. The Growth of Institutional Shareholding

It has long been recognised that the structure of ownership of equity shares has been changing in the United Kingdom over the period from 1960 to date. Figures by Moyle (162/1971) show that the percentage of registered holdings of shares held by persons, executors and trustees fell from 61.8% in 1957 to 51% in 1963, and down to 44.7% by 1970. A Department of Industry survey in 1975 (10/1979) showed that this category of holding had declined to below 40%. At the same time, institutional investors (insurance companies, pension funds, investment and unit trusts) increased their ownership of ordinary shares of U.K. companies from 19% to 47% by 1978 (Wilson Committee Report, 8/1980). This change in ownership can be attributed to the favourable tax treatment offered by successive Governments to pension and life assurance saving.

It is rather more difficult to disentangle what this means for the debate concerning the separation of ownership and control. Because of the need of these financial intermediaries to safeguard their investments by diversification, they do not, individually, hold more than a small percentage of the shares of any one company. In most cases their investment is strictly

governed by rules indicating the maximum percentage of the total market value they may own of any one firm and also limiting the proportion of their own funds that they may commit to the fortunes of a single enterprise. This consideration leads to the belief that they contribute to the general dispersion of ownership of equity.

On the other hand, although their expertise may be financial and not managerial, they are in a position to employ analysts to gain a greater understanding of a company's situation than that open to a private investor. Moreover, the institutions are relatively few in number, able to communicate easily amongst themselves, and possess possibilities of combined action which potentially could have a large influence on recalcitrant managers. The switch of their funds from Government Securities before the 1950s to company securities was partly motivated by the need to maintain the value of their funds in the face of accelerating inflation, giving them every incentive to exercise such powers. Their need to ensure marketability of their holdings means that they have, in practice, concentrated on the shares of large quoted companies, and have therefore narrowed the range of firms in which their interests lie to manageable proportions.

They may be voluntarily approached by Directors for support when some sensitive action is proposed, but one form of activity which seems to often lead to their intervention is when a contested takeover bid is made. There are numerous

examples of this to be found in press reports. Institutional objections were decisive in the rejection of the S.Pearson offer for the remaining shares in Pearson-Longman that it did not own in 1978; they were heavily involved in the Allied Breweries takeover of J.Lyons in the same year, and also in the Dalgety takeover of Spillers in 1979. Britannic Assurance blocked three takeover bids in 1979 for small engineering firms in which its maximum holding in any one never exceeded 11%.

There is little doubt that the Institutions are being encouraged to participate more actively in the affairs of firms. The example of successful economies such as Germany and Japan, where such intervention is strongly marked, has led to concern that they are not taking sufficient responsibility for their investments. However, it is probable that their need to disperse their investments to reduce risk in their total portfolio will mean that they will refuse to enlarge their financial commitments to individual companies and that their influence will be largely persuasive until a firm reaches a crisis such as possible insolvency or merger.

The ability of the Financial Institutions to switch shares from companies earning low returns on the basis of informed analysis and the possibility that the analysis will cause them to act in concert (not necessarily in collusion) does raise serious doubts about whether management of quoted companies can defy their shareholders' wishes and pursue growth at the expense of profitability.

In examining the results of testing any economic theory, specific circumstances will have occurred. It is a common burden of any social science research that the variables of interest cannot be isolated for study. Whether the circumstances surround the test situation in such a manner as to cast doubt on the findings must always be a matter of judgement. Inflation is not an unknown phenomenon since the war, but it did reach unprecedented heights during the sample period. Government intervention to promote growth has been a fairly consistent policy of all shades of political parties over the last three decades, but company income paid in taxes fell to its lowest level between 1970 and 1978. The changes in the ownership of shares may have been gradually shifting over the decades following 1950, but the economic crisis of the mid-1970s was of exceptional severity.

For the present, the "ceteris paribus" condition will be assumed to hold over the period while the results of the statistical work are reported in subsequent chapters.

## 1.7. SUMMARY OF CHAPTER

The chapter set out to fulfil two major tasks. The first of these was to describe some general trends in merger activity as revealed in official data. The second purpose was to outline the details of the two samples on which this research is founded and, by a preliminary analysis of certain features, to demonstrate that the samples reflected the major characteristics already disclosed by the general survey of mergers. By these means it was hoped to orientate the reader to the study of the takeover process by becoming aware of the factual background and also to inspire confidence in the samples selected for analysis.

In Section 1.1.1. it was shown that the legal form of amalgamation was not of significance in determining the actual intention of the parties and therefore that the terms "merger" and "takeover" would be treated as synonyms, except where the context implied that the legal form was at issue. In its strict legal definition, "mergers" were found to represent no more than 4 cases in every 1,000 acquisitions on average. The Section also covered some early merger history, bringing out the international nature of the phenomena, the existence of cyclical patterns and the evidence for a positive relationship to the business cycle in general, and rises and falls in Stock Market prices in particular.

Section 1.2. discussed the main features of official data on takeovers and then demonstrated the fluctuating pattern of mergers between 1960 and 1978. Whether measured by number of

acquisitions or expenditure on acquisitions, the series reached a climax in 1972, falling thereafter and starting to climb again from 1976. By deflating the expenditure series, it was possible to establish that during a period from about 1967 to 1972 the size of victims (which are known to be normally smaller in size than the acquiring firms) became larger than average during the total period, supporting the opinion that takeovers became a more fashionable option for a time, and that as a result, a greater number of larger enterprises became involved.

By means of correlation analysis, the hypothesis that merger activity was related to a general business cycle was examined in Section 1.3. The results appeared to confirm the supposition. There were some indications that the important influence at work was the manner in which rising share prices reduced the investment costs of acquiring additional capacity by takeover. The problem of whether mergers were heavily implicated in eliminating failing firms was also considered. Although the requisite statistically significant negative correlation between statistics of compulsory liquidations and the totality of acquisitions and mergers was confirmed, the hypothesis was not judged to be well founded in the light of other research work. In the final sub-section 1.3., types of takeover (i.e. horizontal, vertical and diversified), and methods of purchase were scrutinized. It was evident that the diversified acquisition had been growing in importance, and that there was a tendency to reduce the cash content of a bid during

periods of high merger activity and to increase the use of cash when frequencies were falling, which suggested further confirmation of the significance of high share prices in increasing the attractiveness of mergers.

The consumer Durable/Non-Durable Goods sample and the comparison sample (Victims, Predators and Neutrals) were described in Section 1.4. and the variables to be analysed briefly summarised. Because the comparison sample was selected on a "post hoc" basis, the burden of exhibiting the effect of merger activity on representative industrial/commercial firms fell to the Consumer Durable/Non-Durable sample. Examination of the latter sample indicated:

- (i) that the pattern of fluctuation in merger activity corresponded to the behaviour of the total population;
- (ii) that 44.4% of the firms engaged in at least one takeover between 1970 and 1978;
- (iii) that 78.2% of all takeovers were of unquoted firms;
- (iv) that 41.5% of the sample failed to survive (either because of being acquired or becoming insolvent) during the period 1970 to 1978;
- (iv) that 82% of all failures could be ascribed to takeover and 13% to insolvency.

It was also found that victim firms, prior to attaining that status, were abnormally active acquirers of unquoted firms. The extent of involvement by foreign firms in acquiring British companies was not large. Further examination of the firms assembled



in the Stock Exchange Official Year Books for 1970 and 1978/1979 lent support to the opinion that the number of quoted companies in the United Kingdom has fallen, which has implications for the problem of the increasing concentration of market power in the hands of a reduced number of enterprises.

Some of the problems in the use of accounting data were examined in Section 1.5., where it was demonstrated that in a study based largely on financial statements caution must be exercised due to variations in accounting practice and the effects of inflation on estimates of cost and profitability.

Section 1.6. lists certain factors which occurred during the period of this study and which may have affected the conclusions by reason of the special influence they generated. There were :-

- (a) Policies of dividend restraint.
- (b) Government intervention to promote growth.
- (c) The decline in profitability of British Industry.
- (d) The growth of Institutional shareholding.

## CHAPTER 2

### RESEARCH STRATEGY AND MERGER THEORY

## 2.0. AIM OF THE CHAPTER

The chapter opens with an account of the present disturbed state of the philosophy of social science. All research must work within some view of the canons governing methods of investigation, defining such matters as what are the criteria for the construction of theory and how that theory is to be judged as adequate or inadequate for its purposes.

It goes on to discuss the research strategy adopted within the thesis and offers justifying arguments to support the choice of strategy. The various ways in which merger activity has been examined are set out with the intention of demonstrating that working within the framework of the theory of the firm is an acceptable approach likely to yield fruitful results.

## 2.1. THE PHILOSOPHY OF SOCIAL SCIENCE

The beginning of the Social Sciences as a distinct discipline of study was founded upon the view that there are natural laws governing the working of society. In taking this view, the pioneers were much influenced by the enormous success achieved by the Newtonian system in dealing with the physical laws of nature and hoped to discover analogous edicts governing social activity. From the start there were doubts about the extent to which the quantitative methods of science might be applied in discovering these laws and

the problem of whether such laws might not be more clearly revealed by moral or personal introspection was canvassed from the earliest days onwards.

It is far from the purpose of this thesis to relate the history of method in economic theory. An excellent account of the developments in economic methodology can be found in Blaug (42/1980). It is of relevance to state that the methodology of the Social Sciences is in such turmoil at the time of writing that there is no settled conclusion as to the manner in which theories can be established and disestablished in Economics.

The issue would not be of great import if the purposes of the research were to examine merger activity in a "normative" manner. "Normative" as opposed to "positive" economics seeks to determine rules and prescriptions which will guide practical men of business on how best to undertake mergers or defend their companies against takeover approaches or avoid involvement in mergers altogether. Although such technical studies cannot avoid reference to theories of the firm or of the mixed capitalist economy which is the firm's environment since the definition of what is successful involves evaluation and interpretation, there can be a general acceptance on the basis of existing knowledge which will enable these tasks to be competently undertaken. A work such as Bean's "Financial Strategy in the Acquisition Decision"

(38/1975) is an example of this approach. (1)

Within the tradition of Positive Economics, it is possible to examine such questions as - have mergers been successful? - as is done by Meeks in "Disappointing Marriage. A Study of the Gains from Merger" (153/1977) or other such issues as - have mergers increased in concentration in the economy? - as in Hannah and Kay (86/1977) or Aaronovitch and Sawyer (27/1975), or - does the market for capital work efficiently in penalising firms who do not use capital efficiently and rewarding those that do? - which is the central question in Singh's two studies (198/1971 and 199/1975). Each of these studies works within existing theoretical frameworks.

The research strategy of this thesis has, however, a different orientation. It proposes to select a theory of mergers from amongst several possible theories, and poses the question - does the theory perform its task well? It is necessary for that purpose to have some views on what a "good" theory is and how the strengths and limitations of a theory may be assessed.

The difference in approach is important because the conclusions to be drawn from this research depend on the difference in aim. The aim is different because of a changing viewpoint in the intellectual climate of the times, on the ways in which research can contribute to the development of

(1) For example, a practical businessman faced with a takeover bid would be well advised to consider Newbould's finding (166/1970) that an active defence may defeat a bid, but if it does not, leads to an enhancement of the value placed by the bidder on the acquired firm.

understanding within a discipline. This development derives from what is referred to as the "growth of knowledge" debate.

In 1962 Kuhn wrote "The Structure of Scientific Revolutions" (1996) which attempted to draw some lessons from the history of science to demonstrate the importance of the social context in which scientific discovery is carried out. His most penetrating insight was to demonstrate that the formal logical systems of investigation that were taught as the methods of science were governed by social institutions and customs which were as important to the progress and development of the science as any rules of a logical nature which were employed. He portrayed "normal" science as an activity carried out by a scientific community with a constellation of beliefs, values and techniques which provided a metaphysical environment, the word "metaphysical" in this context referring to the way in which concepts are organised in order to provide a framework by which the real world may be apprehended. From time to time, this orthodox theoretical framework (which Kuhn refers to as a "paradigm")<sup>(2)</sup> is overthrown by a new paradigm, as the earlier system finds itself unable to function in the face of refutation and an increasing number of anomalies. At this point a "scientific revolution" occurs. Kuhn's work has been criticised on three major grounds:

(a) His description of revolutionary changes does not seem in accordance with historical fact since many

(2) It has been variously noted that the term "paradigm" is loosely employed in the works of Kuhn. The definition offered above covers the meaning of the term as it is normally employed in the literature.

changes of "paradigm" only occur over long periods of time in practice.

- (b) He over-emphasised the incompatibility of succeeding "paradigms" by arguing that scientists working within one intellectual tradition would find another intellectual tradition totally incomprehensible.
- (c) That scientific truth became relativistic reflecting its historical and social background but providing no grounds for a judgement on the progress of science in a rational manner.

Lakatos sought to restore the sense of progress to scientific endeavour by his description of "scientific research programmes" (1978). These were conceived of as clusters of more or less interconnected theorems. The purpose of science is not to select between alternative hypotheses by means of some "crucial experiment" but to use a "Popperian strategy of falsification" (which is described anon) to adapt the programme. If this adaptation permits the redefined programme to deal with a wider range of novel facts as well as retaining control of a large part of its original territory, then the programme is considered to be "theoretically progressive". If, on the other hand, the programme in dealing with its anomalies has to build in more and more assumptions which restrict the range of the programme, then it is said to be "degenerating". Lakatos' theory has

been subject to criticism on the grounds that if we are comparing not theories but "research programmes", then changes in theoretical assumptions within different programmes will make them non-comparable and therefore unable to be characterised as "progressive" or "degenerative".

The third crucial development to which we must refer is that which has already been mentioned as a "Popperian strategy of falsification". This strategy is outlined successively in the "Logic of Scientific Discovery" (1959/1934) and "Conjectures and Refutations" (1971/1963). Popper has sought to find an answer to the problem of induction, and in doing so to place scientific method on a sound logical footing. The problem of induction (which was pointed out long ago by the philosopher David Hume in the 18th Century) is that since induction relies upon a generalisation based on the accumulations of a finite number of specific examples, then there is no way in which the generalisation can be logically established to be true. To put the matter more simply, no number of cases in which it is found that A has the characteristic B can ever establish the statement that "all As are B". The innovation of Popper was to point out that the reverse of this is however logically correct, that if we can find an example of an A that has not the characteristic B, then we can establish the proposition that "all As are not B". Therefore, since generalisations cannot be established, they should be treated as conjectures,



and the purpose of science is to test these conjectures to find out if they can be falsified. Any conjectures which resists successive attempts at falsification will be maintained as the ruling theory awaiting the dawn of the day when it will succumb to a successful falsification. In this way, what has become known as the "hypothetico-deductive method" was given apparently secure foundations as an engine for scientific progress.

Unhappily, matters have not proved to be so well ordered. Any theory stands within a web of statements concerning assumptions and conditions which determine the manner in which the theory is supposed to operate. If a theory fails to survive some given test, then we do not know whether it is the theory itself which has failed or whether it is one or some of the auxiliary assumptions and conditions. In practice, therefore, it is perfectly possible to adapt any theory in order to preserve it against critical defeat by adapting one or more of its subsidiary characteristics, what Popper has referred to as "immunizing strategies". Popper has tried to meet the argument by suggesting that the only adaptations to be permitted to a theory under attack are ones which will increase its domain of application; amendments which restrict its domain will cause increasing loss of generality and so diminish its explanatory power. The defence is not, however, adequate to deal with the charge that falsification is a matter of degree and is therefore not inherently logical in

nature, if by "logical" we mean subject to rules of reasoning which are independent of their subject matter.

The work referred to has based itself mainly on the problems of method in the physical sciences. Insofar as the methods of the Social Sciences are scientific in character, then the problems of methodology outlined are present:

- (a) There are no "crucial experiments" in the Social Sciences, not just because of the absence of laboratory conditions of control, and the multivariate nature of the data, but also because theories are not singular propositions but part of an interconnecting matrix of ideas.
- (b) There is no strictly formal way in which a theorem can be overturned. The falsification thesis is a good working rule, but only if allied to judgement which is qualitative and not quantitative.
- (c) We can expect to find the success of a theory not defined in any absolute sense but subject to the operational framework of concepts by which reality is organised at a moment of time.

For these reasons it was decided to use a falsification strategy of testing a given theory by statistical methods, and then by reasoned judgement to seek to establish whether the theory had performed well or badly, the usefulness of the theory being assessed, in a relative sense, as to how

well it could cope with the problems within its range.

Ultimately, it must be accepted that the purpose of this research cannot be to demonstrate that a theory is true or refuted, but to produce a verdict on the value of the theory in solving problems which can be used in conjunction with other research studies to conclude whether or not the theory should be persevered with or discarded. It will be argued in the final chapter of this thesis, for example, that whatever other evidence may exist for the opinion that managers controlling a firm may act against the interests of their shareholders in the modern corporation, the findings of the analysis do not support the proposition that earnings are sacrificed to growth in the managerial firm, and that consideration of the body of research on this confirms that conclusion. Since the hypothesis is about twenty years old, it should probably be abandoned at this point in time as lacking any empirical justification, despite a great deal of research concentrated on this issue.

## 2.2. THE THEORY OF EXPLANATION USED IN THE THESIS

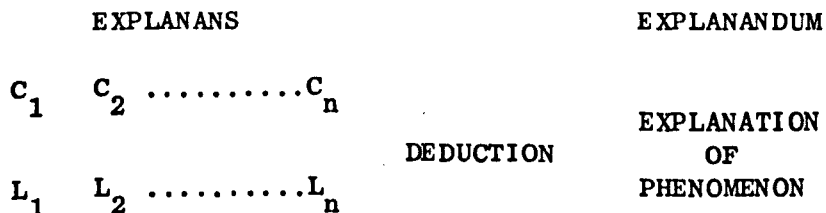
The hypotheses outlined later in this chapter consist of statements concerning the expected behaviour of firms in certain circumstances and then predicts what the characteristics of such firms should be. Statistical methodology is used to test the relationship between the assumed nature of the firm and the actual characteristics of the firm as revealed by the analysis of data. In this manner it uses what has become known as the "hypothetico-deductive" method. That is to say, a hypothesis is derived on the basis of inductive generalisation and also intuition, and this hypothesis is tested by seeing how well it deduces the consequences that actually occurred from its premises.

This is a model of explanation that has had a successful tradition of employment in the physical sciences. It avoids, so far as this is possible, making normative assumptions, and aims to be a "positive" account of the situation. If the hypothesis works well, and the environment in which firms function remains broadly the same, then the explanation should be capable of serving in a predictive fashion to describe the features of firms similarly engaged in the future. This is so because the logical form to which the explanation aims is of the nature "if A then B", which is equally as valid in the future as in the past if it is established and if other conditions remain similar.

Hempel and Oppenheim, in a famous article (93/1970) have given a well-known definition of the situation in these words:

"To explain the phenomena in the world of our experience, to answer the question "why" rather than only the question "what" is one of the foremost objectives of all rational enquiry; and especially scientific research in its various branches strives to go beyond a mere description of its subject matter by providing an explanation of the phenomena it investigates. The question "why does the phenomenon happen?" is construed as meaning "according to what general laws, and by virtue of what antecedent conditions does the phenomenon occur?"."

Diagrammatically the process may be shown thus:



C = Condition necessary or sufficient for the effect to take place.

L = General Laws.

The essential aim of this system of explanation is to search our "invariant relationships" and at the same time to

follow Hume's dictum that necessary connections among events cannot be perceived and therefore can have no empirical basis. Science reveals only recurring associations. (3)

The present thesis is worked out in order to conform to this model of scientific research. A phenomenon "merger activity" is examined. A hypothesis is stated and the conditions surrounding the hypothesis are recited. The hypothesis is related to the theory of the firm. The oligopolistic structure of a mixed-capitalist economy is assumed because these are the essential covering conditions without which the phenomenon would not take place, or at least be transmuted to an unrecognisable form.

From the hypothesis deductions are made. These deductions are tested, and if they appear to hold, then the hypothesis is tentatively confirmed. The hypothesis is not "verified" or "proved true", since this is not possible, as has been pointed out, within the realms of purely scientific endeavour. It is not practicable because of the problem of induction. We can confirm universal statements of the form "all capitalists merge in order to gain increased market power" only by studying all capitalists in all merger situations, past, present and future. By enormous effort, we might take the total population of past mergers (assuming that the "present" is only a way of describing the immediate past), but we have no evidence on future mergers, and if our theories will not hold in the future, then we have no scientific theories as this is

(3) The problem of how this approach is modified to take into account the "intentional" nature of human behaviour is dealt with later in this section.

generally understood but only a historical description of the past situation.

The preceding statements represent what is generally known as the "received view" which held sway up to the 1950s. In fact, the hypothetico-deductive method is still the form in which scientific research is cast. However, since the growth of knowledge theories have burst upon the scene (principally the work of Kuhn, Popper and Lakatos), the whole strategic significance of what is being done by the hypothetico-deductive method has been transformed.

If one considers the statistical investigations which form a major part of the later chapters of this thesis, it will be noted that they follow traditional methodological pathways. It is the interpretation of these findings and the relation to a theory of mergers embedded in a general theory of the firm where the change in research methodology shows itself.

Economics abounds in low level generalisations of the sort - "large firms are not more profitable than small firms, but have a more stable record of profits earned", or "there is a strong association between growth and profitability in firms". But higher level generalisations are necessary, otherwise one is faced with a jumble of discordant research findings which relate to individual and specific events and which do not permit any continuous form of economic reasoning.

It is for this reason that means must be found of relating the generalisations to a theoretical framework, and one of the major purposes of this chapter is to find a suitable theoretical context in which to deal with merger behaviour.

Anyone with an interest in the Social Sciences must be aware that there is an essential difficulty with the concept of "invariant relationships" in studies of human behaviour. The principal issue is that of "meaning". The actions of individuals are inexplicable unless we take the intention behind the action into account.

One well-argued criticism of the use of the hypothetico-deductive method in the Social Sciences is that of Winch "The Idea of A Social Science" (229/1958). Winch, basing his thinking on the works of the later Wittgenstein, argues that human behaviour is to be understood as "rule following behaviour", and not "causally regular behaviour". These rules and their underlying "norms" are the true subject of social science. Since rules are developed in a social context and without that context rules could not exist, we can only understand actions within society by means of an understanding of that society itself. (4)

(4) Winch's argument has led to two major controversies. The first of these is that the idea of analysing behaviour by the scientific manner of identifying regularities of cause and effect is not an effective means of studying human society. This argument is dealt with in the text.

The other dispute which deals with the problem of making cross-cultural studies when the meaning of terms depends on the social context in a given society is not of interest, since in anthropological terms the analysis of merger behaviour is related to a single cultural context, i.e. that of advanced Western industrial society engaged in capitalistic modes of production.



Regularity of events have no significance; it is the meaning of events which is the proper subject of study. Winch dismisses the idea of the use of statistical method to elucidate meaning on the grounds that no amount of numerical data will make the problem of meaning any easier to solve.

One part of Winch's argument is acceptable, but the other part must be challenged. The idea that commands support is that the meaning of an action is of vital importance in the Social Sciences, but it does not follow that we must dismiss all evidence based on the statistical regularities of behaviour as evidenced in action. To deny that this is possible would be to deny our everyday experience of judging the intentions of people from their activity, and it would reduce the significance of activity to something only to be discovered by means of language. Activity is in the domain of public meaning as much as language, and whereas we might be led to understand the thinking of an individual by examining the regularity with which he repeats certain ideas, we should be no less well informed if we study the constancy of the individual's behaviour in order to discover intention.

It can be seen that Winch deals with "meaning" on the basis of "methodological individualism" (i.e. the view that all social activity can be reduced to descriptions of individual human behaviour) but this raises the question of "holism".<sup>(5)</sup>

- (5) The vocabulary which includes words such as "holism" and "social facts" is derived from Durkheim (1858-1917). The argument which is briefly sketched in the text is a very perfunctory treatment of one of the central disputes in the Social Sciences, i.e. the extent to which a social situation be be dealt with on the basis of a functional systems analysis as against the need to interpret the behaviour of the participants in terms of their own evaluation of the situation.

Are these "social facts" which are external to the individual and yet exert influences upon his conduct, and are not necessarily recognised by the individual.

"Social facts" (though not normally referred to in economic literature as such), are a commonplace of economic thought. The typical description of a slump in which each individual is defending his own interests aggravates the severity of the depression. Indeed, Keynes' famous work "The General Theory of Employment, Interest and Money" (1933) is built on the very theory that depressions are the results of unintended human activity. This is not to ignore the equally important role played in economic theorising by such behavioural ideas as "the rational maximising individual" or the "consumer with his ordered list of preferences".<sup>(6)</sup> There is no incompatibility between studying the motivation of typical individuals and finding that the interaction between those individuals produces unintended consequences.

From this the conclusion is drawn that, in order to use the hypothetico-deductive method constructively in the study of merger behaviour, it is necessary to take the motives of the participants into account. These motivations may produce out-turns which were not anticipated, but nevertheless behavioural assumptions must be made which are compatible with the roles of the main actors in an amalgamation process. In

(6) Ryan (1970) makes the interesting observation that economics has little interest in individuals as such in its working methods, but proceeds by assuming "ideal types" to whom are ascribed a limited motivational range and then proceeds to work out the effect of such motivational roles in the pursuit of their economic aims.

practice, this means the managers of the acquired and acquiring firms and the shareholders involved. Much of the subsequent material of this chapter is devoted to defining the motives that underly merger activity and in this way identifying a theory which will serve as an adequate explanatory device.

## 2.3. THE CATEGORISATION OF MERGER ACTIVITY

### 2.3.1. The Relationship of Merger Activity to a Theoretical Framework

Most research in economics must be carried out by a process of using quantitative method in order to search for statistical regularity with regard to patterns of behaviour and also involves a descriptive and evaluative tale of the significant motivational forces underlying that behaviour. The two elements are inherent in the nature of the discipline. Economic institutions need to be described in order to provide the setting for the narrative. Motive can only be analysed in terms of the meaning of behaviour, and that involves judgement of human nature and of the way in which institutions regulate, control, develop and frustrate human desires.

If one can discern significant statistical relationship between activities or attributes, one is still left facing the issue of what story should be told about those relationships. The same correlations can be described in several different ways, depending on the interpretations made. If economic reasoning is not to become a mere test of ingenuity, it is necessary to relate those interpretations to an existing body of theory. The process then becomes two-way. We can understand the relationships exposed by the research in the light of theory, but if the relationships turn out to be other than those predicted, we cast doubt on the theoretical underpinnings. Judgement of meaning is essential to this process, and since the subject matter of economics involves many variables, the

essential multivariateness makes for great difficulties in assigning significance to the variables.

It would appear that there can be little dispute that the study of takeover cannot be effectively explored if it remains at the level of producing a pattern of correlations (whether these are significant in a statistical sense or not). Even this supposedly simple exercise cannot proceed without reference to a larger theory, since it is necessary to select variables for examination whose definition reflects the nature of "metaphysical" constructs such as the "firm", the "market" and the "industry". By "metaphysical" is meant the methods of organising data, defining entities within that data, agreeing what are the significant properties of those entities and the extent to which they are quantitatively measurable in order to provide a workable framework of understanding. This involves no more than the acceptance that there must be an abstraction from the infinite detail of "reality" if serious investigation is to take place. But this gives no guidance as to what theoretical framework should in fact be chosen if one wishes to illuminate a particular series of motives and actions such as may be found in relation to mergers.

As Popper expresses the matter (172/1972):

"We have seen that all our theories remain guesses, conjectures, hypotheses. Once we have fully accepted

this purely logical result, the question arises whether there can be purely rational arguments, including empirical arguments, for preferring some conjectures or hypotheses to others."

Popper goes on to deal with this problem in terms of selecting theories which have withstood falsification and have "excess content" (i.e. deal with previously established results and also are capable of answering a new range of problems). Thus he comes to a definition of "best" theories. However useful such guidance may be in respect to the physical sciences, it is less helpful in considering the social sciences.

Theories in the physical sciences deal with a relatively static subject matter. Theories in the social sciences relate to a subject matter which is constantly changing through time. Popper's argument is that scientific understanding is progressive because theories come into existence which can be seen to be superseding existing ones, but the difficulty in the social sciences is that the subject matter is in itself variant. For example, the concepts of "monopolistic competitors" and "liquidity preference" are progressive in this light, but they refer to particular forms of social organisation which no doubt will vanish in time and new theories will be required to accommodate to the different organisational patterns without any implication of progressiveness.

Progress in understanding in the social sciences does seem a possibility by reason of the invention of new concepts of measurement and progress in the social sciences is certainly aided by development of technique (for example, the evolution of statistical theory since the turn of the century). But its progressiveness is reflected more in its ability to keep up to date with transformations of the social situation. The relevance of, for example, the labour theory of value was superseded when the theory ceased to be a useful abstraction in relation to the way in which the productive system was organised.

In order to find a "network of theories" to which merger activity can be integrated, it is necessary to consider what range of theories currently exist. This raises the question of how mergers have been dealt with in the current economic literature.

### 2.3.2. The Analysis of Merger Activity

The aim of this section is not to seek in any comprehensive way to relate the numerous studies of merger behaviour that have appeared in the literature. The rather more modest intention is to seek to classify the various attempts to explain mergers into some acceptable logical categories. A subsidiary target is to elucidate the various motives involved in mergers and use this as a main basis of the classification. If this task can be carried out successfully, then we shall be in a position to consider whether the various approaches justify being treated as "research programmes" and therefore justify the selection of one of them as being suitable for empirical testing using the Popperian falsification strategy, in order to produce evidence confirming or disconfirming that theory. At the risk of repetition, I will restate that such confirmation or disconfirmation can only be a matter of degree and can only be taken into account with other research studies in assessing whether the theory is "degenerating" or "progressive".

Machlup's statement in his article "The Problem of Verification in Economics (139/1955) summarised the situation at a time which predated the "growth of knowledge" thesis:

"When the economist's prediction is conditional, that is based upon specified conditions, but where it is not possible to check the fulfilment of all the conditions stipulated, the underlying theory



cannot be disconfirmed whatever the outcome observed. Nor is it possible to disconfirm a theory where the prediction is made with a stated probability value of less than 100 per cent; for if an event is predicted with, say, 70 per cent probability, any kind of outcome is consistent with the prediction. Only if the same 'case' were to occur hundreds of times could we verify the stated probability by the frequency of 'hits' and 'misses'. This does not mean complete frustration of all attempts to verify our economic theory. But it does mean that the tests of most of our theories will be more nearly the character of illustrations than of verifications of the kind possible in relation with repeatable controlled experiments or with recurring fully-identified situations. And this implies that our tests cannot be convincing enough to compel acceptance, even when a majority of reasonable men in the field should be prepared to accept them as conclusive, and to approve the theory so tested as 'not disconfirmed'."

One problem to be faced in classifying is that any individual takeover may involve a mixture of motives, for example it may be seen as a way of gaining monopoly power in a given market; as permitting economies of scale to be achieved; as providing an opportunity for the management to

exercise their preferences over those of their stockholders; and none of these motives is incompatible with a simple desire to maximise profits. Can one theory serve all these motives adequately? An answer to this dilemma will be suggested, but it will be better developed after the attempt has been made to find a rational system of cataloguing the motives.

One way of trying to elucidate the causes that bring mergers about would be to go directly to the reports on mergers and to list the reasons offered by the participants themselves for seeking to amalgamate two enterprises into one legal entity. There is no real shortage of such information because the financial press is commenting each day on the details of takeovers, both during the bidding stage and at their final consummation.

A consideration of some of the motivation expressed in the case of a number of well-known merger proposals (well-known because they are described in the reports of the Monopolies Commission) will illustrate the types of hopes that normally accompany mergers:

	<u>Date of Report of Monopolies Commission</u>	<u>Companies involved</u>	<u>Benefits Projected</u>
a)	1966 (18/i)	BMC/Pressed Steel.	<ol style="list-style-type: none"> <li>1) Increased manufacture specialisation.</li> <li>2) Co-ordination of production planning.</li> <li>3) Export gains (especially by Pressed Steel).</li> <li>4) Avoid heavy costs to BMC of setting up its own body production facilities.</li> </ol>
b)	1966 (18/ii)	Ross/ Associated Fisheries.	<ol style="list-style-type: none"> <li>1) Savings from raising trawler efficiency.</li> <li>2) Amalgamation of transport facilities.</li> </ol>
c)	1967 (18/iii)	GKN/Birfield.	<ol style="list-style-type: none"> <li>1) Concentrating manufacture in specialised plants.</li> <li>2) Gain in export sales.</li> </ol>
d)	1967 (18/iv)	BICC/ Pyroterax	<ol style="list-style-type: none"> <li>1) Increase in exports.</li> <li>2) Better production planning.</li> <li>3) Better use of joint technical expertise.</li> <li>4) Lower price of copper tubes.</li> <li>5) Avoidance of duplication of facilities overseas.</li> </ol>
e)	1968 (18/v)	Thorn/ Radio Rentals	<ol style="list-style-type: none"> <li>1) Joint production of television sets would offer savings in production facilities.</li> <li>2) Savings in accounts, administration, servicing and distribution associated with TV rentals.</li> </ol>
f)	1969 (18/vi)	Unilever/ Allied Breweries.	<ol style="list-style-type: none"> <li>1) Efficient joint use of technology and marketing resources.</li> <li>2) Gain from sharing of R and D effort.</li> <li>3) Some balance of payments advantages.</li> </ol>

	<u>Date of Report of Monopolies Commission</u>	<u>Companies involved</u>	<u>Benefits Projected</u>
g)	1972 (18/vii)	Beecham/ Glaxo	1) Benefits in overseas markets and production through joint enterprises preventing facility duplication.  2) Gains from sharing R and D activity.

It should be noted that these are all mergers of fairly large firms, the amounts bid varying from £307.3 million in the case of Unilever/Allied Breweries, to £10 million for British Match Corporation and Wilkinson Sword.

This list cannot be considered as typical since, being drawn from the reports of the Monopolies Commission, it refers to amalgamations which would involve the acquisition of assets exceeding £5 million (Monopolies and Mergers Act 1965) or where one-third of the market for one particular type of goods would belong to a single company as a result of the acquisition (Monopolies and Restrictive Practices Act 1948). This latter share of the market criterion was reduced to 25 per cent by the 1973 Fair Trading Act. Nevertheless, the type of reasons offered are of a similar nature to those to be found in the press where less weighty firms are implicated.

If one were to accept the motives expressed in these reports, then one would be led to believe that economies in production, marketing and research were the dominant aims of any merger. There are several reasons for not so doing.

First, since the reports all derive from Monopolies Commission investigations, we know that the prospect of monopoly gain must have been a strong possible aim. The reasons given therefore may not be the whole truth or may involve elements of deception. Secondly, all the gains from merger could have been achieved by internal growth and it is necessary to explain why external acquisition was preferred to internal investment. Thirdly, we do not know why the mergers were taking place at the point in time when they did without access to further information, since all the firms mentioned were of long-standing and the problems that the mergers were attempting to solve had been around for a number of years in most instances. Finally, it should be noted that the justifications are all short term benefits and still leave open what the ultimate objectives of the firm might be - the long term increase in shareholder wealth, greater security, greater diversity, improved stability, adaptation of the risk profiles facing the firm, etc.

Newbould (1966/1970) looked at firms who made bids whose size ranged from £1 million to £100 million. He, by means of a questionnaire, sought to find out the managerial reasons

for merging. Of the 38 firms which constituted his sample:

- a) 27% gave market dominance (to acquire increased market share or eliminate competition) as the main reason for the merger;
- b) 21% suggested a defensive motive (to preserve existing market and industrial positions);
- c) 16% represented what Professor Newbould called "reinforcement" which he defined as agreed takeovers.

64% of his collection of firms was accounted for by these motives.

Professor Newbould's study is primarily concerned with motivation but arrived at the rather negative conclusion that the takeovers rarely were based on explicit, carefully considered analysis and undertaken in a haphazard manner, and he goes on to suggest that it represented a fashionable form of entrepreneurial activity.

Kitching, in an article (112/1967) based on discussions with top executives of 22 companies and drawing on their experience in acquiring and managing a total of 181 companies in the period 1960-1965, discovered that out of 69 acquisitions made by 20 of the 22 companies, 19 were failures (i.e. 28%). He states:

"The top executives I interviewed seemed uneasy about their companies' acquisition activities. In the use of mergers, their company had a fashionable tactic and

one which looked good to stockholders - either as a strategy for growth or as a defensive move. But the executives were uneasy about the relatively high degree of risk associated with investment in an acquisition compared with an equivalent investment in, say, a new plant."

This appears to substantiate Newbould's view. We may be led to believe, on the basis of this testimony, that the increasing concentration within markets that has been attributed to merger forces derived, like the British Empire, from "a fit of absent-mindedness". But this would not be adequate to our purpose. If the behaviour was customary and a copy of the acts of others, we are still left with questions concerning why it was necessary to be "fashionable", why the behaviour was "fashionable" at this time rather than any other, and also what social pressures were making for such conformity in behaviour.

Enough has been said to illustrate the point that it is not sufficient to list the stated public motives of participants in mergers, that we need to place the activity in relation to a larger theoretical context.

If we examine the theoretical literature on mergers, the following scheme of classification covers the majority of explanations offered on the causes of mergers.

Mergers arise from:

- i) the desire to achieve economies of scale;
- ii) the desire to adapt market structure;
- iii) the application of normal investment criteria in selecting opportunities for internal or external forms of growth;
- iv) the exercise of managerial discretion.

These categories require some explanations:

- i) The desire to achieve economies of scale is a notable feature of mergers and also the consequent rearrangement of factors of production which is likely to lead to a greater value to the increased output than the cost of additional factors of input.<sup>(7)</sup> Thus cases involving economies of production, marketing and research are included in this definition. From the point of view of an acquiring firm, there will almost always be some increase in output arising from the dowry the acquired company brings to the amalgamation. From a total market viewpoint, however, the output of the joint firms may not be increased. We would expect, nevertheless, that the claim would be being advanced that this unchanged output would be produced at lower unit cost.

(7) There is some confusion of terminology to be dealt with in distinguishing economies of scale (strictly interpreted) and economies of size (i.e. of being a larger firm). This will be dealt with in a moment.



- ii) The adaptations of market structure refers to the purpose of gaining an increased share in the market and possible strengthening of a monopoly position with regard to some of the products, or a defensive move to forestall another competitor entering the market by making an acquisition, or a protective tactic of purchasing productive capacity in order to close it down with a view to preserving an existing market share.
- iii) Normal investment criteria relate to the consideration of whether to increase output or enter a new market by means of internal physical investment or by buying additional assets by means of an acquisition. This situation must be distinguished from the preceding two situations in that no change in economies of scale is forecast nor is any benefit assumed from the exercise of monopoly power. Nor is there any advantage to be gained from the utilisation of unused debt capacity, co-insurance permitting more debt to be raised without increase in the interest rate, nor from the purchase of tax losses. The only issue to be determined is whether it is cheaper to purchase a bundle of second-hand assets contained within a firm or to undertake new investment.

To be more specific, let us take the example of an oil company requiring three more tankers and faced with the option of placing new orders for construction or purchasing a small shipping company with three bulk carriers engaged in

wheat trade. Assume it costs £2 million to purchase a new tanker or the company can be bought for £4.5 million and each ship will cost £0.5 million to convert to its new use. On these figures the investment will involve an expenditure of £6 million and the merger £5.5 million. In such circumstances a merger could be the preferred choice.

The second-hand assets must have a value specifically relating to the acquirer since if there was a general demand for such assets either the price of the second-hand assets would be bid up or new construction would be discontinued until the stock of existing assets had been consumed. A more pertinent difficulty with this situation arises from the general finding that the acquisition of firms can require a premium over existing market value of up to 30% (Newbould 166/1970). However, compensating factors exist. Existing assets can be brought into use immediately and thus change the time pattern of expected cash flows; and since such assets will already have lost use value through depreciation, their price will reflect a shorter life for the investment which may more appropriately match the future time during which economic rents may be earned before competition starts to reduce returns.

The particular interest in this reason for merger is that there is no assumption of any special factors required to induce a takeover. Since merger for this cause would only

be a substitute for physical investment, it could be anticipated that no extraordinary gains would be expected. This would conform with the general view that growth by mergers is neither more nor less profitable than growth by other means.

- iv) Managerial discretion arises from situations in which managers are not so constrained by market forces that they can do little other than react to them as in the model of perfect competition, but instead have sufficient control of the situation to permit them choices other than those which are "profit maximising".<sup>(8)</sup>

Such choices may bring them into conflict with their shareholders, who would (subject to certain problems relating to the differences between taxes on income and taxes on capital gains) prefer that every £1 of capital should be so used that it will make a return greater than the investor could achieve for himself, or that the capital not so employed be distributed among the investors. The existence of such "discretion" is one of the most important controversies surrounding the present theory of the firm.

(8) "Once an independent decision maker with a well behaved profit function in a perfectly competitive market is given perfect information about the situation he faces, there is nothing left for him to do, according to neo-classical theory, but to produce a unique level of output, or else to go out of business". (Blaug, p.180, 42/1980).

The categorisation chosen is not unique, and there are other ways of dividing up the theories. A popular taxonomy is to relate the activity to horizontal, vertical and conglomerate forms of merger. Another useful way of considering mergers is to divide them between mergers aimed at producing "real" effects (i.e. involving acquisition of physical assets) and those aimed at producing "financial" effects (i.e. affecting the value of the firm or the cost of capital). Each scheme suffers from the defect (and in this I include the one proposed above) that there are borderline classification problems; all suffer from the failing (previously alluded to) that a merger may consist of a mixture of elements from each sub-division. The justification of each scheme must be that it marshalls the data usefully. The particular scheme selected is appropriate to this thesis because it is possible to relate then to "research programmes" underlying the theories of merger.

### 2.3.3. Merger Hypotheses not included in this Classification

There are certain merger hypotheses which are not easily slotted into the classification proposed.<sup>(9)</sup> These are:

- a) Diversification Theories
- b) Superior Management Theories
- c) Exploitation Theories.

#### 2.3.3.(1) Diversification Theories.

Obviously, the reasons why firms diversify should be important in understanding why mergers occur. However, this branch of research has chosen a path to deal with the process in ways which are less useful than might appear at first sight. Building on the seminal work of Chandler (46/1942) the dominant theme has been the manner in which organisational change is necessary in the evaluation of multi-product industry. It takes the diversification as a given factor and then considers the "structure, conduct, performance" effects, whereas our interest is in why diversification occurs in the first place.

A penetrating insight into diversification is to be found in Williamson (228/1975). He locates the reason for the expansion of firms in the limitations of human beings in handling complex situations and generalised uncertainty. A firm will

(9) Excluded from consideration is the problem of the welfare losses arising from mergers insofar as they create monopoly situations. This is a problem of the effects of mergers, not their causation, and is therefore outside the scope of this thesis.

increase its range of activities when by doing so it will enable problems to be solved which the "market" cannot deal with. These problems relate to imbalances in the information possessed by parties to a contract, the difficulties of contracts in specifying the total range of conditions likely to be encountered, and the tendency of human beings to falsify information (or at least conceal it) when it is to their advantage to do so. This approach, which may be characterised as how institutions adapt in the face of uncertainty, proved to be too generalised in approach to fit within the categories above.

#### 2.3.3.(2) Superior Management Theories.

The idea that the benefits arising from takeovers derive from a team of superior managers acquiring the assets previously held by a team of inferior ability lurks in the background of many merger explanations. It is brought out explicitly by Kitching (112/1967) in statements such as :

"The element critical for success is not the potential amount of synergy to be released in combining two companies. Rather it is the existence or absence of 'managers of changes' - men who can catalyze the combination process".

It is also to be found in Penrose (167/1959) when she talks about the managerial team whose abilities limit the rate of expansion, and Marris (145/1964) when he refers to "Takeover raiders" who "must be able to produce the rudiments of high management needed for large scale organisation". Elements of such a view underline the M form of organisation advocated by Williamson (227/1971).

Despite the fact that successful management teams have been identified in case studies and the undoubted truth that able management is a vital component in ensuring profitable acquisition, the concept has little empirical and therefore testable content. A successful management is one that does successful things and as such is a tautology.

#### 2.3.3.(3) Exploitation Theories.

The exploitation theory relates to the type of merger where the aim is not to acquire a firm for its income earning potential, but because it has undervalued or idle assets. Typically these assets consist of property, cash and land. There is some mention in the literature about buying firms to acquire tax losses in order to set against the acquirer's own profits. Under English law, it is forbidden to use tax losses or advance corporation tax credits unless the trade is continued for at

least three years. This would involve taking over a loss-making firm and continuing its potentially loss-making activities which would not appear to be an altogether attractive proposition.

Such exploitation theories are associated with the "asset stripping" operations of entrepreneurs such as Sir Charles Clore and Slater Walker. Although the realisation of idle resources may be beneficial in releasing such assets into profitable use by others, the situation has often arisen in respect of using the sale of assets to maintain a share price at a high level in order to justify further takeovers, and the speculation has been brought to an end when events, such as an economic crisis, has reduced the firm involved to making its profits on the basis of its income earning opportunities, which have not been able to sustain the exaggerated share price. For a racy description of this type of takeover, see "Slater Walker" by C.Raw (180/1977).

Although such takeover situations do occur, they obviously rely upon very specialist techniques of image building and the abuse of accounting information. As such, they can only be practised by a very few specialist firms and can provide no major explanation of merger activity.



#### 2.3.4. An Examination of the Merger Categories

The purpose of considering the categories of merger explanation is not to describe exhaustively the explanations but to define them, indicate how they are intended to serve as explanations, and comment upon their success as explanatory devices. Ultimately it is proposed at a later point in the chapter to discover in what way they can be described in the terminology of "scientific research programmes". By this means it is hoped to justify the research carried out and reported in this thesis as a contribution to the development of an understanding of merger activity.

##### 2.3.4.(1) Economies of Scale

The concept of economies of scale derive from cost theories underpinning the theory of the firm. Such a firm is assumed to be producing a single homogenous product under conditions of a received and static technology and with factor prices given. It relates to the long run cost curve and was, in its original formulation, a property of plant size not of the size of firms. Since most quoted companies run several plants, not one, this distinction is of some importance. Classical economies of scale are assumed to be due to one or more of the following factors:

- (i) specialisation of function;
- (ii) the existence of indivisibilities;
- (iii) the physical laws which relate the external dimensions of units to their capacity;
- (iv) economies of "massed" resources (e.g. less stock of spares have to be carried to support a bank of 20 machines than would obtain if 20 machines were to be run in separate units (Pratten and Dean, 174/1965)).

Most empirical studies have, however, concluded that the long run average cost curves are typically L - shaped (Smith, 200/1955 and Johnson, 102/1960). This does not mean that there are no economies of scale. Pratten (175/1971) found that there are technical economies in many industries; but it does indicate that once "minimum economic size" has been reached (i.e. the turning point in the L) then the scale economies tend to level off and thereafter increased output is not related to a lowering average cost.

The case for takeovers with respect to economies of scale is that a plant within a company would benefit from an increased share of the market, permitting a longer production run which would allow the plant to

grow beyond "minimum economic size". An implication of this is that if industry in Britain is merger prone, then this argues that it consists of companies with plants which have too small a share of the market to allow them to reach that size.

Pratten (op.cit.) concluded that the minimum efficient scale of plants is substantial (relative to the British economy) in many industries, but Bain (32/1956), dealing with U.S.A. firms, reached a contrary conclusion, and asserted that in the majority of industries the efficient scale accounts for less than 2½% of the total industry capacity. These differences may reflect contrasts between the U.K. and American economy. However, a takeover aimed at producing plant economies of scale could only work where the acquired plant is shut down while its market share is retained, since the purpose would be to capture market share, not to acquire a sub-optimum level of physical plant in itself.

The real issue here is that economies of scale of plant must not be confused with economies deriving from increasing the size of the firm. For example, a firm may be able to reduce its cost of borrowing not by reason of its size per se, but because of its ability to operate in more securely controlled markets, due to the exercise of monopoly powers. (10) Economies of scale

(10) It is a matter of common observation that large enterprises can raise debt at a lower cost than smaller businesses because of the security of the return. However, there is controversy in the literature as to whether the use of debt benefits the shareholder by increasing the value of the equity. Modigliani and Miller (159/1958) using perfect

Note (10) continued...

market assumptions in a world without taxes, bankruptcy and transaction costs, argued that the amount of leverage is irrelevant since the cost of increasing debt financing serves to decrease the value of the equity. This is because of the increasing financial risk faced by shareholders as more debt is employed, and the absence of any gain in the capital value of the firm since the operating income would be discounted by the market at an interest rate related only to the business risk of the cash flow which would be unchanged by modifications of the debt/equity ratio. In their later article Modigliani and Miller (161/1963) conceded that the fact that corporation tax could be offset against debt would increase the capital value of the firm. However, if value increases with debt as it is employed in larger amounts (Modigliani and Miller assumed a constant cost of debt), their reasoning led to the view that firms should be financed totally with debt in order to gain the maximum increase in the capital value of the firm. At that level the return on debt should equal the return on equity because the bond holders would be bearing the same risk as a firm financed with 100% equity and therefore shareholders still fail to make convincing gains in their own right.

Miller, in his Presidential Address to the Annual Meeting of the American Finance Association (156/1977), suggested that if there are tax benefits to borrowing and as a consequence debt is cheaper than equity, then financial managers would react by increasing borrowing until at the margin the cost of borrowing is equal to the cost of equity, thus claiming that at the margin there is little net advantage to corporate borrowing despite the existence of a tax shield.

If, nevertheless, bankruptcy costs are positive (and the size of these costs is still a matter of controversy), then size by increasing the security of returns may permit debt to be raised at lower cost and so confer advantage on the shareholder.

Paradoxically, it is difficult to justify the proposition that the creation of a larger business unit by merger will produce gains to the equity holders described in the last paragraph. The argument that the merger of two companies with imperfectly correlated earnings reduces risk and thereby increases the value of the firm has been made by Lintner (136/1971) and Lewellen (132/1971) using what has been termed the "co-insurance effect". Their argument is that since the earnings of each of the firms involved in amalgamation guarantee the earnings of the other against the probability of default, then the reduction in risk will permit more debt to be raised at a given interest rate compared to the pre-merger situation.

In the absence of bankruptcy and transaction costs the co-insurance effect can only redistribute rather than increase the wealth of shareholders and bondholders. Since risk has been lowered and the total value of the firm unchanged, the existing debt holders will see the value of their securities increase and the share value consequently reduced as, in effect, the shareholder is providing the insurance cover which has made the debt safer. (Higgins and Schall, 95/1975). The conglomerate (produced by the merger) may attempt to exploit new debt capacity by issuing new debt but whether the effect is to increase shareholder wealth depends on balancing the value of the incremental tax subsidy on debt against the

Note (10) continued...

initial diminution in equity value due to merger. If bankruptcy costs are introduced at a positive level, then the total value of the firm can increase. Shareholders may register positive gains. But note Warner's conclusion (Warner, 217/1977) that the costs of bankruptcy may amount to less than 1% of the value of the operating assets, suggesting that co-insurance effects provide little substantial incentive to merge.

The argument that size (with investment diversity implied) can produce shareholder advantage by lowering the cost of debt, whereas this effect cannot be secured by merger depends on the difference between the two situations. In the case of merger we are considering an immediate situation which is dominated by the existing debt already issued. In the long run that existing debt will have been retired and new debt substituted on terms more favourable to the shareholder.

are possible with respect to an increase in the typical multi-product multi-plant's magnitude, as is true also with a growth in an industry producing external economies of scale. With the exception of the physical dimension factor, they are due to the same indivisibilities, specialisation of functions and economy of massed resources to be found in the economies of scale related to a single plant.

For example, a superior management team may have the excess capacity to use its ability over a wider range of products, a marketing team may be able to handle a greater number of items within the same area without increasing the number of calls to be made, a large crane may serve two factories, a computer with the addition of a small extra amount of memory could handle a payroll for 1,000 workers almost as easily as it could deal with 500 wage claims. Since in a merger no extra capacity is created, these effects will only be secured if either:

- a) the facility involved is under-utilised so that its use can be extended without additional cost, or
- b) the facility is duplicated within two firms and it is possible to shut down one of them, or at least close one unit, and add some lesser

increment to the remaining unit to allow it to perform the same amount of work (i.e. exploit the economies of scale inherent in an existing factor of production).

These arguments for benefiting from indivisibilities seem reasonably convincing in the merger situation. The justification of acquisitions built on specialisation of function presents more difficulty. As a firm grows in size, it may be able to develop a research department, permit a marketing director to be appointed, establish a personnel function where none previously existed, develop a dealer network or purchase specialised machinery. But these initiatives depend upon an increase in output to achieve their effect. This is not guaranteed in a takeover which redistributes control over an existing stock of human and physical assets.<sup>(11)</sup> On the face value of these developments, we might expect them to introduce a new dynamic into the firm's operations, but the evidence on the success of mergers does not lead in this direction. The most recent British studies on the success of mergers have found no evidence to support the case for a positive beneficial effect. See Utton (214/1974), Meeks (153/1977), Cowling et al (54/1980), Newbould (166/1970) and Singh (198/1971).

(11) The difficulty is that capital investment creates new real assets, whereas without any physical change in the composition of assets, a merger is simply a financial transaction. J.R. Franks, in an unpublished doctoral thesis (75/1980) addressed this problem specifically. His conclusions were that new technology could create the need for a revision of existing economies of scale, and that asymmetry in the possession of information permitted acquirers to make gains based on "inside information". This was particularly true of firms that had already built up an equity stake in the victim prior to the successful merger bid.

The effect of "massed economies" appear, on the other hand, to offer a potential merger benefit.

Examples of such economies are :-

- Reduced inventory in a multi-product stockholding system.
- Reduction in advertising cost.
- Reductions in the cost of raising funds.
- Reductions in the cost of capital (because of the greater security arising from size and/or diversity of operation). (12)(13)

There are, however, a number of other cost advantages to size which depend not upon scale effects but upon the exercise of market "power". A firm which, through its command of a sizeable share of a given market, gains partial monopoly power, may be able for a time (and depending on the strength of "barriers to entry") earn above normal levels of profit. It may also be able to use its size to persuade suppliers to lower their prices. However, we are moving from the economies of scale category to the next category of analysis where the exercise of monopoly power is the central issue.

(12) To this list might be added the supposition of Williamson (227/1971) that a large multi-divisional firm is able to act as a mini-capital market transferring funds without transaction costs between divisions and a much closer monitoring of profitability.

(13) If there are no tangible gains to merger other than a re-arrangement of the method of financing the firm, it is difficult to justify a claim that the value of the equity will have increased. If the re-earnings of the two firms are imperfectly correlated, the variability of earnings may be reduced, thus reducing shareholder risk. However,



investors can individually attain the same reduction in risk as occurred with the merger by purchasing equal proportions of the debt and equity of the two firms (Galai and Masulis, 77/1976). Merger involves additional costs such as the payment of a premium to induce merger and the expenses involved in assimilating the organisations of the two firms. Taking into account the inability to disengage if the amalgamation is unsuccessful, it would seem that the individual investor can achieve the same result at lower cost. Azzi (31 /1978) states that "any return distribution from a portfolio containing the debt and equity of a conglomerate could have been acquired through a portfolio containing some combination of the securities of the separate corporations".

The ability to increase the debt ratio of the merged companies based on the greater security of imperfectly correlated earnings has been considered a few pages earlier where it was argued that the existing debt holders would benefit at the expense of the shareholders in the newly-formed enterprise.

Thus mergers neither offer immediate gain to shareholders by lowering risk levels nor can these gains be secured by any short term adaptation of the combination of long term funds, unless positive bankruptcy costs can be shown to outweigh the ability of existing debt to capture gains from risk decrease. In the long term (when debt levels have been renegotiated) the risk reduction will be beneficial to shareholders however, since they can now secure the advantages of a lower cost of capital. Much may have happened before the long term arrives, so that the gain is less on incentive to merger but rather an attribute of size.

#### 2.3.4.(2) The Desire to Adapt Market Structure

A merger will necessarily create a firm of larger size than hitherto. This larger size may turn the firm from being a "price-taker" to being a "price-maker". If the union confers market power on the enlarged enterprise, then it is able to affect the elasticity of demand for its products, either by manipulating output or price or both output and price. By this means the price of a product can be set at the point where marginal-revenue equals marginal cost (and marginal cost is not equal to average cost as in the long run case for perfect competition), and a monopoly profit is earned, calculated as the difference between the firm's average cost and the price multiplied by the total output. Whether or not abnormal profits can be retained depends upon the strength of barriers to entry within the industry.

Since a merger neither creates new resources nor new sources of market demand, it is difficult to make the case for increased profitability from the combination without reference to "synergy" (i.e. an economy of scale becomes operative) or the possibility that the new firm will be able to increase its market share or develop new markets in the future. Monopoly profits, if available, offer however an instant source

of gain. The existence of barriers to entry is crucial since if these are low then firms would be encouraged to enter the industry (given the incentive that products are highly priced and therefore offer an abnormally high level of reward) until profits are bid down to the competitive level.

Without further action on the part of the amalgamated firm, some barriers to entry are immediately established if a sufficient share of the market is captured. For example, if we assume that the supply curve is upward sloping, then the costs to a new entrant to the industry of inducing further supply will be higher than for established firms initially. The same will be true if supply inputs are controlled by long term contracts. Again, the enlarged firm with a market share firmly under its control can raise its capital at lower rates than a potential entrant, especially since size in itself will permit diversity of product, and hence via the route of reduced covariance between earnings from different products, a greater stability to its returns. A further immediate barrier exists since a new entrant will have to develop its own research and marketing facilities from the beginning, and since such ventures are risky, will face an increased cost of capital over that of sitting tenants.

It is easy to see, therefore, why this explanation has an attraction. The argument, to this point, has been presented in terms of a merger taking place within an industry. Where takeover crosses industrial boundaries, different reasoning applies. Horizontal mergers offer the advantages claimed above and will be particularly effective in static markets where an over-supply causes profitless competition to take place, and can be remedied by shutting down capacity, and where there is obviously little incentive for new firms to seek entry. Vertical takeovers are directly aimed at either controlling supply or outlets for production, and so implicitly erect barriers. Both types of acquiring behaviour can also result in new efforts to impede entry by advertising or collusive price behaviour, or by adopting a strategy of "limit pricing" (i.e. set prices which, while not yielding full monopoly profits, nevertheless ensure some of the above-normal return, at the same time being low enough to discourage entrants). Of course, there are few industries in which one firm can gain an absolute monopoly position, but if there are only a few firms controlling a large share of the output, then the same sort of effect is possible if tacit or actual collusion exists. Sawyer, on the basis of the Census

of Production returns for 1975, calculated that of the 118 industries for which it was possible to calculate the share of the largest 5 firms for employment and net output (the total of industries covered by the Census was 155), these largest 5 firms employed on average in each industry 48.8% of the labour force and produced 50.6% of the net output (186/1981).

Conglomerate takeovers, however, do not increase the size of a firm within a given industry, nor do they provide control of a greater share of the market. They can nevertheless deploy resources in a manner which can possibly provide opportunities for benefiting from monopoly or, more probably, oligopoly situations. This can be achieved in three possible ways by:

- a) Reciprocity - the diversified firm may be able to use its buying power to induce smaller specialist producers to purchase its own products or it may be able to make market sharing agreements with fellow conglomerates or it can possibly reach collusive accord with large firms in an existing market.
- b) Cross-subsidisation - using its wealth and the stability of its position in some markets, the conglomerate is able to indulge in short

run price competition to drive weaker competitors out of existence. The very existence of such wealth may enable it to deter entry to the market because of the possibility that a price war would erupt and destroy the profits of the new firms.

- c) Financial strength - by using its financial power, heavy promotional expenditure may be employed or heavy capital investment or research expenditure, to build a commanding position in a trade at a pace which the indigenous firms are unable to match.

The question of the possible monopoly consequences of conglomerate acquisitions has been a particular concern of U.S.A. Anti-Trust legislation because of the large proportion of such types of acquisition in that nation. The Federal Trade Commission reported that the proportion of mining and manufacturing mergers that were conglomerate in form increased from 63% in the period 1948-1964 to 80% from 1965 to 1976 (14/1977) by number; by value the rise was from 59% to 81%. The much lower proportion of U.K. diversifying mergers (17% by number, 24% by value for industrial, commercial and financial mergers between 1965 and 1973 (Gribbin, 25/1974)), has not

prevented similar worries arising in the U.K.

The issue is presented in the literature in terms of the growth of dominant firms. Prais (173/1976) has demonstrated that the share of the hundred largest enterprises in manufacturing net output in the United Kingdom has grown from a 16% share in 1909, via 27% in 1953, to 40% by 1970. This aggregate concentration was much greater than that to be found in the individual trades (Armstrong and Silberston, 30/1965; Shepherd, 192/1966; Sawyer, 184/1971).

Market concentration ratios suffer from a number of well known defects; they do not measure any increase of import penetration, the product classification may be imperfect, and the influence of technical progress and the growth of new substitutes may be reducing the power of the dominant firms; nevertheless there is sufficient substance to the evidence to make a convincing case that a number of dominant firm situations have arisen in the U.K. economy.

The dominant firms being large and normally diversified have often actively been involved in mergers. In the individual trades, the finding has been that internal growth was more important as a source of concentration prior to the 1950s (Hart and Prais, 87/1956), but since that date mergers have had a substantial effect on concentration growth. (Utton, 213/1971).

#### 2.3.4.(3) Normal Investment Criteria

One of the most important decisions facing a firm is the investment of its capital funds. Capital outlays are mainly large in size, and the decision, once having been taken, is often irreversible and puts the finance invested at risk for long periods. It is the most essential function of an industrial or commercial company, since the very purpose of embracing limited liability status is to ensure that sufficient capital sums can be amassed in order that the firm may produce a product or a service in a manner which will yield sufficient return to compensate the providers of the funds for yielding up its use over a period of time. There is a very adequate and successful range of principles available which offer guidance on investment within the neo-classical theory of the firm, and mergers can be seen as a way in which investment is undertaken according to these principles. If one accepts this viewpoint, that acquisitions are normal investment decisions made in the light of profit-maximising criteria, then the only issue left to be explored is the explanation of why "external" purchase of assets is preferred to growth by internal means.



Because capital investment involves a time dimension, not only with respect to the outlay of funds but also with respect to the measurement of profitability, the assessment of profit-maximisation is carried out in relation to the welfare of the owners of the current shares. Welfare is calculated in terms of the price at which the shares sell. Thus a profitable merger is defined as one which raises the value of these shares more than would have occurred if no merger had taken place. Internal investment is justified by the same criteria, that is that it should increase present share prices relative to what they would have been if no investment had taken place.

Such a yardstick depends on a theory of how share prices are determined. The argument is that the returns arising from an investment will express themselves as either

- a) a stream of dividends extending to infinity,
- or
- b) a stream of dividends over some finite span of time, followed by the sale of the shares at that time.

discounted by a cost of capital (which is a measure of the price of capital to the firm which incorporates

within itself a judgement of the riskiness of these flows).

For an extensive discussion of the issues involved in this definition, see "The Profitability of Growth by Mergers" by Alberts (29/1966).

In the circumstances, a firm will bid for another firm if the value which the potential acquirer places on the victim is greater than the value placed on it by the current owners. If we express the capital value of a firm as :

EQUATION 2.1

$$V = \sum_{t=1}^N \frac{(1-r) P_t}{(1+k)^t}$$

V = Capital Value of firm expressed as the discounted value of expected earnings.

r = Retention ratio

$P_t$  = Expected profits at time t (including the value of the shares sold at the end of period N)

k = Discount rate which is also the cost of capital (adjusted for uncertainty) to the firm

t = time period extending from period 1 to the end of period N.

Then the value of the firm to its current owners may be expressed as  $V_{(o)}$  and the value of the firm to the potential acquiring firm as  $V_{(a)}$  then a merger will take place only if

$$V_{(a)} > V_{(o)}.$$

It should be noted that the formulation of this mathematical model of valuation assumes that all investment is financed by retained earnings. In order that this simplification may be considered reasonable, it is necessary to accept that investment using retained earnings is equivalent in terms of shareholder returns to the payment of dividends required for investment and the raising of new capital to replace the dividends paid out. This has been generally accepted as a reasonable approximation in financial literature since the argument was first advanced by Modigliani and Miller (1960/1961), despite some obvious difficulties with respect to transaction costs and the differing tax treatment of dividends (which are income) and capital gains.

In order to explain merger activity, it is therefore necessary to discover reasons why a valuation discrepancy should arise between the owners of a firm and its potential acquirers. The theory assumes the existence of a capital market which evaluates with reasonable efficiency the price of shares quoted on the Stock Exchange. It has little relevance to private firms whose shares are not traded and therefore neither provide the information on the value of the firm nor offer opportunity to buy its shares in a takeover raid.

The question of the efficiency of the U.K. capital market is an empirical issue. Efficiency can be defined in this context as the assumption that in the market, prices reflect all relevant information. The market value of a firm should therefore reflect the present value of all existing assets with respect to their earning capacity, plus the present value of future growth opportunities. Most of the studies of this hypothesis have been American in origin, but the studies done on the U.K. capital market do not seem to have diverged from the view that capital markets in the U.K. and U.S.A. are reasonably efficient. The standard manner of testing efficiency derives from a division of efficiency into the three possible forms that efficiency might take, (see Fama, 66/1965), which are empirically possible to examine. These are:

- a) Weak-Form Efficiency - that current prices reflect all existing information to be derived from statistics of past price changes and trading volume.
- b) Semi-Strong Form Efficiency - that current prices not only reflect historical price changes but all publicly available knowledge relevant to establishing a price for a company's shares.

c) Strong-Form Efficiency - that equity prices reflect all relevant information, both publicly available and also that known to company insiders.

Confirmation of the weak-form test is to be found in Kendall (106/1953) for various U.K. indices dealing with shares and commodities. Franks, Broyles and Hecht (73/1977) were able to show that market prices were able to anticipate mergers with a lead of at least three months, which appears to indicate that the market was able to deduce from available information the probability of a merger occurring with the resultant increase in share price of the potential victim in anticipation of the premium normally required in order to ensure the acceptance of the offer.

The testing of strong-form efficiency is obviously difficult, since the trading based on insider information is difficult to detect as it is forbidden by the takeover code and, in the case of Directors who owe a "fiduciary duty" to their company, is a breach of common law. (During 1981 an amendment to the Company's Act made it also a criminal offence). American studies have shown that insiders can benefit from privileged information (Lorie and Neiderhoffer

(137/1968), and Jaffe (100/1974)), but that "mutual funds" (an American investment company which uses its capital to invest in the securities of other companies) on average did not perform better than the market index (see for example Jensen (101/1968)).

On the evidence available, the discrepancy of valuation of a company does not seem to be due to any serious distortions of information generally available; therefore other reasons must be found for divergence in expectation concerning a company's prospects.<sup>(14)</sup>

If one considers Equation 2.1, the only factors which are open to conflict of opinion are in the flow of expected profits and the discount factor  $k$ . However, one proposal by Gort (82/1969) relates the valuation discrepancy to timing differences between the prospects of firms at different stages in the business cycle. All these explanations are discussed in the following sub-sections.

(14) One criticism of the above judgement is that although the share price appears to reflect available information efficiently, this information (mainly derived from accounts) may be of poor quality and therefore may not lead to an efficient allocation of resources.

(a) Differing Profit Expectations

The findings on the "Efficient Market Hypothesis" that share prices reflect the market's estimate of a company's fortunes, does not rule out the possibility that the managers of an acquiring firm may have knowledge of market and product developments not generally foreseen by the market. This is highly probable in the case of horizontal and vertical mergers (though less so in the case of diversifying takeovers). It is noticeable that many companies, on receiving an unwelcome bid, make efforts to revise the profit forecast and revalue existing assets, as occurred for example in the ICI bid in 1961 for Courtaulds. It has been suggested that many takeovers occurring between 1950 and 1965 were based on the failure of the managers of acquired firms to take inflation into account by revaluing property and other assets. However, since the advent of Clore and Slater Walker, the publicity given to asset stripping and the general realisation of the devastating effects of inflation, this is hardly likely to be still a common case.

But why should the victim's management team have not taken up the opportunity

themselves? Two possibilities present themselves. In the first situation, the management is just plainly inept and we have the concept of mergers as a control mechanism which aids the beneficial distribution of capital by ensuring that it falls into the hands of those best able to use it (see H.G.Manne, 141/1965, and Hindley, 96/1970). The other possible explanation does not conflict with the "market for corporate control" hypothesis, but adds a further reason for the victim company's failure to exploit opportunities. This is that the management have chosen to pursue growth at the expense of profitability, as propounded by Marris (145/1964). This reason for discrepancy in valuation may be summarised as the "better management" hypothesis.

The arguments for gain from merger by reason of economies of scale or adaptation of market structure have already been recited. These gains are equally applicable as the target for a normal investment decision. They may well transform the level of expected profitability. It cannot be held against the existing management that they have not fully exploited all economies of scale. This may be true with respect to plant economies



of scale, but not those related to the size of the firm, which depend on the restructuring of control of existing assets. Monopoly profits are only available to a large firm with a substantial market share, and therefore their attainment is not open to an individual firm without such market power except by the route of slow internal growth.

b) Differing Discount Factors

In assessing the value of a flow of net cash returns to an investment, account must be taken of the timing of these returns and the riskiness of the returns in determining the discount factor to be used. The investment must cover at least the cost of the capital employed, and possibly show a surplus over this amount.

There is a great number of theoretical problems involved in specifying the cost of capital generated by Modigliani and Miller's seminal article (1958) which revolves round the problem of how to assess the impact of additional gearing (i.e. use of debt) on the costs of equity finance arising from the transfer of risk between the two major components of capital as the level of debt rises. This argument will

not be pursued because it does not affect the issues currently under review in any major way. There are also various ways in which risk is taken into account, either through the "certainty equivalent method" which defines the profits flow in terms of values which would make the investor indifferent between receiving the flow as forecast or a certain sum, or by adjusting the risk premium. The risk premium may be adjusted either with reference to the total variance of the risky returns or by use of the "capital asset pricing" model<sup>(15)</sup> which employs the "market security line" to assess the increase or reduction in "systematic risk" (i.e. that risk which cannot be diversified away).

In order to avoid entanglement in a wide range of theoretical issues, it is necessary to assume that the firms involved have determined a cost of capital and incorporated it in some form of risk adjustment. If we can accept this, we can then seek to establish why the discount factor should differ between an acquiring firm and the company which it proposes to capture.

In perfect and complete markets a different discount rate to be used in valuing an income stream

(15) In this text the capital asset pricing model generally attributed to Professor Sharpe (190/1964) and Lintner (134/1965) will be used. Other versions of the model exist, for example that developed by F.Black ( 40 /1972).

cannot exist. It is the fundamental purpose of a capital market to bring together individuals with different time preferences governing present and future consumption and by borrowing and lending permit each to achieve the desired end; in the process a market rate of interest is established which clears the market <sup>(16)</sup>. It is only by locating a source of capital market imperfection that a difference in the valuation of the same stream of income can occur. Examples of such imperfections do exist but would normally be limited to small, privately held companies.

For instance, take the case of a small company whose owners are approaching retirement and need to sell the company in order to acquire present income. The assets the company possesses are related to a specific trade and there are few possible purchasers of such assets. They may be driven, therefore, to discount future earnings at a much higher rate than a corporation with a potentially infinite life expectancy.

In another situation a company with splendid growth prospects may be small and, because of recent foundation, unable to demonstrate its ability to

(16) "Through the alterations in the income stream provided by loans or sales, the marginal degree of impatience for all individuals in the market are brought into equality with each other and with the market rate of interest." (I. Fisher - "The Theory of Interest" (Page 32, 71/1930).

employ funds efficiently. As a result, it may have to rely for finance on bank lending and trade credit. Because of potential discrepancies between assets invested over the long term and short term liabilities, it may value immediate returns over more distant ones.

Such circumstances may explain the many takeovers by large companies of small private firms, but there is no reason to believe that quoted companies suffer from these imperfections.

Mueller (1963/1969) has produced another explanation of why the discount rate of an acquirer may be lower than that of the acquired firm. He envisages that managers may follow a growth maximisation policy which is not in the interests of their shareholders and are able to do so because of the existence of retained funds. In assessing the return required from this source the stockholder will compare the yield from employment of these funds within the firm as against the investments available elsewhere within the capital market and require a return equivalent to the market rate for a given risk level. Managers, however, will see little benefit to their growth ambitions in external investment in securities of other firms since they will not contribute to the expansion of the size of the firm. They will therefore heavily discount such returns and apply a lower discount

rate to physical investment in taking over the assets of another company than the stockholders of that company may consider appropriate. It is doubtful if the market will for any period of time sustain two investment rates; once the policy is understood shareholders of the growth maximising firm will sell their holdings and purchase the higher market rate of return available to them.

But the discount rate not only reflects the time preference for return but also the risk of that return. It may be thought that investors in a Company A who have a higher risk aversion than the market as a whole might supply the situation of differing discount rates for which we are searching, but this is not the case.

Assume that the circumstance exists in which the marginal investor in Company A has a greater aversion to risk than is common and therefore seeks to apply a higher than normal discount rate to a given stream of earnings. Other investors will perceive that the shares of Company A for a given earning potential are undervalued; they will therefore sell their existing holdings and buy shares in A from their current possessors. This process will continue until such time as the discount rate applied by A's shareholders is brought into conformity with the market rate.

However, although the argument that different levels of risk aversion can survive in the market has been refuted, there are conditions under which takeover will alter the risk level of an acquired firm because diversity of the investment set of the enlarged firm can produce a lower variation in earnings. The effect would be to reduce financial risk and could permit the acquiring firm to discount the earnings of the potential victim at a lower rate.

Two circumstances in which a merger may reap advantage from the reduction in earnings variability are :-

- (1) Borrowing costs decline with the size of the firm.

This is due to the fact that mergers between companies whose income streams are not perfectly correlated reduce the probability of bankruptcy and hence the risk of lending debt to the firm. This proposition can be found in Lewellen (132/1971) and Lintner (136/1971) who therefore suggest that "large firms can refinance the debt of small independent firms

at lower economic cost resulting in a genuine capital gain through merger."

Evidence of this process is demonstrated by Weston and Mansinghka (219/1971).

Their article deals with a defensive theory of conglomerate mergers in which firms making low returns use takeovers in order to raise their performance, but the essential mechanism for this achievement is that the acquiring companies use large amounts of debts.

(ii) The Pooling of Imperfectly Correlated Income Streams will produce a Superior Risk/Return Asset.

The reasoning here is that building on the work of Markowitz (143/1952) and defining risk in terms of the variability of returns, it is possible to construct an effective measure of the amount of risk associated with each level of return. This permits greater precision in selecting investments to add to the existing portfolio of assets of a firm, since imperfectly correlated returns will produce lower variance and hence reduced risk. Additionally, as well

as gaining the benefit of mean-variance efficient portfolios, if we make the fundamental assumption of the capital asset pricing model (see Sharpe, 191/1971 and Lintner, 134/1965) that the capital market as a whole had adopted a mean-variance efficient portfolio approach, then we can select investments on the basis of the Sharpe-Lintner model:

EQUATION 2.2 
$$E(R) = R_{(F)} + (E(R_{(m)}) - R_{(F)}) \beta$$

$E_{(R)}$  = Expected Return.

$R_{(F)}$  = Risk free rate of return (i.e. return on short term treasury bills, et.)

$R_{(m)}$  = Expected Return on the Market Portfolio (i.e. that Portfolio which in equilibrium contains all the risky assets in the securities market and whose risk is therefore by definition equal to the risk of the market as a whole).

$\beta$  = The Beta coefficient measuring systematic (i.e. non-diversifiable risk) for the investment relative to the risk of the market as a whole.

The argument for increased return here is twofold. First that by writing imperfectly correlated cash flows there will be



diversification benefits that will lower the risk, and secondly that since large diversified firms can use the capital asset pricing model to estimate accurately that proportion of the risk remaining after diversification, they will be able to assess that risk more precisely than a small undiversified firm which will not have calculated its risk and therefore will have to deal with the totality of variance with respect to its returns. Obviously the reasoning is as applicable to conglomerate firms as it is to large multi-product firms, since the portfolio may consist of subsidiary companies in the one case and individual products in the other.

Levy and Sarnat (1970) have pointed out that the case for risk pooling is flawed since it can equally be achieved by the portfolio diversification of individual stockholders. Therefore if individual investors have been following the precepts of the capital asset pricing model, they will already hold their preferred risk-return portfolio which is superior in terms of the investor's utility function to any that

a firm might devise. We therefore have to assume some form of market imperfection to justify mergers; two which immediately spring to mind are

- (i) that corporate and personal leverage may not be good substitutes because individuals are not protected by limited liability, their costs of borrowing may differ from those of firms, or in using share holdings as collateral for personal borrowing they may not be able to meet margin calls,<sup>(17)</sup> and
- (ii) that individual investors may lack the expertise of managers in terms of information available to them and the evaluation of that information.<sup>(18)</sup>

(17) Financial intermediaries may apply "home-made" leverage on behalf of individual investors and thus ensure the efficiency of the arbitrage process, despite the inadequacies of individual investors stated in the text.

(18) The modern theory of investment decision making based on "efficient capital markets" and portfolio analysis has focussed attention on the value of accounting information. It has been variously pointed out that accounting information has not been adequately related to modern theories of decision making (Lev, 129/1974), that accounting reports are required by several different classes of user and may therefore need different forms of analysis (Tweedie, 211/1975), and that increasing regulations of accounting standards has produced standardised rituals which take account of neither user needs nor research findings (Lee, 126/1977). On the question of whether changes in accounting techniques (including financial manipulation) affect stock prices, the published research seems to indicate that investors are able to recognise economic reality despite differences in reporting modes (for example, Ball, 33/1972).

c) Merger Activity as an Aspect of Bargaining  
Behaviour

The idea of a bargain is that a temporary advantage can be exploited. The price arrived at is therefore the product of a temporary disequilibrium. Bargains can arise from acquisitions only where there are differing expectations on the income earning potential of a firm. If there is no such mis-match of expectation, then the share price of the victim will correctly discount the expected flow of dividends (or its equivalent in terms of increased capital gain from a rise in the value of a firm) and no bargain can exist. The managers of the acquiring firm must have more favourable expectations than the present holders of the shares because if the shareholders of the acquiring firm had the favourable expectations and therefore the view that the acquiree's shares were undervalued, then it is open to them to make a gain by buying

the shares themselves. The weight of evidence, as already stated, is that apart from those in possession of "inside information" (Lorie and Neiderhoffer, 137/1968, and Jaffe, 100/1947) "efficient capital markets" which are defined as markets in which prices reflect all relevant information, preclude most windfall gains. See for example Fama, Fisher, Jensen and Roll (65/1969) in their study of the effect of scrip dividends on the value of shares.

There is evidence to show that the shareholders of an acquired firm benefit from over-evaluation of their holding by the purchase price offered during a bid (Newbould, 166/1970 and Franks, Broyles and Hecht, 73/1977), but this can hardly be advanced as a reason for acquisition.

The article by Gort (82/1969) on "An Economic Disturbance Theory of Mergers" has been mentioned previously in an earlier chapter. His view that "mergers stem from valuation differences, they are akin to other purchases and sales of income

producing assets, including most transactions in real estate and securities generally" is the classic statement of the "bargain" explanation. He relates this to the fluctuation in share values that occur to movements in security prices and to changes in technology. He then goes on to show that whereas the changes in technology may provide the motive, since these changes will be incorporated in the price of the share if the present value of anticipated earnings is correctly assessed, there can be no more than average gain in making an acquisition unless prices are rising rapidly. (He does not deal with the collary that value discrepancies should also occur during a period of sharp price decline and yet it has been shown that mergers decrease sharply during such periods).

The fundamental argument of Gort's article is about why, at a particular time, external growth is favoured over internal growth. Its basic assumption is that normal investment criteria is sufficient explanation for all other aspects of merger activity.

(d) The Exercise of Managerial Discretion

The traditional theory of the firm performs very badly with respect to the arguments for merger. If we consider the characteristics of perfect competition, some of the reasons for this become explicit. Using the characteristics to be found in Cohen and Cyert (49/1975), these are found to be:

- i) Homogenous Product
- ii) Perfect Knowledge
- iii) Profit Maximisation
- iv) Atomistic Competition
- v) Free Entry and Exit of Resources.

It is also static in nature, distinguishing only between short term equilibrium and long term equilibrium.

Since atomistic competition is the stated environment, there are no gains to be made from the securing of market power. Since perfect knowledge prevails, we must assume that any economies of scale have been fully realised. If a firm possesses an asset such as for example a research laboratory which could benefit two firms in amalgamation, then the victim firm will sell at a price which will reflect that

asset, and so there can be no more than a normal profit (i.e. defined as that return to the capital employed which will ensure that the marginal unit of capital is compensated for its investment in the firm) can be earned. There are no benefits to diversification since the individual investor can select his own portfolio and achieve the same effects without the need for firms to join together. The cost of capital will be a constant, since funds are freely available to the point where they will earn their marginal reward. As there is no risk, the use of debt and equity becomes pointless, and only one form of security will exist.

The fact that the theory of perfect competition was failing as an explanatory and predictive device with respect to the theory of the firm was evident in other areas of business activity, such as pricing, output and industrial structure, and has led to several attempts to reformulate that theory. What they all have in common is the view that the firm is not a totally reactive decision making unit (reactive in the sense of constrained by its environment so that the only options open to it are those imposed by that environment), but that a firm has

discretion to choose several courses of action in order to move towards a number of related or competing goals other than that of profit maximisation. The two main paths of development have been towards "behavioural" theories of the firm (see for example Cyert and March, 56/1963) and "managerial" theories (such as proposed by J.H.Williamson (223/1966), Baumol (35/1959) and Marris (145/1964)). The "behavioural" theories are concerned with the decision making sequence within firms; the "managerial" theories assume that there is a divergence of viewpoint between the managers and shareholders within a firm and that the aims of the firm are more likely to reflect the utility function of those managers. The managerial theories obviously relate to quoted firms and not private companies. The behavioural theories are dealing with large organisations of sufficient size for there to be a conflict of goals.

The behavioural theories being concerned with the strife of conflicting objectives in organisation has cast little light on takeovers. Baumol's theory, which has sales expansion as the managerial target, and O.E.Williamson's model (224/1964)



which aims at increasing the "preferred" expenditure of managers on salaries, power, prestige and security, do not give specific attention to mergers. Only Marris, who chooses for the managerial utility function a balance between the security of the managers in their jobs and growth of the firm, has produced a well articulated theory of takeovers. By the Marris theory, managers who see acquisitions as an obvious and quick way to expand a firm's size are willing to sacrifice some profits and consequent present value of a firm's stock in order to achieve sales or asset growth. Although Marris places his theory in a dynamic setting of the multi-product growth firm, his view on why takeovers occur is that which has been described as due to the normal investment criterion. A firm will be taken over when the value placed upon it by the acquirer exceeds the value of the company to be taken over, as expressed by the capital market on the price of its shares. What Marris does is to advance a further reason why the expected profits may differ between the two parties, which is that the victim company has depressed its anticipated profits by seeking growth in turnover or net assets at the expense of profitability.

## 2.4. MOTIVATIONAL CLASSIFICATIONS OF MERGER ACTIVITY

### 2.4.1. The Success of the Classification Scheme

The merger classification scheme of the preceding section was not chosen because of some inherent logic in the classification system but because a reading of the literature indicated that this was a reflection of the major patterns of explanation adopted. It is clear that the classifications are not mutually exclusive and do not even approach success at implementing that principle. It is obvious that a merger which aims at securing a monopoly position in a market is in no way incompatible with a desire to maximise profits, since the excess returns from monopoly would serve this end well. Nor are the managerial theories adequately distinguished from what I have labelled "adaptation of market structure" theories. The need for "organisational slack" can only be adequately realised in an environment which permits excess funds to be accumulated, and this is a far cry from the binding constraints of competitive theory.

In an article by Solow (203/1971) in which it is argued that there is great difficulty in distinguishing between various theories of the firm, an extremely perceptive comment is made to the effect that the "growth" theories of the firm are normally couched in terms of "rate of growth" rather than "growth" itself. But if firms wish to maximise the rate of growth, then this is not compatible with achieving large size, because size, with its concomitant difficulties of co-ordination and the strain it places upon managerial talent, does not aid the chances of

achieving fast growth. Firms who sought fast "rates of growth" would presumably be constantly divesting themselves of assets in order to maintain the lean dimensions of the optimum growth rate, and this does not appear to be the case.<sup>(19)</sup> One is easily led to the conclusion that what is really being sought is the security of large size which is buttressed by barriers to entry, access to capital at reduced rates, and other advantages which size confers.

If one considers the classifications closely, it appears that the first category "Economies of Scale" is about technical ways in which either profit is maximised or market power secured. The other categories, "Adaptation of Market Structure", "Normal Investment Criteria" and the "Exercise of Managerial Discretion", while not devoid of technical instruction of how given ends might be achieved, are principally about motives that lie behind takeover activity.

The "Adaptation of Market Structure" is concerned with the motive of achieving monopoly positions in a market. The "Normal Investment Criteria" is dealt with in terms of neo-classical motives of maximising profitability. The final grouping, the "Exercise of Managerial Discretion" supposes that the interests of the stockholders and managers are not coincident, and that therefore such firms will reflect the managerial dominance that is believed to exist in the separation of ownership from control. If the distinguishing feature of a Social Science is that the

(19) The evidence to be found in Singh and Whittington (197/1968) and Hymer and Pashigian (98/1962) that there is some tendency for large firms to have an average growth rate higher than that of smaller companies does not refute this conclusion since it is also known that the variability of growth diminishes with size, that is to say, that smaller firms have both higher and lower growth rates.

activity must be interpreted in the light of the meaning of that activity, then the use of "motive" as a classifying factor may produce sharper and better defined groupings than will occur if one seeks to classify, as is common in the literature, on the basis of technical means of achieving gain by way of takeovers.

It is possible to consider the analysis of merger activity from another vantage point and, as it turns out, this change of analysis strengthens the conclusions already reached.

Instead of addressing attention to the theoretical literature, one can examine the research concerned with testing the data in order to discover the important themes that have been subject to attempts at verification. There is no simple way of defining the importance of various topics in empiric research. A simple count of articles on each type of topic is not satisfactory, since the quality of work must also be important. It must therefore be an act of judgement to define the major problems of the assessment of merger theories as falling into the following three classes:

- a) Have mergers been profitable?
- b) Have mergers increased market concentration?
- c) Have mergers (as a means of diversification) assured the security of the management of a firm (by means of reduction and stabilisation of risk) while permitting them to indulge their desires for growth or increased size?

It takes little imagination to turn each of these questions into a form which emphasises the predictions that would follow from an explanation of a theory based on the motives involved. Thus:

- a) If the motivation of the firm in undertaking mergers is to increase the profitability of the firm, then, assuming that shareholders and managers are rational and capable of learning from their own and others' experience, we would expect to find that most mergers have increased the return on the joint assets of the firms involved or, in an equivalent criterion, raised the market value of the joint firms.
- b) If the motivation of the firm is to secure a position in a market such that, in conjunction with other major firms within an oligopolistic market, it is able to reap a share of monopoly profits, then, assuming that managers are rational and capable of learning from the past experience of themselves and others, we would expect to find that high levels of merger activity in a market would have led to a situation where a large share of that market lies in the hands of three or four firms, and we would also expect to discover that the increase in merger activity that has been noted with respect to the U.K. economy since the 1950s would have led to an overall rise in concentration in markets taken as a whole.

c) If the interests of managers and shareholders of a firm diverge, we would expect that managers would be motivated to increase their power and prestige within the firm and also to be wary with respect to the security of their position. Mergers, by definition, increase the size of an acquiring firm, but we would not expect managers to do so at the expense of the security of their jobs. It could therefore be predicted that managers would seek to increase the size of the assets under their control, but to do so in ways that would not increase the risk attaching to the returns on those assets.

The classes cover the most significant areas of current research into the explanations of merger activity. One large body of research is omitted by this analysis, i.e. that related to the implications of merger activity for social welfare. This takes as a starting point the assumption that mergers are aimed at monopoly advantage and then searches for measures of whether the social gain to the economy derived from the cost reductions stemming from economies of scale, etc., outweigh the loss of consumer surplus. The most famous exposition of this theme is to be found in O.E. Williamson's "Economies as an Anti-Trust Defense" (225/1968) and is a central concern of studies relating to the workings of anti-monopoly policy in the U.K. and the U.S.A. But these enquiries are not concerned with explaining why mergers occur (except perhaps tangentially) and so are

outside the scope of the classification system that has been outlined.

If motive was unambiguously reflected in behaviour, and behaviour a sure guide to motive, then one would have the greatest confidence in asserting that the three categories of explanation would act as a main summary of the types of explanation to be found in the research literature, and a starting point for anyone wishing to advance understanding of mergers and contribute to the development of the subject. The behaviour of firms and managers is, however, open to a variety of interpretations and the same activity of takeover can often be accepted as evidence for profit maximisation, as a move to gain market power or as an exercise of managerial discretion at the expense of a firm's shareholders. Had Kuhn, Popper and Lakatos not produced their seminal works, then the next move in a research strategy would have been to find a "crucial experiment" which would allow differentiation of motive. This is the move attempted by Reid (181/1968) when he sought to discover by analysing 430 mergers consummated between 1951 and 1961, whether they performed better in relation to increase in sales or increase in shareholder wealth, as against 48 firms who made no takeovers within the same time span. On the basis that, if merging firms scored more highly on increase in sales (and in fact heavy merger activity was shown in his study to have this effect), and if non-merging companies served their shareholders' interests more nearly,

then one could determine whether managerial interest was the dominant motive in acquiring behaviour. Radice (1978/1971) prepared a "crucial experiment" in which profit rates and growth rates were compared for owner controlled and managerially controlled firms, taking as his sample 89 British firms in food, electrical engineering and the textile industry, over the years 1957 to 1967. His hypothesis was that there could be no conflict of interest between owners and managers in owner controlled firms, and therefore behavioural differences would reflect motivational differences. (Differences were found but unfortunately they were the converse to what the theory predicted). The hard fact is that the "growth of knowledge" thesis denies the existence of "crucial experiments" in the way that term is normally employed (not, of course, that significant experiments do not occur), which is to say that a conflict of theories is resolved in a single experimental stroke. The cruel dilemma posed for research by the "mature falsification hypothesis" is that theories are never overthrown by a single act but instead crumble away as anomalies mount and the research programme degenerates. Therefore the problem posed for research work is how best to assist in this process of testing and "crumbling".

One further difficulty of theory development must also be faced. An assumption runs through the previous paragraphs that motive may be difficult to interpret as expressed in behaviour, but that motive itself is unambiguous. It is perfectly possible



that the aim of a merger may involve motives of profit maximisation, monopoly creation and the service of managerial interests in ways that even the performers of the action themselves could not unscramble.

Since the last paragraph has rendered what, hopefully, was a satisfactory argument into an unsatisfying one, it is time to recapitulate that argument and summarise the steps in that argument. The aim of this chapter is to justify explicitly the research strategy that was adopted, and to show the manner in which the research carried out could potentially assist in the development of a theory of merger behaviour. Working within the "growth of knowledge" paradigm, an attempt has been made to assess the existing state of merger theory. In order to do this, a classification of the present state of the theory has been developed. The problems of classification were shown to be difficult and imprecise. In order to improve that classification, it has been argued that if one takes "meaning" into account, and the assumption has been that one cannot carry out research in the Social Sciences without taking meaning into account, then the classification can be refined into a form which exhibits the desirable characteristic of permitting the existing theories to be more clearly distinguished. Although it must remain a matter of judgement, the description of theories on the basis of differing motivational drives appears to serve that purpose. However, it transpires that the clarity deriving

from explaining activity in terms of a single motive, although useful as a means of organising data, is probably not a realistic way of characterising the activity. The behaviour to be found in the real world is more varied and untidy than can be encompassed by such simplifying assumptions. What is in fact raised is the problem of how much a theory must have descriptive reality as well as a good record of prediction. Before turning to deal with this problem, the predictive performance of the motivational division of theories will be assessed.

#### 2.4.2. Merger Theories as Predictive Devices

Whatever the difficulties involved in establishing a theory, whether it is a psychological act of serendipity or by using induction for a task which in strict logic, it is unable to perform; there is common ground in the Physical and Social Sciences in that a theory should produce a deductive test that will permit a prediction to be confirmed or disconfirmed. There may be room for dispute as to whether a successful prediction confirms a theory or whether a successful prediction fails to disconfirm it, but there is no controversy concerning the fact that without any predictive consequences a theory cannot be other than a speculation. The motivational theories of merger have been subject to a good deal of verification and therefore it is possible to make an assessment as to how well each theory has functioned as an explanatory instrument.

2.4.2.(1) An Assessment of the Profit-Maximisation Theory

Writing in 1970, Hogarty (97/1970) drew the following conclusions about the profitability of mergers:

"What can fifty years of research tell us about the profitability of mergers? Undoubtedly the most significant result of this research has been that no-one who has undertaken a major empirical study of mergers has concluded that mergers are profitable, i.e. profitable in the sense of being 'more profitable' than alternative forms of investment. A host of researchers, working at different points of time and utilising different analytical techniques and data, have but one major difference: whether mergers have a neutral or negative impact on profitability."

The article is American in origin, but Meeks (153/1977) in examining 233 U.K. acquisitions in the period 1964-1972, found that in contrasting the three years prior to merger with a number of years following, merger profitability showed a mild but definite decline.

A survey to be found in Utton (214/1974) of 13 studies of the impact of acquisitions on profitability comes to the verdict that acquisitions worsened the profit situation of the acquiring firms; six studies found no difference between acquiring firms and non-acquirers, and in 2 cases only was an improvement in profitability found. In the study that followed this summary,

Utton compared 39 acquisition intensive firms and 39 firms that grew mainly by internal means, and found that the average rate of profit for the non-acquiring group was significantly higher.

There are a number of methodological problems of a technical nature in comparing profitability after acquisition, but other studies using other techniques have not disturbed the conclusion of Hogarty advanced above.

Newbould (166/1970), using interview techniques, reported that among 38 public companies making acquisitions in 1967 and 1968, no beneficial effects of any kind arose. The investigation by Firth (70/1979) used the effect on shareholder value as the criterion, and calculated that of the acquisitions taking place in the United Kingdom between 1972 and 1974, in four-fifths of the cases the shareholders of the acquiring firm suffered a loss by reason of the takeover bid.

Apart from the problems associated with measurement in the studies quoted, and the consequent matter of validity, there are several standard defences to the conclusion that since mergers are not a proven way to achieve profitability, they can have little to do with motives of profit maximisation.

One of these is the Weston and Mansinghka argument (219/1971) that mergers are defensive in intention and designed to improve the profitability of the acquiring firm. The bulk of studies (Singh, 198/1971; Singh, 199/1975; Kuehn, 118/1975) have generally found no difference between acquirer and acquired in terms of

profitability, which appears to refute, though not decisively, the Weston and Mansinghka proposition. Conn (50/1973) also refutes the Weston and Mansinghka argument. Melicher and Rush (155/1974) found that for the period 1960-1969, conglomerate firms did acquire enterprises characterised by relatively higher levels of operating profitability, but they also reported that firms acquired by conglomerates were no more profitable than firms acquired by non-conglomerates. But in an earlier paper (154/1973) they had examined the performance of a group of firms that had subsequently become conglomerates during the 1960s and found little difference between their subsequent performance and that of firms that did not become conglomerates. Obviously the American studies quoted are dealing with the performance of conglomerate mergers, but in the context of the argument, and on the basis of the American evidence that conglomerate mergers have become the standard form of amalgamation in the U.S.A., I am interpreting conglomerate to be the equivalent of a firm which has engaged in frequent merger activity.

The second manner in which distortions can arise to disrupt the conclusion is dealt with in Meeks (153/1977). He points out that profitability of industry in general may differ from year to year. It is very probable that since mergers occur in conditions of stock market rise, the subsequent period may be one of economic decline. He also notes (and this finding has been consistently present in most of the studies - see for example Newbould (166/1970)), that a premium over current

market value is paid for the acquisition and this premium will raise the net asset value of the firm and so depress the subsequent rate of return in the early years following takeover. Meeks, in his comprehensive study, adjusts his data for both factors by using profitability as a percentage of average profitability within the industry during a given year, and also by reducing the asset valuations by a factor representing "pure goodwill", i.e. the goodwill arising only as a market premium to encourage the acceptance of the bid. His general conclusion is unaffected and remains that:

"The significant finding was that in all the seven post-merger years which were observed on average profitability showed a decline from the pre-merger level."

The final counter-argument is the simplest, and yet to my mind the most persuasive. Hogarty, in the statement quoted at the beginning of this section, asserts that "mergers are no more profitable than alternative forms of investment". By this we may assume that the evidence shows that some mergers achieve above average returns, some below average, and some attain the average. We would expect this to happen with profit maximising firms working in the real world. There seems to be some understanding that mergers must justify themselves by making super-normal returns, and I know of no warrant for such presumption. Meeks (1977) makes the outstanding case for

refutation of this since he finds that in all seven years of merger there is a decline in profitability compared with the average three years pre-merger performance, but since his acquiring firms show a 20% higher profitability than the victims during those three years and after the merger, when outlier values are omitted, the decline in profitability is never more than 11%, we would not be making a wild judgement to assert that we are witnessing a profit performance that lies around the industry average. (20)

We can summarise the conclusion about merger profitability to be found in the literature by quoting the verdict of Hay and Morris (91/1979):

"There is little evidence that mergers lead to substantial real or pecuniary advantages."

#### 2.4.2.(2) An Assessment of the Monopoly Creation Motive

It has already been pointed out in Chapter 1 that there has been a growth in aggregate concentration for the economy as a whole, and also some growth of concentration, although less marked, at the industry level. There are a number of studies (Aaronovitch and Sawyer - 28/1975; Hart, Utton and Walshe - 88/1973; Hannah and Kay - 86/1977; Utton - 213/1971) which estimate the contribution of mergers to the growth of concentration as between 41% and 133% for varying periods during the 1950s

(20) In this connection, Chiplin and Lees (47/1976) conclusion is of interest: "There is some evidence that mergers have led to a worsened performance but on balance it seems that mergers are about neutral in terms of profit performance and in general the rate of return from mergers is about the same as that from investment in any other assets."

and 1960s. (The extreme figure of 133% represents a situation in which concentration would have fallen had not merger activity borne it up). The wide dispersion of estimates occurs because of the extremely complicated problems involved in measuring concentration. Leaving aside the accuracy of the mensuration, it is clear that mergers have played a considerable part in the growth of industrial concentration. Therefore the suspicion must arise that the motive of attaining monopoly powers within a market probably played a considerable part in this development.

The proposition has the merit that it reflects the oligopolistic nature of most industrial sectors. It has the demerit that the capture of monopoly positions is only justified from the point of view of the shareholder (the managerial interest being different) if it results in profitable activity.

Weiss (221/1971) has surveyed the predominantly U.S. studies and found that 31 out of 32 studies show a weak but positive relationship between concentration and profitability. This conclusion is echoed by work done by Shepherd (193/1972) for British industry between 1958 and 1963, which found a small positive association between concentration and margins, as was confirmed by Khalilzadah-Shirazi (109/1974). The weak correlations may arise because of the difficulties involved in defining concentration and in using published accounts for profitability measurement. But the evidence previously reviewed in the preceding section on the absence of profitability in the case of individual mergers presumably applies also to this case.



One possibility is that the increase in the size of firm through merger, if associated with market power, may bring about an increase in costs. This could be because of the various forms of technical inefficiencies identified under the title of "X efficiency" by Leibenstein (127/1966), or the costs of maintaining barriers of entry by means such as heavy advertising, maintaining limit pricing, etc., or because profit is absorbed by managerial interests in creating highly staffed enterprises with large management salaries, as is argued by O.E. Williamson (224/1964) under the title of "organisational slack".

2.4.2.(3) An Assessment of the Managerial Security plus Growth Motive

Mergers, by their very nature, increase the size of the firm which is acquiring, whether size is measured by net assets, number of employees or turnover. It is well known that the larger the firm the less chance of it being taken over itself (Singh - 198/1971; Kuehn - 118/1975). Mergers also, by their very nature, involve growth, so that the interesting problem in this respect is why external growth was chosen over internal growth. But do individual mergers by themselves increase the security of management by reducing the riskiness of the return?

Capital asset pricing theory denies that the reduction of variability in earnings brought about by diversification is of any value in itself to investors. However, by the judicious selection of takeover opportunities, it is possible to modify the relationship between the expected return to an amalgamated firm and the returns to the "market portfolio" in such a way as to lower systematic risk. This will not of itself produce benefit to the firm since the capital asset pricing model assumes that the systematic risk of the earnings of the acquired firm will have already been correctly evaluated by the market and therefore included in the purchase price. The cost of capital will, therefore, only be reduced if some market imperfection intervenes, such as a lack of foresight in assessing future cash flows or the presence of heavy costs to bankruptcy (which risk will be reduced by a diminution in total variability of earnings). There is therefore a general theoretical presumption in the literature against diversification reducing costs of capital and so facilitating an increase in profitability in a given market, or greater ease in producing "organisational slack". Risk is measured in the literature in two ways: either by total variability of return, or by the  $\beta$  coefficient. Capital asset pricing theory divides the total risk (measured by variability of cash flow) into systematic and non-systematic risk.

Non-systematic risk is unique to a firm, measuring individual characteristics of the firm such as the quality of its management, etc. Such risk can be diversified away by combining the securities of the firm in a portfolio which contains assets whose earning variability are imperfectly correlated. Systematic risk is defined as that part of the total variability of returns that is correlated with the variability of the overall stock market (and therefore by inference with the fortunes of the economy as a whole). Since systematic risk cannot be diversified away, in order for a merger to be judged as risk-reducing, the value of the  $\beta$  coefficient of the combined firms must be seen to diminish. Since  $\beta$  coefficients can be added using the proportionate values of the firm as weights, this is possible.

Obviously, horizontal and vertical mergers do little to increase diversification, and therefore the studies of risk reduction have been related to conglomerate types of merger.

The case against the reduction of risk by means of mergers has already been referred to; the argument is contained in Levy and Sarnat (1970). Investors are able to diversify their own portfolios. They can do it more efficiently than a firm since they can design a portfolio with risk-return characteristics that exactly meet their requirements, rather than accept the level of risk-return chosen for them by an acquiring firm. There is no need for firms to seek to reduce risk by diversifying,

since, in the circumstances assumed by capital market theory, it will already have been done; all that a firm can, in effect, do is reduce the range of risk-return options available in the capital market, and so possibly deny the investor the exact portfolio that he or she may require. Lintner (136/1971) has argued that investors as individuals have insufficient resources to allow them to diversify their portfolios, although Evans and Archer (63/1968) have, on the other hand, demonstrated that the bulk of gains from diversification can be achieved with a portfolio of approximately ten stocks. This argument against diversification and its benefits is not applicable if the dominant power in firms is managerial and the management team are able to act with limited reference to the desires of the shareholders.

When one considers the evidence available, almost all of it seems to point in the same direction - that mergers are not an efficient way of causing a reduction in risk. Smith and Schreiner (201/1969) compared the investment performance of 19 conglomerates (treating its activities in the same way as a portfolio of securities) and 8 mutual funds (the American equivalent of unit trusts in the U.K.) and found that on average the mutual funds tended to out-perform the conglomerates in reducing risk through diversification. This study was followed by that of Weston, Smith and Shrieves (220/1972) which indicated that the  $\beta$  coefficient for a sample of conglomerate firms was double that of a sample of mutual funds. Melicher and Rush (154/1973) found that  $\beta$  coefficient for conglomerate firms was significantly higher than that of

non-conglomerates. Josehnk and Nielson (104/1974) discovered that acquisitions had an insignificant effect on the  $\beta$  coefficients of conglomerates. Lev and Mandelker (128/1972) took a sample of large firms (69 in total) who were making acquisitions between 1952 and 1963, and reported that there was no significant difference between the changes in the  $\beta$  coefficients for these acquiring firms as compared with a control group matched by industry size and time period.

There is therefore little support for the viewpoint that mergers reduce systematic risk, certainly of conglomerate firms, and by extension, other large firms. Capital market theory concentrates on systematic risk since to the individual investor with a well-stocked portfolio, this is the only form of risk which will affect the value of the investment. Managers who choose, and are able, to ignore the welfare of their shareholders, can benefit from a reduction in the total variability of cash flow. The consequent diminution in risk provides security against insolvency and so is a positive contribution to their utility function. This could explain merger activity which would be difficult to justify on criteria of increasing shareholder wealth. But it is easy to demonstrate situations where total variability decreases but systematic variability is augmented. A dominant management group may therefore be increasing security by lowering the total variability of earnings and diminishing their security by ignoring the effect on their stockholders' share values, thus providing an incentive to such shareholders to sell their shares to a predator company interested in making a takeover bid.

### 2.4.3. An Evaluation of the Success of the Motivational Theories

It has been argued that an effective way to analyse the research findings on merger activity is by means of a classification based on assumptions concerning motive. Although this produces a sensible classificatory system, the theories are not very successful as theories. If mergers are of only average profitability (as compared with other investment decisions) and do not reduce risk (in the mean-variance of cash flow sense), then the predictions concerning the maximisation of profit and the increase in managerial security are not substantiated. Even the aim of achieving market power seems empty if it does not create an increase in profit performance. We can, of course, accept the conclusion that motive is often frustrated in the real world, and thus report the intention. We can accept that an average return and an average level of risk is what one would expect from normal investment decisions in practice, but why then should mergers, with their disruption to the customary life of a firm and the strain and risk they impose on managers, be preferred to the tranquillity of growth by internal means? Mergers do, however, produce a quickening in the pace of growth, and they do produce size which offers security for managers, and a stable pattern of earnings. These are gains for managers, not for stockholders. The examination of the success of the theories in terms of the empirical research results appears to lead in the direction of assuming a divergence of interest between managers and investors, and a justification of mergers by reason of the way in which size and growth best serve the interests of the managerial group.

## The Central Dilemmas of Merger Theory

In completing this survey of merger literature, it might be worthwhile to set out in more or less schematic form the two dilemmas that haunt all merger literature and indicate the direction in which answers have been sought. The literature is too vast to include references, but useful summaries can be found in Copeland and Weston (53/1979), Tinic and West (209/1979) and Franks and Broyles (74/1979).

### First Dilemma

A merger, unlike internal investment, creates no new physical assets but is effected by a change of ownership. How, therefore, can additional wealth be created for shareholders?

Answers can be classified into the following forms :-

<u>Models</u>	<u>Necessary Condition</u>	<u>Method of Achievement</u>
a) Real Effects.	Existing assets are used more efficiently either in their original use or by change of use or in combination with other assets.	i) New economies of scale. ii) Exploitation of monopoly power. iii) Replacement of inefficient management.
b) Financial Effects.	Conferring a benefit on the owners of the equity by making advantageous use of debt or by exploiting size in order to reduce the expenses in raising capital.	i) Reduction in the cost of issuing and raising capital. ii) Reduction in default risk (the co-insurance effect). iii) Purchase of unused debt capacity or taxation relief.

## Second Dilemma

Assuming that mergers can produce an increase in shareholder wealth, why, in perfect competitive capital markets, are these increases in wealth not sold at a price reflecting the present value of these potential rewards by shareholders in acquired firms, thus producing zero financial gains for the acquiring firm?

Answers follow the following patterns :-

- a) Information is imperfectly distributed between acquirers and acquired firms.
- b) There are institutional limits on the ability of firms and individual investors to borrow and lend.
- c) Specific assets can only be sold in segmented and limited markets.
- d) The markets for management expertise are imperfect.

A further approach is to deny the basic assumption that mergers are designed to increase shareholder wealth, thus avoiding the first dilemma and transforming the second dilemma into the question of how the managers of assets that are being inefficiently used (and whose asset price will reflect the present value of such inefficient cash flow) can themselves survive in a competitive market.



## 2.5. CHOOSING A RESEARCH PROGRAMME

The interesting comment to be made on the preceding section is not that the motivational theories are not well confirmed, but the final conclusion that the available evidence seems to lead to a view of mergers which derive from the nature of a specific model of the firm, that is a growth-orientated managerial model. The problem of merger activity involving not a separate independent motivational assumption can be accommodated in the larger entity. It is, of course, what we would expect if we accept the arguments of Lakatos (1970) as he states:

"One of the crucial features of sophisticated falsificationism is that it replaces the concept of theory as the basic concept of the logic of discovery by the concept of a series of theories. It is a succession of theories and not one given theory which is appraised as scientific or pseudo-scientific. But the members of such series of theories are usually connected by a remarkable continuity which welds them into a research programme. This continuity - reminiscent of Kuhnian 'normal science' plays a vital role in the history of science; the main problems of the logic of discovery cannot be satisfactorily discussed except in the framework of a methodology of research programmes."

If we wish then to understand and explain merger activity other than by making generalised statements based on the specific circumstances of the particular sample under study (which may reflect the accidents of sampling more than the testing of a substantive theory), then it is necessary to relate the research to an ongoing research programme. The question then resolves into identifying the existence of one or more research programme which contains predictions on merger activity. The purpose of a research study under this methodological imperative would then be to disconfirm or fail to disconfirm (using falsification strategies) the particular predictions of one such programme, and then to assess the effect on the programme as a whole.

Lakatos describes such a research programme as consisting of methodological rules which tell us what paths of research to avoid (negative heuristics) and what paths to pursue (positive heuristics).

"All scientific research programmes may be characterised by their 'hard core'. The negative heuristic of the programme forbids us to direct the 'modus tollens' at this hard core. Instead, we must use our ingenuity to articulate or even invent 'auxiliary hypotheses' which form a protective belt around this core, and we must redirect the 'modus tollens' to these. It is this protective belt of auxiliary hypotheses which has to

bear the brunt of tests and gets adjusted and re-adjusted, or even completely replaced, to defend the-thus-hardened core. A research programme is successful if all this leads to a progressive problemshift; unsuccessful if it leads to a degenerating problemshift."

By "progressive" and "degenerating" problemshifts, Lakatos means whether the hypothesis leads or fails to lead to the discovery of new phenomena. There are two major research programmes which currently fit this specification:

- a) the Neo-classical Theory of Perfect Competition, which contains auxiliary hypotheses about the firm;
- b) the Structure-Conduct-Performance Theory, which contains hypotheses of an auxiliary nature concerning market structure.

Latsis (123/1976) has identified the hard core postulates of the perfectly competitive model as:

- a) Profit maximisation
- b) Independence of decisions
- c) Complete relevant knowledge

linked with the additional assumptions:

- d) the seller deals in a perfectly homogenous commodity
- e) the number of sellers is very large
- f) the existing sellers may freely leave the market and new sellers may enter.

If, however, we accept the Lakatos view that the "hard" core and assumptions are adjusting to new information and attempts at verification (or more properly falsification), it is difficult to believe that the current theory of the firm fails to accept uncertainty as a relevant factor and the ideal of a perfectly homogenous commodity has been converted into the multi-product firm situation.

The "hard core" of the structure-conduct-performance programme has not been defined in the literature, but its postulates would probably have the following form:

- a) The structure of a market determines the conduct of a firm within that market and this relates to the performance achieved.
- b) Firms within a market react to the activities of other firms.
- c) The competitive process requires constant vigilance from all firms within a market.

It is further assumed that markets are oligopolistic, and that products are subject to a life cycle of growth and decay.

Only the last of the postulates (c) might arouse controversy, but it is hard to explain the preoccupation with such matters as "limit pricing" and "barriers to entry" without admitting the existence of such an assumption.

It might be further remarked that the neo-classical research programme deals with the firm at the micro-economic level and

the structure-conduct-performance programme has markets and industries for its subject matter. The divide between the two programmes is similar to that between macro-economics and micro-economics in general economic theory, in that although logically the two programmes should relate, in practice they tend to be separated, and it is difficult to find an over-arching theory to bind both halves of the same reality together.

Both research programmes contain predictions about merger activity. Both programmes would be described as "progressive", and the choice between them is a matter of judgement. In carrying out this research, the theory of the firm was selected as the subject, set as it is within the larger neo-classical research programme. The selection was based on the direction in which the evidence on merger activity, which has been related in Section 2.3., was leading, and also to the belief that the motivational theory of the firm is much richer in content. The structure-conduct-performance model takes as given that the quoted firms are all striving for some form of monopolistic advantage and then sets out to evaluate the consequences of this assumption. The theory of the firm, on the other hand, has a much more tolerant attitude to the possible range of intentions underlying human behaviour. Since the proposition argued in this chapter, that merger behaviour is best studied in terms of motivation, the theory of the firm allows greater scope for the analysis of that motivation.

The next chapter outlines that theory and its predictions concerning mergers, and describes the statistical investigation that was carried out.

## 2.6. SUMMARY OF CHAPTER

The argument of this chapter can be summarised concisely in the following steps:-

- a) To gain an understanding of merger behaviour, one requires a theory; that is to say, a coherent explanation which will satisfactorily relate the known facts.
- b) Are there, then, any ways in which we can recognise the value of a theory, especially one in the Social Sciences?
- c) What is the range of existing theories on merger behaviour?
- d) Does any of the existing theories commend itself for further exploration?

The problem of how to evaluate the success of a theory in the natural sciences has been the subject of much controversy over the past decade. In describing the features of the dispute in Section 2.1., a brief analysis of the contributions of Kuhn, Popper and Lakatos to this debate is made. Ultimately, the definition of Lakatos that a good theory is one which "explains existing facts and is capable of predicting novel facts" is adopted, as also is his emphasis that a theory can only be developed in contrast with a competing explanation since no theory can, in itself, ever be conclusively confirmed, and therefore judgement of the worth of a theory is always that it functions as an explanatory structure more efficiently than an alternative structure.

The greater part of this literature concerning "the growth of knowledge" concerned the natural sciences. The Social Sciences possess a number of features which need examination in order to ensure that the approach of Lakatos will survive the transfer to another ethos.

Two principal difficulties of theory construction in the Social Sciences are identified. The first of these is the changing nature of the subject matter, which suggests that progress in the Social Sciences is more likely to be progress in the development of analytical methods rather than progress in terms of finding inviolable laws governing human nature. The second relates to the "meaning of actions" insofar as they represent intended behaviour.

There are two major perspectives on this issue. One, largely favoured in Sociology, is to assume that there may be social forces at work which are not entirely understood by the participants (Structural-functionalism). The other, which has been the typical approach in Economics (apart from the Marxist and Institutional theories), is that of "methodological individualism", the view that the outcome of activity can be explained by reference to the actors involved. (It is pointed out that although some economic theorising refers to the unintended consequences of participants' actions, this does not amount to a "functionalist" argument by itself). The traditions of the economic discipline therefore support the view that a good theory will have a motivational structure as part of its explanatory design. These matters



are covered in Sections 2.2. and 2.3.

The various categories of merger explanation are then examined. This not only provides a review of the existing state of merger theories (Section 2.3.) and also an opportunity to analyse the current success of the theories (Section 2.4.), but leads to a classification of explanations of merger behaviour on the basis of the motivational assumptions.

Leaving aside the welfare issues and also those studies dealing with technicalities of how mergers are accomplished, there appear to be three motivational criteria being used in order to gain an understanding of takeovers:-

- a) The profit-maximising motive, which has been the prevailing orthodoxy and implies that merger activity is a species of normal investment behaviour in that the activity is a means of increasing capacity in a way that will earn the highest rate of return over alternative methods.
- b) The motive of seeking market power which underlies the "structure-conduct-performance" paradigm in Industrial Economics.
- c) The motive of seeking the interests of the managerial class who direct the activities of the firm.

It is finally proposed to use the managerial theory of the firm as the framework for the understanding of merger activity.

## CHAPTER 3

### THE THEORY OF THE FIRM AND MERGER ACTIVITY

### 3.0. AIM OF THE CHAPTER

Chapter 1 has analysed a temporal pattern of merger activity over a longer period (1960 to 1978) than the actual periods from which merger activity was sampled in this research study, that is 1970 to 1978 in the case of the Consumer Durable/Non-Durable sample, and the 5 years prior to 1977 or 1978 in the instance of the Comparison Sample of Predators, Victims and Neutrals. The nature of the two samples were described, and it was demonstrated that in the case of the Consumer Durable/Non-Durable firms the experience over time of that sample conformed to the general experience of merger activity to be drawn from the statistical record. Certain conclusions on the general pattern of activity were inferred, of which the most important were:

- a) that the pattern of acquisitions appeared to have cyclical characteristics;
- b) that these cyclical characteristics seemed to have some relationship to the business cycle with its fluctuations from prosperity to depression;
- c) that a reasonable inference to be drawn from the facts that merger situations were more frequent at a time when share prices were rising, and that share exchanges represented a larger proportion of the offer terms than cash at this time, was that since these factors probably implied a reduced cost of capital, and an ease in raising funds, that external investment (i.e. acquisitions) would be favoured by these circumstances over internal means of growth.

In the second Chapter, an attempt was made to produce a sensible classification of research explanations of why takeovers occurred. These classifications were then recast in a form which allowed meaning and motivation to become the dominant principle of categorisation. The "growth of knowledge" paradigm was employed to argue that to produce a convincing explanation of the behaviour of firms who sought to acquire other companies, it was necessary to relate the explanations to ongoing research programmes. The two principal research programmes were identified as:

- a) At a macro level (i.e. that of industries and markets - the two are not synonymous though overlapping<sup>(1)</sup>), the structure-conduct-performance paradigm which aims to explain the oligopolistic forms of industrial/market organisation.
- b) At a micro level, the theory of the firm which seeks to account for patterns of behaviour in terms of certain plausible axioms of motivation underlying the behaviour.

Since the two research programmes, although possessing common elements (the most obvious of which is that if firms are assumed to be committed to achieve positions of market power, then the obvious result would be oligopolistic markets), have yet to be related by a general overall theory, the theories are assumed to be distinct. As a result, the question of which research programme to pursue was taken as being a matter of judgement. Since, it was

(1) The difference between the two concepts derives from the methods of analysis employed. Industries are analysed in terms of the production function, and markets in relation to the sale of homogenous products and services.

argued, the structure-conduct-performance research programme assumes as an axiom that merger behaviour is motivated by the quest for market power, whereas the theory of the firm treats the issue as one to be determined, the latter research programme was selected for study as the one most likely to promote a better understanding of merger behaviour. The explanation of merger activity analysed within this thesis is therefore that related to the theory of the firm.

The first part of this present chapter seeks to define the research programme concerning the theory of the firm, to form a judgement on the current state of research with respect to that programme. The next step is to determine the manner in which merger activity relates to alternative views about the nature of the firm and then to describe the hypotheses which were developed to test the conflicting theories about the firm.

### 3.1. THE CURRENT STATUS OF THE RESEARCH PROGRAMME CONCERNING THE THEORY OF THE FIRM

#### 3.1.1. The Firm in Neo-classical Theory

The neo-classical theory of the firm was developed in the decades following 1870 on the basis of the marginal utility analysis which was ushered in at that time by thinkers such as Jevons, Menger and Walras, and found its most traditional expression in Marshall's "Principles of Economics" which was first published in 1890. Prior to this period, economists had been concerned with the growth and distribution of the wealth of a nation and the discovery of laws governing that growth and distribution; although there were included theories of production and hypotheses concerning the fixing of prices, there is little that we would recognise as a theory of the firm. That is to say, a theory which analyses the decision making processes of an individual enterprise. The neo-classical theory provided an analytical process for explaining the decisions of firms via the equalising of marginal values. Although monopoly situations had been identified as a restraint on trade based on a "fixed non-reproducible factor of production" by Adam Smith and Ricardo, and the downward sloping demand curve facing a monopolist proposed by Cournot as early as 1838, the theory of the firm was conceived in partial equilibrium terms on the basis of perfect competition and perfect knowledge. The surprising thing with respect to this characterisation of

the firm was that although it provided a logical structure of reasoning to demonstrate how the firm behaved in the short and long term, in the end the typical firm had only one decision facing it - whether to continue to produce or not. Latsis (123/1976) describes the decision making as follows:

"In equilibrium then each seller is faced with the following choice: either to sell  $q(o)$  (the output at which price is equal to minimum average cost and therefore zero profits) or go bankrupt. Whether he maximises profits or is content simply with satisfactory profits, whether he is an optimist or a pessimist, a risky or a cautious personality, will make no difference to his decision. There is only one policy he can adopt if he wants to remain in business. Indeed the assumption that firms maximise profits is very often defended on the grounds that this is the best thing to do. There seems to be a persistent failure to notice that the behaviour of the seller under perfect competition is over-determined and that a weaker assumption could do the same job; namely, the assumption that the firm avoids bankruptcy." (Page 24, 123/1976).

In fact, firms scarcely exist within this paradigm (in the Kuhnian sense) except as representative units

contained within industries and markets.

### 3.1.2. The Revolution in the Theory of the Firm

The particular perspective on the firm outlined above was swept away in the 1920s and 1930s under the impact of a number of attacks. The most important of these was the demonstration of P.Sraffa (204/1926) that the condition necessary to ensure static partial equilibrium that unit cost and output are independent, is incompatible with competitive behaviour. The problem of increasing and decreasing returns proved to be the critical issue. If a firm is subject to increasing returns, what is to stop it from expanding indefinitely and destroying perfect competition by becoming a monopolist? If an industry is subject to diminishing returns, so that increasing costs react on the prices of the products of other industries, and thus reduce demand for the product of the industry under review, how can one analyse its price and output behaviour in terms of partial equilibrium analysis in which it is assumed that the factors affecting supply and demand are independent? Only by ignoring the interactions between industries can we specify the demand and supply factors for a particular industry, but such an analysis amounts to a demand for the complexities of a theory of general equilibrium.



This exhibition of logical inconsistency occurred at a time when doubts were being cast on the model from a number of sources on the basis of empirical work. The principal charges of "lack of reality" on the theory of the firm occurring at this time were:

- a) The findings by Hall and Hitch (83/1939), that businessmen set prices not by marginalist rules but taking into account the full costs of producing and marketing the product.
- b) The Berle and Means (39/1932) thesis, that the modern corporation is one in which the ownership of its shares is widely distributed so that the shareholders are, as a body, unable to bring sufficient influence to bear to prevent the managers running the company according to managerial rather than shareholder objectives. This proposition carried with it the implication that profit maximisation might not be the primary motive of the management team.
- c) The demonstration that, far from working under the regime of cost curves with the shape of inverted parabolas, most companies appeared to be subject to constant returns to scale over a wide range of production levels. This line of enquiry raised the spectre of a firm that could

grow to unlimited size with all its monopolistic consequences.

- d) The mounting evidence that many firms were multi-product and not the generators of a single homogenous article of service. This meant that firms might operate in several markets and not one, as the theory demanded.
- e) The realisation that most industries/markets were oligopolistic. The neo-classical theory could handle the "price-accepting" firm of perfect competition, or the single firm that held monopoly power over an entire market, but had no way of dealing with situations where the interactions of several companies possessing large shares of a given market existed.

If we accept the Kuhnian view of "revolutions in knowledge"<sup>(2)</sup>, then such an upturn occurred with the simultaneous publication in 1933 of the works of Joan Robinson "The Economics of Imperfect Competition" and Edward Chamberlain's "Theory of Monopolistic Competition".

The theory of imperfect competition denied the relevance of perfect competition in studying firms and industries and focussed its attention on the firm which, by producing a differentiated product, permitted the

(2) The general opinion that revolutions are less revolutionary than in Kuhn's argument is reconfirmed, in this instance, by the fact that Marshall, in 1890 in his "Principles of Economics" was making reference to the problems of economies of scale for his theory.

firm to maintain some control over its price and output. It is generally accepted in the literature (see for example the summary of the situation in Blaug (pages 398 to 403, 41/1962) that the theory transformation was empty of empiric consequences, but had several major impacts:

- a) It brought into being the concept of the firm with some discretionary control over its future.
- b) It changed the focus of research from that of the "representative firm" in its industrial context to that of the individual firm. It therefore ushered in attempts to reformulate a theory of the individual firm in an uncertain environment which has continued without rest since the 1930s and which still awaits final resolution.
- c) Paradoxically, while the theory of imperfect competition in itself emphasised the fortunes of the single enterprise, by its emphasis on such factors as selling costs, degrees of monopoly within a market and the problems of entry, it created a new paradigm for the study of industries, the "structure-conduct-performance" research programme.

The decades following the 1930s in which the doctrines of imperfect competition were elaborated and subject to critical inspection created a watershed in the study of industrial economics. The pathways split apart. On the one hand, a reformulated paradigm of industrial and market behaviour was born; on the other hand the study of the individual firm became paramount. Two research programmes existed where only one had preceded. The Marshallian system had achieved its triumphs by so constraining the operations of a firm as to deprive it of discretionary options. The new system vanquished these constraints, destroying even the partial equilibrium context in which firms were supposed to exist and abandoning the traditional distinction between short run and long run analysis (which depended on a concept of equilibrium to be meaningful). In its place was brought in the major problem of uncertainty and greater realism in the recognition of the oligopolistic environment of industries and markets. It seems probable that the two research programmes (the revised theory of the firm and the structure-conduct-performance paradigm) will only unite when a theory of constrained oligopoly is developed. By this I mean a theory which successfully sets limited to the behavioural possibilities of the participants and therefore allows a determinate outcome to be forecast.

### 3.1.3. Behavioural and Managerial Theories of the Firm

The reformulation of the theory of the firm has taken two major directions; the first of these was to look inwards and reveal the internal workings of the firm; the other was to reconsider what the objectives of the firm might be other than the profit maximisation enjoined by neo-classical theory.

The behavioural theory of the firm seeks to replace the traditional normative approach to the analysis of firm's behaviour with a much more positive approach; i.e. more firmly based on empirical measures of reality. Classical economic theory is normative in the sense of postulating how a firm should behave if it is to maximise profits. Behavioural theorists seek to relate the working of a company to the needs and goals of the individuals who comprise that company. The economics of the firm has been described as treating the firm as a "black box", which is a term taken from systems theory. The "black box" argument is that where an institution (such as a firm) has very complex internal workings, then it should be treated as a collection of rules for transforming input into output without any attempt to discover what elaborate processes actually take place within the institution. Behaviourist theorists reject this approach and set out to analyse

the way in which firms decide upon their objectives, which are assumed to be multiple rather than single. The existence of multiple objectives presupposes that there will be conflict with respect to these objectives which must be resolved by some sort of bargaining process. A seminal work illustrating this approach is that of Cyert and March (56/1963). The perspective suffers from the general prople of "reductionism", that is to say, it proposes to explain the workings of an economic institution in terms of individual behaviour and interaction. Although there seems no theoretical objection to the procedure, in practice the labyrinthine intricacies of such an undertaking are formidable. As a theory, it offers little prospect of service to the purpose of this thesis, which is concerned with merger activity as an external factor in the strategic development of the firm seen as a decision unit, which is assumed for the purpose of the theory to be unanimous in purpose.

The other revision of the theory of the firm which establishes new goals for the enterprise appears in a number of guises. These guises reflect the various objective functions which are proposed for the firm; they include:

- a) Revenue (or Sales) Maximisation (Baumol, 35/1959 and 36/1962);
- b) Growth Maximisation (J.H.Williamson, 223/1966; Marris, 144/1963 and 145/1964);
- c) General Utility Maximisation (O.E.Williamson, 224/1964).

O.E.Williamson's model is the most difficult to classify, because although he refers to a utility function composed of such factors as salary, status, power and prestige, he is basically dealing with the presumed ability of managers to pursue their own interests so long as acceptable profits are earned. The focus of this model is the way in which preferences for staff and emoluments are related to output and pricing decisions, but since his trade-off relationships (between, say, profit and staff numbers) are concerned with the internal organisation of the firm, he casts little light on the relationship of the firm to the market.

There is therefore a great deal of common ground with behaviour theory; however in later works (O.E. Williamson, 226/1970 and 228/1975) he builds on his views on "discretionary behaviour" to argue that a distinctive form of enterprise might be necessary to reconcile in an efficient manner the conflicting aims

within a firm; this form of enterprise he names as the "M form", its purpose being to use a central control of finance and policy to enforce profit maximising behaviour within a multi-divisional type of corporation. Thus Williamson manages to restore profit-maximising behaviour to the firm, but not as the result of external constraints as with the partial-equilibrium neo-classical model, but by reason of internal considerations.

There are some other notable contributions to a reformulation of the theory of the firm which, for completeness, should be noted, but they are probably better viewed as supplementing the developments noted above rather than being attempts at comprehensive theories in their own right. These are:

- a) "Satisficing theory" which argues that maximisation is not a credible description of the firm's behaviour in an uncertain world, that managers seek therefore "satisfactory" rather than "optimum" solutions. The theory is to be found in the work of H.A.Simon (195/1959)<sup>(3)</sup>
- b) "X-inefficiency", the idea of which originated with Leibenstein (127/1966) which focuses on the

(3) It has been suggested that Simon's theory of satisficing behaviour is compatible with any outcome and that therefore the hypothesis is not testable, but the theory contains the very important insight that owing to limitations of human ability and the costs of searching for information, the managers of a firm must tackle problems sequentially, and since in practice the point of optimum performance is not known to the managers (because it would require knowledge of counterfactual situations) this is a more realistic description of how managers actually behave.



cost inefficiency which arises in the presence of monopoly power.

- c) "The technostructure" which argues that the technological and managerial revolutions have produced a group of professional managers whose object is to secure the independence of the organisation, its maximum rate of growth (since then the technostructure can itself expand offering more jobs, promotion and better compensation) and the production of things demanding technical ingenuity. The argument is due to Galbraith (79/1967), but is more concerned with defending the inevitability of oligopoly than in seeking to demonstrate the specific way in which the firm works under this system. It is also a theory which is, by definition, limited to the large corporation and has no contributions to make to an insight into the life of small and medium-sized companies.

Despite the diversity of genre, there are certain basic features which underlie to a greater or lesser extent all these proposals for a revision of firm theory (this is as true of the behavioural as of the changed objective function type). These are:

- a) they assume that firms exist in an uncertain environment;
- b) there is an acceptance of the Berle and Means thesis (39/1932) that there is separation between the ownership and control of the publicly quoted company since shareholders individually are so dispersed and unco-ordinated that they are unable to compete with the management team, which has responsibility for day-to-day decisions, in dominating the affairs of a company. As a corollary of this, managers are able to substitute their own aims which may have more to do with their own status and ambitions than with the growth in wealth of their shareholders;
- c) there is an agreement that there is some minimum level of profitability which must be attained in order to satisfy stockholders.

Where there is disagreement is in the extent to which managers are able to avoid the imperative to maximise profits. The issue is not a trivial one, if the maximisation of profits can be introduced back into the argument, then deterministic models of the firm can be built; not, it is true, with the characteristics of the neo-classical model, which allowed the firm to be integrated into a market structure since the problems

of uncertainty and oligopolistic interdependence would still remain unresolved, but at least permitting a description of the internal features of the individual enterprise. If, on the other hand, firms have discretion once having surpassed the minimum profit level to follow their own devices, then the constraints on action again become uncertain and attempts to describe the firm in terms of maximising and optimising will be lost.

Unless, that is, an equally binding objective can be found; hence the proposals for Sales Revenue Maximisation, Growth Maximisation or General Utility Maximisation. The difficulty with all these proposals is that they imply a discretion by managers to achieve other objectives which lack the compelling simplicity of the profit maximisation demand. This has then become the fundamental issue in the reformulated theory of the firm - do managers maximise profits or after meeting some minimum profit constraint do they have discretion to seek other objectives? These other objectives seem to open a wide panorama of possibilities, but this is not necessarily so. It has been pointed out (Sawyer, 185/1979) that Baumol's sales revenue maximisation hypothesis must not be interpreted literally in terms of sales, since otherwise we would find firms crowding into markets (such as retail distribution) where the

sales to profit ratio is high and that therefore sales have to be read as a proxy for size. Solow (203/1971) has made the point in reference to Marris's growth maximising model, that the growth orientated firm would choose a small size in order to maximise growth rate; this would imply a tendency for firms to disinvest, which is not a notable feature of industrial life. We are then led to the belief that size is the ultimate objective of the growth orientated firm. Williamson's (224/1964) theory of managerial preference for increasing staff numbers and management emoluments appears to be a size-related concept. We would not be doing an injustice to these theories if it were stated that size (whether measured in terms of gross or net assets) is the ultimate purpose. The difference is that we are comparing a process, i.e. "profit maximisation", with a rather indeterminate final state of bigness which may be achieved either by short run means as in the Sales Revenue Maximisation hypothesis, or in the long run terms of the Maximisation of Growth hypothesis.

One advantage of the reformulated theories of the firm is that they reflect the industrial environment of the latter decades of the 20th Century more realistically. They take into account the paramount

position of managers in the quoted firm; they reveal the dominance of the large multi-product firm possessing some variety of market power; they accept that other forms of competition exist other than that of price, especially that related to advertising and other forms of market expenditure; they assume that most markets are oligopolistic and lack the free entry and full information of the neo-classical competitive model. The problem is whether such realism has been purchased at the price of a reduction in analytical potential.

### 3.2. THE REVISED THEORY OF THE FIRM AND MERGER ACTIVITY

#### 3.2.1. The Suitability of Managerial Theories to relate to Merger Activity

In accepting the Lakatos theory of the growth of knowledge via research programmes, one must also accede to the argument that no isolated theory can be tested adequately without taking into account the network of theories and the "hard core" beliefs to which any theory is related. The reason why one predictive confirmation or refutation serves no useful purpose is that most scientific endeavour is riddled with anomalies and it is not possible to deal with such anomalies unless one can contrast the success of different theories in dealing with them. It is only by relating the success or failure of a specific test to the programme as a whole that the possibility of successfully interpreting that test and its result can be achieved. Therefore to carry out a test of the causes of mergers, it is necessary to identify the way mergers are related to a larger body of theory. The body of theory singled out for attention is that concerning the reformulated theory of the firm. The hard core belief underlying the alternative programme is that of profit maximisation as the principal aim of the firm. This is not the profit maximisation axiom to be discovered within the neo-classical theory of the firm since this depended on perfect competition and perfect knowledge and a theory of market equilibrium, for its mode of operation. The new theory of profit maximisation accepts uncertainty, the oligopolistic framework and the independence of the firm within its market or markets but

nevertheless maintains that the profit maximising motive still provides the most significant explanation of the action of firms.<sup>(4)</sup>

The attack on the profit maximising thesis cannot be direct since the state of mind of many managers over a vast variety of market circumstances is not directly open to test. Behavioural theories have sought to demonstrate the existence of "organisational slack" which is incompatible with profit maximisation; others such as growth theorists have sought to support the view that managers seek other objectives than profit maximisation.

Since the behavioural theorists are concerned with internal activities, they have little to say concerning the implications of their beliefs with respect to merger activity. The managerial theorists are a more important body concerning the activities of the firm in its relationship to output, product development and rivalry with other companies. Unfortunately, with the exception of Marris, they suffer from a major defect in relating these theories to takeover practice. They deal with immediate short term situations where the important questions are the output level, price to be charged, amount to be spent on advertising and other such matters; none of which are of immediate relevance to takeover situations which involve investment and therefore can only be assessed against a theory which takes investment behaviour into account. An example drawn from Hawkins (89/1970) criticism of Baumol's Sales Revenue Maximisation model will make this clear.

(4) This presumably is what would be described by Lakatos as a "degenerating" programme. It has dropped its requirements for partial equilibrium, perfect knowledge and total absence of influence over the market. The most important attempt to restate the theory is by way of the concept of "workable competition" but it is generally conceded that the reformulation is too imprecise for use in prediction.

Hawkins points out that if we presume that Baumol's theory is applied to a multi-product firm and the number of products is not assumed constant, then the sales revenue maximiser starts to look like a profit maximiser. (Baumol clearly implies that the number of products is fixed, in Chapter 1 of his "Business Behaviour, Value and Growth" (35/1959). The reasoning goes as follows.

If the firm were to be producing many products, then it would make no sense to produce its sales maximising output for each separate product when it could equally bring output to the level of profit maximisation for Product A and then switch to develop Product B to the profit maximisation level, after which it would move to Product C. As each product reached the level of profit maximising output, then other products could be introduced. The firm would only then become a sales maximiser if, having exhausted all products which would yield profit maximums, it continued to develop products to a point where the last product introduced showed zero profitability and then was outputted in a manner which added to sales but detracted from the profitability of the total firm. The obvious inference to be made from Hawkins' criticism is that in any long run situation, Baumol's work only makes sense if we assume he is proposing a theory of over-investment (defined as investing to an extent where the investment fails to cover its costs). This is very close to the growth theorists' proposal that new products are developed which yield low return on investment which are insufficient to justify the employment of shareholders' funds.



The criticism is not fair to Baumol, who was only dealing with the short term circumstance, but nevertheless it clearly illustrates why Baumol's theory is not useful for casting light on the process of takeover.

It is therefore proposed to use the work of Marris as the source of hypotheses on the merger situation.

### 3.2.2. An Outline of Marris's Growth Theory of the Firm

Marris's model of the managerial growth firm (Marris 1963, 1964, 146/147/1971) has so far, despite numerous analyses, failed to reach a form where econometric investigation of it would be possible. There are a number of reasons for this.

In the first place, he relied upon a steady state theory of growth in which such variables as the retention ratio, valuation ratio (to be explained more fully below), gearing, liquidity ratio, capital/output ratio, etc. would remain constant over a long (undefined) period. Once having chosen the level of these financial variables in the light of their effect on growth rate, profitability levels and the risks to the security of the management team, then these levels are held. But his theory relies heavily upon a cost of growth function which relates the rate of growth of demand for the firm's output to the rate of demand-growth-creating expenditures. It is assumed that a constant rate of such expenditure will produce a constant rate of demand growth and a higher rate of expenditure will produce a higher

rate of growth, although the increase in growth will be less than in proportion to the increase in expenditure. However, although there will be diminishing returns at any moment of time, through time each given rate of demand-growth-creating expenditure will produce a corresponding given rate of demand growth which will continue permanently. This is an essential characteristic of "steady state growth models" and it requires the assumption that the exogenous environment determining the properties of the cost of growth function should remain constant. Marris defends the contention by distinguishing between short term situation in which the constancy of the environment remains steady and a "super-environment" which determines the rate at which firm can alter its immediate environment but which itself is not subject to modification by the firm. But as Wood (230/1971) has pointed out, what determines the form of the cost of growth function is the existence and behaviour of other firms who are also competing for sources of demand. It is therefore highly unlikely that the "super-environment" will remain unchanged for any length of time in the face of steady-state growth by a number of firms. Devine (37/1974) is even more forceful in his conclusion:

"Steady state growth by all firms is logically incompatible with the assumptions required to enable steady-state growth by any one firm. This is because the properties of the cost of growth function of the individual firm depend on the existence and behaviour of other firms and in a

system made up of firms following a steady-state permanent growth path, these properties will be endogenous and not exogenous. Thus, the structure of steady-state growth models is flawed by an internal logical contradiction. The point is greatly strengthened when the relatively small number of giant oligopolists dominating most sectors of industry is recalled. For it now becomes unlikely that each firm will determine the scale of its demand-growth-creating activity independent of what its rivals are doing."

Secondly, the theory is one of diversification (in order to promote growth). But the constant capital/output ratio that is kept at an unchanged level is hardly compatible with entry into several diverse new markets. If this capital/output ratio, however, becomes subject to change, then the rate of return to capital (which Marris refers to as the profit rate) will also become variable, and this will upset the level of security calculation which is based on a constant retention ratio.

The diversification rate depends upon the rate of new product creation and marketing. This relates to expenditures on research development and advertising, which are not clearly identified in the accounts of firms, so that the data for determining this rate is not available generally.

Finally, the actual levels of growth in relation to profitability depend upon the efficiency of the firm. Different

firms with differing growth/profitability ratios will occupy different positions on the curve relating profitability to growth, which will make it impossible in practice to decide whether a firm has pushed past the level of maximum profitability (in a given period) to the point where the growth rate is still compatible with the supply of capital to finance that growth, or whether its inefficiency in converting profit into growth has caused its growth rate to be reduced.

Nevertheless, although a determinate analysis is not possible, there are some general propositions to be derived from Marris's theory which are operationally testable. Marris's general model will therefore be briefly described, its relationship to takeover theory detailed, and the implications in terms of testable hypothesis stated.

Marris begins by assuming that the management team may have a different utility function from that of shareholders by reason of the aforementioned division between ownership and control. The objective function of the management team is selected as being that of "balanced growth maximisation". The firm is assumed to be multi-product and to have the ability to determine to some extent the rate of growth of demand for its products, especially by the process of diversification (i.e. introducing new products into its range) and therefore it will seek to maximise the rate of growth of demand subject to the necessity to ensure that sufficient capital is made available to finance the growth process

(hence the use of the "balanced growth proposition").

Marris gives his reasons for selecting growth maximisation as the central aim of the firm because, as already previously alluded to, managers seek salary, power and status which are all correlated with size and which are achieved by encouraging fast rates of growth. He also assumes that management mobility between firms is low and therefore managers will see the growth of their own organisation as a better route to satisfaction of their preference function than by attempting to move to other organisations.

It has already been mentioned that the Marris model assumes a constant ratio between growth and the financial variables supporting that growth. His argument for any given growth rate is therefore one that postulates that once the decision variables governing the growth of demand and the supply of finance have been determined, then the balanced rate of growth will be sustainable over time (until such time as the "super-environment"<sup>(5)</sup> which is outside the firm's control by definition, changes).

The Marris system is subject to three major constraints. The first two relate to the balance between the rate of growth of demand and the supply of finance to support that growth. The third, which is more pertinent to our purposes, relates to the relationship between the performance of the firm and its effect on the stock market's valuation of the company.

(5) Marris defines the super-environment (page 13, 1971) as "a loose collection of general circumstances governing limits on the firm's environment-changing capacity". Popper would describe this as an "ad hoc" adjustment to the theory. We can assume that nothing changes until it is changed and the time of change is indeterminate. Therefore any attempt to refute the theory can be met by the argument that the "super-environment" changed.

a) Demand Growth Constraint

If the firm is to achieve a continuous and steady rate of growth, then it would not be possible to do this with a stable product range since it would require adding more and more customers, by marketing methods, and this would come up against the diminishing returns derived from seeking customers with a reducing marginal preference for the products, as well as increasing the competitive struggle for customers in the existing markets. It is therefore necessary to diversify into new products and new markets ("differentiated diversification") and expanding of sales into existing markets ("imitative diversification"). Whatever method of expansion is chosen after an initial beneficial effect on the profit rate (because some growth has an invigorating effect on managers and there will be some immediately profitable opportunities available once a static production status is abandoned), the rate of profit will start to decline. In the case of new products, because managerial effort will be limited and not expandable over a short time sequence (an idea derived from Penrose (1959)); therefore, as the growth rate rises the number of failures of new products will rise as a proportion of products being introduced. Imitative products will run into difficulties because of the arousal of competition from existing producers who will see their market share threatened. In both cases it may be necessary to spend large sums on

advertising, to maintain expensive product development and marketing units and to hold prices down, all of which will have an adverse effect on profit margins, which will additionally depress profit rates.

b) Finance Constraint

In order to support the growth in investment assets to handle the increase in demand, the firm will require a growing source of funds. These can either come from internal or external sources. The external sources would include the issue of new shares (which is normally carried out by making a rights issue), the sale of debentures, or borrowing from banks and other financial institutions. The internal source is retention from existing profits. In order to make his analytical task more tractable, and relying on the Modigliani and Miller theorem (1960/1961) that the methods of retention and the issue of new shares (under certain specific circumstances which include the assumption of perfect capital markets) are irrelevant to the valuation of a company since they have identical effects, Marris assumes that, apart from the inclusion of some debt, the retention of profits is the main source of funds. However, the firm will put itself at risk if the profit rate falls (owing to too high a growth rate) while retentions are high (by this means depriving the shareholders of a return on their funds comparable to that which can be garnered elsewhere in the capital market).

The firm will also decrease its chances of survival if it increases its leverage ratio (i.e. value of debt to total assets) excessively, or permits its ratio of liquid to total assets to attain too high (excessive liquidity) or too low a level (inadequate liquidity). The risk referred to here is that of insolvency (if the firm cannot meet its debts which can arise through adopting too high a debt gearing ratio or possessing insufficient liquid funds to meet current costs), and of takeover (because an excessive retention ratio coupled with low profitability will depress its share valuation, thus tempting bids; also excessive liquidity will represent a store of idle funds which will also tempt acquiring firms). The constraint on financial supply is therefore dependent on the decisions of the management team. Marris proposes that insecurity as a function is inversely related to the liquidity ratio and positively related to the leverage and retention ratios. A low liquidity ratio coupled with a high leverage and retention ratio would make for low security of the jobs of the management team and vice-versa.

c) Valuation Constraint

The previous constraints imply that the demand growth function must equal the capital supply function at the point of sustainable growth. If we assume, as Marris does, that the growth of capital depends entirely upon a fixed value



of retentions from a changing rate of profit,

EQUATION 3.1.  $g = rp$  (Supply of Capital Equation)

where  $g$  = growth rate

$r$  = retention rate, assumed to be fixed by policy

decisions at the start of the period and

maintained at a constant value

$p$  = profit rate.

It is further assumed that maximum gearing and minimum liquidity are maintained at constraint levels for reasons of security of the managers.

Then we can plot growth rate against profit rate as a linear relationship.

If we also assume that the profit rate varies with growth rate in such a way as to form an inverted U-shaped curve, because of the general argument that profitability will increase at low rates of growth, the curve will come to a maximum point and then decline,

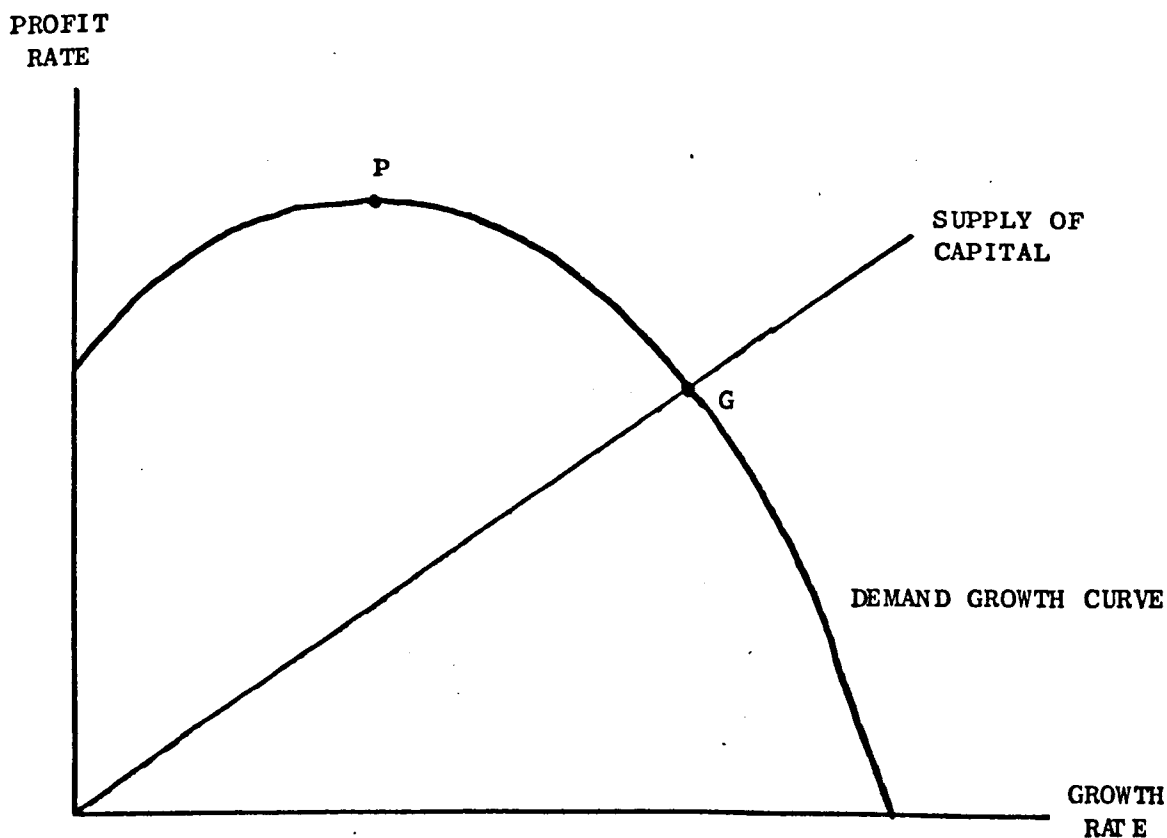
EQUATION 3.2.  $p = p(g)$  (Demand Growth Equation)

where  $p$  = profit rate which is a function of growth

$g$  = growth rate,

then it is possible to represent the relationship between the demand growth function and the supply of capital function on a two dimensional diagram.

FIGURE 3.1.



SOURCE: Radice (1971) adapting a diagram of Marris (page 252, 1967).

P = the point of maximum profit

G = the point of maximum sustainable growth.

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The illustration clearly demonstrates:

- 1) That a profit maximising firm will have a lower growth rate and that a growth maximising firm will have a lower profit rate.
- 2) That the supply of capital line will pivot depending upon the retention ratio chosen. If the retention ratio is very high,

then the growth rate will increase. The capital supply curve will cut the demand growth curve at a point where the profit rate is low. If the retention ratio is low (i.e. there is a large payout of dividends) then the supply of capital line will rise steeply and cut the demand growth curve at a point nearer (or even through) the intersection with maximum profits but at a place where the growth co-ordinate is low.

There is, however, another way of considering the behaviour of the Marris type firm which takes into account the risk of takeover in a specific manner. A firm which does not observe the profit-growth constraint faces two possible dangers. If the supply of capital grows at a rate in excess of its asset growth rate, then its capital employed in relation to output will become excessive (in the model Marris assumes that the capital/output ratio is a constant), and the firm will have excess liquid funds which in themselves will be a temptation to predator firms and will also cause the return on capital to fall, provoking risks of takeover. On the other hand, if the capital fund growth rate is below that of the asset growth rate, then the firm will run into the hazards of liquidity crises and possibly failure through insolvency. There is every reason, therefore, to suppose that managers will seek to solve the technical problem of equating the rate of growth of capital supply with the growth rate of assets.

If, however, managers seek to grow at the expense of profit, then in order to maintain the rate of expansion they will require to increase the supply of funds and (using retentions as a proxy for the provision of external funds) they will reduce the payment of dividends to shareholders and retain more of the profits earned. Excessive growth will, however, lower the rate of profit as illustrated by the demand growth function.

Marris assumes that the share price of a firm is valued in the stock market as the present value of the stream of dividends.

$$\text{EQUATION 3.3. } P_0 = \sum_{t=0}^{\infty} \frac{d_t}{(1+i)^t} \quad (\text{Present value of dividend stream})$$

where  $P_0$  = present value of share

$d_t$  = expected dividend at time  $t$

$i$  = discount rate which is the return required on funds in the capital market for investments of the degree of risk faced.

The formula can be adapted to take into account the sale of the share at time  $t + 1$ , but since the price realised will reflect the present value of the share at that time (i.e. the present value of the dividend flow to infinity) discounted by the factor  $(1+i)^{t+1}$  to bring the value of the transaction to its present value at time zero, no essential difference is involved. The problem of tax differentials between income and capital gains is ignored in this simplified model. Since the dividends themselves earn dividends at the constant growth rate for a

Marris type firm the equation would become:

EQUATION 3.4

$$P_0 = \sum_{t=0}^{\infty} \frac{d_0 (1 + g)^t}{(1 + i)^t} \quad \text{(Present value of dividends growing at a constant rate)}$$

where  $d_0$  = the dividends at start of period

$g$  = constant growth rate of dividends

$i$  = discount rate as in 3.3.

If however the firm retains funds which it cannot employ in a way which the capital market evaluates as providing an adequate return, then the share price, and hence the market value, of the firm will decline. However, at the same time the asset value of the firm will be increasing at the given growth rate. The result will be that the ratio of the market value of the firm to the book value of the firm will decline. This ratio, which Marris calls the valuation ratio, will fall and signal to the stock market that assets are being unprofitably employed and provide an incentive for other firms in the market to take over the offending company. Marris's theory of takeover consists of the proposition that a firm will be acquired if its actual valuation ratio falls below the subjective valuation ratio put upon it by a potential bidder. The lower a firm's valuation ratio, the easier it will be for a successful acquirer to improve its performance in relation to its assets and therefore the more likely it is to be taken over. Management, with its imperative to grow, must make a decision concerning the rate of growth and the consequent valuation ratio that it is prepared to accept in the knowledge that below

some unspecified minimum valuation ratio it will invite acquisition. The point at which a takeover offer is triggered by a declining valuation ratio is not known to any degree of accuracy because of three factors:

- a) the costs of takeover which include the raising of funds, the premium necessary to secure control over current market value of the company, and the expenses of reorganisation;
- b) the "time-horizon" of the predator, if it discounts returns at a lower rate than the present holders of the shares (perhaps because it is a large firm anxious to secure a sound investment production profile in the future rather than immediate cash flow), then its subjective valuation of the firm will be higher than that of the present stockholders;<sup>(6)</sup>
- c) the degree to which the acquiring firm believes by more efficient management and the dovetailing of the operations of the acquired firm with its ongoing production strategy, it can earn a higher return from the existing assets.

Since the valuation ratio incorporates the dimension of profitability, it is possible (using an adaptation of Marris's model due to Radice (178/1971) to produce a two-dimensional diagram of the tradeoff function between growth and profitability.

(6) The predator here refers to the management of that firm. If the stockholders in the acquiring firm felt that a lower discount rate was appropriate with respect to the proposed victim, then the victim's shares would be undervalued and the stockholders would sell shares in their own company in order to purchase the undervalued shares of the victim.

If we assume:  $P_0$  = initial value of profits

$K_0$  = initial book value of the firm

$\frac{P_0}{K_0}$  being a constant capital output ratio

$r$  = fixed retention rate

$g$  = constant growth rate

$i$  = discount rate

then:

EQUATION 3.5      Valuation Ratio =  $\frac{\text{MARKET VALUE}}{\text{BOOK VALUE}} = \sum_{t=0}^{\infty} \frac{(1-r)P_0(1+g)^t}{K_0} \times \frac{1}{(1+i)^t}$

If we assume a constant rate of profit  $\frac{P_0}{K_0} = \pi_0$

and take the constant values outside the summation sign

EQUATION 3.6       $(1-r) \pi_0 \sum_{t=0}^{\infty} \frac{(1+g)^t}{(1+i)^t}$

The part of the equation  $\sum_{t=0}^{\infty} \frac{(1+g)^t}{(1+i)^t}$  can be simplified using

the formula for the summation of a geometric series to:

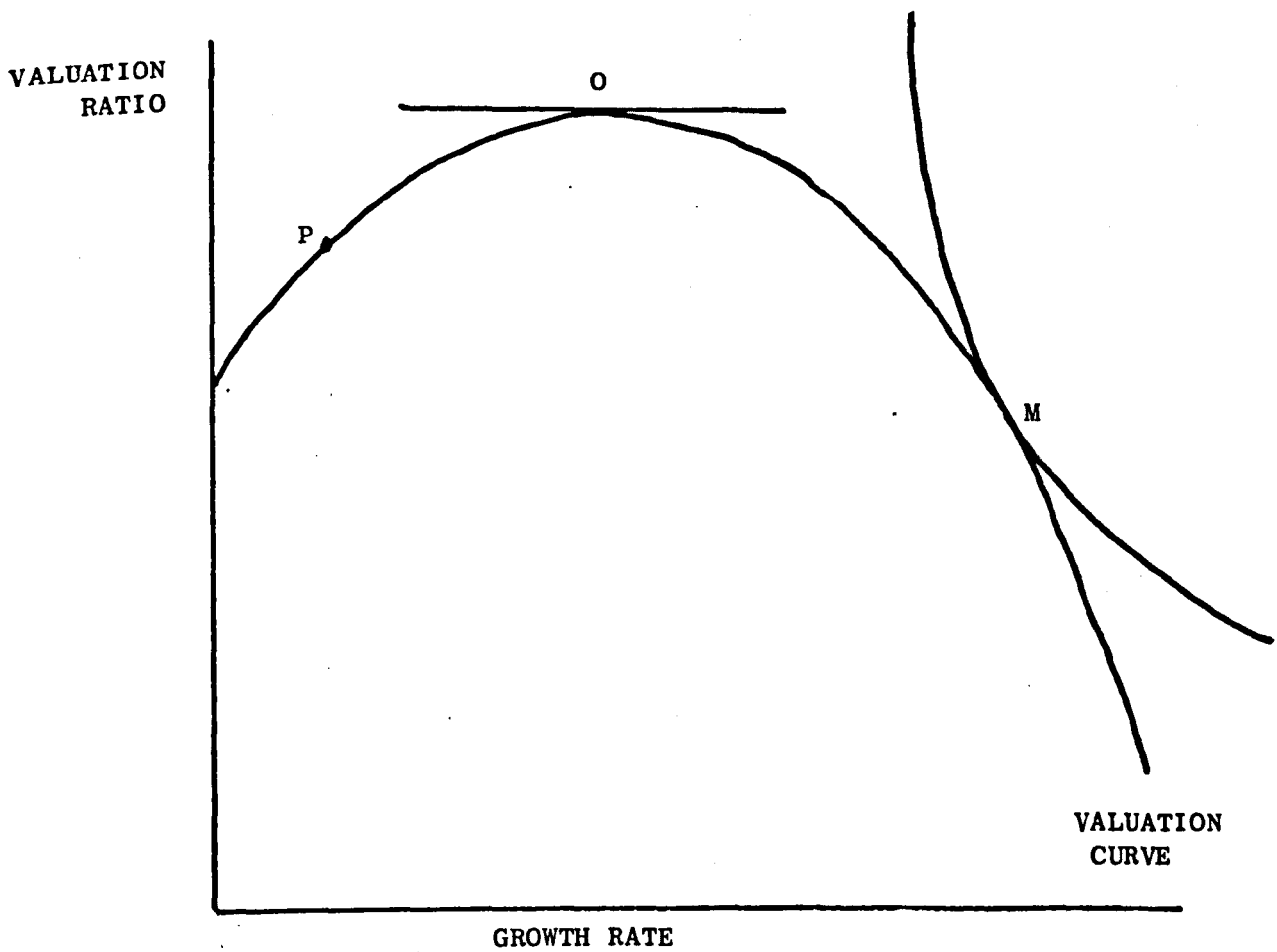
$$\left\{ \frac{1+i}{1-g} \right\}$$

If we further assume that the net investment  $r\pi$  is equivalent to the growth rate  $r\pi = g$  then the valuation ratio can be written on the basis of these simplifications as:

EQUATION 3.7      Valuation Ratio =  $\frac{(\pi - g)(1 + i)}{(1 - g)}$

The shape of this function is as sketched in Figure 3.2.

FIGURE 3.2.



SOURCE: Radice (178/1971) page 548.

N.B. For explanation of letters used in diagram, see text.

Figure 3.2. further shows an indifference curve reflecting the trade-off between security (represented by the valuation ratio) and growth which would produce a typical point such a M representing the actual value which the management of the firm will adopt. The point O shows that the owners of the firm are totally indifferent to the amount of growth providing that the valuation ratio is at a maximum.



The point P represents the position of maximum profit rate in a given period; it is below the growth rate represented by maximum valuation since some profitable growth is favoured by the market which sees by this means a faster increase in future dividends being earned. This fact is proved by Sawyer (185/1979).

More formally, the utility function of managers is derived both from security and growth:

EQUATION 3.8

$$U_m = f(v, g)$$

Whereas the utility of owners is a function only of the valuation ratio

EQUATION 3.9

$$U_o = f(v).$$

v = valuation ratio

g = growth rate.

### 3.3. TAKEOVER HYPOTHESES

#### 3.3.1. Profit Maximising and Growth Maximising Theories as Contrasting Explanations

It has been argued that a research strategy which considers hypotheses on takeovers in isolation of a wider theoretical framework is not able to do its task successfully. There are a number of reasons for this. In the first place, it is proposed that scientific knowledge grows by means of "conjecture and refutation" to adopt the Popperian terminology. What this means is that all programmes of scientific study are at best provisional. They only hold sway until such moment arises that they are refuted and replaced by another provisional system which will have tenure only up to the point of time when it fails to stand up to critical testing. It is necessary to work in terms of programmes which Lakatos (1970) defines as an inter-connecting web of theories possessing a "hard core" of irrefutable theorems (because they are "metaphysical" conjectures concerning how the real world is organised) and a protective belt of auxiliary hypotheses which are open to testing. The hard core beside providing the central metaphysical beliefs about the programme, also offers guidance as to the sort of hypotheses which may be derived (the "positive heuristic"). Individual theories in themselves are never entirely refutable. They can always be saved by the addition of further auxiliary assumptions. Anomalies may gather but do not add up to the need to reject totally a research programme. A research

programme only finally ceases to hold sway when a rival programme develops which has greater explanatory power not only in respect of the existing empirical laws, but also with respect to novel facts.

Under this methodological prescription it is necessary to take a particular theory (in the protective belt) and test it in the context of a wider research programme. Lakatos also makes the point that research programmes are never replaced as the basis of refutations of hypotheses alone, no matter how many they may be. A research programme may "degenerate", i.e. save itself from extinction by inventing more and more auxiliary assumptions which do not reveal new "novel" facts, but it will only be replaced after it has failed in competition with an alternative research programme. Therefore any testing of hypotheses must take place (in what Lakatos calls a "mature science") by examining the results in terms of competing research programmes.

Under these methodological prescriptions, the research programmes concerning the "managerial firm" has been chosen for attention to see how successfully it challenges the older research programme generally referred to as the neo-classical theory of the firm. The neo-classical programme was based on a "hard core" of concepts such as:

- a) Firms were motivated to maximise profit
- b) Perfect information was available
- c) Competition ensures that firms are price-takers
- d) Equilibrium situations exist.

The neo-classical programme was modified to include monopoly as a special circumstance and then monopolistic competition as a more general circumstance. The strongest and most enduring beliefs have been that firms maximise profits and that markets, even ones with obvious characteristics demonstrating market power possessed by some of its members, are nevertheless approximately competitive. The modified neo-classical theory is still very much in existence, largely on the basis that multi-product firms (which break the connection between size of firm and market share), international firms offering import competition, and oligopolistic rivalry (which is generally agreed to pervade most markets) all make for an approximation to competitive conditions and enforce profit maximising behaviour. A theory of "workable competition" has been developed. J.M.Clark (48/1940) who has argued that perfect competition has never existed and could not possibly exist, and sought to identify alternative criteria in order to assess how well competition is working. Scherer (188/1970, page 37) has produced a list of these features, but Stigler's list in "The Extent and Bases of Monopoly" (205/1942) is more succinct. He suggests that:

"An industry is workably competitive when (i) there are a considerable number of firms selling closely related products in each important market area, (ii) these firms are not in collusion, (iii) the long

run average cost curve for a new firm is not materially higher than that for an established firm."

The concept has been inadequately specified so that determinate conclusions cannot be drawn (see N.Lee (125/1974)), but nevertheless illustrates the point that the competitive model is still very much in contention as an existing research programme.

The alternative research programme dealing with that is probably best described as the "managerial firm" has a different "hard core" made up of central assumptions:

- a) Motives other than the maximisation of profits deriving from managerial interests in power, prestige, the ability to exercise management discretion, etc, more adequately explain the activities of the firm.
- b) There is a division of interest between owners and managers and the owners being (in the large quoted firm) unable to effectively co-ordinate their actions and preferring to trade in shares rather than go to the organisational expense of enforcing their wishes, are unable to ensure that their aims for wealth maximisation predominate in determining company policy.
- c) It is possible to analyse effectively the activity of firms without recourse to analysing also the market environment, thus avoiding the problems of oligopolistic interaction, market uncertainty and the effect of general economic disturbances.

In fact the two competing paradigms do not necessarily support the conjecture of Lakatos that research programmes are replaced by another programme which not only explains the observational statements of the prior theory but also is able to extend its comprehension to new and novel facts. The difference is undoubtedly due to the transfer of the methodology from the natural sciences which seem to have a propensity for linear evolution in theory due to the relative constancy of nature, to the social sciences where the historical evolution of society changes relationships between social groups and institutions thus making earlier research programmes anachronistic. If by massive legislation the Government were to break up all companies into small atomic type firms, it is entirely possible that the earlier neo-classical paradigm would recover favour since the managerial paradigm draws its support from the monopolistic competition and large firm size to be found in the industrial context of capitalism in the latter part of the 20th Century. The earlier programme was devoted to the analyses of price, output and the effect of competition, the more recent programme to the understanding of growth and the constraints of profitability and performance in providing investment funds to sustain that growth. Thus both programmes deal not with the same factors but different factors.

### 3.3.2. The Generation of Hypotheses from Marris's Model of the Managerial Firm

Marris's theories rely upon all the hard core propositions of the managerial programme - growth maximisation as the objective function, the ownership/control divide, the self-contained nature of the analysis (i.e. limited to the internal problems of balancing growth within the firm with only general observations relating to the extra-firm environment). In "Managerial Capitalism" (145/1964), Marris does propose a theory of growth in established markets (what he refers to as "imitative growth") but his conclusions, which are that after struggle a collusive "peace" will be reached, is related to his analysis of why "demand-growth" curves decline more than it is an attempt to model the problems of oligopolistic competition. (7) The Marris model is chosen as a representative version of the reformulation of the theory of the firm because of the elaborate nature of its analysis which permits predictions to be made (thus permitting possibilities of falsification and therefore defining the model as a scientific one).

Marris's model is particularly significant because he not only defines a revised theory of the firm but also suggests how the alternative neo-classical model might be adapted and

(7) Downie (59/1958) deals much more effectively with the competitive process in terms of growth, change and interaction within a market, but his model despite making the important contribution of the two-way relationship between growth and profitability, is too general and simplified and suffers from important defects such as the view that existing uncompetitive firms are a source of innovation which is not supported by the empirical research done on the nature of technological innovations.

restored to power. If it is accepted that profit maximisation under the constraint of competitive forces is the key element in the neo-classical programme, then Marris's work can be interpreted as an exploration of whether a mechanism, other than that arising from reaching competitive equilibrium, in a market might be sufficiently powerful to enforce that discipline. If, as Manne (141/1965), Hindley (96/1970) and Yarrow (232/1976) have all argued, there is an effective capital market to enforce control over the management group, then managers may not have the discretion to set the firm's valuation ratio at too great a distance from its optimum point, and therefore be driven to moderate the firm's growth rate. The discrepancy between the owners' desired valuation ratio and the managers' preferred position for this parameter may lead to the possibility of the shareholders' intervention to remove managers or sell shares and create conditions favourable to takeover. This particular proposition must be taken very seriously in the light of the voluminous research which has taken place on the efficiency of the stock market and which indicates that capital markets seem to be competitive and make fair and realistic evaluations of the prospects of quoted companies in the light of both past share price trends and freely available published information. We are therefore presented with the paradox that if the Marris theory of takeover on the basis of a declining valuation ratio can be established as being



successful, then this leads us in the direction of confirming the competitive, profit-maximising theory of the firm rather than supporting his own version of the managerial firm.

### 3.3.2.(1) The "Hard Core" Proposition of the Marris Model

The first hypothesis to which we address ourselves is not in fact a hypothesis at all. If we define a hypothesis as statements set out in the logical form of a deductive argument which lead to observable predictions, then this proposition does not attain these standards. The fact that it is necessary to employ the term at all is an example of the way in which the development of epistemology sometimes outstrips the concept language needed for description of its functioning. It might be better to refer to the proposition as a "conjecture" but in doing so we lose the implication of subjecting the proposition to test which is the essential purpose. I propose to name it the "metaphysical hypothesis" since it deals with a fundamental assumption about how an aspect of reality (in this case that pertaining to the nature of the firm) should be organised. In relation to what has already been said in the preceding paragraphs, it is the "hard core" which is under scrutiny. The

hard core propositions are not open to refutation in any direct manner; they can only fail to be a source of hypotheses (in the true sense of that term) that will stand up to continual attempts at falsification. Nevertheless, in considering hypotheses in the "protective belt" of a research programme, the interpretation of the results of such testing is continually being made in the light of the fundamental metaphysical assumptions and every "protective belt" test is leading back to judgements concerning the usefulness of those fundamental assumptions.

It was the view of Kuhn (1962) that scientific activity was mainly cast in the pattern of "normal science", that is to say, that problem solving activity is carried out in the context of an orthodox theoretical framework. But this methodological prescription is a formula for research designed to verify, confirm and invent what Popper calls "immunising strategies" (i.e. where a hypothesis fails to be confirmed a further auxiliary assumption is adopted in order to save the hypothesis from destruction). But "sophisticated falsification" as proposed by Popper demands that at least two theories are available when carrying out the test of a hypothesis (i.e. the current

orthodox one and the proposed one) because part of the reason for accepting a hypothesis as being more useful for purposes of explanation and prediction is that it now only explains the facts accounted for by the current orthodoxy but also extends the explanation and prediction possibilities to new situations. Lakatos holds the same belief, that in progressive science two research programmes are always in competition (see pages 154 to 159 of Lakatos (121/1972) despite the inability to test them directly. This then leads to:

(M 1) Metaphysical Hypothesis. That if one wishes to understand takeover behaviour with respect to firms quoted on the Stock Exchange, one should assume that such firms have policies which are determined by its senior management team, and that these policies diverge from the wealth maximisation required by shareholders.

If one considers the "protective belt" propositions, these are statements which have observational implications and are therefore capable of falsification (in the "sophisticated" sense, that is accepting that falsification of a singular hypothesis is not possible, not only because of the

tendency of researchers to introduce new auxiliary assumptions into the argument to preserve the hypothesis but more fundamentally because a single (or even multiple) confirmation(s) of a given hypothesis can never justify a universal proposition (the problem of induction)). The possible "protective belt" hypotheses seem to fall naturally into three classes.

3.3.2.(2) The Auxiliary Hypotheses of the Marris Model

Auxiliary hypotheses are ones designed to support the chain of reasoning leading from the "hard core" to the statements containing predictions about actual behaviour. They are essential to the total "story" being told, insofar as, were they to be subject to an increasing weight of counter-evidence, then although the "hard core" assumption could still be sustained (since it is by definition inviolate to observational based criticism), confidence in the particular research programme would start to dwindle. Many of the link hypotheses are not susceptible to empirical testing since they are designed as theoretical simplifications to allow an "ideal" model to be employed which will allow parts of the explanation to be brought into consistent relationships with other parts without in any way

preventing important empirically based relationships to be predicted. This is a necessary part of any attempt to abstract from the vast complexity of reality in order to produce a theory of manageable proportions. Such statements as (a) that growth will be steady state with major variables (such as profit rate, gearing ratio, liquidity ratio, etc.) maintaining themselves in constant proportion to each other; (b) that the capital-output ratio for all products should remain at a set level; (c) that all finance will be raised by retention from net profit; are all statements not meant to be taken literally and subject to testing.

Other proposals, of an auxiliary nature, do have a form which is accessible to observation, are not just simplifications meant to reduce the model to manageable form, and are so essential to the justification of the research programme that their falsification would cast a dark shadow over the paradigm. Amongst these auxiliary propositions, we may recognise that the assertions (a) that there must be recognisable differences in the behaviour of firms whose directors own large stakes in the company and firms that are more widely owned with respect to rates of growth and profit rates (b) that after a certain minimum profit rate is

being earned there should be some evidence of an inverse relationship between profitability and growth levels; are necessary to the success of the total narrative. This then leads to:

A1) Auxiliary Hypothesis (Ownership/Control)

If we examine firms whose directors own a large proportion of the firm's equity, then other things being equal, we should find higher profit rates and lower growth rates than occur in managerial firms (i.e. ones whose share ownership is widely dispersed allowing the senior management team to dominate policy).

A2) Auxiliary Hypothesis (Profitability/Growth)

Although at low levels of the two parameters we would expect profitability and growth to be positively related (that is up to the point of minimum level of profitability that shareholders will tolerate) once either parameter reaches high levels we would expect to find an inverse relationship with the other parameter.

Both the above hypotheses could also be cast in terms of the valuation ratio which we can identify with the profit/security trade-off.

A3) Auxiliary Hypothesis (The Environmental Situation)

It is necessary to indicate the domain of application of the research programme. In order to test any aspect of the research programme concerned with the reformulated theory of the firm, attention should be restricted to companies with a Stock Exchange listing and the period involved should be one where a mature capital market exists. It follows that the theory assumes the general context of a capitalist economy. Since both samples taken for this study are within the domain of application, there are no hypotheses to be directly tested here since this application area is the context in which all the other hypotheses are to be examined. It should be noted that this situation is different in the natural sciences where a fruitful source of development has been the application of theoretical laws developed in one context to another context, thus providing a unification of theory (for example, the unification of theories in electricity and magnetism, or Einstein's demonstration of the relationship between mass and energy). But it is hard to believe that theories based on motivation and the meaning of actions could

be so easily transferred between different historical periods (unless one was working within a Marxist framework where the nature of each historic period derives from the economic modes of production).

3.3.2.(3). Hypothesis drawn from the "Protective Belt" of the Marris Model

If we consider some aspect of the behaviour of the firm such as merger activity, then the "positive heuristic" of the research programme should indicate some opportunities for testing predictions about that behaviour which derive from and are compatible with the "hard core" assumptions. Marris makes a number of predictions concerning how firms may become victims of the takeover process. The paradox has already been pointed out, however, that if Marris's takeover process were to be shown to be an accurate picture of how the market for "corporate control" provides an efficient discipline on firms who opt for growth maximisation rather than wealth maximisation, then this would amount to a transformation of the ownership/control thesis and the growth maximisation proposition. Admittedly, it is possible that firms may adopt growth maximisation policies that differ from profit maximisation policies, and so long as



they do not allow the divergence to become too great (it has been suggested earlier that divergence is possible up to the point where the gap exceeds the expenses of enforcing control via the takeover mechanism), then such firms may continue in existence. But since it is not possible to determine the size of this divergence (we would have to be able to work out the counter-factual conditional, if the growth maximising firm had instead chosen to maximise profit, what would its valuation ratio have become), then such divergence amounts to what Popper would regard as an unscientific conjecture since it would not be possible to falsify it. We are therefore left in the strange position that Marris's hypotheses about takeovers, if confirmed, would be provisional support for the profit maximisation programme. If falsified, however, they could not act as confirmation of the "managerial firm" research programme. It is possible to regard the Marris thesis in two ways. One is that it is an attempt to demonstrate that "wealth maximisation" still survives as a paradigm, despite the change in circumstances from the conditions under which it was first held to prevail, i.e. partial equilibrium within a market, perfect information and price-taking behaviour, and that it

is still a proper guide to interpreting behaviour even taking into account oligopolistic markets, uncertainty and a measure of price-making power. In this respect, one can compare the conclusion of Latsis (123/1976) in comparing Chambers' theory of "Monopolistic Competition" with its neo-classical predecessor:

"Thus perfect and monopolistic competition share the common neo-classical 'hard core'; monopolistic competition results from a slight modification of the situational assumptions of perfect competition, and in both cases the assumption of profit maximisation is trivial." (p.27, 123/1976).

The situations, of course, differ. Chamberlain's theory still relies on ideas of perfect information, the movement towards equilibrium and the view that in equilibrium the firm will make zero profit (i.e. its power to set prices will prove to be illusory). Marris's theory is very different; the equilibrium concept has vanished from the scene in the neo-classical sense, there it served the purpose of ensuring that the balance of advantage between competitors reached a steady state. Marris refers to an equilibrium state between growth rates of key

variables (page 118 and 119, 145/1967) but this seems a case of simplifying complicated mathematical inter-relationships rather than reporting a balance of motivational drives. In a revealing passage (pages 127 and 128, 145/1967), Marris talks about equilibrium and its maintenance as being similar to the problem of a driver adjusting various parameters in order to ensure that he can maintain a constant speed:

"Just as the driver can expect reasonable stability characteristics in his steering gear, so the high management of a firm should be able to arrange similar stability in the operation of instrument variables."  
(Page 128, 145/1967).

Marris claims:

"In the present work we employ the approach which has been described as that of 'comparative dynamics', a method which is particularly suited to persons (such as the author) who wish to discuss moving equilibria but are untrained in classical mathematical dynamics."  
(Page 127, 145/1967).

In another passage Marris writes:

"The whole operation represents an exercise in partial equilibrium analysis. This means that in general, when policies and conditions vary within the single firm which is being analysed, all relevant aspects of the environment are assumed to remain constant."  
(Page 130, 145/1967).

This is not what is generally meant by the term "partial equilibrium analysis". In economics the term is applied to the situation where a particular sector (an industry or market) is analysed as though it were operating in isolation from the rest of the economy. What Marris appears to have in mind is an analogy with the engineering analysis of a machine which is assumed to reach steady state operation by constant adaptation to changing environments, conditions such as temperature, humidity, etc. But it has already been stated that the Marris concept of balanced growth is not, nor can it be, a realistic description of how a firm operates but rather a simplifying assumption with respect to a variety of variables capable of operating at a number of levels which will allow the more general proposition that the rate of growth and the rate of profit must move together in unison.

Marris does not assume certainty. Marris does assume that a firm which offends too severely against the criteria of profit maximisation will become a victim of a takeover raid.

Another way of considering Marris is to assume that he poses the problem of a clash of paradigms more directly. He describes the behaviour of the managerial growth maximising firm and contrasts this with the possible result in terms of a system that enforces, via the stock market, profit maximisation. This is much more compatible with the views of Lakatos:

"The history of science suggests that tests are at least three cornered fights between rival theories and experiment."

(Page 115, 121/1972).

Since Marris was writing prior to Lakatos, we may excuse him when he sets up a four cornered fight, that is between two rival theories and two experiments. The two rival theories are the "Profit Maximisation" research programme and the "Managerial Firm/Growth Maximisation" research programme. The two experiments are (a) the conclusion that the growth rate and valuation ratio of profit maximising firms and growth maximising firms will differ, and (b) the

conclusion that firms which sacrifice profitability to growth will be destroyed if they carry the process to excess.

Bearing in mind the reservations which have been the burden of the preceding passages, it is possible to derive from Marris several implications of his theory which have observable form and which are capable of being tested. These represent direct predictions about the characteristics of victims. In the main, with the exception of predictions D1 (below), they are characteristics exhibited by failing firms. If confirmed they lend credence to the view that the capital market functions with some degree of efficiency in penalising failure; that the capital market rewards success is clear from the ease with which successful firms (i.e. ones earning above average rates of profit) are able to raise external funds. Hypothesis D2 (see below also) has a very special form in which low profitability and high growth are both present. This would seem to substantiate the Marris theory of the sacrifice of profitability to growth but a caveat is in order. Presumably the effect of low profitability over time is to constrain growth, therefore over a long period of time even a firm closely following the

Marris specification of pursuing unprofitable growth will end up in a low growth and low profit situation. It will not be possible to distinguish this state of affairs from a firm with low growth and low profit traits that represents a "sleepy" firm lacking an effective management. The hypothesis D3, concerning the valuation ratio is therefore quite critical for purposes of differentiation. If the valuation ratio (which serves as an index combining the effects of high growth rates in the past with a present state of low profitability and little prospect of change) is a sensitive instrument whose signal quickly brings retribution (if the signal is adverse), then this may well be compatible with the unbalanced growth theory. This demonstrates the importance of the valuation ratio to the structure of Marris's theory. Sadly, the same result is also a possible effect of a highly efficient capital market which is quick to pounce upon a firm whose profit rate starts to fall after a period of sustained growth.

These remarks about the ambiguity of interpretation with respect to the direct behavioural predictions illustrate the admonition of Popper (page 50, 170/1975) that there are no "crucial experiments" and underline the lesson that falsification

is a matter of degree without the opportunities of a sudden-death pay-off. What is very clear is that in order to interpret the results of the direct hypothesis in a manner favourable to Marris, we are dependent upon the auxiliary hypothesis confirming that the ownership/control circumstance and the profitability/growth association conform to the Marris specification. This is in direct contrast to the instrumentalist position expressed by Friedman in "The Methodology of Positive Economics" (76/1953), where the opinion is expressed that theories are only convenient fictions which enable data to be organised in a manner which permits successful results to be obtained from predictions. Without some confirmation of the auxiliary hypotheses to be conjoined with the results of the direct hypotheses, interpretation as between the two competing scientific research programmes would be impossible in the circumstance before us. These, then, are the predictions about the characteristics of victims:

D1) Direct Hypothesis (Ownership/Control)

That where a large proportion of the equity of a company is controlled by the Directors, there should be a reduced propensity to being taken over. Companies with a wide dispersion in the



ownership of shares should have a higher propensity to being acquired.

(Note: Since the resistance of owner controlled firms to takeover could be explained by the refusal of the controlling group to sell shares (even where less than 50% of the company is owner controlled) it will obviously be harder to acquire the unattached shares since a lower percentage of them will be available). We would therefore require this hypothesis to be related to some demonstration that owner controlled firms had a below average rate of profitability taken as a group, and yet still managed to escape takeover. On the other hand, we would expect some owner controlled firms to be profit maximising since the wealth of the Directors is closely related to the wealth of shareholders.)

D2) Direct Hypothesis (Profitability/Growth)

Firms that are acquired would be expected to possess high growth rates in conjunction with low rates of profitability.

D3) Direct Hypothesis (Valuation Ratio)

Victims of a takeover raid may be assumed to have a valuation ratio of less than unity and there should be statistical evidence indicating an inverse correlation between the number of victims and the level of the valuation ratio.

D4) Direct Hypothesis (Financial Structure)

Acquired firms may show higher gearing ratios and lower liquidity ratios than non-acquired firms.

(Note: This is not a necessary nor a sufficient condition, but is a possibility in firms that have not given sufficient heed to their security in the pursuit of growth).

D5) Direct Hypothesis (Supply of Capital)

Firms that have fallen victim to a takeover bid would be expected to have higher than average retention ratios or have an above average rate of growth of the provision of external funds (either equity or long term debt) or both..

D6) Direct Hypothesis (Profit Margins)

Since firms who have pursued the growth of demand too vigorously can be expected to have depressed their profit margins (through over investment, over commitment of the ability of their managerial team, high spending on marketing, advertising, or research and development, accepting reduced prices to promote growth, or creating severe price wars in penetrating existing markets), this should be a characteristic of acquired firms.

D7) Direct Hypothesis (Shareholder Wealth)

Firms who are taken over should exhibit lower than normal growth rates with respect to the wealth of their shareholders (i.e. the growth of return either by payment of dividends or in capital appreciation of the equity shares or some combination of these means of rewarding shareholders).

One area of interest which would appear to demand a prominent role in any theory of takeovers is the nature of acquiring firms. Marris is explicitly silent on this issue:

"We shall write as if internal expansion were the only method of growth. Alternatively, the reader may prefer to regard our theory as representing an account of the limits on growth rates among firms which do not merge, and as such, as an explanation of why the method of merger is so often attractive." (Page 124, 145/1967).

In fact, he offers a hint as to what he believes to be the type of firm which undertakes to adopt a policy of acquisitions in an earlier passage:

"When one takes over a large company, one acquires a particular set of assets, specific labour force and specific body of middle and junior managers. If the assets are to continue to earn, one will have to be able to provide a more or less complete new high management. If he is some kind of "traditional capitalist" he should not, in principle, be so well-equipped for the purpose as the typical professional management team, and must therefore set his organisational disadvantages against the possible benefits of changes of policy; for this reason, in manufacturing industry successful raids by traditional capitalists are almost unknown.

Some raiders combine traditional characteristics with modern; incorporated but closely held; concerned mainly with getting rich but nevertheless capable of considerable organisation. Powerful raids are frequently made by purely managerial organisations. *The successful among those represent involuntary mergers imposed by one professional team upon another.*" (Pages 31 and 32, 145/1967)

From this I draw the conclusion that Marris believed that "raiders" have developed superior management talents which will enable them to grow at a fast rate without sacrificing profitability, unlike the traditional "average" firms with which his work is concerned. Where they draw the sources of this above-average managerial talent from is not made plain, but perhaps it is an early premonition of the sort of reasoning Williamson was to develop (226/1970 and 227/1971) in his ideas concerning the "multi-divisional" hypothesis which it is argued restores profit maximising efficiency within larger organisations or more probably it is an echo of Galbraith's view (78/1952) that the modern corporation is run by "technocrats" who are trained specialists and who ensure that production and marketing are carried out in ways which result in predictable outcomes.

Kuehn (117/1972) has produced a specific examination of the nature of "raiders" (defined as those who made three or more takeovers between 1957 and 1969). The raiders were drawn from a sample of public quoted companies which comprised the major industrial groups involved in manufacturing and service categories (excluding finance). He tested several hypotheses and concluded that raiders

were growth maximisers, exhibiting faster growth rates than average in their industries with high valuation ratios compared with the median for their industries but lower returns on assets. Their ability to combine a high valuation ratio with low profitability was related to a high dividend payout (or its obverse a low retention ratio) which produced a combination of fast growth with plentiful dividends which ensured that their firms retained a good image in the Stock Market and consequently a high valuation ratio.

Kuehn's explanation of acquiring firms as growth maximisers seems to contradict the Marris suggestion (quoted above) which amounts to the belief in a profit maximising enterprise which is nevertheless able to maintain high growth rates. Logically, unless we assume that giant firms form the majority of raiders and have behavioural patterns markedly different from the average size of firm, we would expect that providing we are dealing with managerial firms (i.e. ones not controlled by their owners), then growth maximising motivation as enjoined by the paradigm would prevail. Why should acquiring firms be exempt from Marris's own theory? Unless large firms, as suggested above, have developed different

motivational drives. Perhaps after a certain size the desires for growth are saturated (power, prestige, control of discretionary investment and staffing having all been attained). Marris's view of a special breed of efficient raiders would certainly require confirmation of their ability to earn high returns.<sup>(8)</sup> Kuehn's reasoning, however, concerning the possibility of a high valuation ratio linked to a poor profit performance is difficult to reconcile with the theory of balanced growth of funds and demand.

No specific hypotheses are therefore proposed concerning the characteristics of acquiring firms. In the empirical work of the thesis, an analysis is made of the characteristics of acquiring firms in order to throw light on the issue of whether they conform to the managerial theory of the firm.

(8) Marris specifically excludes from his theory any interest in firms who by asset stripping operations artificially hold up the price of their shares over a short period (see page 32, 145/1967).

### 3.4. SUMMARY OF CHAPTER

The arguments of the chapter can be divided into three parts. The first part (Section 3.1.) considers the history of the theory of the firm and describes the critical arguments which cause the downfall of the neo-classical theory of the firm. The second division (Section 3.2.) describes the nature of "managerial theories" of the firm, and specifically concentrates on that version of the theory which can be found in the works of R.Marris. The last part of the chapter looks at the hypotheses that can be developed concerning takeovers from the managerial theory of the firm which takes growth as its objective function.

The firm, as conceived by neo-classical theory, had no organisational structure, and its existence depended on its ability, within a perfectly competitive market, to ensure that the price of its product was equal to minimum average cost. The increasing lack of realism of this concept, linked to successful theoretical attacks on the incompatibility of increasing and decreasing costs with partial equilibrium analysis, has led to its demise, and from this was born the concept of a firm that had some discretionary options open to it. The idea of the "representative firm" was replaced by the study of the individual firm and hence to the managerial firm as an analytical construct. On the other hand, the theory of "Monopolistic Competition" has led to a focus on market behaviour where degrees of monopoly and oligopolistic structure exist, and hence to the "Structure, Conduct, Performance" research programme.



The theory of the firm has been alternatively investigated in terms of its organisational behaviour and also in *relation to* the pursuit of other aims than that of profit maximisation, *but* underlying both approaches are the assumptions of:-

- a) an uncertain environment,
- b) the separation of ownership from control.

In seeking to understand the determinants of merger behaviour, it is suggested that organisational theories of the firm are not sufficiently elaborated for this purpose, <sup>(9)</sup> but the managerial theories relating to growth as a motivational force have provided a rationale for merger activity, which is why they are selected for study in this thesis. The theory derived from the work of Marris is selected as a representative type of this sort of theory, not only because it is more adequately worked out than any other theory of this nature, nor because it deals at length with the subject of takeover, but also because it is a theory which, unlike, say, that of Baumol, deals with long term situations, and merger activity as a form of investment behaviour needs to be treated in such a manner.

Certain problems of using Marris's theory are detailed. He assumes steady state policies which are not compatible with his assumption of oligopolistic competition. The capital/output ratio cannot be treated as a constant in a theory based on diversification of products and markets. Differing levels of managerial efficiency make the growth/profit curve impossible to determine.

(9) Even the work of O.E. Williamson, who from a study of organisational imperatives, addresses himself explicitly to the subject of mergers, does so in terms of the welfare implications rather than in the issue of why mergers are undertaken.

It is argued, on the strength of a proposition due to Lakatos, that there can be no progressive development of a theory unless it is being compared with another competing explanation. The reason for this is all theories possess anomalies and it is only by examining how successfully rival theories fare in relation to these anomalies that one can find a criterion of choice between their worth. Marris, although working in the context of the "managerial firm", also provides a case for the existence of a factor which will enforce "profit maximising" behaviour; that is, an efficient capital market which, by distinguishing deviants from this ideal, assists in the use of mergers as a disciplinary measure. Thus Marris contains the two principal competing theories, i.e. profit maximisation and growth maximisation, within his scheme of thinking. (There is some evidence that Marris, although expressing his ideas in terms of the "growth maximising" firm, is actually supporting the "profit maximisation" thesis).

The principal ideas of Marris, namely the existence of a demand/growth curve and a profit/growth trade-off, are described and various testable hypotheses derived. These hypotheses are divided into "auxiliary" assumptions concerning the managerial firm and then a number of specific statements about the circumstances and policies of firms that are acquired by a takeover bid. It is pointed out that Marris has very little to say about the characteristics of acquiring firms except for

a vague and largely unsupported belief that they will be efficient by reason of their use of modern managerial techniques. Since merger activity is a major method of diversification, it is not entirely clear why Marris neglected such activity and treated growth as entirely based on internal expansion of the firm. One result of this is that no hypothesis on the investigation of these features within the thesis is set down and such information as is revealed depends largely upon empirical analysis.