

THE ROLE OF INSTITUTIONAL INVESTORS IN THE UK
ECONOMY

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BY SPINDER DHALIWAL

DEPARTMENT OF ECONOMICS

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To My Mother

without whose undying love, support and dedication

I would be nowhere,

To My Sisters

Kulvinder, Baljinder and Manjinder

**who saw me through this difficult part of my life, you never
let me down once and gave me the love and confidence I needed**

The future will be better for us all

and finally,

To My Father

for his invaluable financial assistance and hardship

why?

I hope you will be proud of me and love me always.

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ABSTRACT

The purpose of this research is to investigate the importance of institutional investors in the UK economy, in particular, the capital market. Institutional investors have grown considerably in size over the past three decades and are involved in many aspects of the economy, consequently investigation of this issue is essential in order to determine their influence.

There are three main empirical studies in this thesis. The first examines a sample of UK non-financial firms in an attempt to explain the ownership structure. It will attempt to show which firm variables attract institutional investors. A second aspect of the research is an analysis of the buying and selling activities of institutional investors to see whether they effect the general level of share prices. A third focus of the research is to analyse the switching activities of the institutional investors. This refers to their switching of funds from one type of asset to another e.g. from real property into equities and vice versa. By examining these activities the study illustrates the demand characteristics these institutional investors create for certain assets and in addition it provides a clearer understanding of the economic conditions that influence such investment behaviour. The thesis confirms the continuing importance of institutional investors.

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INTRODUCTION

Institutional investors are financial intermediaries who provide liquidity to short-term money markets and make long term investments in the “secondary” as well as the “primary” capital market. The four major groups of interest are pension funds, insurance companies, unit trusts and investment trusts. This discussion is limited to these four major groups of institutional investor in the UK, because these institutional investors specialise in the holding of long term securities quoted on the Stock Exchange with which this study is predominantly concerned. It is also the same basis used in past studies.

One of the most significant features of the capital markets over the last thirty years has been the rise of the institutional investor. This growth has led to the system being described as ‘money manager capitalism’¹. In the 1980’s in the UK the process of privatisation led to a reversal in this growth of institutional investors by significantly increasing the number of small, private investors. However, the collapse in the share prices in 1987 led to a loss in confidence of small, private investors and so the trend toward institutional investor dominance re-asserted itself.

Institutional investors are of special interest because they are the intermediaries through which the vast majority of people invest in stock market securities. Their presence is now so pronounced that every facet of investment is affected by their existence. The past three decades have witnessed a phenomenal growth in their size. In 1957 they collectively held 19% of the total value in issue whereas by 1978 this had risen to 47%². The present figure stands nearer to 63%³.

¹ Kregal (1988)

² Rutterford (1983)

³ Phillips and Drew (1990)

It is important to discuss the significance of institutional investors before proceeding with this present study.

THE SIGNIFICANCE OF INSTITUTIONAL INVESTORS

Size

The growth of the institutional investors has been aided by favourable tax treatment and the attractions of a diversified portfolio which they are able to provide the individual. They also offer the investment expertise that an individual may lack.

The size and the concentration of the institutional investors presents a problem in the sense that the UK has a relatively small client base, compared to the NYSE, which is dominated by some 150 institutional investors. This concentrated structure may lead to some potential problems. For example, the institutional investors may behave in a 'herd-like' fashion, where unidirectional investment takes place e.g. bear and bull markets. Because of this herd-like movement in security markets they may be in a position to influence government policy by not investing in the gilts market.

The behaviour of institutional investors may also give rise to fads and fashions with potentially unhealthy effects on merger activity. They may cause a disproportionate rise in the share prices of the firms in which they invest. This gives the firms in which they invest a greater opportunity to leverage their financial position in an acquisition. In biasing investment decisions toward 'blue chips' or the high-tech sector securities the institutional investors may unintentionally affect the capital structure of an industry. Another allegation regarding institutional investors is to accuse them of 'short termism' which is the tendency for them to focus on the short-run share price behaviour rather than long-term industrial developments. For example,

turnover (purchases plus sales as a proportion of holdings) rose from 35% to over 60% between 1981 and 1987 pointing to a 'churning' of portfolios in an attempt to improve short run performance.⁴

Mergers and Acquisitions

Two opposing views can be taken regarding mergers and acquisitions. Critics (e.g. Minns (1980)) view takeovers as a prelude to 'asset stripping' and claim that institutional investors are ready to vote with their feet rather too readily and to take short term gain for their policy holders or pensioners rather than to hold for the longer term. In this case their influence is negative. By holding large concentrations of shares they facilitate mergers and acquisitions and they are in a position to determine the success or failure of takeovers, leveraged buy-outs etc.

On a more positive note takeover activity can be regarded as being crucial to the efficient operation of a free market economy (Hughes et al (1985)). Takeovers perform a useful function by being a constant threat to less efficient managements reminding them that if they fall too far behind in the competitive race then the company will shift into the hands of others who are able to extract greater returns. This assumes that the predator firm will produce a structure which is more efficient and this assumption may be unrealistic .

⁴ See Foley (1991)

Passivity

This raises the question as to what is the role of British institutional investors in the UK. Are they active or passive? As major shareholders should they exercise power to bring pressure on incumbent managements in order to achieve greater performance efficiency? (Walker (1987)) . On the whole UK institutional investors tend to be passive (see Midgley (1973)). It is not their job to scrutinise the behaviour of managers, their area of expertise is regarding the value of the firm not the working of it. However, it is to the benefit of all if the institutional investors were to develop a more pro-active policy and to take a closer interest in the performance of companies whose shares are a part of their portfolios.

Volatility

Whether or not greater concentration of holdings by the institutional investors leads to a greater level of volatility in markets is an issue much at the forefront of US studies.

The trading of blocks of shares and portfolio restructuring on the part of institutional investors has the *potential* to increase the volatility of markets and may undermine long term liquidity. Consequently derivative markets, i.e. futures and options, are advocated as more efficient ways of hedging and/or restructuring a portfolio.

The rapid switching of a substantial portfolio by a large investment fund is expensive in terms of commissions and it may move the market adversely.

Much of the evidence over the past twenty five years points to the fact that ‘buy-and-hold’ strategies normally outperform trading strategies. For this reason institutional holdings should become more stable⁵ .

Outline of Study

The thesis is set out as follows: Chapter 1 looks at some of the major studies in the area of institutional investors. It summarises their main findings and highlights some of the issues that will be dealt with in the course of this thesis. It also looks at institutional investors in an international framework in order to discern whether UK institutional investors are unique in their dominance of equity markets.

Chapter 2 analyses the four groups of institutional investors individually in order to get a clearer understanding of their size, the competitive structure within which they operate, their aims and their accountability to policyholders.

Chapter 3 attempts to empirically investigate the variables attracting institutional investors into certain firms. It looks at a sample of 278 UK non-financial firms for the year 1989 in order to analyse some of the leading characteristics of these firms, namely those variables measuring firm size and the instability of the firm.

Chapter 4 addresses many of the conjectures made about the institutional investors effects on the stock market. It looks at evidence from past studies and focuses on three main areas; namely efficiency, the use of information and volatility.

⁵ See Lorie, J H and Hamilton, M: The Stock Market: Theories and Evidence.

Chapter 5 empirically analyses the buying and selling activities of institutional investors to see whether they effect the general level of share prices. It also seeks to establish whether there is a long run stable relationship between the institutional investors.

Chapter 6 considers the switching activities of the institutional investors. This refers to the institutional investors switching from one type of asset into another e.g. from property into equities and vice versa. This attempts to show the demand the institutional investors themselves create for certain assets and may serve to provide a clearer understanding of the economic conditions that influence their investment behaviour.

CHAPTER 1 - EMPIRICAL REVIEW.

Institutional investors play a major role in the British financial market and their very presence is an area that needs to be investigated. There has been very little accountability of their actions in the past despite the volume of assets under their control. The influence of institutional investors on share prices have far reaching effects on the type of firm they invest in and the implications of this.

UK institutional investors are an under-researched area despite their size and potential influence. The major UK studies in this area have been a study by Briston and Dobbins (1978) which was the first of its kind analysing UK institutional investors in depth and looking at their development up-to the mid-seventies. A Government study, 'The Wilson Report'¹, analysed UK financial institutions and their affects on the economy. More recently, Hughes et al (1985) have analysed institutional investment, company performance and mergers. The main findings of all these studies will be highlighted below. Other than these, the topic of institutional investors has been restricted to either general references to these institutional investors or a few miscellaneous pages in finance text books.

Another aspect worthy of mention is how UK institutional investors fare within an international framework. This enables us to discern whether the growth of institutional investors is a unique feature restricted to the UK financial market or whether it is similar for all developed countries. This will also help to highlight relative differences in the industrial and financial structure between countries.

The aim of this chapter is to analyse the past studies in the area and so set the present study into some comprehensive framework.

¹ The Wilson Report (1980). HMSO Command Paper 7837. Committee to Review the Functioning of Financial Institutions Report. Chaired by Sir Harold Wilson.

1.1 - EARLIER RESEARCH

Prais (1976) initially drew attention to the role of institutional investors in the evolution of giant firms in the UK. The implications of the rise of these intermediaries is that their ownership of the majority of UK ordinary shares has led to a fear of concentration of 'financial' power over industry. This fear was shared by others. The Governor of the Bank of England² noted the growing concentration of investment and equity holdings in the hands of the institutional investors. Rutterford (1983) stated that their presence was now so prominent that every facet of investment is affected by their existence. Their investment strategies and performance have economy-wide consequences.

The first of the major studies in this area was by Briston and Dobbins (1978). They described the growth of the institutional investors and analysed their likely impact upon the Stock Exchange, corporate management and shareholders. Their study was based on the years 1966-1975. Their research led to many interesting findings which are too numerous to discuss here, however, their main findings which are of relevance to this present study are listed below:

- i) During the period 1966-1975 institutional investors have been persistent net purchasers of company and overseas securities.
- ii) They do not concentrate their equity holdings in the top 30-50 British companies.
- iii) Institutional shareholdings increase with time in all classes of company - smaller companies, large companies and the largest companies.
- iv) They are not active in the new issues market. Their holdings in new and smaller companies increase with time.
- v) The buy-and-hold policies of insurance companies and pension funds may eventually create highly volatile, thin equity markets.

² Governor of the Bank of England (1984) speech at the investment conference of the National Association of Pension Funds. Bank of England Quarterly Bulletin. vol. 24.

- vi) Large block acquisitions and disposals by institutional investors may cause major swings in share prices.
- vii) Research suggests that institutional investment performance tends towards the average. Professional investment managers offer diversification, but not performance. Higher levels of portfolio activity are not associated with better performance.
- viii) The rapid growth provides scope for speculation about their roles in corporate planning, takeover situations, provision of finance for industry, industrial democracy and share price management.
- ix) They have the necessary voting strength to influence company directors when combined.
- x) There is no evidence to suggest that they behave in such a way as to stabilise stock market prices by ironing out peaks and troughs of the all-share index.

The second major piece of work in this area was the Wilson Report (1980) which was set up to analyse the role of the institutional investors in the UK. The report was very concerned with the growing importance of the institutional investors, particularly pension funds and insurance companies in the capital market. The report highlighted what they regard as the main problems raised by the institutional investors, the main points of significance to this study are:

- i) The lack of accountability of the institutional investors.
- ii) The investment strategies of the institutional investors. British industry and thus the economy as a whole was suffering because institutional investors were investing enormous sums overseas.
- iii) Small and new companies were being starved of a means of finance as institutional investors preferred investing in large, well established companies.
- iv) The institutional investors were also accused of 'short termism', caring only for their short term profits in order to compete for custom.

The Wilson Report did initiate a response and several studies followed either justifying the behaviour of institutional investors or criticising it. The first of the above points will be discussed in chapter two where this study will look at the accountability of the different groups of institutional investors individually. Regarding the second point Schuller (1984) expressed concern with the volume of funds going overseas, "...the most significant single aspect of investment patterns over the last five years has been the flow of capital overseas since exchange controls were lifted."

Sir James Ball (1984) argued that this was rational behaviour because it reduces risk in two ways. Firstly, by being a means of diversifying institutional holdings it spreads risk. Secondly, it avoids the risk of a slump in the domestic economy. Economic prospects may be superior overseas than in the UK. In a recent paper by French and Poterba (1991) they argue that most countries invest the majority of their assets domestically and so under-diversify. The British, however, do invest more overseas than other countries. For example, at the end of 1989, Japanese investors had only 1.9% of their equity in foreign stocks, while US investors held 6.2% of their equity portfolio overseas. The British held 18% of their portfolio abroad, divided almost equally among the US, continental Europe and Japan.³

It is not too surprising that British investors hold more equity outside their own borders since the UK is a smaller share of the total world equity market than the US or Japan. However, the diversification of UK portfolios is a relatively recent phenomenon since the relaxation of capital controls in 1979.⁴

In the same vein the institutional investors' risk averse investment strategies lead to smaller firms and new ventures not being economically sound investments, given the nature of the institutional investors' liabilities.

³ See Table 1 p 222 French and Poterba (1991). American Economic Review. Vol. 81. No.2.

⁴ See Howell and Cozzini (1990), p 30 : International Equity Flows.(European Equity Research (1990).

Furthermore, it may not be worth their while incurring the accompanying transaction and monitoring costs.

Exit might be an important criterion as it is easier for them to dispose of the shares of larger companies in the face of poor performance rather than of smaller companies. There is evidence to suggest that institutional shareholdings increase with time in all classes of company (Briston and Dobbins (1978)).

More recently Hughes, Cosh, Singh and Kumar (1985) examined empirically a number of issues concerned with the relationship between institutional investors' ownership of UK company securities and the companies' economic performance. The study is the most thorough to date examining the affects of UK institutional investors. Briefly their main findings are:

- i) The study noted a sharp increase in the ownership of UK companies by pension funds and insurance companies. For the last quarter of the century, there has been a secular increase in the proportion of total equity of UK companies held by financial institutional investors.
- ii) No systematic evidence was found about the ability and willingness of institutional investors to exert influence over company policy, although the study noted they were not as inactive as generally portrayed.
- iii) Their empirical study showed no systematic difference between the group of companies in which institutional investors had substantial holdings and the group in which they did not.
- iv) It was found that firms' past performance exerted a significant influence on subsequent performance and that there was in general a positive effect of institutional investors' holdings on profitability. This effect, however, was not statistically significant.
- v) The dividend income of companies with substantial institutional holdings was markedly less than that of companies without such holdings. Also more surprisingly, the dividend income of the former group was also less stable than that of the latter.

In addition to their empirical work they also sent out a questionnaire to various institutional investors. From their questionnaire they found that:

- i) The institutional investors differed in their overall investment strategies depending upon their objectives, their tax position and past history.
- ii) All institutional investors felt performance pressure, and these pressures were increasingly for short term performance and were rising.

The increasingly important and growing role of institutional investors in firms leads us to question their relationship with the firms in which they invest. They have been urged by the government, the Bank of England and many economists to get more involved in these firms and they may not be as passive as generally portrayed (see also Midgley (1973) and Cadbury (1990)).

The rise in the level of institutional presence has led to a rise in wider share ownership and consequently to an increase in the demand for information on companies and on their activities according to Cadbury (1990). The direct result of wider interest in companies is that the chairmen of their boards are now subject to greater attention from financial analysts and commentators.

Before the study looks further at the implications of a wider share ownership structure it is important to see how the situation evolved in the first place. This is in order to be able to analyse the institutional investors role in the ownership structure of industry. Over the years there has been a significant change in the structure of the large corporation with widely dispersed shares leading to a separation of ownership from control. This notion was pioneered by Berle and Means (1932) who concluded that the conflict between the interests of owners and the interests of managers was detrimental to the owners of the firm because it meant a move away from profit maximisation. The wide dispersal of ownership led holders of corporate stock to experience a loss of control over their resources while the manager exercised more freedom on the

use of the firms resources (see Williamson (1964), Baumol (1962), Marris (1964) for alternative managerial theories).

The Berle and Means(1932) study led to a stream of controversial literature either supporting or criticising their conclusions. Pitelis (1984), for example, argued that capitalists do not find it beneficial to relinquish control but they cannot expand and retain control.

The debate is now put in a much wider context of agency theory where managers are agents acting on behalf of the shareholders but given some decision making authority (see Jensen and Meckling (1976), Fama and Jensen (1983), Tirole (1986) etc.). There are still problems of agency costs arising such as the need for monitoring management in order to ensure they comply with shareholders' wishes (see Arrow (1984), Schliefer and Vishny (1980)).

It seems now that institutional investors do have a growing role to play in company affairs unlike that stated by Berle and Means. The potential power of these institutional investors is highlighted by Cadbury (1990) in the following statement, "Where they have intervened, as they have to point out anomalies in proposals for bonus schemes, they have usually persuaded the board to change its mind". Therefore, the institutional investors do have a decisive voice in a company's affairs through their voting power, particularly as it is the institutional investors who between them may have significant control over the company and are thus in a position to bring about changes in the boardroom of companies which are failing to achieve adequate results.

Next it is important to look at institutional investors in an international framework.

1.2 - INTERNATIONAL COMPARISONS.

The importance and role of institutional investors differs significantly from country to country. For example, in the United States pension funds hold a fifth of equities and in the United Kingdom they account for a quarter of personal sector assets. But in Germany they are of minor importance.⁵

This study is interested in what accounts for these differences. The majority of pension fund members are affiliated as a consequence of their employment. Therefore *rates of return* on pension funds do not attract investors in the same way as do those for other types of financial asset. However, the *nature of the benefits* offered may provide an incentive to work for a particular company.

One of the main determinants of the scale of benefits and advantages of pension funds as a means of saving is *taxation*. In the UK, employees' and employers' contributions, unlike wages, are not subject to national insurance contributions. This treatment is broadly similar in the US, Canada and Japan. In Japan other forms of saving such as life insurance also enjoy tax privileges.

The next section examines whether large holdings of equities by institutional investors is a general phenomenon across advanced countries, or whether it is limited to the UK.

⁵ See Bank of England Quarterly Bulletin: "The Development of Pension Funds - An International Comparison." (August 1991)

1.21 - EQUITY OWNERSHIP IN ADVANCED COUNTRIES.

There has been growing concern expressed about the effect of institutional investors equity holdings on UK's industrial performance; however, little attention has been paid to developments in other advanced countries. Nevertheless, UK's environment is constantly compared and contrasted with other countries.

There are a number of issues involved here. If the extent of institutional investors' equity holdings in other countries are as high, or have grown as fast, as in the UK it is questionable whether this has influenced industrial performance in the same way. Similarities in the level of growth of holdings are not by themselves sufficient for this type of analysis. One also needs to know the distribution of this across institutional investors and across industrial companies. More importantly one needs to examine whether the objectives of the institutional investors and the instruments for influence at their disposal are similar across countries. Obviously, all other factors which influence industrial performance have also to be taken into account before one can move to a comparison of industrial performance across countries.

In a study by Hughes, Cosh, Singh and Kumar (1985) data were presented for the percentage of outstanding shares accounted for by insurance companies and pension funds, and other categories of shareholders. Comparisons are made between the year ending 1964 and the year ending 1982. Data were obtained for these two benchmark years for the following six countries: UK, US, Japan, Italy, Germany and Canada. Their results are printed in Table 1; however, care must be taken when making international comparisons as the statistical techniques vary from country to country.⁶

⁶ See their discussion of data on p11 of the Office of Fair Trading Report by Hughes et al (1985)

Table 1 - International Comparison of The Equity Holdings of Investors

(year ending 1964 compared with year ending 1982)

	UK		US		JAPAN		ITALY		GERMANY		CANADA	
	1964	1982	1964	1982	1964	1982	1964	1982	1964	1982	1964	1982
Insurance Companies and Pension Funds	18.3	45.9	8.7	18.9	8.0	32.6	0.8	3.5	2.1	2.6	13.0	11.7
Other Financial Institutions	7.9	8.3	4.5	4.8	17.5	14.8	0.2	1.0	2.1	2.8	7.7	4.5
Households	60.9	23.9	84.6	60.2	48.6	30.6	37.7	12.4	20.9	14.9	68.9	44.6
Others	12.9	21.9	2.3	16.1	25.9	22.0	51.3	83.0	74.9	79.7	10.4	39.2

PERCENTAGE OF OUTSTANDING SHARES

Source: 'Institutional Investment, Company Performance and Mergers: Empirical Evidence for the UK' Office of Fair Trading Report (1985) p12 - Cosh, A; Hughes, A; Kumar, M and Singh, A.

Table 1 shows that at the end of 1964 insurance companies and pension funds accounted for just over 18% of outstanding domestic equity shares in the UK. This quite significantly exceeded the amount held by any other country, with the next largest holding of equity by these institutional investors being in Canada, followed by the US and Japan. It is interesting to note that Italy and Germany held almost negligible amounts despite being closer to the UK in terms of their industrial structure and output. Households were the most important holders in the US, accounting for 84.6% of outstanding shares. This was followed by Canada, the UK and then Japan. Once again Italy and Germany lagged behind.

Turning now to look at end 1982 values it can be seen that the UK has kept its lead with insurance companies and pension funds. They now account for nearly 46% of the outstanding equity. In Japan they accounted for nearly 33% and in the US 19%. The sharpest increase in this proportion occurred in Japan and Italy where there was over a fourfold increase. Despite this increase in Italy they still remain very small. In the UK and US the increase in proportion was also very substantial whereas in Germany there was little change. Canada, which was the second largest holder of outstanding shares held by insurance companies and pension funds in 1964 has actually declined its holdings by 1982.

The share of 'other financial institutions' remained much more stable with small increases in the UK, US and Germany, but a notable decline in Japan and Canada. Finally, Households have fallen in their importance in all these countries although in the US they still hold over 60% of shares. Households have fallen by a greater percentage in the UK than in any other country.

This shows that whilst the growth of institutional investors, in particular, insurance companies and pension funds, is not unique in the UK, what is highly significant is the fact that in 1964 UK insurance companies and

pension funds' proportion of equity holdings were substantially higher than in any other country and this lead has continued.

The reasons for this could be that the social security systems differ in these other countries. In the UK people are more responsible for themselves whereas the level of government involvement is higher in other countries so the funds are not as large. Another reason may be the whole process of financing industry - in countries such as Germany industry has closer links with the banks. In the UK industry has to look for other means of finance outside the banking sector.

1.3 - SUMMARY AND CONCLUSIONS

This chapter has reviewed some of the major pieces of work in this area. It has summarised their main findings and consequently put this present study in some perspective. The major studies discussed have been those of Briston and Dobbins (1978), the Wilson Report (1980) and Hughes, Cosh, Singh and Kumar (1985).

Briston and Dobbins discuss some of the implications of the growth of institutional investors. Their findings show that institutional investors lead to higher levels of volatility and cause major swings in share prices due to their activities. Institutional investors also have the potential to influence company directors and were found to neglect the new issues market. They offered increased diversification but not necessarily increased performance. Briston and Dobbins thus view institutional investors as wielding considerable influence on many aspects of the economy.

The Wilson Report highlighted four main criticisms continually directed at institutional investors. These were:

- 1) Their lack of accountability to policy holders.
- 2) Their funds being invested overseas.
- 3) Their lack of investment in smaller companies or new ventures and
- 4) Their activities being short-term orientated.

The Wilson Report was critical of the behaviour of institutional investors. However, it failed to consider the rationality behind their actions. It is logical for institutional investors to diversify their portfolios and if they see other countries offering a greater return with a lower level of risk then it is rational for them to invest overseas. In the case of smaller companies and new ventures the transaction costs attached to these assets may not be worth incurring.

Hughes et al were less critical of institutional investors. They found no evidence that increased institutional investment influenced company policy. They also found no conclusive evidence that companies with institutional investors performed better than companies without institutional investors, however, in general there was found to be a positive effect of institutional investors on the profitability of firms.

Larger firms in the UK are generally portrayed as having a widely diffuse ownership structure. This chapter outlined briefly the evolution of large companies which has resulted in debates on the divorce between the ownership and control of companies, dating from Berle and Means (1932). This diffusion of shares has led to problems of conflicting goals between the managers of companies and the actual owners. Some studies have said that increased institutional investment has actually led to a greater scrutiny in firms where the director is put under greater pressure to provide answers to his institutional investors (Cadbury (1991)).

Although this thesis does not attempt to analyse all their findings some of the anecdotal evidence emerging from these studies is important.

UK institutional investors should also be considered in an international framework. The holdings of outstanding equity in the UK were compared with those of US, Japan, Canada, Italy and Germany between two benchmark years - 1964 and 1982. It was found that in 1964 UK pension funds and insurance companies in comparison with those in other countries, far exceeded the amount of outstanding equity shares held. The same situation applied in 1982. The growth of institutional investors was not unique to the UK but the proportion of equity held by UK institutional investors was higher and this lead has continued. This may be due to many reasons such as the nature of the relationships between industry, the government and banks. These relationships maybe closer in the countries with lower institutional investor holdings. In the UK the relationship between banks and industry is relatively weak and so industry is compelled to look for other sources of finance. Further and more thorough investigation of the international framework is required before any firm conclusions are drawn.

This chapter has shown that in aggregate, institutional investors are important in the UK. It is now appropriate to examine them in more detail and establish the institutional framework within which they operate.

CHAPTER 2 - INSTITUTIONAL INVESTORS DESCRIBED

INTRODUCTION

Institutional investors are classified into four major categories - pension funds, insurance companies, unit trusts and investment trusts. These institutional investors differ from deposit taking institutions such as banks and building societies in that they have longer time horizons and they operate principally in the capital market. They are similar to deposit taking institutions in so far as they aggregate savings from a variety of sources and apply them to various outlets. They differ in that they do not necessarily offer a specific rate of interest and they do not guarantee the value of the investment. The return will depend on how well the underlying investments perform. They invest in different types of assets - money market instruments, equities, fixed interest securities, property and even, in the case of pension funds, fine art.

In the case of pension funds and insurance companies the majority of the savings flow they mobilise takes the form of contractual commitments. Unit and investment trusts, on the other hand, have been more geared toward lump sum investment although they do allow for regular savings plans.

This chapter begins by describing the four major types of institutional investors individually in terms of their size, competitive structure, objectives and regulation. Once it is established who they are, how they function and the industrial structure within which they operate, as well as the different sanctions and accountability to their policyholders, they can be analysed collectively to develop a clearer understanding of their aggregate size and their asset choice.

2.1 - PENSION FUNDS

Size

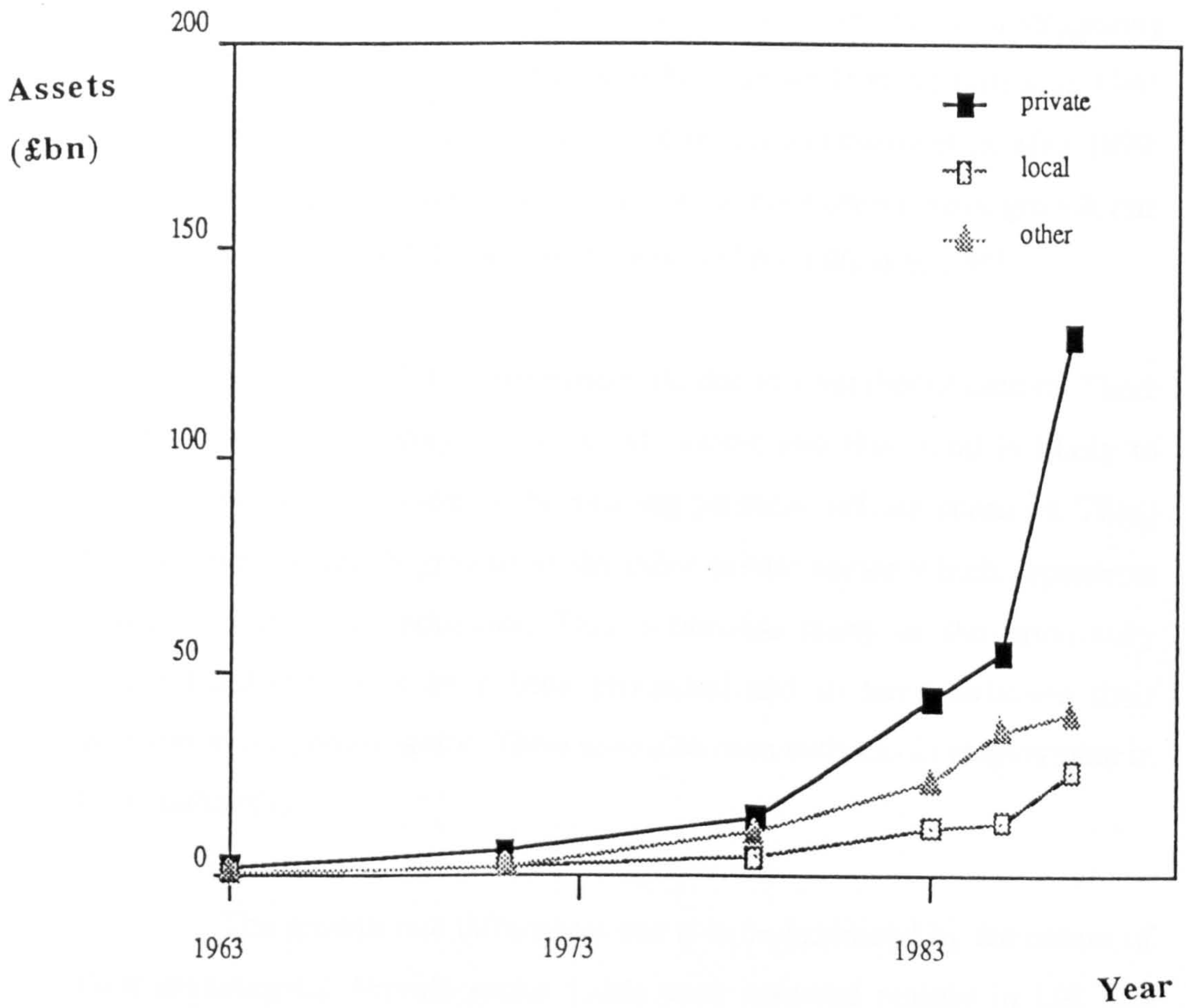
Pension funds are the largest growing of the four groups and represent the largest proportion of funds. The size and influence of pension funds in the UK has grown enormously in the last twenty years. In 1969, pension funds had a total value of around £5 billion and owned an estimated 9% of the UK stock market. At the end of 1989, the market value of funds is estimated to have risen to over £250 billion and they owned 30% of quoted equities¹.

This growth can be attributed to three main elements: inflation, legislation and social change. Inflation increased the size of contributions needed to fulfil the basic promises given by final salary pension schemes. The 1975 Social Security Pension Act introduced an earnings-related state pension over and above the flat-rate retirement pension. Many new company schemes were set up in the immediate aftermath of the Act and a new government came into power in 1979. The 1980s have changed many of these aspects of growth. Structural change has meant that those companies with a tradition of wide pension fund membership in their workforce have been contracting employment, while new growth has been concentrated in smaller companies and self-employment. The governments policy of encouraging personal and portable pension funds has begun to have its effect on membership which is now voluntary.

Pension funds can be subdivided into three sectors - the private sector, other public sector and local authority sector. Figure 2.1 shows that private sector pension funds are the most important sector in terms of both asset size and the rate of growth. They are followed at a slower pace by the other public sector funds and lastly, local authority pension funds.

¹Pension Funds and Their Advisors (1990)

FIGURE 2.1 - THE MARKET VALUE OF PENSION FUND ASSETS



Source: Pension Funds and Their Advisors (1990)

The growth in all three sectors accelerated after 1979. After this year growth has been more observable in the private sector which accounts for the majority of pension fund assets. Despite the graph being in nominal terms there is evidence of a sharp rise in assets over a relatively short period of time.

In 1963, the private sector had assets amounting to £2.8 billion which rose gradually to £6.2 billion in 1971 and to £15.3 billion in 1978, however, by 1983 these assets had more than doubled and represented £42.9 billion. More recently, in 1987 the stock of assets had risen to a staggering £129.6 billion. Other public sector funds have grown from £1 billion in 1963 to £40.1 billion in 1987 with the majority of the growth taking place after 1979. Local authority pension funds have registered a more conservative growth rate with assets rising from £0.7 billion in 1963 to £26.4 billion in 1987.

These growth rate differences are due to a number of factors. There are more people working in the private sector and this trend is likely to continue as the government is encouraging personal, private pensions. There has not been as much growth in the other public sector which represents mainly nationalised industries. This is because many of the previously nationalised industries have been privatised and so have switched their pensions to the private sector. There have also been cutbacks in employment in local authorities.

The growth rate differences can also be explained by the nature of their investments. Private sector funds have invested mainly in UK and overseas equities and so have benefitted from high returns over part of that period. Local authority funds invested more in gilts than the private sector funds. They were also heavier investors in overseas assets and lighter in property than private sector funds. Other public funds were slower than the other two funds to build up their overseas assets but were stronger in the property market. This will be dealt with more fully in chapter six.

Competitive Structure

TABLE 2.1

The Number of Pension Funds Ranked by Asset Size

<u>Asset size (£m)</u>	<u>Number of Funds</u>	<u>% Distribution</u>
500+	91	8.6
250 - 999	138	13.1
100 - 249	170	16.1
50 - 99	143	13.5
25 - 49	203	19.0
10 - 24	312	30.0
<u>TOTAL</u>	<u>1057</u>	

Source: Pension Funds and Their Advisors (1990)

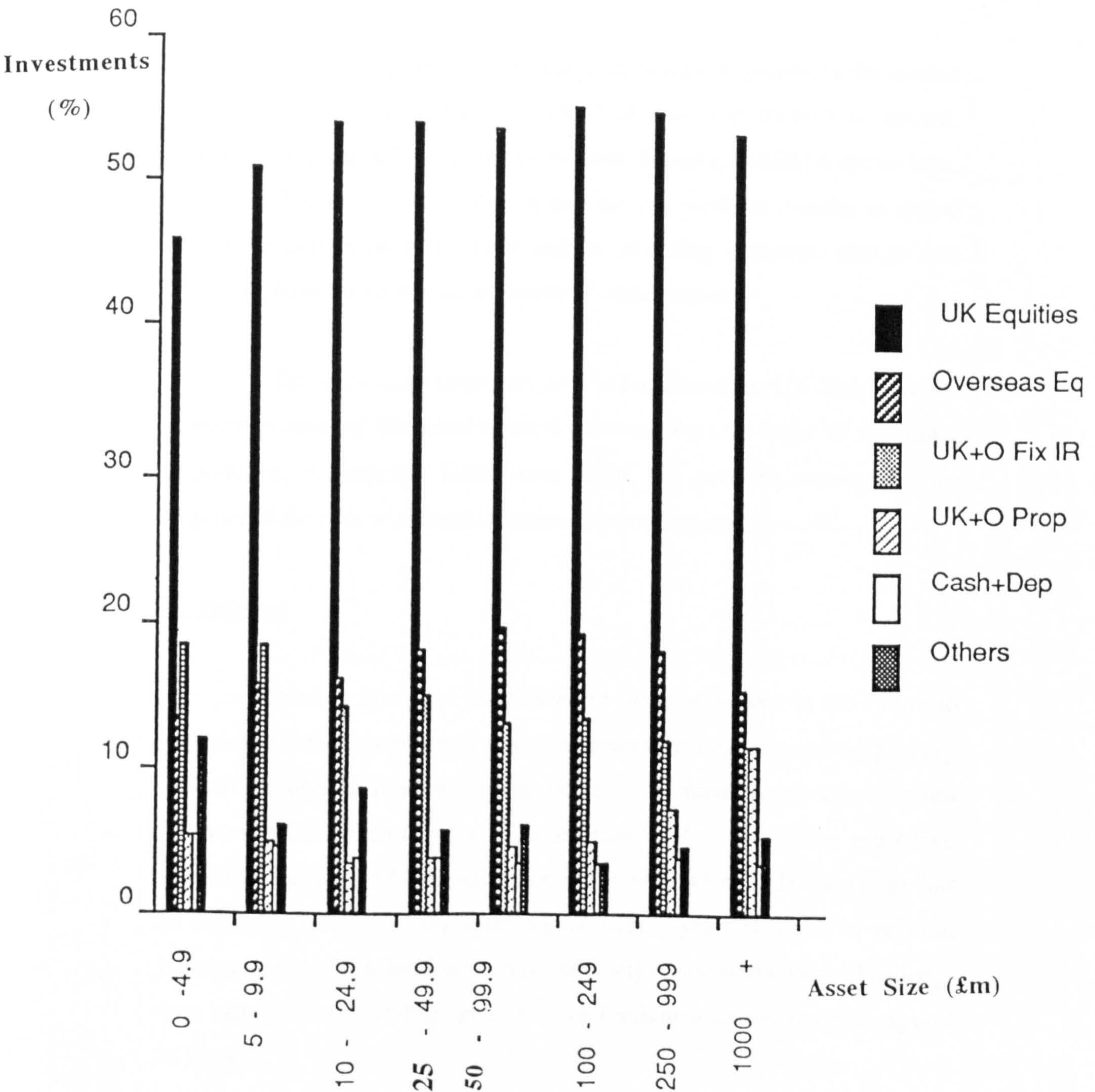
Table 2.1 gives us a breakdown of the distribution of funds in each category of asset size. Less than 10% of funds have assets over £500 million whereas almost 50% of funds have assets below £50 million with the majority of these, ie 30%, holding assets less than £25 million.

This reveals that although pension funds are the largest in asset size compared to the other three groups of institutional investors, the majority of funds are concentrated in the asset group holding less than £25 million. This implies that individually a pension fund may not have much scope for influence over the assets it chooses to invest in, but collectively there is much potential to influence economic activity.

The table highlights the large number of pension funds in operation in the UK. It also reveals that they vary enormously in size and as a result of this their performance must also be very different. With such differences in size direct comparisons between firms may be difficult.

FIGURE 2.2

INVESTMENTS BY SIZE OF PENSION FUND.



Source: Pension Funds and their Advisors (1990)

Figure 2.2 enables us to analyse which areas pension funds invest in according to their size. It is interesting to note that for all the fund sizes, with the exception of the smallest, over 50% of their investment is in UK equities. This evidence refutes criticisms, in particular by the Wilson Committee, that institutional investors were not aiding domestic industry preferring instead to send their resources overseas.

Overseas equities are not negligible as they do constitute the second largest investment area and average 16.7% of total investment. It is rational, however, for pension funds to invest overseas because, as will be shown later, they are risk averse - preferring to hold a diverse portfolio in order to spread risk. Investing overseas reduces risk by avoiding domestic slumps and benefiting from the economic prosperity of other countries.

The third most important area is fixed interest. UK fixed interest constitutes most of the fixed interest column. Next, in order of declining importance, is property. Here, once again, UK property constitutes the majority of the item with overseas property averaging at only 1.1%.

Objectives

Pension funds are established to provide income in the future to retired or disabled members of a firm or government agency and the primary objective of pension funds within this context is to maximise the rate of return by investments which involve an acceptable level of risk. They must take account of the nature of their liabilities. The liabilities tend to be long term thus an employee joining a firm at the age of twenty years will not, in general, become eligible for a pension for a further forty or forty-five years. The long-term nature of their liabilities gives pension funds an incentive to hedge against inflation.

Regulation and Accountability

Pension funds are completely exempt from income and corporation tax on their investments. They do not, in general, have to take tax into account when making investment decisions. Pension funds have been severely criticised in the past for the lack of legislation surrounding them in the light of their considerable growth and size. They have not been accountable to their beneficiaries in the past and their level of disclosure does not reflect the volume of assets in their control. There was no comprehensive framework for monitoring their affairs.

The announcement in the 1986 Budget of legislation to control pension fund surpluses was a start to the establishment of clearer guidelines. The main provisions of the Finance Act (1986) came into effect on 6th April 1987. This should lead to a boost in performance because now pension funds in the workplace cannot count on all employees joining them as the latter now have the choice to go to an independent pension fund. This should lead to more disclosure of figures in an attempt to attract finance from employees. The competitiveness of the industry should increase and they should offer a better service than previously.

It is compulsory for a set of rules to be issued to all staff concerning the fund in terms of its performance etc. In an employers scheme, the responsibility of investment rests with the Board of Trustees which must include a representation of the staff. The Board of Trustees decides who is responsible for investment decisions and if they see fit they may engage an outside investment manager.

There have been two major pieces of legislation recently affecting pension funds - the Social Security Acts of 1985 and 1986. In addition, further legislation in the form of the Finance Act 1986 was introduced in order to control the level of pension funding in excess of liabilities.

These new laws came about with the recognition by the government and others that pension schemes had become collectively a very powerful force in private sector employment. Pension funds favoured those who stayed in the same job at the expense of those that moved; hence discouraging job mobility. The other major factor influencing government intervention has been the enormous power pension funds have gained in the investment markets.

Occupational schemes are an expression of collectivism. As with most collective enterprises control tends to be removed from the individual to the centre. In the case of pension funds control rests not so much with the trustees but with the institutions to whom the trustees have delegated the function of administration. This makes management of schemes even more removed from the understanding and control of individual employees, who are dependent on them for their long-term retirement saving.

A major attack was launched on this form of collective retirement provision in a publication by the Centre of Policy Research entitled, 'Personal and Portable Pensions for All' (1983). The twin themes of this paper were first, to allow employees to have the freedom to withdraw from their occupational schemes and make their own provisions for pensions; and second, to allow them also to have access to part of the value of their retirement benefits as capital before retirement. This objective was with a view to encouraging each person to become a 'mini capitalist', controlling his or her own portfolio of Stock Exchange investments.

The second objective was not taken up, although it has reappeared more recently in a non-pension context in the government's proposal for 'Personal Equity Plans'. The first objective, however, was the central theme of the 1986 Social Security Act which introduced personal pension rights for all and which greatly widened the competition to provide such pensions - extending this to banks, unit trusts, building societies and other institutions. The Act of the preceding year took up the theme of personal pensions by

giving all employees the right to a transfer value instead of a preserved pension on leaving employment, and the right to have this invested in a personal contract of their choice.

Turning to the issue of the disclosure of information; the trustees report is to be prepared annually. The Report is to be given on request to members and other beneficiaries, both current and prospective, and to any recognised trade union. Apart from this, only reasonable steps need to be taken to make known to members the availability of the annual report. In some cases this may mean that the report will be prepared, a note of its existence will appear on the noticeboard and it will then rest in the trustees file until the time comes to prepare the next one.

How well pension funds perform is measured by two main independent companies:

- 1) World Markets Company (WM).
- 2) Combined Actuarial Performance Services (CAPS).

They produce independent performance figures for most funds. WM have data on about 80% of all pension funds in the UK. They give these funds an idea of how they are performing against a weighted measure of all other pension funds broken down into many sub-sets in terms of size, type of fund etc. These figures are reported to the trustees who have to send annual reports to all their members. These reports must include performance figures.

2.2 INSURANCE COMPANIES

The second largest group of institutional investors comprises of insurance companies. These fall into two main categories - those which are part of the general insurance group and those which specialise in Life Assurance. The second type are by far the largest in terms of asset size.

There has been a significant and persistent rise in insurance company assets over the past two decades. The market appears highly competitive with over 100 life assurance companies alone. The companies charge vastly different prices revealing that a crucial feature of insurance may be consumer ignorance. Any company name that is familiar to the general public due to advertising etc. leads to people buying the product even if it is inferior. Therefore, it is imperative for insurance companies to have a strong responsible image.

There are two types of insurance companies that need to be looked at separately, and these are life assurance and general insurance.

Life Assurance

Life Assurance can be divided into three broad categories: term assurance, whole life and endowment assurance and annuities. Under a 'term' policy the insurance company builds up a small fund during the early years when the probability of death is low and runs it down later. With a 'whole life' policy the insurance company pays a capital sum on the death of the person insured. The premiums are much higher than for the term insurance because the company is committed to paying out the sum assured eventually, either at death or on maturity.

Annuities provide the policy holder with a regular income for some defined period of time, often with a guarantee that a minimum number of

payments will be made even if the policy holder dies earlier. The Life Assurance company accumulates and holds a capital fund. This is gradually run down through annuity payments.

To meet its legal commitments a Life Assurance company has a preference for assets whose money values at maturity are guaranteed. At the same time they wish to earn as high a yield as possible on their funds so they tend to hold a mixture of fixed interest and equity investments.

Competition between Life Companies is often focused on the level of bonuses they have been able to pay in the past. Therefore, the company's investment performance is crucial to its competitive position. Also, since the bulk of Life Assurance funds in the UK reflect whole life, endowment or annuity business, the liabilities are mainly of a long term nature. This justifies the preference of companies for long term assets.

General Insurance

General insurance refers to fire, accident, insurance, health, property damage, general liability and pecuniary loss. It accounts for about one fifth of total insurance assets and is made up of shorter term liabilities than life assurance.

Objectives

Insurance companies have the common objective of trying to maximise expected yield. There are wide differences in the distribution of their funds and the investment policies they pursue. This reflects varying attitudes to risk, assessments of the yield potential of different types of asset and the nature of their liabilities etc.

The substantial assets held by insurers are invested so as to earn interest and capital gains. Investment income makes a vital contribution to an insurer's profits. This is particularly the case in long term business - life insurance, annuities and pensions. UK insurers invest in a wide range of public and private sector securities, property, mortgages and cash. In the investment of insurance company funds, the overall aim is to be able to meet liabilities when they fall due while earning the highest possible yield without incurring too great a risk.

In the case of general insurance, the major problem for an insurer is the unexpectedly large claim that might force him to sell investments at short notice; possibly at a loss. Insurers therefore concentrate on assets that can be easily sold at short notice, such as stocks and shares and avoid those that cannot, like property and land. However, these investments must also produce a satisfactory yield so that shareholders can be paid good dividends and any underwriting losses; ie. any excess of claims over payments; can be balanced by investment gains.

In long-term insurance business the major concern is to earn a rate of interest greater than that used to calculate premiums; failure to do so could ultimately lead to insolvency. Since the vast bulk of life insurance business is savings-based, insurers must earn a rate of interest that allows them to compete with other forms of saving. The longer-term nature of their liabilities allows insurers to concentrate on longer-term investments as they are less concerned about the possibility of selling assets at short notice to pay claims. Therefore, they invest much of their assets in long-dated or undated government securities, equities and property. Other factors also affecting the investment policies of insurers include the aims and objectives of companies, political and economic constraints, solvency requirements and corporation and capital gains taxes.

Regulation and Accountability

Insurance companies operate subject to both external supervision and a highly competitive environment. Insurance companies are limited companies so they must conform to certain statutory requirements as well as their own rules and regulations. These are imposed by bodies such as the British Insurance Association (BIA) and the Department of Trade and Industry (DTI). Despite this they still have much discretion in their investments.

Since the 1960's the UK government has considerably expanded the powers of the DTI. This was firstly to supervise both the entry of new insurance companies to write new classes of insurance and secondly to exercise more stringent control over the financial condition and behaviour of authorised insurers. Some of the measures have been necessary in order to comply with European Community (EC) insurance Directives aimed at bringing about a common EC insurance market. The supervisory rules are laid down in the Insurance Companies Act 1982 and various Regulations thereunder.

All insurance benefited greatly from tax relief but in 1984 only Life Assurance remained exempt. Since the Financial Services Act 1986 insurance companies are in direct competition with other savings institutions.

Insurance companies generally attempt to restrict their equity holding in one company to 5% - 10% of its issued share capital. However, this is increasingly difficult when investing in smaller companies. Traditionally, insurance companies have avoided taking an interest in the management of the companies in which they invest on the grounds of lack of time and type of staff required. However, given an increase in the size of individual holdings, if the performance of a firm deteriorates intervention may be the only possible solution given that disposing of the shares greatly depresses their price.

2.3 UNIT TRUSTS

Unit trusts were set up to offer small investors the benefit of professional management and a spread of their risk. Unit Trusts are much smaller in asset size than both pension funds and insurance companies and are based on a shorter time horizon. A unit trust has to look at its performance on a daily or weekly basis and the results of that performance - the price of its units - are published in the national press.

Their success lies in the fact that they are a relatively cheap way for a small investor to buy professional management and to spread risk. They have the flexibility of being open ended funds and so can be expanded or contracted in line with demand.

Thus unit trusts are investment vehicles providing a means of participation in the stock market for people who have neither the time, the money nor the expertise to undertake direct investment in equities successfully. They also provide a route into specialist and overseas markets where direct investment often demands more time and expertise than investors or their financial advisers may possess.

Size and Competitive Structure

Table 2.3 shows the value of funds and the number of authorised unit trusts in five yearly periods from 1960-1989. In 1960 there were only 52 trusts whereas by 1989 this number has risen to 1,399. The rise in the number of trusts has been more pronounced after 1980 where the number of trusts rose from 493 in 1980 to 806 in 1985 thus giving us reason to believe that competition has increased during the Thatcher era.

TABLE 2.3 - Unit Trusts 1960 - 1989

<u>Year</u>	<u>Value (£m)</u>	<u>Number of Trusts</u>
1960	201.4	51
1965	521.9	121
1970	1397.7	240
1975	2512.4	353
1980	4968.0	493
1985	20307.5	806
1989	52537.9	1399

Source: Unit Trust Yearbook (1990)

The value of funds has increased gradually until about 1980, when once again growth accelerated. Funds increased in value from £201.4m in 1960 to £521.9m in 1965 and then up to £4,968m in 1980 at a rate where it more or less doubled every five years. However, in just five years it had risen to over four times its 1980 level and stands at £52,537.9m in 1989. Although, some of this rise can be accounted to inflation the table clearly illustrates the growing number of trusts generating more assets.

Competition is fierce for unit trusts because they are competing for savings with other types of financial institutions e.g. building societies, insurance companies. They are also facing stronger competition from the rising number of new trusts coming into the industry. They are carefully scrutinised by the media and so must show high performance results to attract custom.

TABLE 2.31 - Number of Unit Trusts Ranked By Asset Size

<u>Assets (£m)</u>	<u>Number of Trusts</u>	<u>% Distribution</u>
400+	12	0.85
200 - 400	41	2.9
100 - 200	90	6.4
50 - 100	161	11.5
20 - 50	269	19.2
0 - 20	826	59.0
<u>TOTAL</u>	<u>1399</u>	

Source: Unit Trust Yearbook (1990)

Table 2.31 gives us a breakdown of the distribution of funds in each asset size. The asset size of the unit trusts is notably much smaller than that of pension funds in Table 2.1. Only 12 unit trusts hold assets exceeding £400 million which is less than 1% of the total distribution. The number of funds in each asset size increases as the asset size declines and the majority of funds, i.e. 59%, hold assets below £20 million. This distribution highlights the number of unit trusts in the UK and also gives us a clearer picture as to the competitiveness of the unit trusts, particularly, the smaller ones.

Regulation and Accountability

Unit trusts have a greater level of disclosure than pension funds or insurance companies. The Unit Trust Association publish a yearbook giving brief details of past performance. Results of performance are published daily in newspapers and so there is pressure on trusts to attempt to outperform one another in the short run, or at least not get left behind. This is in order to keep existing clients and attract new ones.

Unit trusts are strictly controlled by the DTI. They are set up by a trust deed which is an agreement between the Trustees and the managers of the fund. The essential characteristics of the deed are that it lays down the rights and responsibilities of all concerned, provides provisions enabling new members to join, imposes maximum charges that can be made by the managers for administering the fund and prescribes the ways of calculating the buying and selling prices of units.

The unit trust managers make day to day investment decisions necessary to the running of the trust and deal in units with the public. The Trustee - usually a major bank or insurance company - must also be approved by the DTI.

Unit trust managers are allowed to invest only in securities quoted on a recognised Stock Exchange. They may also hold up to 25% of their funds in companies traded on Unlisted Securities Markets (USM). Since June 1983, unit trust managers have also been empowered to invest in traded options. Other constraints are imposed in the Trust deed to ensure that each fund has a sufficiently diversified spread of risk. The most important of these is that no holding may be acquired which would result; at the time of purchase; in the trust holding more than 5% of its value in one investment.

The Financial Services Act 1986 affected unit trusts in its new framework. They are now be legally required to be authorised by one of the self-regulatory organisations (SROs), Recognised Professional Bodies (RPBs), or with the Securities and Investments Board (SIB) direct. The requirements set down by SROs are complex. They demand a much more detailed level of documentation than before of a company's activities whether selling or managing unit trusts as well as regular reporting. Companies have 'compliance officers', whose job is to ensure that activities are carried out according to the rules.

An individual investing in a unit trust must make a selection before he places his money in the trust. He will be sent a performance report every six months and the information is publicly available in the Financial Times. However, his selection is only at the beginning of the period, after that he has no control or influence over his investment. The individual is not 'locked in' to the trust as he does have the option to exit by selling his units. He may wish to exit in order to express his displeasure of the trusts' performance or because he may want to release his money for some other reason.

It is difficult to assess which fund has superior performance when making a selection because the goal of the fund may be medium or long term and so the managers act with that in mind. Managers have their own strategies and research depending on the length they are working on. Therefore, the performance should not be judged on present performance figures because the goals of the managers may be orientated towards a longer time period. Funds cannot thus be directly compared and judgement should be made by looking at performance over the years. However, past performance is no guide to the future so there is an element of risk in every selection.

The funds vary in the areas of investment; some are invested in European markets, others in the Far East etc. There are a variety of funds including futures, property, geared funds. There is a different element of risk attached to each type of investment e.g. investing in futures or options can be very risky, on the other hand the returns can be very high. It is difficult to predict with certainty. It is up to the individual to assess his personal philosophy before making a selection.

2.4 - INVESTMENT TRUSTS

Objectives

Investment trusts are limited companies formed under and controlled by the Companies Act and allied legislation. The amount of capital in issue at any one time is fixed and can only be increased with the consent of shareholders. Investment trusts, like unit trusts, are ways for savers to invest in the UK and overseas with a spread of risk and professional management at low cost. Unlike unit trusts, however, investment trusts have actually declined in their importance over the years. Their decline can be explained partly by competition from unit trusts and partly from difficulties for them to raise new funds.

The primary objective of most investment trusts is to provide their shareholders over the medium and long term with a secure and increasing income and capital growth. To get a balanced growth of income and capital for their shareholders they tend to direct funds to established firms with a record of consistent and reasonable rates of return. As they do not have to retain liquidity for redemptions of their shares, trust managers can take a longer term view of returns on investment than would otherwise be the case.

Size and Competitive Structure

TABLE 2.4 - Investment Trusts 1960 - 1987

<u>Year</u>	<u>No. of Trusts</u>	<u>UK Assets(%)</u>	<u>Overseas Assets(%)</u>
1960	271	70.7	28.3
1965	273	62.2	35.4
1970	266	62.3	33.6
1975	240	56.5	38.1
1980	195	59.8	37.7
1985	166	49.6	48.0
1987	159	52.7	40.3

Source: Investment Trust Yearbook (1989 - 1990)

Investment trusts are competing for savings with other financial institutions, in particular unit trusts. Table 2.4 looks at five yearly periods from 1960-1987 analysing the number of members, UK assets and total overseas assets.

Membership has fallen steadily over the twenty five year period and has fallen from 271 in 1960 to 159 in 1987. This is mainly due to competition from unit trusts. UK assets have fallen as a percentage to total assets less current liabilities; although in 1985 there has been a slight reversal in the trend which has continued in 1987. Interestingly, total overseas assets have increased over the period although there has been a slight reversal in this trend from 1985. Out of the four groups of institutional investors analysed, investment trusts invest the largest percentage of their assets overseas.

Regulation and Accountability

Investment trusts are limited companies and must abide by the statutory rules governing limited companies set out in the Companies Act. The shareholders are able to vote at the Annual General Meeting (AGM) and the investment trust manager is employed by a board of directors. Shareholders are entitled to annual reports from the directors regarding conduct. These reports list the financial accounts showing profits earned, dividends recommended, assets owned by the company and the extent of the companies liabilities.

Information regarding performance statistics is published daily in the Financial Times as well as in the annual Yearbook. Therefore, they find their investment performance under close market scrutiny. It is possible for individuals to sell their shares and so exit is possible.

2.5 - INSTITUTIONAL INVESTORS COLLECTIVELY

It has been established that institutional investors are organisations which raise funds from individuals and corporations. They invest as major players in the stock market using professional management and operating within the constraints provided by their own articles and trust deeds as well as tax and legal considerations. The aim of institutional investors is to maximise the income of the fund and by holding a diversified portfolio they eliminate the specific risk attached to the shares of individual companies.

Institutional investors are primarily risk averse organisations because they are dealing with other people's money. In order to attract more funds and expand existing ones they need to make investments which will not be detrimental to their image of being safe and reliable. For this reason they tend to avoid investing in small companies and new ventures. Another reason is the accompanying transaction costs may not be worth incurring. They also

tend to limit the maximum size of any holding because the larger the size the more difficult it is to dispose of the shares in the face of poor performance. Few institutional investors buy and sell securities in small companies because deciding on acquisitions and sales and monitoring the performance of companies whose shares are held are both time-consuming and costly activities. Their strategy is generally to analyse past performance of companies and to invest in those companies which are large, stable and successful.

Table 2.5 gives a breakdown of the institutional investors net transactions in selected assets for the years 1981-1987. The two most important categories are pension funds and insurance companies.

In this period all the groups have reduced their transactions in UK land, property and ground rents. Unit trusts have tended to invest quite heavily in overseas shares with the exception of 1987. The other groups have tended to invest more in UK ordinary shares. Pension funds have increased in each area apart from UK land, property and ground rents. Pension funds have increased holdings significantly in UK ordinary shares, particularly in 1987. In this year they actually had high negative amounts in government securities and overseas shares.

Insurance companies are divided here into two broad categories - life assurance and general insurance. There has been a decline in long term funds in British Government Securities and to a lesser extent in UK land, property and ground rents. There has been a rise in ordinary shares both UK and overseas; with the exception of 1987 in the case of overseas. General insurance companies have tended to be more volatile in their transactions but have remained strongest in British Government securities. They have increased transactions in 1986 and 1987 for both UK and overseas ordinary shares.

TABLE 2.5

TRANSACTIONS IN ASSETS. (£m)

<u>YEAR</u>	<u>PENSION FUNDS</u>	<u>LIFE ASSUR.</u>	<u>GENERAL INSUR.</u>	<u>INVEST. TRUSTS</u>	<u>UNIT TRUSTS</u>
<u>GOVERNMENT SECURITIES.</u>					
1981	2025	2208	704	-57	103
1982	1362	1841	65	-7	90
1983	2688	2092	288	127	122
1984	2201	2445	-23	-	54
1985	2705	1890	187	67	22
1986	1361	770	927	13	-46
1987	-2007	1145	688	432	87
<u>UK ORDINARY SHARES.</u>					
1981	2004	952	111	-253	33
1982	2099	1357	-16	-533	161
1983	1604	885	-2	-183	248
1984	2651	1258	-3	-296	511
1985	3506	2259	-107	117	1074
1986	3619	2335	41	138	1743
1987	7950	2885	302	264	3631
<u>OVERSEAS ORDINARY SHARES.</u>					
1981	1672	627	53	163	277
1982	1888	947	-39	369	217
1983	1299	826	10	210	736
1984	317	272	-15	-317	185
1985	2041	1047	-6	126	1002
1986	2594	804	80	-74	2357
1987	-732	-169	84	-898	-59
<u>UK LAND, PROPERTY AND GROUND RENT.</u>					
1981	843	975	99	12	108
1982	797	976	83	4	57
1983	567	799	46	-3	-10
1984	674	707	37	2	47
1985	485	803	12	1	5
1986	379	823	22	-4	-101
1987	133	832	10	26	-522

SOURCE : CSO FINANCIAL STATISTICS H.M.S.O.
(VARIOUS).

Investment trusts have acted less predictably than the other three types of investor and have actually declined in importance over the years. The table shows that they are inclined to invest mostly in British Government securities and UK ordinary shares. They are performing particularly badly in overseas shares. Unit trusts have declined in British Government securities and UK land, property and ground rents but are doing particularly well in ordinary shares in the UK and also overseas, with the exception of 1987.

Overall the institutions do tend to favour UK ordinary shares. This gives evidence refuting the point raised by the Wilson Committee (1980) who criticised them for investing money overseas rather than in the domestic economy and thus being detrimental to the UK's economic recovery. This table shows that the majority of their net acquisitions are, in fact, in the UK.

Indeed, it is rational for institutional investors to favour overseas investment to some extent because the prospects may be better than the UK e.g. if the pound is over-valued relative to other major currencies. An additional benefit is that overseas investment leads to diversification and reduces the risk of slumps in the domestic economy (Bain (1983)).

2.6 - SUMMARY AND CONCLUSIONS

This chapter has described pension funds, insurance companies, unit and investment trusts individually in terms of their size, the competitive structure within which they operate, their aims and their accountability to policyholders. It has emphasised how the four groups differ from each other. This was important to establish because, although they are often referred to as a group assuming they act homogeneously, in reality this is not the case.

Pension funds are the largest of the four groups and hold about 30% of UK equities in total. They tend to be very large in size with 8.6% of pension funds holding assets in excess of £500m. There are, however, significant variations in size as 30% of pension funds held assets below £25m. Consequently, it is not possible to compare pension funds directly with each other.

The liabilities of pension funds tend to be long-term and they benefit from tax relief. This means that they pay no tax on capital gains when dealing in shares and this can encourage their attention on short-term results rather than long-term investment. At present there is also very little accountability to their policyholders and so further disclosure is recommended.

Insurance companies are divided into two categories, concerned respectively with life assurance and general insurance. Life assurance companies account for about 90% of the total business and general insurance the remaining 10%. There is a wide difference in the distribution of funds and the investment policies pursued depending on their attitudes to risk, assessment of the yield potential of assets and the nature of the liabilities. They tend to invest mainly in equity, property and mortgages and are under greater regulation than pension funds yet they still have much discretion over their investments. Life assurance also benefits from tax relief.

Unit trusts are much smaller in size than the above two institutional investors and they are a way for the small investor to benefit from professional management and to spread risk at relatively little cost. They are in a very competitive environment with about 1400 trusts, however, they tend to be relatively smaller in size with about 60% of trusts holding assets below £20m. There is a greater level of disclosure as performance is monitored in their own league tables and by the national press.

Investment trusts are similar to unit trusts in terms of size but they have actually been declining in number over the years. They compete fiercely amongst themselves and with unit trusts because they too have their results disclosed. However, they are under less pressure for short-term performance than the others because they are closed-ended firms and so one type of shareholder will be replaced with another. They have greater disclosure requirements because they are limited companies and so must submit annual company reports and hold A.G.M's. They hold a larger percentage of assets overseas than any of the other groups.

It was important to establish the differences between these institutional investors because it serves to provide a greater understanding of their preferences for particular assets. These preferences vary to a large extent depending on the nature of their liabilities and also to the risk attached to the various types of assets. These preferences will be discussed further in chapters 3 and 6.

This chapter has shown how institutional investors differ from one another. There are varying degrees of pressure they face. Although the nature of their businesses differs there are similarities between them in that they are the intermediaries through which people knowingly or unknowingly invest - knowingly in the case of unit and investment trusts and unknowingly through pension funds and insurance companies. These institutional investors cover a wide range of activities and they spread into every facet of the economy.

Collectively the institutional investors are growing in size and this trend is likely to continue. They invest mostly in UK equities, government securities, overseas assets and property. They tend also to be risk averse by nature and so cautious in their investments preferring to diversify in order to reduce risk. This chapter has shown the operational structure of the institutional investors. The following chapter analyses their impact on the market.

CHAPTER 3 - THE STRUCTURE OF CORPORATE OWNERSHIP IN THE UK.

This chapter looks at the structure of corporate ownership in the UK. It is primarily concerned with looking at the reasons why there is a higher degree of involvement by institutional investors in some companies than in others. It is important to establish the broad forces that influence ownership structure because, amongst other things, institutional investors have often been criticised for investing in the larger, more established companies rather than new ventures or small companies (Wilson Report (1980)). As institutional investors are important holders of equities in UK companies systematic investigation of the issue is essential.

This chapter is an empirical study which uses a sample of 278 UK companies in order to investigate variations in ownership structure. It is a statistical study for the year 1989. The chapter is set out as follows: The first section reviews related studies on ownership concentration and shows how the present analysis fits in with the past studies. It introduces and sets out the hypotheses to be tested empirically. Section two explains the data and sets out the theoretical model. The sample of firms used in the study is discussed and the variables included justified. In section three the methodology is discussed and the results are presented. Finally, in the conclusion the main findings are summed up and the implications of the results are discussed in the context of the past studies in the area.

A firm's performance reflects factors affecting both its objective function and the constraints it faces, respectively internal and external influences. The former include internal organisation variables (control type, organisation form) and factors modifying incentives (ownership concentration, risk); the latter include product market influences (market concentration, entry barriers, oligopolistic interdependence, technology), capital market influences (the cost of capital, the market for corporate control), life cycle effects and

labour market influences. Some variables may operate through both internal and external effects so this dichotomy is not complete.

Ownership structure is hypothesised to affect behaviour in two ways:

- i) directly by its effect on the incentives facing share owners and
- ii) indirectly through the distribution of power (which determines control) within the voting body comprising all the shareholders. We include variables to measure both effects within the specification: ownership concentration and control type.

Attempts will be made to explain any variation in the structure of ownership by considering the advantages and disadvantages to the firms' shareholders of greater diffuseness in ownership structure. The implications of this diffuse structure are quite significant. In firms where ownership is dispersed it may be very difficult for any one shareholder to dominate decision taking. This may give management the discretion to pursue goals other than those of the owners of the firm and subsequently company performance may be affected because of the conflict of interest between managers and owners.

There are constraints, however, to limit managers diverging too far from shareholders' wishes. Capital market constraints exist and tend to work through two mutually reinforcing mechanisms.¹ Firstly, there is a direct limitation on management discretion through their accountability to shareholders. It is assumed here that larger shareholders monitor company performance continuously and show their displeasure by using their voting power to force changes in company policy or, in the extreme case, to replace existing top level management with one more acceptable to them.

Behind this institutional threat lies the second constraint. An increase in share concentration may lead to a takeover should the share price fall low enough or the threat prove ineffective. Takeovers tend to be accompanied by a

¹ Leech, D (1985)

dismissal of the target's management and so the threat may serve as a disciplinary measure. These constraints highlight the potential importance of a concentrated shareholding structure.

Another force affecting the ownership structure is control potential. This is the gain in wealth that can be achieved through more effective monitoring of managerial performance by a firms' owners. Monitoring is necessary because of the divergence of interests between owners and managers². Institutional investors are in a potentially strong position to monitor management because they are large, organised and collectively usually hold a significant proportion of the company's shares.

This would imply that the payoff for maintaining tighter control is higher for these larger shareholders. It would also imply that larger firms should thus have a more concentrated ownership structure in order to monitor management more effectively. However, this may not be the case. Shareholders, particularly institutional investors, may not wish to devote the time and resources to monitor the management. Institutional investors are *investors not managers*; ie. they are concerned with investing their assets in order to get as high a return as possible given the nature of their liabilities. Their job is not to manage the firm on a day to day basis and so if they are concerned with the firms' performance they will tend to meet informally with the managers in order to discuss the issue (see Midgley (1974) and Cadbury (1990)).

The two main studies on which this present empirical piece of work is based on are a U.S study by Demsetz and Lehn (1985) and a recent U.K study by Leech and Leahy (1989). They test very similar hypotheses but come out with differing results. The main findings of these papers will be summarised.

² See Tirole (1987) for problems of 'hidden action' and 'hidden information'.

The first study by Demsetz and Lehn analyses the advantages and disadvantages to the firm's shareholders of greater diffuseness in ownership structure. The main disadvantage is shirking by owners of their control responsibilities. Owners have a greater capacity to shirk in large firms because the costs of their shirking, i.e the lower performance of the firm, are borne by all owners in proportion to the percentage of shares they own. This, they argue, should lead to a greater concentration of ownership.

They argue, however, that advantages must also exist because diffuse ownership structures are so widespread and so the diversification of shares must be consistent with value maximisation. Otherwise it is rational to keep ownership concentrated. The goal of value maximisation causes a firm structure to be diffuse. The motive may be to spread risk.

In Demsetz and Lehn's view there are three general forces affecting ownership structure: firm size, control potential and systematic regulation. They argue that the larger the firm the higher the price of ownership and thus the greater the risk - this leads to a more diffuse structure.

Secondly, the control potential is the gain in wealth due to a greater monitoring of managers. The 'noisier' a firm's environment, the greater the advantages of maintaining tighter control. 'Noise' refers to unstable prices, unstable shares, unstable technology etc. They expect to find a positive relationship between the noisiness of a firms' environment and ownership concentration. Regulation provides subsidised monitoring and discipline and thus leads to a reduction in ownership concentration. This implies a greater diffuseness of ownership in regulated industries.

They add a fourth hypothesis concerning the amenity potential of a firms' output. Here shareholders derive a utility in influencing the type of goods produced by the firm. There are non-pecuniary benefits of the power to deploy resources to suit one's personal preferences. This is not too convincing

an argument especially for institutional investors who are concerned with the performance of the company and are unlikely to invest in a company in order to influence the type of good produced. There may be an element of truth for individuals who invest in certain companies because they are producing goods which are well known household names.

The principal results of Demsetz and Lehn's empirical study of 511 US firms are as follows:

1. Their measures of instability are positively related to ownership concentration.
2. The size of the firm is negatively related to ownership concentration.
3. The dummy for systematic regulation indicates that the average concentration of ownership for the regulated firms is significantly less than for other firms.
4. Media firms have a higher ownership concentration on average than other firms.

These results are as predicted by their model.

The second main study is a recent analysis of UK firms by Leech and Leahy (1989). They too treat the ownership structure as endogenous and attempt to provide empirical evidence of the factors which determine the wide variation in observed patterns of ownership among large companies.

They hypothesise that ownership structure depends on three broad factors: firm size, the riskiness of the firms environment and the age of the firm. The first two factors are the same as mentioned in the US study but age is a new factor.

Leech and Leahy expect firm size to be negatively related to ownership concentration for the same reasons outlined in the Demsetz and Lehn paper. Risk, as characterised by the instability of prices, technology and

market shares, is predicted to encourage the concentration of ownership. The arguments, again, are the same as for the previous study. The main difference between the two studies is that Leech and Leahy introduce age of the firm as an important factor. They expect a negative relationship between age and the concentration of ownership. The reasoning behind this is that as time passes there is a lower concentration of ownership as blocks of shares held by families and individuals are fragmented through sales, marriage, inheritance etc. leading to an eventual loss of control.

In their empirical analysis they use the interval since the company went public as the age effect. This is because they are interested in the distribution of shareholdings rather than the actual age of the firm. Their results are as follows:

1. There is a negative relationship between firm size and concentration of ownership.
2. There is a negative relationship between risk and concentration of ownership. They found no evidence that firm specific risk is associated with greater concentration of ownership. This is at odds with the previous study which found a positive and significant relationship between the two, and at odds with what was predicted by Leech and Leahy themselves. The result, however, is consistent with risk averse diversification by investors. This result also highlights differences between UK and US firms.
3. Age has the expected negative sign but was found to be insignificant.

One point of concern with Leech and Leahy's study is that they used ownership data from 'Who owns what on the London Stock Exchange?'. This source provides subscribers with regularly updated information about share ownership and changes in it. The criteria for inclusion were derived from the main purpose of the service, which was to enhance the marketability of certain

shares. This implies that Leech and Leahy's sample of companies may consist of those which were seen by stockbrokers as not having attracted sufficient market attention.

The present study overcomes this difficulty by introducing a new source from which the present sample of firms were obtained, namely Jordan's Shareholder Service which will be discussed in more detail below. It also differs from the two studies described above as it looks specifically at institutional investors and at the factors which attract them to particular firms. Another point of originality in this study is the analysis of individual industrial sectors. This study looks at nine non-financial industrial sectors and so sheds light on the differences in the ownership structures of differing market environments.

Although this study is most similar to the above two studies, it is important to look at related studies.

3.1 RELATED STUDIES.

It is assumed that large firms are the norm in advanced industrial countries and that groups of large institutional investors collectively hold a significant proportion of the firms' shares. However, it is important to remember that political and legal constraints exist. Decisions are not based solely on financial considerations but on powerful forces such as law and politics. In the US, for example, law restricts institutional investors from holding large equity blocks and from networking the small blocks they do own (Roe (1990)). Laws have restricted the equity holdings of institutional investors - mutual funds and insurance companies generally can only own small portions of any one firms' equity. Pension funds own stock but they too face restrictions. It is debatable, however, as to how effective these laws are once enforced. In the UK, too, institutional investors tend to hold less than 5% of equity in any one company.

The fragmentation of institutional capital caused owners' power to shift primarily to managers in the modern public corporation. The legal system limited control by institutional investors in three main ways. Firstly, prohibition of stock ownership (ie. US banks); secondly, fragmentation of institutional investors and thirdly, fragmentation of institutional portfolios.

Berle and Means (1932) introduced the concept of the divorce of ownership from control. Some authors following them have argued that the distribution of ownership has important implications for the efficiency and strategic development of firms (Marris (1964); Williamson (1964); Galbraith (1967); Pfeffer and Salancik (1978)). Others have argued that the distribution of ownership is irrelevant (Jensen and Meckling (1976); Demsetz (1983); Fama (1983); Demsetz and Lehn (1985);). Research on this issue has yielded conflicting results (Cubbin and Leech (1983)).

An important issue when discussing the structure of ownership is the amount of equity holdings by managers themselves. Most managers hold a proportion of shares in their firm. This weakens the separation of ownership from control arguments because, in this case, the managers are the owners as well, and so would gain utility from rising share prices and the profitability of the firm, as well as increases in their salaries. The relative importance of this depends on the proportion of shares they hold, and what percentage of their compensation is made related to the performance of the company. If it is a negligible amount they may shirk in their ownership responsibilities and try to maximise goals other than firms profitability.

However, in the UK a picture emerges of a board of directors dominated by a majority of inside executives, who have typically spent the bulk of their careers in the company they now direct. However, the pattern of corporate share-ownership in the UK is such that a small number of institutional investors recur as significant owners and controllers of stock. These major institutional investors are also represented on the boards of

industrial companies. They are, therefore, potentially able to play a key role in the determination of corporate behaviour. This is so in terms of their influence over the composition of remuneration packages, and over key executive appointments, as well as in terms of influencing the outcomes of takeover bids. In addition, a number of cases were identified where directors were significant holders of stock which casts doubt on any conclusion that motivational conflict between these directors and their shareholders must inevitably arise.

A study by Singh and Harianto (1989) examines some attributes of the top management team, corporate ownership structure and board composition as the determinant of the magnitude of golden parachutes. The two parameters of golden parachutes - coverage (number of executives) and size (number of years' compensation equivalent) - can be viewed as indices of contingent compensation provided to top management teams in the event of a change in control. This contingent compensation can reduce the possibility of entrenchment of management when faced with a takeover bid that does not serve the shareholders.

Firms with high levels of management-owned stock and relatively diffused public-stock ownership tend to obtain a wide dispersion of contractual protection by covering larger numbers of executives. They argue that there is a complementary effect of incentive alignment and influence processes: these executives exercise their influence on the board to spread the contractual protection, but do not demand a large contracted individual golden parachute payment because they are already protected by potential gains in their stock value in the event of a takeover. Greater levels of non-management owned stock in the hands of institutional stockholders delimit the number of executives covered by golden parachutes.

The work by Dickson (1991) was motivated by the paradigm that higher profits derived from higher prices are associated with higher concentration. Demsetz (1973) argued that long-lived cost differences among

firms *within* an industry lead to low-cost firms growing relative to others. The result is both higher concentration and higher profits for these larger firms. This implied that the positive relationship between profit and concentration occurred because lower costs led to both higher concentration and higher profits. Dickson (1991) looks at the relationship between industry profit and seller concentration in Canada. He concludes that in aggregate for Canadian manufacturing, the price-cost margin regressions do not show that high concentration is harmful.

It is important to look at the ownership structure of a firm because according to Lloyd, Hand and Modani (1987) manager-controlled firms do not pursue the same objectives as owner-controlled firms. Their research leads to four main conclusions. Firstly, manager-controlled companies have a significantly greater tendency to engage in conglomerate mergers than do firms with strong owner control; secondly, the income streams of manager-controlled firms are more diversified than those of companies with strong owner control; thirdly, individual owners tend to monitor their managers closely even if their ownership interest is relatively small, while institutional investors that are owners do not monitor closely unless their interest is large, and fourthly, the value-to-sales ratio is lower for manager-controlled companies than for owner-controlled ones.

Brickley, Lease and Smith (1988) indicate that institutional investors and other blockholders vote more actively on anti-takeover amendments than non-blockholders, and opposition by institutional investors is greater when the proposal appears to harm shareholders. Their evidence suggests that in the US institutional investors that are less subject to management influence, such as mutual funds, foundations and public employee pension funds, are more likely to oppose management than banks, insurance companies and trusts which frequently derive benefits from lines of business under management control.

In a paper about capital markets and corporate control Franks and Mayer (1990) were concerned with the way in which capital markets exert control over the management and operations of firms. Corporate control is mainly associated with takeovers. In the UK and US takeovers are regarded as a central function of stock markets. The takeover process acts as a discipline on firms allowing control to be transferred from inefficient to efficient management and encouraging the convergence of interests between management and shareholders. Elsewhere in Europe, less emphasis is placed on the role of takeovers in changing corporate control.

Their paper compares the relation between capital markets and corporate control in France, Germany and the UK. What emerges is a very different pattern of both ownership and control changes between the three countries due mainly to differences in regulation. Hostile takeovers, buy-outs and buy-ins are higher in the UK than in France or Germany. Levels of executive dismissal are also higher in the UK. The UK system is directed towards the promotion of markets. As part of that process, close links between investors and firms are discouraged by laws relating to insider dealing and the exploitation of the minority shareholders. Arrangements limiting the transferability of ownership and control are restricted by stock exchange and takeover codes. With limited direct investor involvement and with few impediments to transfers of ownership and control, the correction of managerial failure in the UK would be expected to be associated with changes in ownership. Their evidence from a sample of takeovers confirms that prediction. The advantage of the UK approach is that it permits the correction of *ex ante* managerial failure. The drawback is that it undermines the implementation of informal implicit agreements.

Hirschey and Zaima (1989) find that the generally favourable assessment of corporate sell-off decisions is most apparent for closely held firms where insider net-buy activity is prevalent during the prior six month period. Insider trader activity and ownership structure information are used by

the market in the characterisation of sell off decisions as favourable or unfavourable for growth. The significance of this is that the ownership structure of a firm conveys information that is used by investors in their sell-off decision.

Gilson (1990) looked at the changes in the ownership structure and control when firms default. Changes take place if a firm becomes bankrupt. He found evidence that common stock ownership becomes more concentrated with large blockholders and less with corporate insiders when a firm files for bankruptcy. From his study of 111 publicly traded US firms that on average only 46% of incumbent directors remain when bankruptcy or debt restructuring ends. Directors who resign hold significantly fewer seats on other boards following their departure. Overall, his results suggest that corporate default leads to significant changes in the ownership of firms' residual claims and in the allocation of rights to manage corporate resources.

According to Pitelis (1987) controlling shareholders prefer high retention rates and low dividends, to expand without loss of control. Non-controlling shareholders, especially those who 'own' shares indirectly (through compulsory pension schemes etc), may be forced to save more than they would otherwise choose, if they cannot offset corporate retentions by borrowing. Pitelis also examines the issue of the separation of ownership from control in the modern corporation. He refutes the neoclassical argument that each shareholder exacts some control over corporate capital due to their ability to sell the stock. He argues that significant market imperfections including the difficulties small stockholders have in 'piercing the corporate veil' and the limited control most employees have over their invested pension funds. He refutes the managerialist belief that the dilution of stock ownership has severed control from ownership of corporate capital. Instead, he argues that the capitalist as a major stockholder has retained control of the corporation while the more numerous small stockholders wield little influence.

The next section will introduce the mathematical model to be tested:

3.2 - THEORETICAL MODEL.

The model to be tested is based on those of Demsetz and Lehn and Leech and Leahy.

The model is set up as follows:

$$Y = f (X_1 \dots X_9)$$

$$Y = a + bX_1 + cX_2 + \dots + jX_9 + u$$

Where Y is the concentration of ownership,

$X_1 \dots X_9$ are the independent variables

a is the constant term

$b, c, d, e, f, g, h, i, j$ are the coefficients of the independent variables.

u is the error term.

The properties of the error term follow the standard assumptions of a zero mean, constant variance, no serial correlation and a normal distribution. There is no correlation between the variables and the error term. The residuals are orthogonal to the explanatory variables.

The sample of firms were chosen from Jordans Shareholder Service from listed companies only. The firms were randomly selected on the basis of the sectoral divisions in the Financial Times. There are 278 firms in the sample for the year 1989 and they are selected from nine non-financial industrial

sectors with a significant institutional investor representation (see Appendix A). Financial constraints prevented the use of the whole sample. Table 3.1 shows the industrial sectors and how many firms have been selected from each sector.

TABLE 3.1 - SAMPLE OF FIRMS.

<u>INDUSTRIAL SECTOR</u>	<u>NUMBER OF FIRMS</u>
BEERS, WINES & SPIRITS	16
CHEMICALS	21
DRAPERY	29
LEISURE	30
FOOD	33
PAPER, PRINTING & ADVERTISING	34
PROPERTY	30
ELECTRICALS	39
ENGINEERING	46
<u>TOTAL</u>	<u>278</u>

DESCRIPTION OF INDEPENDENT VARIABLES

SIZE VARIABLES:

X₁ : SALES (%) - Sales figures are taken from company accounts. Percentage change from previous year.

X₂ : PRETAX PROFITS (%) - These figures are taken from company accounts. Percentage change from previous year.

X₃ : PROFIT MARGIN (%) - Profit before tax / Turnover.

X₄ : RETURN TO SHAREHOLDER FUNDS (%) - Profit before tax / shareholder funds.

INSTABILITY VARIABLES.

X₅ : LIQUIDITY RATIO - Current assets - stock / - current liabilities.

X₆ : GEARING (%) - (Long term liabilities + Bank Overdraft) / (Share Capital + Reserves).

X₇ : BETA (%) - Coefficient of systematic risk. The average sensitivity of the shares in the industry to general market movements.

X₈ : SD (%) - For the F.T.A. Indices, this is the variability (standard deviation) of the returns on the index. For the industry averages, this is the average variability of the share prices in the industry.

X₉ : ANNUAL ACTUAL RETURN (%) - The percentage capital appreciation plus dividend yield over the past year.

SOURCES: X₁ ...X₆ - JORDANS SHAREHOLDER SERVICE.

X₇ ...X₉ - RISK MEASUREMENT SERVICE -

LONDON BUSINESS SCHOOL

All variables are for the year 1989.

INSTABILITY OF A FIRM'S ENVIRONMENT (RISK)

The riskiness of the firm's environment may have an influence on its ownership structure because of its effect on managerial discretion. Where it is characterised by stability of prices, technology, market shares etc the firm's performance is easily monitored by shareholders. Where there is a lot of uncertainty the behaviour of management has a greater impact on performance, in that frequent changes in the environment require frequent adjustments to the deployment of the firm's productive assets, and is thus more difficult for an outsider to monitor. Shareholders therefore have a greater incentive to exercise control in this case and this would lead us to expect a positive relationship between a measure of risk and ownership control. On the other hand, we would expect risk averse investors to diversify away from relatively risky assets and therefore we would expect a negative relationship between risk and concentration.

Different measures of financial risk have been included based on the variability of returns on the company's shares:

- i) SD, the standard deviation of the rate of return, which measures TOTAL RISK.
- ii) a measure of systematic risk, BETA. Beta is estimated from the market model as the coefficient in a regression of its rate of return on the market average and it expresses the sensitivity of the expected rate of return to general market conditions. Systematic risk cannot be diversified away and the Capital Asset Pricing Model predicts that investors in shares having a high beta will seek compensation for the high risk in a high expected rate of return.

While systematic risk is relevant to shareholders, it is total risk which matters to managers since their commitment to the firm is total and they are unable to offset that high risk by diversifying their employment. These two variables, total risk - SD and systematic risk - BETA, are both included as explanatory variables on the grounds that they are relevant to different groups within the firm and therefore likely to influence behaviour in different ways.

- iii) Annual actual return. The greater the return implies that the stock market has revalued the company and it is better now than it was the previous year.
- iv) Liquidity ratio - A high liquidity ratio implies that the firm is able to meet its liabilities in the short term. A low liquidity ratio implies that the company is struggling. However, a high liquidity ratio means that there are fewer income earning assets and so may be less attractive to institutional investors.
- v) Gearing ratio - increases the financial risk of the company. The higher the gearing ratio the greater the financial risk of the company. The gearing ratio will vary depending on the type of company and the industry it is in. However, there is scope for greater potential returns in an upswing market.

FIRM SIZE

Size influences performance in a number of ways determining the extent of product market and capital market constraints. The level of output itself raises entry barriers through economies of scale. Market share determines the market power of the firm given entry barriers and hence the scope for managerial discretion exists. This effect is picked up by company sales. Size also has capital market effects since larger companies have a greater capacity for financing expansion by internally generated funds. They are also able to raise finance more easily through the capital market and there is a better secondary market in their shares. Size also has life cycle effects since opportunities for growth are likely to be greater for smaller firms.

The larger the firm the greater the market value of a given fraction of ownership and therefore the greater the cost to investors of a controlling shareholding. Moreover, risk averse investors would wish to avoid holding a large proportion of their portfolio in a single asset. The probabilistic voting model suggests that it is possible that control may be obtained by a reducing fraction of ownership if ownership is sufficiently dispersed (Foley (1990)). We would therefore expect to find a negative relationship between size and ownership concentration.

1. Trading profit margin(%).
2. Rate of return on shareholders capital(%).
3. Rate of growth of total sales (% p.a)
4. Pretax profits(%) - The higher they are the better the company is performing.

This set of variables are taken as the arguments of a management utility function in which pure managers benefit from rapid growth and high salaries and pure owners are interested in profits. The approach adopted is based on the use of a general framework in which both profit maximisation and pure managerial behaviour, such as growth maximisation, are nested hypotheses. Variables 1,2 and 3 above are higher in firms classified as owner controlled.

The model is incomplete in the sense that it has not taken account of diversification, age, export intensity, capital intensity of technology.

DESCRIPTION OF DEPENDENT VARIABLES.

Y : OWNERSHIP CONCENTRATION.

The shareholders for each firm were subdivided into four groups : institutional investors, private individuals, other plc's and nominees. There were difficulties in establishing the identity of nominees in some cases. Wherever the nominees were named they were put in the category in which they belonged. The category 'institutional investors' included pension funds, insurance companies, unit trusts and investment trusts. It also included any other financial institution eg banks etc. This was because in the majority of the institutional investors it was the investment arm of their organisation and thus did fall into the above category. This was done for the largest 5 and 20 shareholders in each firm. This was a workable outer limit and that used for previous studies to which our study is comparable.

It was essential to subdivide the shareholders into classes because each group of shareholders differs in their incentives and motivations, and only by separating the groups can a meaningful representation be made.

There are, consequently, four main classifications of shareholder groups:

- 1, the percentage of shares held by the top 5 shareholders (T5),
- 2, the percentage of shares held by the top 20 shareholders (T20),
- 3, the percentage of shares held by the top 5 institutional investors (II5)
- 4, the percentage of shares held by the top 5 institutional investors and nominees, where the nominees have not been named (IIN5).

The pattern of ownership for each of the classifications described above is shown in Table 3.2. The figures are of the total sample of firms collectively.

TABLE 3.2 - THE STRUCTURE OF OWNERSHIP

	T5	T20	I15	IIN5
MAX	92.78	97.73	60.25	81.02
MIN	4.23	9.91	1.41	3.39
MEAN	35.86	58.24	14.96	19.80
S.D	17.67	17.63	7.71	10.05

(All figures are in percentages)

The table highlights the relative importance of institutional investors in our sample of firms (I15). The maximum percentage of shares held in any one firm by the top 5 institutional investors is 60.25% which gives some idea of their potential power if they own two thirds of the firm. This share rises to 81.02% when the top 5 institutional investors and unidentified nominees (IIN5) are taken together. These figures may seem too high and may not be representative of the majority of the firms in our sample, however, the mean figures on average show that the top 5 institutional investors hold just under 15% of shares in any one firm. This figure rises to just under 20% if unidentified nominees are included.

The implications of these figures are widespread as they reveal the potential voting strength of the institutional investors. Also, if the institutional investors do follow fads then they could have severe effects on share prices. Their potential influence due to the size of their holdings may also warrant managers to take heed of any suggestions or criticisms the institutional investors may make.

Another interesting point to note in Table 3.2 is that on average over a third of the shares are owned by the top 5 shareholders. This implies that the interests of firms may be controlled by a very small number of people.

Table 3.3 breaks these data down even further in order to analyse the importance of the holdings of institutional investors in each of the nine sectors. It focuses only on the percentage of shares held by the top five institutional investors as they are of most interest to this study.

TABLE 3.3 - A SECTORAL BREAKDOWN OF THE PERCENTAGE OF SHARES HELD BY THE TOP 5 INSTITUTIONAL INVESTORS.

	MAX	MIN	MEAN	S.D
BEERS	25.7	2.9	13.5	6.6
CHEM	28.0	3.5	15.0	5.2
DRAPERY	60.2	2.7	16.3	11.8
LEISURE	26.6	2.9	11.6	4.8
FOOD	22.3	2.7	10.9	4.7
PAPER	29.1	1.4	15.0	6.2
PROPERTY	27.4	2.5	15.6	7.3
ELECTRIC	31.0	5.3	15.0	6.0
ENG	50.8	5.2	18.9	9.4
TOTAL	60.2	1.4	14.9	7.7

Table 3.3 shows that on average each of these sectors had more than 10% of their shares held by the top 5 institutional investors. The lowest representation of shares held by institutional investors in any one sector was paper, printing and advertising where only 1.4% were held. The highest representation was in the drapery sector and was 60.2%. Interestingly this sector also had the greatest spread as shown by the standard deviation figures.

It was important to breakdown the statistics in this way because the figures for the total do not show how diverse the spread is within sectors, and thus a more realistic picture is formed by analysing these statistics. Moreover, one of the aims in this chapter is to see why there is a wide variation in ownership structure. The advantages and disadvantages of different ownership structures have been explained above and in Table 3.3 the variation in the ownership structure of the sample of firms can be seen.

3.3 - METHODOLOGY AND RESULTS.

The firms were combined and ordinary least square regressions were run on each of the ownership classifications ie I15, IIN5, T5 and T20. The results are shown in Table 3.4.

Before analysing the results they must be validated by applying the correct diagnostic tests. The first step was to test whether there is serial correlation present in the model. This was done to ensure that, in this cross section study, the residual in one company is not related to that of another. If this were the case then the assumptions for using OLS would be violated and the estimates would be unbiased and inconsistent. This test was applied by comparing the F statistic in Table 3.4 with that of the critical value (5%) so a null hypothesis of no serial correlation is expected.

The second step was to test whether the specified linear model had the correct functional form. Once again the F test was applied and the results were found to be below the critical value. Thus the linear form specified was not rejected. The third test was to see whether the residuals are normally distributed. This is based on the concept of skewness and excess kurtosis. By applying the Chi test the residuals were found to be normally distributed. The assumption of a normal distribution is, therefore, not rejected.

Finally, it was essential to test whether the residual variance is constant ie. homoscedastic. The absence of this leads to a bias in the variances. After applying the F test no evidence of heteroscedasticity was found.

Multicollinearity leads to a loss of confidence in the coefficients of a model and subsequently to poor estimates of the elasticities to be calculated. Multicollinearity is always present, however, its degree of severity is the important issue. There are two ways of detecting multicollinearity. The first is to draw up a correlation matrix and the second is to regress the variables onto each other. After producing an estimated correlation matrix of the dependent variables there was no detection of severe problems of multicollinearity.³

The application of these tests has shown that the model is statistically well specified (ie. there is no evidence of serial correlation or heteroscedasticity). The linear functional form is correct and the residuals are normally distributed. The model can now be used since it has been established that the coefficients and their t-values are unbiased and efficient.

Table 3.4 shows two columns for each category of shareholders. The first column gives the results for all the variables. The second column marked 'BEST' gives the results after eliminating any insignificant variables using the step-wise regression procedure of backward elimination.⁴ It may be questioned whether dropping variables is justified since it has been established that the model is well specified and that the estimates are efficient. However, data deletion tests were applied to see if the restrictions are valid. In all the results reported below they have been found to be valid. The results are thus statistically sound.

³ Kennedy (1985) suggests that correlation of 0.8 or more should be avoided between independent variables.

⁴ see Maddala (1978) p125

TABLE 3.4: OLS ESTIMATES OF ALL FIRMS.

	<u>II</u>	<u>BEST</u>	<u>IIN5</u>	<u>BEST</u>	<u>T5</u>	<u>BEST</u>	<u>T20</u>	<u>BEST</u>
<u>C</u>	17.60 (8.1)	17.15 (8.6)	24.78 (8.6)	25.26 (9.5)	41.21 (8.9)	43.11 (10.1)	64.69 (14.1)	64.64 (14.4)
<u>SALES</u>	-0.01 (-2.1)	-0.01 (-2.4)	-.007 (-1.0)	-.006 (-1.1)	.008 (0.7)		.0008 (0.07)	
<u>PTAX</u>	.0005 (0.1)		.0002 (-0.06)		-0.01 (-2.5)	-0.01 (-2.4)	-.008 (-1.3)	-.008 (-1.5)
<u>PMAR</u>	.006 (0.2)		0.04 (1.1)	0.03 (1.0)	0.04 (0.7)		0.02 (0.4)	
<u>RSHF</u>	-0.01 (-1.1)	-.005 (-0.9)	-0.01 (-1.2)	-.009 (-1.2)	0.02 (1.0)	0.02 (1.2)	0.03 (1.5)	0.02 (1.4)
<u>LIQ</u>	3.11 (3.4)	3.01 (3.3)	2.46 (2.0)	2.41 (2.0)	1.03 (0.5)		3.25 (1.6)	2.90 (1.5)
<u>GEAR</u>	.003 (0.6)		.005 (0.7)		-0.01 (-1.2)	-0.01 (-1.3)	-0.02 (-1.8)	-0.01 (-1.7)
<u>BETA</u>	-3.74 (-1.7)	-4.45 (-2.3)	-8.56 (-2.9)	-7.84 (-3.1)	-34.51 (-7.5)	-34.26 (-7.5)	-34.91 (-7.5)	-34.73 (-7.6)
<u>S.D</u>	-0.03 (-0.7)		0.02 (0.3)		0.66 (6.6)	0.65 (6.8)	0.61 (6.1)	0.61 (6.4)
<u>RET</u>	-0.03 (-2.7)	-0.03 (-2.7)	-0.03 (-2.1)	-0.03 (-2.3)	.007 (0.2)		-0.02 (-0.9)	
<u>R²</u>	.09	.08	.07	.06	.22	.21	.22	.21
<u>DW</u>	1.8	1.8	2.01	2.01	1.7	1.7	1.7	1.7
<u>F</u>	3.0	5.3	2.2	3.3	8.5	15.2	8.4	12.5

(t statistics in paranthesis)

Table 3.4 shows that in the regressions run for IIS the variables on the whole have tended to go in the direction predicted ie, a negative relationship. The only exceptions were profit before tax, profit margin, liquidity and gearing ratios. These variables, however, were not significant.

In the case of the 'best' estimates for IIS the coefficients of the size variables ie. sales was negative and significant at the 5% level. The coefficient for return to shareholders funds was negative as predicted, however, it was insignificant. The liquidity ratio was positive and significant. The instability measures beta and annual actual returns were negative and significant.

The Durbin Watson value gives no indication of any problems of autocorrelation and the F statistic in both the columns concerning IIS shows that the overall equation is significant. The R^2 was particularly low showing that these variables account for only 8% of the variation in the top five institutional investors. This low figure is not of too much concern because in cross section studies it does tend to be low. It does, however, emphasise that these variables may attract the institutional investors to the company, but there may be other factors which may be of greater importance to the institutional investors decisions, e.g. their incentives, duties etc.

In the case of the top 5 institutional investors and nominees (IIS5) very similar results were found to those reported above. This is not too surprising because, although these nominees have not been identified they may actually be institutional investors and thus have the same criteria for investment. The third column in Table 3.4 shows a negative relationship with sales, return to shareholders funds, beta and annual actual return. The coefficient for profit margin was positive but was not significant. The R^2 was low once again but the overall equation was significant. Turning to column four, the results are similar to those of the best estimates for IIS with no exceptions.

The results in Table 3.4 are particularly interesting in that they highlight the significant differences between I15 and IIN5 and those of T5 and T20. The results of the last two groups are very similar, however, they do differ significantly from those of the institutional investors.

In the case of the T5 and T20 results most of the size variables with the exception of pre tax profits and the gearing ratio were positively related to ownership concentration. From the instability measures the coefficient of beta was negative and significant in all cases whereas that for variability was positive and significant. The annual actual return figures varied but were insignificant in all cases. The R squared's are much higher in all these cases compared to those of the previous two cases (I15 and IIN5). The overall equations are significant.

After looking at the firms together it is important to analyse them sector by sector. Table 3.5 shows the sectoral results for the regression on one measure of ownership concentration, namely I15 which is the group of shareholders this study is predominantly concerned with.

The results show that sales are negative, as predicted, for all sectors except food and electricals, but in both these cases the coefficients were not significant. Pretax profits had a mixture of signs but were insignificant except for electricals where the sign was negative. The profit margin was insignificant in all sectors and the signs varied. Return to shareholders funds were negative and significant for chemicals, property and engineering. The liquidity ratio was positive and significant for drapery, leisure and property. The gearing ratio was negative and significant for beer and leisure. Annual actual returns were also negative and significant for leisure, food and property.

TABLE 3.5: OLS REGRESSIONS OF SECTORS.

	<u>BEER</u>	<u>CHEM</u>	<u>DRAP</u>	<u>LEIS</u>	<u>FOOD</u>	<u>PAPER</u>	<u>PROP</u>	<u>ELEC</u>	<u>ENG</u>
<u>C</u>	37.71* (4.1)	0.41 (0.03)	15.30* (1.2)	25.03* (3.8)	14.29* (2.4)	22.18* (3.2)	22.57* (3.2)	8.10 (14.4)	42.26*
<u>SALES</u>	-0.02 (-0.3)	-0.13* (-1.4)	-0.02 (-0.4)	-0.07 (-0.5)	0.01 (0.5)	-0.01* (-2.1)	-0.04* (1.2)	0.07 (1.5)	-0.02 (-0.2)
<u>PTAX</u>	-0.04 (-0.7)	0.09* (1.3)	0.0008 (0.01)	-.008 (-0.7)	-0.01 (-0.5)	.0007 (0.2)	.007 (0.2)	-0.04* (-2.5)	-.002 (-0.06)
<u>PMAR</u>	.005 (0.02)	0.2 (0.6)	0.35 (0.5)	-0.03 (-0.3)	-0.47 (-1.0)	-0.14 (-0.5)	-0.01 (-0.4)	-0.11 (-0.6)	-0.16 (-1.1)
<u>RSHF</u>	0.09 (0.5)	-0.27* (-2.0)	-0.04 (-0.2)	0.01 (0.4)	0.03 (0.3)	-.007 (-0.5)	-0.11* (-2.3)	0.04 (0.5)	-0.2* (-1.3)
<u>LIQ</u>	-0.68 (-0.4)	1.67 (-0.3)	8.0* (2.1)	2.54* (1.3)	-2.27 (-0.9)	2.57 (0.6)	3.78* (1.6)	2.44 (0.6)	3.02 (0.5)
<u>GEAR</u>	-0.33* (-3.8)	0.02 (0.4)	0.01 (0.3)	-.04* (-2.2)	-.003 (-0.1)	-.0003 (-.03)	-.01 (-0.5)	-.001 (-.06)	0.01 (0.2)
<u>BETA</u>	-11.63 (-1.0)	22.75* (1.7)	-12.02 (-0.9)	-5.14 (-1.1)	-0.98 (-0.1)	-10.48 (-1.5)	-5.68 (-0.8)	3.06 (0.5)	-12.1* (-1.3)
<u>S.D.</u>	-0.39* (-1.4)	.0005 (.002)	.05 (0.2)	-.17* (-1.8)	0.04 (0.5)	0.06 (0.3)	0.03 (0.1)	-0.02 (-0.1)	-0.15 (-0.7)
<u>RET</u>	-0.01 (-0.4)	-.005 (-0.1)	0.02 (0.3)	-0.05* (-2.4)	-0.06* (-1.4)	-.008 (-0.1)	-0.16* (-2.2)	-.0002 (-.009)	-.09 (-1.0)
R ²	.92	.52	.40	.46	.35	.31	.41	.25	.28
DW	1.97	1.34	2.47	1.78	2.50	1.75	2.03	1.45	1.95
F	8.7	1.3	1.4	1.9	1.4	1.2	1.5	1.1	1.5

(t statistics in paranthesis)

On the whole these results were as predicted. However, if the sectors are taken individually the chemicals, drapery, property and electricals had results contrary to those predicted as they tended to have positive coefficients both for the size and instability measures. The values of R^2 are satisfactory for a cross section study. The Durbin Watson statistic showed no problems of autocorrelation. Tests for multicollinearity were applied by drawing up a correlation matrix but found no evidence of multicollinearity. The low F statistic can be explained by the relatively small sample size in each sector.

These results show a general model including all the variables on the basis of previous studies. The model was, once again, statistically well specified. There was no evidence of serial correlation or heteroscedasticity, the residuals were normally distributed and the functional form was correct. The coefficients are thus efficient and unbiased.

In order to eliminate the insignificant variables the method of backward elimination by the step-wise regression was applied as in the previous example. The insignificant variables were eliminated one at a time and their effects on the remaining variables were analysed by checking the F statistic, standard error etc. The best statistical model is then found and this is presented in Table 3.6.

In comparison to the previous table the constant term in Table 3.6 has increased in all cases, which is to be expected when variables are dropped because it incorporates all the variables that are not in the regression but do affect the independent variable in some way. The t statistics of the remaining variables have increased in all cases showing an improvement in the significance of the coefficients.

TABLE 3.6: BEST OLS ESTIMATES OF SECTORS.

	<u>BEER</u>	<u>CHEM</u>	<u>DRAP</u>	<u>LEIS</u>	<u>FOOD</u>	<u>PAPER</u>	<u>PROP</u>	<u>ELEC</u>	<u>ENG</u>
<u>C</u>	41.02* (9.9)	-1.56 (-0.1)	13.30* (1.6)	22.66 (4.9)	15.83* (10.3)	23.53* (4.1)	16.90* (8.1)	12.70* (9.4)	44.90* (5.6)
<u>SALES</u>		-0.09* (-2.3)				-0.01* (-2.6)	-0.03* (-1.8)	0.07* (1.9)	
<u>PTAX</u>	-0.06* (-1.6)	0.07* (2.0)						-0.03* (-3.2)	
<u>PMAR</u>			0.32 (1.06)		-0.33* (-1.7)	-0.18 (-1.0)			-0.13* (-1.3)
<u>RSHF</u>		-0.21* (-2.7)				-.008* (-1.7)	-0.10* (-2.4)		-0.21* (-1.6)
<u>LIQ</u>			8.59* (2.9)	2.71* (1.5)	-2.85* (-1.9)	3.40 (1.0)	2.61* (1.5)		
<u>GEAR</u>	-0.32* (-6.1)			-0.04* (-2.4)					
<u>BETA</u>	-9.26* (-1.6)	24.19* (2.7)	-9.05 (-1.1)	-6.01* (-1.7)		-9.82* (-2.2)			-10.26 (-1.3)
<u>S.D.</u>	-0.57* (-4.8)			-0.11* (-1.8)					-0.19 (-1.0)
<u>RET</u>				-0.04* (-2.2)	-0.07* (-1.9)		-0.14* (-2.1)		-.19 (-1.1)
<u>R²</u>	.91	.47	.37	.41	.34	.30	.37	.22	.27
<u>DW</u>	1.7	1.6	2.4	2.0	2.5	1.7	2.1	1.4	1.9
<u>F</u>	28.06	3.60	4.99	3.40	5.04	2.40	3.75	5.20	3.03

(t statistics in paranthesis)

In analysing the sectors it can be seen that sales are negative and significant in all sectors except electricals. Pretax profits were negative and significant in all sectors except chemicals. The profit margin was negative and significant in all sectors except drapery. Return to shareholders funds were negative and significant in all sectors. The liquidity ratio was positive and significant for all sectors except food. The gearing ratio was negative and significant. Beta was negative and significant for all sectors except chemicals. S.D. was negative and significant as were annual actual returns. The F statistics show that the equations overall were significant. The results, on the whole, are as predicted thus corroborating our theory outlined above.

The only two sectors which did not behave as predicted are chemicals and electricals. In the chemical sector both the size measure, pretax profits - and the instability measure, beta - are positively related to ownership concentration. For electricals sales are positively related to ownership concentration.

The only result of concern is that for the sector beers, wines and spirits. In this sector the R^2 is extremely high and the F statistic shows that the overall equation is significant. There may be problems of multicollinearity.

3.4 - SUMMARY AND CONCLUSIONS

This chapter set out to find why there is a greater degree of institutional investor involvement in some firms than in others. It attempted to establish some of the broad forces that influence ownership structure. The empirical work was based on studies of Demsetz and Lehn (1985) and Leech and Leahy (1989). Using a random sample of 278 UK firms from nine non-financial sectors for the year 1989, it looked at some leading characteristics of these firms, namely those variables measuring the firm size and the instability of the firm.

The firm size variables used in the study were sales, the profit margin, pre-tax profits and return to shareholders funds. The risk variables were the liquidity ratio, gearing ratio, beta, standard deviation of returns to the index and the annual actual return. A negative relationship between firm size and the concentration of ownership was predicted. The reasoning behind this is that the larger the firm the more difficult and expensive it is for any one investor to dominate decision taking. There is also the transactions motive whereby it is easier for any investor to sell the shares of a larger company. There is also the opportunity to shirk in a large concern where you assume that other shareholders will undertake their ownership duties more responsibly.

A negative relationship between the risk variables and the concentration of ownership was also predicted. This is because the more unstable an environment as depicted by unstable prices, technology etc., the more discretion managers have to make decisions. Institutional investors would prefer not to hold too great a share of the firm because they want to diversify any risk attached to the firm.

The results show that there is an overall negative relationship between firm size and the concentration of ownership. This is as predicted and is consistent with the studies of both Demsetz and Lehn and Leech and Leahy.

An overall negative relationship between risk and ownership concentration was found, however, the results were not all significant. The results are inconclusive, although, the transactions motive for investing in larger firms seems more plausible than the risk averse motive. This study has not tested whether smaller companies are riskier than larger companies. However, it is likely that they do have higher transactions costs attached to them.

Institutional investors may not wish to get involved with the close running of the firm for two main reasons; firstly because they have their own business to run e.g. providing insurance and secondly, because each company they invest in is only a small proportion of their overall portfolio and may not warrant the time and expense associated with monitoring performance.

This chapter has attempted to explain why institutional investors may want to hold specific types of shares. The following chapter considers their effects on the stock market.

CHAPTER 4 - THE EFFECT OF INSTITUTIONAL INVESTORS ON THE STOCK EXCHANGE.

The previous chapter studied the structure of corporate ownership with particular reference to institutional investors. This leads to another aspect of interest which is their increasing presence in the stock market, particularly in the market for ordinary shares. This chapter is a move towards analysing their effects on share prices. The following chapter will empirically analyse some of the propositions set out here.

The last few centuries have seen the growth in the size of firms together with a growth in their financial requirements. The rise of these firms has been accompanied by the evolution of capital markets whose function it is to facilitate the transfer of funds between lenders and borrowers. The stock market is a segment of the capital market relating to the financing needs of firms. It directly and indirectly influences the allocation of scarce capital resources. Direct influence comes from the primary market where firms are attempting to raise new finance. The availability of finance depends on the stock market's assessment of the specific firm and its prospects.

Indirect influence on resource allocation is exercised by the stock market in the form of share prices and investment comment, e.g. poorly performing firms will be showing low investment returns and may be prone to takeover bids. The takeover of a badly run company should result in an improved economic performance on the resources employed in the long run.

The first section in this chapter assesses the efficiency of capital markets in order to determine whether security prices provide accurate signals for resource allocation. An efficient capital market is defined as one where prices fully and instantaneously reflect all available information. An efficient stock market implies that the complete body of publicly available knowledge regarding a firm's prospects is interpreted 'correctly' in the share price. It also

implies that any new data are incorporated instantaneously into the price. This chapter seeks to establish the role institutional investors play in this issue.

The second section deals with the informational aspects. If the stock market is not perfectly efficient then there is scope for profit due to significant differences in the quality of the information between investors. This is particularly so where there is a high degree of institutional presence because they have the ability to obtain superior information. This gives them the potential to significantly affect share prices.

The third section of this chapter looks at the issue of volatility and whether the market is myopic. Furthermore, it questions whether there is any link between this alleged myopia and increased institutional investor ownership of equity. However, first the broad area of efficiency is discussed in the light of the literature to date.

4.1 - THE EFFICIENT MARKET HYPOTHESIS

The efficient market hypothesis (EMH) holds that market prices fully and instantaneously reflect all available information. This is important because if security prices can be relied upon to reflect the economic signals which the market receives, then they can also be looked in turn to provide useful signals to both suppliers and users of capital. The former for the purposes of constructing their investment portfolios and the latter for establishing criteria for efficient disposition of the funds at their disposal. Lack of confidence in the pricing efficiency of the market tends to focus the attention of both investors and raisers of capital on potentially wasteful techniques of exploiting perceived inefficiencies, and away from a more positive recognition of the messages contained in the market prices.

The term 'efficiency' refers to how successful the market is in establishing security prices that reflect the 'worth' of the securities. Success is defined in terms of whether the market incorporates all new information in its security prices in a rapid and unbiased manner. It refers to two aspects of price adjustment to new information, the *speed* and *quality* of the adjustment. The main effect of efficiency is that it should not be possible for any investor to systematically outperform the market. If the market were deficient in terms of the *speed* and *quality* of its reaction, the informed and alert observer would have little difficulty in profiting from the situation. The EMH implies that prices are 'correct' and provide accurate signals for resource allocation. The essence of a correct price is not that it predicts the future, but that it fully captures the uncertainties of the future.

The discussion of market efficiency dates from 1966 when it was defined as the process of finding mispriced securities. It was a practical concept rather than a fundamental economic one. In 1970 Fama introduced a more formal definition. He states that a securities market is efficient if security prices fully reflect the information available. This definition was criticised because the terms 'fully reflect' and 'information available' were vague and non-operational. Consequently, in 1976, Fama provided an alternative definition: the market was efficient if the 'market' used the true conditional probability density function of future prices in the determination of current security prices. This was the definition adopted by economists and econometricians. Implicit in this definition was the assumption that investors form expectations rationally.

The problem with this definition lay in the use of the term 'market'. Unless it was assumed that all individuals have homogeneous beliefs and expectations it is not possible to define what is meant by 'market'. In an attempt to overcome these difficulties Beaver (1981) developed the definition as markets being efficient with respect to the information system: "The market is efficient with respect to some specified information system, if and only if,

security prices act *as if* everyone observes the information system.”

This definition has several advantages:

1. It permits a definition of market efficiency in a world of individuals who are heterogeneous with respect to beliefs and information.
2. It permits endowments and preferences to play a natural role in influencing prices.
3. It permits individuals to perceive the market to be inefficient with respect to some information even if it is not.
4. It gives the term *fully reflect* a well defined meaning.
5. It focuses upon prices as opposed to beliefs and actions.
6. It relates directly to prior allegations of market inefficiency and to the set of empirical research that has been directed at those allegations.
7. It permits the concept to be finely partitioned with respect to information as may be desired and it avoids severe definitions of market efficiency.

Despite these advantages the problem with Beavers’ definition is that it says nothing about the rationality of investors. It omits to say how they use this information and whether or not they act upon it. Consequently, Fama’s definition has been used consistently because it is easier to test.

Three different levels of efficiency are identified by Fama (1972). Each level relates to a specific set of information which is increasingly more comprehensive than the previous one. The first of these levels is ‘weak’ form efficiency. This is where share prices fully reflect the information implied by all prior price movements. They are independent of previous movement. This implies the absence of any price patterns with prophetic significance and so investors are unable to profit from studying charts of past prices.

The second form is ‘semi-strong’ efficiency where share prices respond instantaneously and without bias to newly published information. This renders it futile for investors to search for bargain opportunities by analysing published data.

Finally, there is 'strong' form efficiency where share prices reflect not only published information, but all relevant information including data not yet publicly available. In this case, not even an insider can profit from his privileged position.

There have been many tests carried out on all three levels of efficiency (see Dobbins and Witt (1980); Keane (1980)). It is important to test efficiency because if markets are efficient in the strong sense then the activities of institutional investors cannot make a difference in the capital market.

Fama looks specifically at whether it pays the average investor to expend resources searching out little-known information. He also looks at whether these activities are profitable for the various groups of market professionals and concludes that for the purposes of most investors the EMH seems a good approximation to reality.

There is evidence leading to rejection of the EMH. However, it is extremely difficult, if not impossible, to test the EMH directly. Most of the empirical studies are not testing the EMH but some implications or conditions for the EMH to hold true. The implications of the EMH are as follows:

1. Returns should be uncorrelated.
2. Expected excess returns should be zero i.e. no abnormal profits made.
3. Existence of no superior trading strategies.
4. Instantaneous and unbiased response to new information. This implies there are no benefits in acquiring it.

Statements such as "markets are efficient" or "markets are inefficient" are ambiguous and incomplete. They should specify whether they are referring to strong, semi-strong or weak form efficiency. Efficiency cannot be rejected but its degree can be questioned. The tentative conclusion here, based on the evidence of past studies, is that the strong form of the EMH

cannot hold and because of this there is scope for some investors, in particular institutional investors, to have access to informational advantages not available to smaller investors.

The work of Grossman is seen as a development of the EMH. It may be that the presence of transaction costs implies that prices do not fully reflect all information. Thus, firms which expend on research should perform better than those that do not. This does not imply that they are outperforming the market, they are making normal returns but the transaction costs are being accounted for.

Both Fama and Beaver did not take into account transaction costs, they rejected the possibility of abnormal returns under any circumstances. In Grossman and Stiglitz (1976) individuals are not endowed with the same information. In this framework, equilibrium in security prices transmits some information but not all. Prices no longer fully reflect all the information available, indeed, the concept 'fully reflect' plays no role for Grossman and Stiglitz. The next section discusses these informational differences and their effects in more detail.

4.2 - INFORMATION

Grossman and Stiglitz (1976) reassess the meaning and validity of the EMH. They attempt to answer questions regarding how the price system leads the economy to respond to a new situation, how it conveys information from informed individuals to uninformed individuals and how it aggregates the different information of different individuals. Grossman and Stiglitz' analysis can be applied to institutional investors because they have access to informational advantages through their special relations with brokers and by having their own professional analysts. Small investors, on the other hand, may have to rely on cheaper alternatives such as the Financial Press.

This can be illustrated using an example taken from Grossman and Stiglitz (1976). Assume there are two assets, one safe and one risky. The return on the risky asset r depends on a random variable n which can be observed at a cost and an unobservable variable E . This is not a derivation of their model, only an illustration of their results.

$r = n + E$ where n and E are independent, normally distributed random variables.

Knowing n reduces but does not eliminate the risk associated with the asset. The per capita demand, X_1 , for the asset by those informed of n depends on the price of the asset and the value of n .

$X_1 = X_1(p, n)$ Assuming $dX_1/dn > 0$, $dX_1/dp < 0$

Equilibrium each period requires that demand equals supply:

$\beta X_1(p, n) + (1-\beta)X_u(p) = X_s$ Where:

X_u = per capita demand of the uninformed

X_s = per capita supply

β = fraction of informed individuals.

Uninformed individuals observe only price, but from the price they may be able to infer n . For example, if the stock of resources were fixed, the uninformed individual can infer that a high p is associated with a high n , since an increase in n increases informed demand and thus the price. As there are no other stochastic elements in this model, there will be precisely one n corresponding to any p . Therefore, the conditional distribution of r given p is the same as the conditional distribution of r given n . Thus the price system conveys all the information from the informed individuals to the uninformed.

Further randomness is now introduced e.g. in the stock of the risky asset or in the demand functions of the informed or uninformed individuals. The price may be high because n is high or because the supply of the risky asset is low or because informed individuals' demand functions have shifted upwards. Therefore, there is a distribution of possible values of n corresponding to any p . The price system conveys some information, but does not transmit all the information from the informed to the uninformed.

There are no costs of obtaining information and so the marginal individual who chooses to become informed must be indifferent to being informed or uninformed. The increment in expected utility from becoming informed is exactly offset by the cost of the information. In making this calculation, individuals assume that a change in their information would have no effect on prices.

When no one is informed, the price system conveys no information so the value of information about n is likely to be high. When almost everyone is informed, the price system is very informative, so the value of knowing n precisely is low. This implies that the EMH is a paradox because it argues that the prices on capital markets reflect all the relevant information instantaneously. The paradox is resolved by arguing that there are constantly new shocks to the economy which affect market returns. The capital market must continually adjust to these shocks.

In the structure developed by Grossman and Stiglitz the market never fully adjusts and prices never fully reflect all the information possessed by the informed individuals. Capital markets are not efficient, but the difference is just enough to provide the revenue required to compensate the informed for purchasing the information. The equilibrium fraction of informed traders is determined jointly with the informativeness of the price system in such a way as to generate a competitive return to arbitrage.

Perfect arbitrage implies that not all traders need to be informed. This is because the informed traders make prices reflect true values so the uninformed can simply take advantage of this. This is not true of the Grossman and Stiglitz analysis, for it is only because prices do not accurately represent the true worth of the securities, that the informed are able to earn a return to compensate them for the costs associated with the acquisition of the information.

Grossman and Stiglitz's (1980) analysis can be applied to institutional investors:

In their model, prices reflect the information of informed individuals but only partially. Consequently, it is beneficial to expend resources in order to obtain information. The level of information in the price system is dependent on the number of individuals who are informed and these individuals are an endogenous variable of the model.

The model consists of two assets, a safe asset yielding a return R and a risky asset with a return U which varies randomly from period to period where:

$$U = \emptyset + \vartheta$$

\emptyset and ϑ are random variables where \emptyset is observable at cost C and ϑ is unobservable.

There are two types of investors, firstly those who observe \emptyset . These are the informed traders such as institutional investors. This is because they are better informed due to their own professional analysts, close relations with brokers, and finally, they may be close to their portfolio firms and thus have the potential to gain access to inside information.

The second type of investor are those who observe only price such as small, private investors. These are the uninformed traders who find it costly to gain information. It is not worth their while to buy costly information if they are only investing small sums of money.

The informed institutional investors' demands depend on \emptyset and the price of the risky asset R . The uninformed individuals' demands depend only on P . However, they have rational expectations. They learn the relationship between the distribution of return and price and use this in deriving their demand for the risky assets.

If x denotes the supply of the risky asset and in equilibrium a given percentage, $P\mu$, are informed institutional investors. Then, a price function, $P\mu(\emptyset, x)$, is formed such that demand equals supply.

It has been assumed that informed individuals do not observe x . They are prevented from learning \emptyset via observations of $P\mu(\emptyset, x)$ because they cannot distinguish variations in price due to changes in aggregate supply. Clearly, $P\mu(\emptyset, x)$, reveals some of the institutional investors to the individuals.

The expected utility of the institutional investors and individuals can be calculated. If the former is greater than the latter, inclusive of informational costs, some individuals switch to becoming institutional investors. They can do this by placing their money into unit trusts, investment trusts etc. An overall equilibrium requires the two to have the same expected utility. As more individuals become institutional investors, the expected utility of institutional investors falls relative to individuals. This is because the price system becomes more informative because variations in prices have a greater effect on aggregate demand and thus on p when more traders observe \emptyset . As the price system becomes more informed there is a reduction in the informational differences of the traders. Even if the above effect did not occur, the increase in the ratio of

informed to uninformed means that the relative gains of the informed in trading with the uninformed will be smaller on a per capita basis.

In summary, the greater the number of individuals who are informed the more informative the price system. Furthermore, there is a lower ratio of expected utility from the informed to the uninformed.

Studies have been undertaken regarding investors use of information in practice. Boys and Rutherford (1984) assess the extent to which institutional investors use current cost accounting information in arriving at investment decisions. After interviewing a sample of institutional investors they found that institutional investors varied widely to the extent in which they relied on information derived from 'secondary' sources and, in particular, on both brokers' circulars and personal contact with brokers. Some relied heavily on these sources arguing that duplicating the efforts of brokers would not yield a sufficiently high additional return from the insights achieved to cover the costs involved. They engaged in little, if any, fundamental analysis, particularly in arriving at 'routine' buy-hold-sell decisions. In some cases where accounts were examined analysts spent as little as one hour on them. Institutional investors tended to rely on brokers' analysts, not only for the provision of information regarding companies, but also for the selection of information required to make any decisions.

Other institutional investors preferred to conduct a substantial amount of fundamental analysis for themselves, either because they had special requirements which were not catered for by brokers, or they felt that the data provided by brokers were inadequate. Analysts working for such institutional investors might spend several days on fundamental analysis of a single company.

Irrespective of whether an institutional investor performed fundamental analysis, it would maintain close contact with brokers since they

were a useful source of guidance for the timing of the institutional investor's acquisition or disposal of shares. Analysts of institutional investors are particularly interested in establishing trends and in being able to compare companies both within the same sector and in different sectors. Most analysts place great emphasis on the profit and loss account and any detailed information on sales and profits. Cash flow is also regarded as being of vital importance and much weight is attached to any information about the future prospects of the company provided in the report. The main purpose of the analytical process for most analysts is to try to forecast future earnings on a historical cost basis and thereby determine whether a share is cheap or dear and whether to buy, hold or sell.

Boys and Rutherford conclude that company reports and accounts are an important source of information for the analysts of institutional investors, along with brokers' circulars, contacts with company managers and financial briefing services such as Datastream.

Institutional investors have been widely believed to move together in a 'herd' due to their similarities in the sources of their information (Shiller (1981)). Their increased presence in the stock market is also said to lead to highly volatile markets. The next section looks at some of these consequences and their economic significance.

4.3 - VOLATILITY AND FADS

The presence of institutional investors in the stock market may influence share prices in several undesirable ways. For example, the increasing equity market share buy-and-hold policies of insurance companies and pension funds may eventually lead to a volatile stock market in which few shares are available for trading. Persistent purchasing of a firm's shares by institutional shareholders may have a permanent bullish influence on share prices and may

serve to deprive smaller companies or new ventures of a source of finance. Institutional investors may be responsible for creating a two tier market, concentrating their activity in a few large companies and thus raising the price of shares in these companies. Finally, disposals and acquisitions of large blocks of shares may cause major swings in share prices (Dobbins and Witt (1983)). Some of these practices will be reflected in volatility in the stock market.

Recently, there have been a number of studies using measures of variance or 'volatility' of speculative asset prices to provide evidence against simple models of market efficiency. One US study by LeRoy and Porter (1981) investigated the implications for asset price dispersion of conventional security valuation models. They concluded that in their sample of US firms, stock prices appear to be more volatile than is consistent with the EMH.

Shiller (1981) also finds that stock price volatility is too high to be explained by the EMH. He looked at measures of stock price volatility over the past century in the US and found that they appear to be far too high, five to thirteen times too high, to be attributed to new information about future real dividends. The severity of these results renders it impossible to attribute the failure of such things as data errors, price index problems etc.

Shiller consequently proposed an alternative to the EMH based on 'fads'. This is appealing given the observed tendency of people to follow fads in other aspects of their lives and is based on the behaviour of small investors. The model does not, however, imply that those who are not vulnerable to fads will necessarily make a quick profit. In his 1984 paper he claims that mass psychology is the dominant cause of movements in the price of the aggregate stock market. Stock prices are vulnerable to purely social movement as there is no accepted theory by which to understand the worth of stocks and no clearly predictable consequences to change ones' investments. Ordinary investors have no model, or at best a very incomplete model of the behaviour of prices,

dividends and earnings of speculative assets so they are faced with uncertainty. They cannot judge the competence of investment counsellors and many of them do not understand data analysis or risk correction which is necessary knowledge for evaluating the data.

Since these investors lack any clear sense of objective evidence regarding the prices of speculative assets, their opinions may be formed through social pressure. They may go along with the majority despite rationally believing something else. This is highlighted as a part of human instinctive behaviour by Asch (1952) who experimented with individuals alone and in groups and had them compare the lengths of line segments. The lengths were sufficiently different and so, when responding individually, few wrong answers were given. However, when placed in a group where all the other members were coached to give the same wrong answers, individual subjects also gave wrong answers even though they were aware of the correct answers. They were afraid to contradict the group.

The same can be applied to institutional investors who may be afraid of going against the grain. Their aim may be not to get left behind, rather than to outperform the market. If a large number of institutional investors are investing in a specific asset the remaining investors may feel pressured into investing in that asset in case the others are aware of something that they are not.

Shiller and LeRoy and Porter have empirical evidence that stock prices and long interest rates are more volatile than can be justified by the standard asset-pricing models. However, Flavin (1983) shows that in small samples, the 'volatility' or 'variance bound' tests tend to be biased, often severely, toward rejection of the EMH. Therefore, the apparent violation of market efficiency may be reflecting the sampling properties of the volatility measures, rather than a failure of the EMH itself. Flavin also reports some unbiased estimates of the bounds on holding period yields and long interest

rates. Much of the evidence of excess volatility disappears when the tests are corrected for small sample bias.

Another allegation directed at institutional investors has been that they react to short term pressure on investment performance. They tend to be unwilling to countenance long term investment or a sufficient expenditure on research and development (Chancellor of the Exchequer (1986)). This myopic view of financial markets is backed by the Wilson Committee who reported that, 'Many financiers may ... have shorter time horizons' and 'Many financiers look for a return in the form of higher profits much sooner than industry itself would be prepared to contemplate'. Walker (1985), an Executive Director of the Bank of England, also claimed that investors suffer from 'unduly myopic views' and force firm managers to concentrate on short-term performance instead of developing long-term strategies.

There is much evidence supporting the view that markets are myopic. Carsberg and Day (1984) concluded that 'Investment analysts appear to focus mainly on the prediction of historical cost profits for one or two years ahead'. This was supported by Boys and Rutherford (1984) and Arrow (1982) suggests that the stock market might attach too much weight to current dividends relative to future dividends. Nickell and Wadhvani (1987) argue that this view can be regarded as a special case of Shiller's (1984) 'fads' model. Their results offer considerable support for the view that the market is myopic.

Turning to the issue of volatile share prices, several studies (Shiller (1981), LeRoy and Porter (1981)), have suggested that share prices are too volatile relative to the actual future path of dividends and earnings. However, in attempting to decide whether or not the market is myopic these tests are merely suggestive because the excess volatility can be attributed to a variety of different sources e.g., the real discount rate or 'fads' might be important (Shiller (1982,1984)).

Keynes (1936), long ago noted the 'herd' instinct of large, professional investors. The performance of a pension fund manager is often assessed by comparing it with that of other fund managers. A pension fund manager who claims to be 'rational' while the rest of the market was 'irrational', but consequently exhibited inferior performance in the short-run, is likely to be sacked long before his investment strategy pays off.

In the UK the increasing institutional ownership of equity has been associated with the short term view taken by the stock market. Institutional investors regularly 'churn' their portfolios because fund managers have their performance monitored on a quarterly basis. Unit and investment trusts are covered by the Financial Press.

This does not imply that individual shareholders will be any less myopic than institutional investors, for if myopic behaviour stems from certain psychological traits, it would be common to all individuals.

Many individual investors may have a preference for dividends. they may believe that shares not paying dividends but yielding capital gains are only worth holding at prices lower than those of similar shares paying dividends. Some institutional investors are not allowed to hold shares which do not have established dividend records. Other trusts are only allowed to spend that part of the return from shareholdings which comes in the form of dividends. Consequently, the influence of dividends on the share price may be higher than that of capital gains. This excess sensitivity to current dividends may arise from capital market imperfections which induce shareholders to sell in 'bad times' and this is likely to effect individuals more than institutional investors. Another explanation for this type of myopic behaviour is that it is the result of the rule of thumb approach adopted by some institutional investors in order to simplify computations. This can also apply to individual investors.

The whole concept of irrational behaviour is highlighted by the following studies. Shiller's (1987) survey evidence reveals that institutional investors were reacting against each other during the stock market crash, rather than to hard economic news. According to De Bondt and Thaler (1990) overreaction in predictions is the cause of irrational behaviour in markets. Cutler, Poterba and Summers (1990) carry out their analysis of how feedback traders affect asset returns with the assumption that investors do not learn from past experience.

4.4 - SUMMARY AND CONCLUSIONS

This chapter has looked at the influence institutional investors have on the direction of scarce capital resources. Institutional investors are a distinct type of intermediary with a potentially powerful role. They differ from other types of investor due to their potential to gain access to special information.

The chapter has looked at the EMH which assesses how efficiently information is incorporated into share prices in terms of its speed and quality. Most of the evidence in this chapter is anecdotal and consequently there is no firm proof that markets are efficient. There is much evidence, however, from past studies that markets tend to be efficient in the weak and semi-strong sense. This would imply that there is scope for excess profit where information differs between investors and so it would pay the investor to be informed.

This suggests that the increasing presence of institutional investors results in the market being dominated by informed investors. This is because institutional investors are assumed to have informational advantages over private investors due to favourable relationships with brokers, their own analysts and access to inside information due to close links with firms. It might be assumed that this would lead to a more rapid and realistic adjustment of company prices implying that institutional investors are a positive influence on the market.

It has been alleged, in previous studies, that due to similarities in the information, they obtain, institutional investors cause major swings in share prices and behave in a herd-like fashion in the capital markets. This chapter provides no conclusive evidence to confirm these studies but the extent to which institutional investors effect the general market price level will be tested empirically in the next chapter.

CHAPTER 5 - THE EFFECTS OF INSTITUTIONAL INVESTORS' TRADING ACTIVITIES.

INTRODUCTION

The previous chapter analysed the effect of institutional investors on the stock exchange, particularly in terms of the effect of volatility due to their allegedly 'herd-like' behaviour. It is often suggested that the increase in institutional ownership and trading of securities may be expected to cause an increased volatility in the prices of (and returns to) shares.

This chapter tests empirically the effects the trading activities of institutional investors have on the general level of share prices. In the UK research has been done in this area notably by Briston and Dobbins (1978); Dobbins and Witt (1980,1981 and 1983) and Lee and Ward (1980). Dobbins and Witt, among other things, look at whether institutional investors cause major swings in share prices, thus dominating stock markets. They also attempt to identify a market leader; (such a discovery would refute the EMH in the strong form). They conclude that institutional investors do influence the general level of share prices in the UK stock market but no single financial sector was identified as a price leader.

Many claims have been made about institutional investors. For example, it is said that they dominate financial markets as their buying and selling activities cause major swings in share prices (Dobbins and Witt (1983)). They are also said to move together in a 'herd' (see chapter 4), and it is believed that brokers tend to favour their institutional clients above smaller private clients, because of the immense amount of business they do. Another conjecture made is that share prices are sensitive to very high levels of portfolio activity. These notions imply that the capital market operates with some degree of inefficiency. The validity of this will be tested in the chapter.

A high correlation between institutional equity activities and market price movements may be a result of institutional investors either making or following the market. In other words statistical results give no indication as to the direction of causation between the activities of institutional investors and the level of share prices. Friend, Blume and Crockett (1970) examine the relationship between the portfolio transactions of mutual funds and stock prices and conclude that although the available evidence cannot be used definitively to decide whether mutual funds predict or affect stock prices, the market impact hypothesis (ie, that the funds affect stock prices) seems more plausible than the predictive hypothesis (ie that funds predict stock prices). The market impact hypothesis was therefore adopted in this study. The same was adopted by Dobbins and Witt.

This study uses a model similar to that of Dobbins and Witt (1983), but whereas they looked at the years 1966 - 1976, this study will analyse activity for the years 1970 - 1987. This not only enables an update of their work, but will give a clearer picture of the development of the trading activity of institutional investors as they have extended their domination of the stock markets. During this latter period, there have been other changes in the economy which may be of significance in their effects on the activities of the institutional investors - for example, the Conservatives coming into power in 1979.

The major aims of this chapter are firstly, to identify the impact of institutional investors' trading activities on the general level of share prices; secondly, to identify any market leaders; and thirdly, to examine whether there is any evidence that institutional investors do move together.

The chapter is set out as follows. The first section is a discussion of the theoretical model and sets out the hypothesis to be tested. The second section analyses the data, highlighting any problems or limitations and offering solutions for these problems. The third section focuses on the estimation and

interpretation of the results leading to a fourth section which discusses the empirical problems and applies empirical tests.

The fifth section re-estimates the simple relationships in the light of a more advanced econometric technique of cointegration. This seeks to establish the long term relationship between the institutional investors themselves. Finally, the conclusion draws together the main findings of this chapter and discusses their implications.

5.1 - THEORETICAL DISCUSSION OF THE MATHEMATICAL MODEL.

The model we are testing is based on that of Dobbins and Witt. The period considered is 1970 - 1987 which is 72 quarters. Quarterly data for the UK were used to estimate the following model:

$$I_t = \partial + \beta P_t + \mu S_t + u_t$$

$$t = 1, 2, \dots, 72 \text{ (1-1970(1), } \dots, 72\text{-1987(4))},$$

Where

I is the Financial Times All-Share Index.

P is Equity Purchases by Institutional Investors.

S is Equity Sales by Institutional Investors.

u is a random error term.

∂ , β , μ are parameters to be estimated.

If institutional investors dominate the stock market this implies a tendency for excess demand (purchasing pressure) to push prices upwards and excess supply (selling activity) to depress prices. Therefore, the coefficient of purchases (β) is expected to be positive and that of sales (μ) to be negative.

Furthermore, if the model performs well for one group of institutional investor, e.g. pension funds, then they are identified as market leaders.

In this model it is expected that pension funds and insurance companies are market leaders because they are the largest investors and would thus have the most effect on the level of share prices. Unit trusts and investment trusts are not expected to behave as strongly, because they are much smaller in size and are thus less significant than the other two groups. They are therefore not predicted to have strong or serious effects on the level of share prices, they are, however, expected to move in the same direction as the others.

5.2 - DATA ANALYSIS

Data were collected for the years 1970 to 1987 from CSO Financial Statistics for those years. Quarterly data were collected for the purchases and sales of unit trusts, investment trusts, insurance companies and pension funds and the Index of share prices.

Unit trust, investment trust and pension fund data for both purchases and sales of UK company securities - ordinary and deferred, were given in a quarterly form in CSO Financial Statistics. Insurance companies include both long term and general funds. The Index used was the Financial Times Actuaries Share Indices : 10 April 1962 = 100 which was also from CSO Financial Statistics and the column of particular interest was the Ordinary Share Price Index. The data here, however, were given in a monthly form so to enable them to correspond to the rest of the data collected they were then transformed into quarters by aggregating three monthly observations.

5.21 - PROBLEMS WITH THE DATA

(i) MISSING OBSERVATIONS.

There were missing observations for six quarters for both pension fund purchases and sales, namely 1977 Quarter 4 to 1979 Quarter 1.

There are many ways of dealing with this problem¹. The method adopted here to generate the missing values was to regress pension fund purchases (PFP) on the Index from 1970Q1 to 1977Q3. This method was preferred because it enables us to have a different value for each observation. By doing this the following values were generated:

MISSING OBSERVATIONS (£M)

<u>YEAR</u>	<u>QUARTER</u>	<u>PFP</u>	<u>PFS</u>
1977	4	169.72	76.25
1978	1	130.57	45.21
	2	156.42	65.71
	3	220.41	116.67
	4	203.41	102.97
1979	1	244.24	135.34

¹ see Maddala (1978)

5.3 ESTIMATION AND INTERPRETATION OF RESULTS.

The model was estimated using ordinary least squares (OLS), firstly, for the four groups of institutional investor individually and then combined.

After running the regressions the purchase figures were found positive and significant as predicted for all groups except unit trusts. This implies that for all the groups, with the exception of unit trusts, the more shares they purchased, the higher they raise the price of the shares. The sales figures, on the other hand, were not as predicted except for pension funds and insurance companies. However, even for these two groups the results were not significant. Unit and investment trusts figures were actually positive for sales, which strangely implies that as they sell more shares they raise the price of them. This highlights that care needs to be taken in analysing these results for although the F statistic for all the groups reveals that the overall equations are significant, the Durbin Watson statistic reveals positive autocorrelation. This implies that the parameter estimates are inefficient and the usual hypothesis testing procedures are also no longer strictly valid in these situations². This identification of autocorrelation clearly shows that another method of estimation is required other than ordinary least squares.

Transforming these equations into natural logs leads to a few changes but not to a significant improvement in the Durbin Watson statistic. Despite this transformation into logs severe problems existed for all the groups as the DW statistic still posed a problem, still indicating positive serial correlation and rendering the estimates inefficient.

These equations were, therefore, re-estimated using the Cochrane-Orcutt Iterative procedure (CO). Logs were also taken so that the data followed a normal distribution. This was in order to correct for skewness of the data.

² see Maddala (1978) p92.

The results presented in Table 5.3 show that all the values, with the exception of pension fund sales are significant at the 1% level. The R bar squared has improved significantly from the previous estimation and its lowest value is 89%. The Durbin Watson statistic indicates no real problems of serial correlation.

Insurance companies, pension funds and the combined institutional investors all have positive purchase coefficients and negative sales coefficients as predicted, showing that as purchasing pressure increases, the level of the share prices rise and as selling activity increases the level of share prices fall. This was not the case for unit or investment trusts mainly because they play a less important role in the economy, due to their overall assets being less than those of pension funds and insurance companies. Thus when these two smaller groups buy and sell shares their activities are not significant enough to have an impact on the general level of share prices.

From the first row in Table 5.3 it can be seen that if unit trusts increase their quarterly purchases by 1% then the FT all-share index increases by 0.4%. However, an increase in sales by 1% results in a 0.15% rise. This is an unusual result as it would be expected that an increase in selling activity would lead to a decline in FT all-share points. The only plausible explanation is the one mentioned above in that unit trusts are not large enough to have significant effects in depressing prices if they sell. The calculated F statistic indicates that the entire relationship is significantly different from zero. The absolute values of the t statistics for the coefficients of purchases and sales are significant at the 1% level. The value of R^2 indicates that 98% of the variation in changes in the Index is accounted for by variation in the purchases and sales variables relating to unit trusts. Investment trusts tended to follow a similar pattern to unit trusts.

TABLE 5.3

COCHRANE ORCUTT METHOD OF ESTIMATION
FOR THE MODEL: $\text{LN } I_t \equiv \beta \text{LN } P_t + \mu \text{LN } S_t$

<u>INSTITUTION</u>	<u>β</u>	<u>μ</u>	<u>R^2</u>	<u>F stat</u>	<u>DW</u>
UNIT TRUSTS	0.40* (1.8)	0.15* (1.4)	.98	3802.5*	1.89
INVESTMENT TRUSTS	0.37* (2.9)	0.65* (5.2)	.89	575.1*	1.97
INSURANCE COMPANIES	0.18* (2.4)	-0.11* (-1.8)	.97	2563.5*	1.61
PENSION FUNDS	0.22* (4.8)	-0.01 (-0.35)	.98	3769.8*	1.60
COMBINED INSTITUTIONS	0.13* (6.6)	-0.06* (-2.6)	.98	4575.5*	1.60

(t values in parentheses)

* significant at 5% level.

The results for insurance companies are as predicted. The results show that a 1% increase in the quarterly purchases of insurance companies will lead to a 0.18% rise in the FT all-share index. A 1% increase in sales leads to a decline in the FT all-share index by 0.11%. Insurance companies performed particularly well in this model with all the variables being significant at the 1% level and the overall estimate being significant as well. The R^2 was particularly high indicating that 97% of the variation in changes in the Index is accounted for by variations in the purchases and sales variables relating to insurance companies.

Pension funds followed a similar pattern to insurance companies but their sales coefficient was not significant according to the t statistics, however, the overall estimation is significant. Combined institutional investors clearly followed the predicted pattern revealing that they do have significant effects on the general level of share prices. An increase in their quarterly purchases of 1% leads to a 0.13% increase in the FT all-share Index. A 1% increase in sales over this period leads to a decline in the FT all-share Index of 0.06%.

The model did not perform as predicted for unit and investment trusts. This may be due partly to the changes that have occurred in the seventeen year period of this study thus hiding specific factors that have affected these institutional investors e.g. the election in 1979 where the Conservative party came into power and the subsequent changes in the saving of money, particularly the rise in intermediaries. The election in 1979 is taken as a single significant event which may have affected these institutional investors.

The next step, therefore, was to apply the test over different time periods. Another regression for unit trusts was run taking account the election period. It was found that the model behaved as predicted for unit trusts from the period 1979 Quarter 4 to 1987 Quarter 4 using the Cochrane Orcutt Iterative Method. The results are presented in Table 5.4.

TABLE 5.4

COCHRANE ORCUTT ESTIMATION OF MODEL

LN INDEX = β LN UTP + μ LN UTS

(period: 1979 Q4 - 1987 Q4)

LN UTP (β) 0.267*
(1.8)

LN UTS (μ) -0.023
(-0.1)

R bar squared .98

F statistic 1946.3*

Durbin Watson 1.89

(t values in parentheses : * indicates significant at 5% level)

LN = natural logs

UTP = Unit trust purchases

UTS = Unit trust sales

The coefficient of β was positive and significant at the 5% level. However, the coefficient of sales although negative was insignificant. The R bar squared shows that 98% of the change in the level of share prices is explained by the buying and selling activity of unit trusts. the overall equation was significant and there were no problems of serial correlation as denoted by the Durbin Watson statistic.

This result shows that this model performs particularly well, in the case of unit trusts, after 1979. There were changes in the economy due to a change in government. There were also changes in tax laws affecting institutional investors. Tax relief was removed from all forms of insurance policies except life assurance, so buying insurance was no longer a means of evading tax. Thus alternative forms of saving eg unit trusts increased in popularity. The governments policy to reduce inflation encouraged saving and for the smaller investor a particularly advantageous method of saving was to invest in unit trusts. This was advantageous because it meant that they could hold a diverse portfolio and benefit from professional management of their money without high transaction costs (see chapter 2).

With the above result in mind it is essential to test the stability of the data which can be done by applying the Chow test³. It is necessary to know if there is any significant difference in the data between the period analysed ie, 1979 Q4 - 1987 Q4 and the remaining sample. The method used is described in Koutsoyiannis (1977), and from applying the Chow test no structural changes were found to exist in the data. This shows our results to be valid.

³ see Koutsoyiannis (1977) p164

There still remains one major limitation in that the study is not complete unless the model is re-estimated, taking account of inflation. In the present model, purchases and sales of the same number of units in each quarter, will increase in monetary terms as the All-share Index rises leading to spurious correlation. The solution is to divide purchases and sales by the Index for each quarter, in order to remove built-in correlation by converting purchases and sales in real terms. To do this the following model must be set up:

$$\text{LN } I_t = \beta \text{ILNP}_t + \mu \text{ILNS}_t$$

where $\text{ILNP}_t = \text{LNP}_t / \text{Index}_t$

and $\text{ILNS}_t = \text{LNS}_t / \text{Index}_t$

This will adjust for changing price levels. This was an important step to take as without it the model is limited and does not give any valuable information about the state of the market. The results are set out in Table 5.5. All four groups have a positive purchases coefficient and a negative sales coefficient both of which are significant at the 5% level according to the t statistics. The only exceptions were insurance company purchases and pension fund sales, however, in both these cases the coefficients were not significant. The overall equations are significant in each case according to the F statistics.

The results for insurance companies coincide with those of Dobbins and Witt who also have an insignificant purchases coefficient. This does suggest, however, that institutional investors on the whole do have significant effects on the general level of share prices. Adjusting for inflation has not changed the direction of our results or the conclusions with regard to the influence of institutional investors' equity buying and selling on share prices.

TABLE 5.5**COCHRANE ORCUTT METHOD OF ESTIMATION FOR THE****MODEL: $\text{LN } I_t = \beta \text{I lnP}_t + \mu \text{I lnS}_t$**

<u>INSTITUTION</u>	<u>β</u>	<u>μ</u>	<u>R^2</u>	<u>F stat</u>	<u>DW</u>
UNIT TRUSTS	1.21* (2.7)	-1.81* (-2.7)	.97	1298.5	1.39
INVESTMENT TRUSTS	0.98* (3.1)	-1.38* (-4.2)	.97	1451.7	1.42
INSURANCE COMPANIES	0.10 (-0.2)	-0.85* (-2.8)	.97	1506.3	1.63
PENSION FUNDS	0.86* (2.7)	-0.16 (-0.6)	.97	1295.2	1.37

(t values in parenthesis)*** significant at 5% level****where**

$$\text{I ln P}_t = \text{ln P}_t / \text{Index}_t$$

$$\text{and } \text{I ln S}_t = \text{ln S}_t / \text{Index}_t$$

5.4 - DISCUSSION

This chapter set out to see what effects the trading activities of institutional investors have on the general level of share prices. It also attempted to identify a market leader from the four major groups of institutional investors.

On the whole the results were as predicted, showing that as the purchasing activity of institutional investors increases, so does the level of share prices and as the selling activity increases, the level of share prices falls. This was especially true for pension funds and insurance companies because these two groups have a significant share of the market. It was also the case for the institutional investors combined, thus highlighting their importance when they move together. Unit trusts and investment trusts play a less important role in affecting the level of share prices.

The evidence presented here that the institutional investors combined, do alter the Index of share prices significantly, means that they are vitally important to the stock market and that their activities play a crucial role. If they move together they may have significant effects on the prices of the companies in which they move into or leave. The evidence of high serial correlation shows that they do move together, thus providing further evidence to support Shiller's fads model.

These findings have significant implications on the efficient market hypothesis. The EMH is not rejected here because all its conditions have not been tested (see chapter 4), however, its degree of efficiency is questioned. If the Grossman and Stiglitz view is taken then the high transaction costs ensure that institutional investors will have an advantage, particularly over smaller traders who cannot afford to expend the transaction costs.

The model performs particularly well for both pension funds and insurance companies, so they may be identified as market leaders. This shows a change in the degree of influence institutional investors have on the capital market. The mid-sixties to mid-seventies as analysed by Dobbins and Witt experienced influence from the institutional investors but no one group was strong enough to be identified as market leaders. From 1970 to 1987 there has been a growth in their impact on the economy as revealed by these results. The identification of market leaders is further evidence of inefficiency in the markets.

One issue to address at this stage is whether this growing influence of the institutional investors is against public interest. If their potential power to influence share prices makes them react against the public interest one solution could be more rigorous legislation from the government. The government could demand that the institutional investors invest in a certain percentage of smaller companies and new ventures which are UK based. This would reduce the bullish effect they have on the share prices of the companies which they tend to favour. A less severe solution would be to encourage further disclosure of their activities and their performance figures, particularly in the case of pension funds. This may, however, lead to an even greater problem of 'short-termism' where fund managers try to outperform each other in order to attract more finance, in the face of greater disclosure and quicker judgement.

Institutional investors now hold nearly two thirds of shares in the market and so their movements are of great importance. The study predicted a relationship between the trading activities of institutional investors and the general level of share prices. The results were not unusual, one would expect the selling activities of such large holders of shares to depress prices and their buying activities to increase prices. What is significant is the effects this influence has on information, smaller companies and new ventures. It is also of interest to see whether institutional investors do indeed move together in a herd.

In order to throw some light on this the equations are estimated in the light of a more advanced econometric technique - *cointegration*.

5.5 - COINTEGRATION TESTS.

This study has already shown that institutional investors affect the general price level. Now it can be seen whether this is the case in the long run. Cointegration techniques are applied to test whether there is a close, long run, stable relationship between the behaviour of institutional investors and the general price level ie the Index; and whether the institutional investors themselves move together. If this is so, then it sheds further light on the herd-like behaviour discussed in the previous chapter.

It is frequently of interest to test whether a set of variables are cointegrated. Economic theory often suggests that certain theoretical variables should not diverge from one another to a great extent, at least in the long run, although they may drift apart in the short run or according to seasonal factors.

DATA:

The study investigates the existence of these relationships on a quarterly basis over a seventeen year period (1970 - 1987). The recent concept of cointegration is applied between variables in order to form an error correction model. The data used are the same as used in the above regressions in this chapter except that some transformations have been made:-

$$1) \text{ TURNOVER} = \text{PURCHASES} + \text{SALES}$$

$$2) \text{ NET ACQUISITIONS} = \text{PURCHASES} - \text{SALES}$$

Turnover is used in order to establish whether if one institutional investor is dealing frequently; they all are. Net acquisitions capture the net movements of the institutional investors and if, as assumed, the institutional

investors are the dominant players in the market they would be expected to have significant affects on the general price level. This was shown in the previous section. Here, the study attempts to confirm this and also to show that the relationship does hold in the long run.

TESTING FOR COINTEGRATION

For a formal definition of cointegration see Engle and Granger (1987) and also Antoniou and Garrett (1989).

The first step in testing for cointegration is to run the cointegrating regression:

$$x_t = \alpha + \beta y_t + e_t$$

and test the hypothesis that the residuals e_t are $I(1)$. This is testing the null hypothesis of non-cointegration. Three statistics are used to test the null of $I(1)$ residuals: the Cointegrating Durbin Watson (CRDW), the Dickey - Fuller (DF) and Augmented Dickey - Fuller (ADF) statistics:-

1) The Cointegrated Durbin Watson (CRDW).

After running the cointegrated regression, the Durbin Watson statistic is tested to see if the residuals appear stationary. If they are non-stationary, the Durbin Watson will approach zero and thus the test rejects non-cointegration if the Durbin Watson is too big. If the Durbin Watson statistic is greater than 0.386 then we must reject the null hypothesis of no cointegration between the two variables.

2) Dickey - Fuller (DF).

This tests the residuals from the cointegrated regression by running

an auxiliary regression as described by Dickey and Fuller. It also assumes the first order model is correct. The test applied is the t test and if the t value exceeds the critical t value of -3.37 then cointegration does exist.

3) Augmented Dickey - Fuller (ADF).

This test allows for more dynamics in the Dickey Fuller regression and consequently is over parameterized in the first order case but correctly specified in the higher order cases. Once again there is a t test and if $t < -3.17$ then the null hypothesis of non cointegration is rejected.

RESULTS

**TABLE 5.6 - RESULTS OF CO-INTEGRATING REGRESSION
(TURNOVER).DEPENDENT VARIABLE : INDEX**

	<u>β</u>	<u>CRDW</u>	<u>DF</u>	<u>ADF</u>
UT	0.12	0.1225	-0.3220	-1.4657
IT*	0.46	1.2797	-5.5153	-4.8410
IC	0.10	0.9198	-2.8637	-2.3787
PF	0.05	0.3675	-2.5147	-2.2978
II	0.02	0.7963	-0.5618	-1.9475

*** Cointegrated**

a) CRDW is the DW statistic from the cointegrating regression. Reject the null of the non cointegration if $DW > 0.386$.

b) DF is the Dickey-Fuller test for a unit root. Reject the null of I(1) residuals if the t statistic < -3.37 .

c) ADF is the Augmented Dickey-Fuller test for a unit root. Reject the null if $t < 3.17$.

Table 5.6 shows that there is no evidence of cointegration between the turnover of institutional investors (purchases + sales) and the FT All Share Index for any single group or the combined institutional investors. The only exception was investment trusts. The evidence of no long term relationship between the institutional investors and the Index may be because turnover does not capture the impact of market movements. Investment trusts were the exception, possibly because they do not opt for buy and hold policies and so their frequent buying and selling affects the general price level.

TABLE 5.7
RESULTS OF COINTEGRATING REGRESSION
(NET ACQUISITIONS)
DEPENDENT VARIABLE: INDEX.

	<u>B</u>	<u>CRDW</u>	<u>DF</u>	<u>ADF</u>
UT*	0.91	0.5352	-3.3762	
IT	0.51	0.0680		0.1514
IC*	0.68	1.0115	-4.5627	
PF*	0.37	1.2909	-5.7977	
II	0.22	1.0954	-4.9412	

(See Table 5.6 for key)

Table 5.7 differs significantly from Table 5.6 in that there is evidence of cointegration being present in all cases of the net acquisitions of institutional investors (purchases - sales) and the Index. The only exception was investment trusts where no cointegration was present even after the augmented Dickey-Fuller test. A closer relationship between net acquisitions of institutional investors and the Index is expected because all the net movements are captured and these affect the general price levels. Institutional investors are dominant players in the market as has been shown in an earlier section in this chapter, and so one can expect their movements to have significant affects on the Index.

Additionally, tests for cointegration have also been carried out between the institutional investors themselves. These tests have been carried out systematically for all combinations of the institutional investors, for both turnover and net acquisitions. The reason for carrying out these further tests is to see if the institutional investors move together in the long run, thus shedding light on the herd like behaviour theories.

A strong relationship is expected in all cases because institutional investors do have a tendency to move together due to similarities in information, aims etc. as discussed in previous chapters. There are bound to be short run divergences because of the differing time horizons between the groups of institutional investors eg unit trusts operate on a smaller time horizon than pension funds. This is why the cointegration technique is so important, because it allows long run components of variables to obey equilibrium relationships, whilst short run components are allowed a flexible dynamic specification (see Antoniou and Garrett (1989)).

TABLE 5.8**TURNOVER - DEPENDENT VARIABLE: UNIT TRUSTS.**

	<u>β</u>	<u>CRDW</u>	<u>DF</u>	<u>ADF</u>
IT*	3.37	0.7310	-3.8801	
IC*	0.79	1.4353	-6.0255	
PF*	0.44	0.2836	-0.2540	6.2935
II	0.21	0.4274		-2.4890

TURNOVER - DEPENDENT VARIABLE: INVESTMENT TRUSTS

	<u>β</u>	<u>CRDW</u>	<u>DF</u>	<u>ADF</u>
IC*	0.21	1.0531	-4.6683	
PF*	0.11	1.2829	-5.5574	
II*	0.05	1.0338	-4.9428	

TURNOVER - DEPENDENT VARIABLE : INSURANCE COMPANIES.

	<u>β</u>	<u>CRDW</u>	<u>DF</u>	<u>ADF</u>
PF*	0.53	1.5962	-6.8504	
II*	0.25	1.7224	-7.3881	

TURNOVER - DEPENDENT VARIABLE : PENSION FUNDS.

	<u>β</u>	<u>CRDW</u>	<u>DF</u>	<u>ADF</u>
II*	0.47	1.2508	-4.3197	

Table 5.8 presents the results of the relationships of the turnover of institutional investors with one another. Cointegration was detected in all cases except for the combination of unit trusts and institutional investors. This may be because unit trusts, unlike the other institutional investors, do not have a buy and hold policy.

TABLE 5.9

NET ACQUISITIONS - DEPENDENT VARIABLE : UNIT TRUSTS

	<u>β</u>	<u>CRDW</u>	<u>DF</u>	<u>ADF</u>
IT	0.78	0.4369		2.9373
IC*	0.55	1.3075	-5.7861	
PF*	0.35	1.6307	-6.9432	
II*	0.21	1.9237	-8.0606	

NET ACQUISITIONS - DEPENDENT VARIABLE:INVESTMENT TRUSTS

	<u>β</u>	<u>CRDW</u>	<u>DF</u>	<u>ADF</u>
IC*	0.04	1.4585	-6.3487	
PF*	-0.0008	1.5109	-6.4966	
II*	0.01	1.5458	-6.6472	

NET ACQUISITIONS - DEPENDENT VARIABLE:INSURANCE COMPANIES.

	<u>β</u>	<u>CRDW</u>	<u>DF</u>	<u>ADF</u>
PF*	0.36	1.9355	-8.4910	
II*	0.23	1.8787	-7.9471	

NET ACQUISITIONS - DEPENDENT VARIABLE:PENSION FUNDS.

	<u>β</u>	<u>CRDW</u>	<u>DF</u>	<u>ADF</u>
II*	0.53	2.0536	-8.6676	

Table 5.9 shows the results of the net acquisitions of the institutional investors with one another. The results show that cointegration was present in all cases except for investment trusts and unit trusts. The results overall do imply the existence of herd-like behaviour as we have established a long run stable relationship between the institutional investors.

5.6 - SUMMARY AND CONCLUSIONS

Institutional investors have been alleged to cause major swings in share prices and to move together in a 'herd' due to similarities in their information. In this chapter a time series model for the years 1970 - 1987 was empirically tested in an attempt to explain movements in the FT All-Share Index in terms of institutional equity activity.

The results suggest that the trading activities of the institutional investors do influence the general level of share prices in the UK stock market, with purchases resulting in price increases and sales resulting in price declines. The removal of the effects of inflation from the original data has not altered the conclusion that institutional investors' buying and selling activities have an influence on share prices. This highlights the potential for institutional investors to bias share price movements towards the firms they invest in and away from those they leave, and consequently to affect the allocation of resources.

In an attempt to analyse whether there is any evidence that the institutional investors do move in the same direction in the long run, a recent econometric technique of cointegration was applied. The results suggest the existence of long run stable relationships between the variables. However, no conclusive evidence was found regarding the existence of fads or herd-like behaviour.

The main limitation of this study is that it is too narrow. It has focused solely on the movements of institutional investors as if they totally control the market. It is important to emphasise that they are just one force affecting share prices and they do not account for the whole impact. The change in prices may be driven by other factors e.g. expectations, interest rates etc. To analyse the specific effect of institutional investors on share prices it

would be necessary to look at pressure on share prices at the specific times when the institutional investors either purchased or sold shares.

This chapter does emphasise that as large holders of shares institutional investors do have the potential to influence the general level of activity. The following chapter attempts to test whether the switching activities of institutional investors from one type of asset to another also affects the general level of economic activity.

CHAPTER 6 - THE SWITCHING ACTIVITIES OF INSTITUTIONAL INVESTORS

6.1 - INTRODUCTION

This study has discussed the goals, incentives and the competitive structure within which institutional investors operate and which influences their investment decisions. In chapter 3 the variables attracting institutional investors into certain companies were analysed and in the previous chapter it was shown that the buying and selling activities of institutional investors do affect market prices. Here, the study extends this by investigating whether switching from one type of asset to another, e.g. from property into equities, will also affect the market as a whole. It attempts to analyse how institutional investors balance their portfolios in order to establish the demand they themselves create for assets.

It is believed that the activities of institutional investors switching from one type of asset to another will have an affect on the market, however, if the market is efficient then this cannot be the case.

This is an empirical time series study for the years 1965-1984 in the case of pension funds and insurance companies and 1965-1991 in the case of investment trusts. The chapter is set out as follows: Section two outlines the past studies analysing the asset distribution of institutional investors. It looks at each of the four groups separately in order to see if their investment choice differs due to their different goals and incentives. Section three discusses the data and the reseach methodology and also any limitations in the data. Section four presents the research results and discusses their validity using econometric analysis. Section five analyses the implications of the results and ties them with the rest of the thesis. Finally section six summarises the chapter and states the conclusions.

6.2 - PAST PAPERS
INSURANCE COMPANIES

The portfolios of the industry are generally spread across a spectrum of different assets with government securities having a major role. Property, ordinary shares, mortgages, loans and cash also play an important part in their asset allocation decisions. Most companies have also built up a considerable volume of assets in foreign markets.

TABLE 6.21: DISTRIBUTION OF UK INSURANCE COMPANY ASSETS AT YEAR END (%)

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Public Sector securities	30	27	25	22	24	20
Company Securities	46	50	53	58	56	57
Other Investments	24	23	22	20	21	23

(Source: Foley Table 6.4 p179)

Since the 1960's and the so called 'cult of the equity' there has been a shift in allocation towards equities - and this has continued in the 1980's: ordinary shares accounted for 46% of total assets of insurance companies in 1983 and by 1988 some 57% (see Table 6.21). This partly reflects a bull market which saw equity values rising faster than the other sectors - hence after the 1987 Crash the share of equities fell back to only 56%. However, this rise in equity values is only part of the story, as clearly there have also been policy decisions to increase the weight of equities in the overall portfolio. By 1987 and 1988 company securities were accounting for nearly two-thirds of the net investment undertaken by the companies.

It is clear from the table that public sector securities represent a considerable proportion of invested assets and while this total has been declining (from 30% to 20%) it is still expected to remain an important arena for UK insurance company funds.

Insurance companies as a whole have been discussed, however, they can be divided into general insurance companies and life assurance companies, where the latter have the lions' share of funds. For general insurance companies, company securities declined in the share of net investment from 85% in 1966 to 23% in 1981 (Dodds and Dobbins (1985)) with a marked preference for government securities, cash and short term assets. For life assurance companies ordinary shares increased in importance while debentures fell. Life offices doubled their share of holdings of property and substantially reduced their share of loans and mortgages. Their overseas company security holdings since 1976 reveal stability.

PENSION FUNDS

The pattern of asset holding in pension funds has shifted very markedly toward the corporate sector: government securities still play a significant but declining role in the overall allocation. Similar to the case for insurance companies, much of the growth in company securities is a consequence of the rise in the equity values over this period. It is clear from the disposition of new inflows of money that equities receive the largest amount.

TABLE 6.22: DISTRIBUTION OF SELF-ADMINISTERED PENSION FUND ASSETS AT YEAR END (%)

	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>	<u>1988</u>
Public Sector securities	21	19	18	16	16	13
Company Securities	62	65	68	72	71	74
Other Investments	17	16	14	12	13	13

(Source: Foley Table 6.4 p179)

This re-orientation of pension fund portfolios in the UK away from government securities pre-dates the contraction in the gilts market.

The last ten years have seen increased commitment to equities at the expense of exposure to both UK Bonds and UK property, which has steadily declined over the period. This alteration in balance reflects both the high level of commitment of new money to equities and the generally superior returns available from the equity markets during this last ten year period (1980-1990).

The main difference in the asset distribution between the pension funds and the life assurance companies is that life assurance companies are much heavier in fixed interest, including gilts, debentures and loans, and correspondingly lighter in equities than pension funds. The difference arises because life assurance companies must fulfil contracts expressed in terms of fixed sum assured, whereas pension funds generally provide benefits related to final earnings.

TABLE 6.23: PENSION FUNDS - ASSET MIX END YEAR (%)

<u>Investment category</u>	<u>'80</u>	<u>'81</u>	<u>'82</u>	<u>'83</u>	<u>'84</u>	<u>'85</u>	<u>'86</u>	<u>'87</u>	<u>'88</u>	<u>'89</u>	<u>'90</u>
UK Equities	45	44	43	44	47	49	51	54	53	53	54
Overseas Equities	9	12	14	17	16	17	20	14	16	21	18
UK Bonds	21	19	19	19	17	16	13	13	10	6	6
Overseas bonds	-	-	-	-	-	-	0	1	1	2	3
Index linked	-	-	3	3	3	3	3	3	3	2	3
UK property	20	21	18	14	13	11	8	9	10	9	8
Overseas property	-	-	-	-	-	-	1	1	1	1	1
Cash/ Other	4	4	3	4	4	4	4	4	6	6	7

Source: WMI Annual Review (1990)

Table 6.23 reveals the general strength of the UK equity market which has resulted in a steady increase in commitment over the period. A significant proportion of the cash flow was committed to overseas equities in the earlier years. In recent periods, flows have been such that a weighting of around 20% would be maintained.

After committing significant amounts of new money to UK bonds in the earlier years, funds have disinvested in the four most recent years. In the three latest years disinvestment from UK bonds has coincided with increasing investment in overseas bonds. As a result, the overall bond weighting at the end of December 1990 was around 9%. Whilst the average overseas bond weighting at the end of 1990 was 3%, it should be noted that amongst the 69% of funds which held these investments the mean weighting was 7%.

Index-linked attracted new money in the first five years following their introduction, in the last four years marginal disinvestment has generally taken place. UK property has seen net investment in all but one of the years, but the investment flows are a smaller proportion of the total flows than property is of the total assets ie. the flows represent a policy shift from property. Cash/ Other investments was held at around 4% of assets up until 1987 since when the proportion has now increased to 7%.

Pension funds can be divided into three main groups - private, local authority and other public sector funds. the largest of these being private funds. Below we look in turn at the asset distribution of each type of fund from the period 1962 - 1990.

i) Private Funds¹

The proportion of assets held in equities, UK and Overseas, rose from under 50% in 1962 to nearly 60% in 1972. The sharp fall in the UK equity market in 1973 and 1974 reduced this proportion to under 40%, but the

¹ All figures are from Phillips and Drew Fund Management (1991)

subsequent recovery increased it again to around 52%, a level which was maintained between 1975 and 1980. The rise in equity markets and the big move into overseas equities more recently, caused an increase in the equity proportion up to 74% at the end of 1989, with some fall back to 72% at the end of 1990. The peak for the equity proportion was in the summer of 1987.

The biggest change in the 1980's was the increase in the proportion of assets in overseas equities, up from 5% in 1979 to a peak of 18% by end of 1989. This follows directly from the abolition of exchange controls in late 1979.

The weighting of fixed interest fell from 51% in 1962 to under 26% in 1972 reflecting rising interest rates and a generally low level of net investment. During the 1970's, the proportion held in fixed interest stayed fairly constant at around 28% of assets, indicating that a poor performance was being offset by a high level of net investment, as the government funded public spending by issues of gilt-edged stock. Subsequently, as government issues ceased and public sector debt repayment emerged, the fixed interest proportion fell to 9% at the end of 1990. Conversely, index-linked securities, first issued in 1981, constituted 2% of assets at the end of 1990.

The recent fall in the fixed interest holdings by pension funds has been particularly sharp since, in the light of current ideas on asset allocation, pension funds have been willing sellers of fixed interest, as the counter parties to government buying. In contrast life assurance companies have not been sellers of fixed interest on a large scale.

Property investment increased in popularity over the 1970's, as pension funds moved into a sector which they saw as a hedge against inflation. The property proportion rose to a peak of 16% in 1981, compared with less than 5% in 1967. Since 1981, reduced net investment and a poor investment performance have caused a fall in the property proportion to 8%.

Cash built up to 20% of assets at the end of 1974, partly because of the very depressed values attributable to the other investment sectors. The cash weighting subsequently fell and has been around 5% in recent years. In summary, the key features of the asset distribution are the persistently high equity proportion and the recent move towards greater diversification of investment media.

ii) Local Authority Funds

The general trend in the investment of local authority funds has been in most respects similar to those for private funds. During most of the period the proportion in gilts has been significantly higher than for private sector funds, largely as a result of the legal restrictions on investment powers. The relaxation of the local authority funds' investment powers in 1974 resulted in some move towards a more similar investment approach to that of the private funds. Now the clearest differences between the local authority and private sector funds are that the local authority funds are a little heavier in overseas equities and a little lighter in property.

iii) Other Public Sector Funds.

This principally consists of nationalised industry funds. The asset distribution between sectors shows a similar pattern to that of the private sector, although the swings between investment sectors have been somewhat greater. These funds were slower in building up the overseas equity sector than private sector funds and they also give a greater weighting in property than the private funds.

These funds are dominated by a very small number of very large funds to a greater extent than the other sectors. This feature affects their management style. In particular, they exhibit a high proportion of property holdings in relation to the size of the funds.

UNIT TRUST

Many trusts confine their investment to the domestic market offering to invest in equities or a mix of equities and fixed interest securities. Others offer a geographical specialisation by country or by area such as Japan, USA, Australia or Europe, the Pacific, Asia. Yet others specialise by sector e.g. money market funds, smaller companies, recovery stocks, technology, property, commodities etc. Thus unit trusts encompass a variety of investor preferences including exposure to overseas markets within the context of a reasonably diversified portfolio.

INVESTMENT TRUSTS

Investment trusts have more room for manoeuvre in terms of investment policy than unit trusts, because they are a conventional company and are thus not constrained legally by the terms of a trust deed. Also a unit trust which performs badly and fails to satisfy investors will face growing net redemptions and this, by reducing the size of the fund puts pressure on the manager to find a solution quickly. The managers of an investment trust however can alter the composition of the portfolio much more readily: not only is there no deed but shareholder pressure is unlikely to be felt so immediately. Dissatisfied investors sell their equity in the market not back to the trust and the result is simply the substitution of one set of shareholders for another. This should allow an investment trust manager to take a longer term view and invest in firms which may have poor short term prospects without worrying that a dip in share price will generate a shrinkage in capital invested. As investment trusts are companies they are not limited to issuing equities; they can issue other sorts of capital; e.g. fixed interest bonds may be sold and the proceeds used to expand the share portfolio. They can also issue convertible loan stock and warrants which give them a great deal of flexibility. The bullish nature of the markets in the 1980's led to a considerable growth of issues with warrants attached.

6.3 - DATA AND RESEARCH METHODOLOGY.

The hypothesis to be tested is that the switching activities of institutional investors have an effect on the market.

The data for insurance companies and pension funds are from the Bank of England Quarterly Review (1985). The data are given annually for the years 1965 - 1984. The market index values are from CSO Financial Statistics for the years 1965 - 1984 and are taken from the column headed FT All-Share Index (April 1962 =100).

In the case of insurance companies data were only for life assurance and not general insurance, so care must be taken when interpreting the figures. This is not too severe a limitation because life assurance makes up the bulk of total insurance business and so serves to give a clear idea of the activities of insurance companies.

Similarly, in the case of pension funds, the data only represent private pension funds and not local authority funds or public funds. Private pension funds are the largest of the three groups and so are of more use to analyse.

The pension fund portfolio data prepared by the Bank cover thirty eight types of asset: to ease exposition the data are aggregated into larger groups, chosen with a view to presenting an aggregation that is reasonably close to that used by managers when making strategic decisions about the overall structure of a portfolio. To this end the criteria for aggregation should be such as to provide groupings within which assets can be regarded as more or less homogeneous. However, criteria in practice will vary according to the concerns and aims of investors and thus a classification scheme which matches the criteria used by investors may not yield perfectly homogeneous groupings.

There are several difficulties in analysing the portfolio data aggregated into groups. The structure of a fund's portfolio changes from year to year, partly because the managers plan their investment decisions to achieve such changes, and partly because the value of their existing investment changes. Therefore, it is insufficient to look only at the changes in the overall structure of the funds' portfolio; it is necessary to consider how those changes came about. The new integrated accounts break down changes into those reflecting cash flow (ie conscious investment behaviour), changes in valuation of the initial portfolio during each period, and a residual element. This last factor reflects not only measurement errors but also revaluation of assets purchased during the period in question.

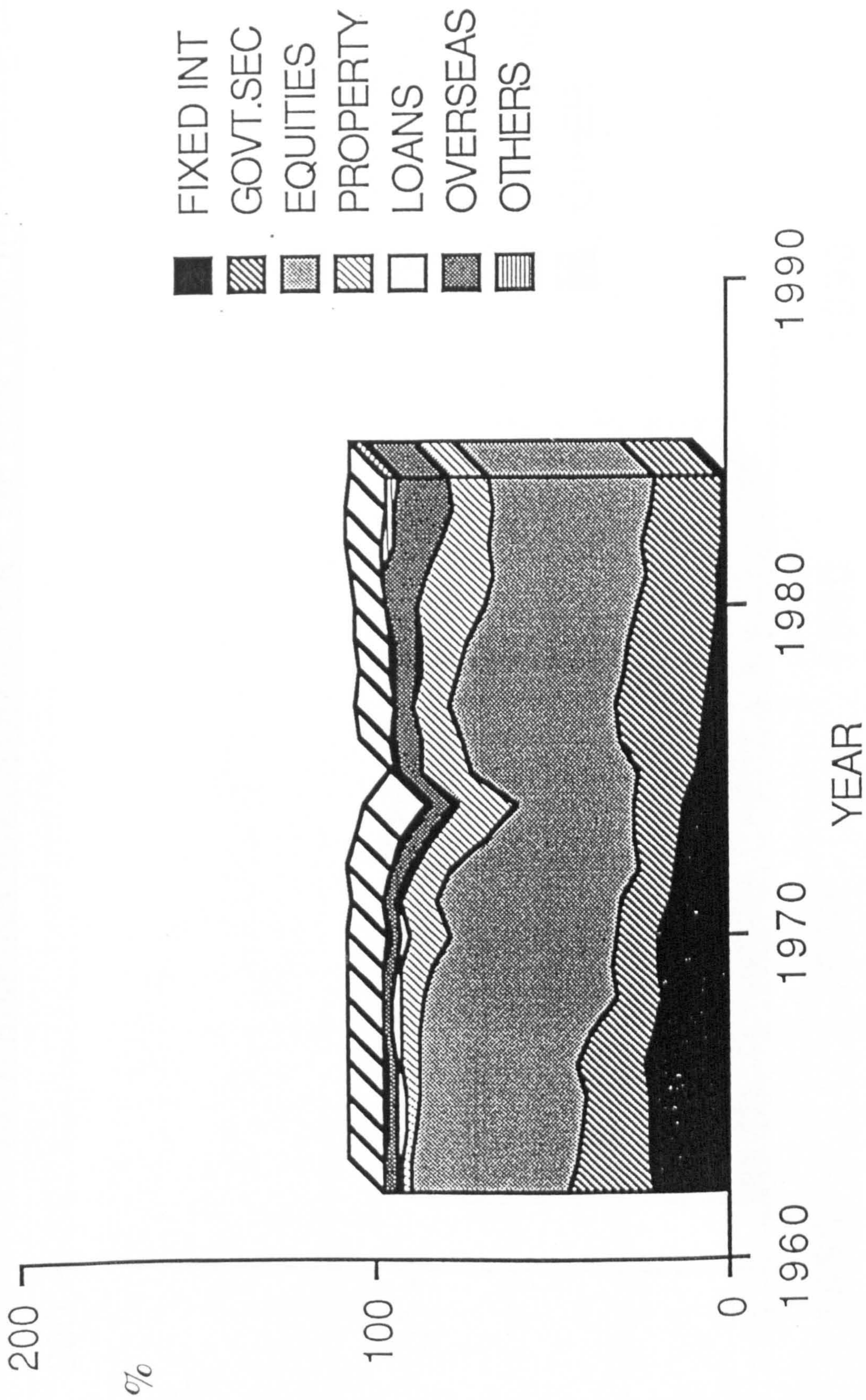
In the case of investment trusts a random sample of 30 investment trusts for the years 1965 - 1991 were chosen from Datastream. Data were collected of the portfolio distribution for these companies which was in the form of bonds and equities. The Index was obtained from CSO Financial Statistics as above.

The main limitations of the data were that, in the case of pension funds and insurance companies, the data were only available up to 1984. However, this provides a spread of 19 years and so is enough to detect any relationship between the market index and the movements of the institutional investors' portfolio's.

In the case of investment trusts the main limitation is that the sample consisted of only 30 companies. The reason for this was due to the source of the data ie Datastream which only gave data going back to 1965 for a limited number of companies. It was judged essential to go back to that period for any meaningful interpretation to be made regarding the activities of the investment trusts and their effects on the market index. This also enabled comparison of the results more directly with those for pension funds and insurance companies.

FIGURE 6.1

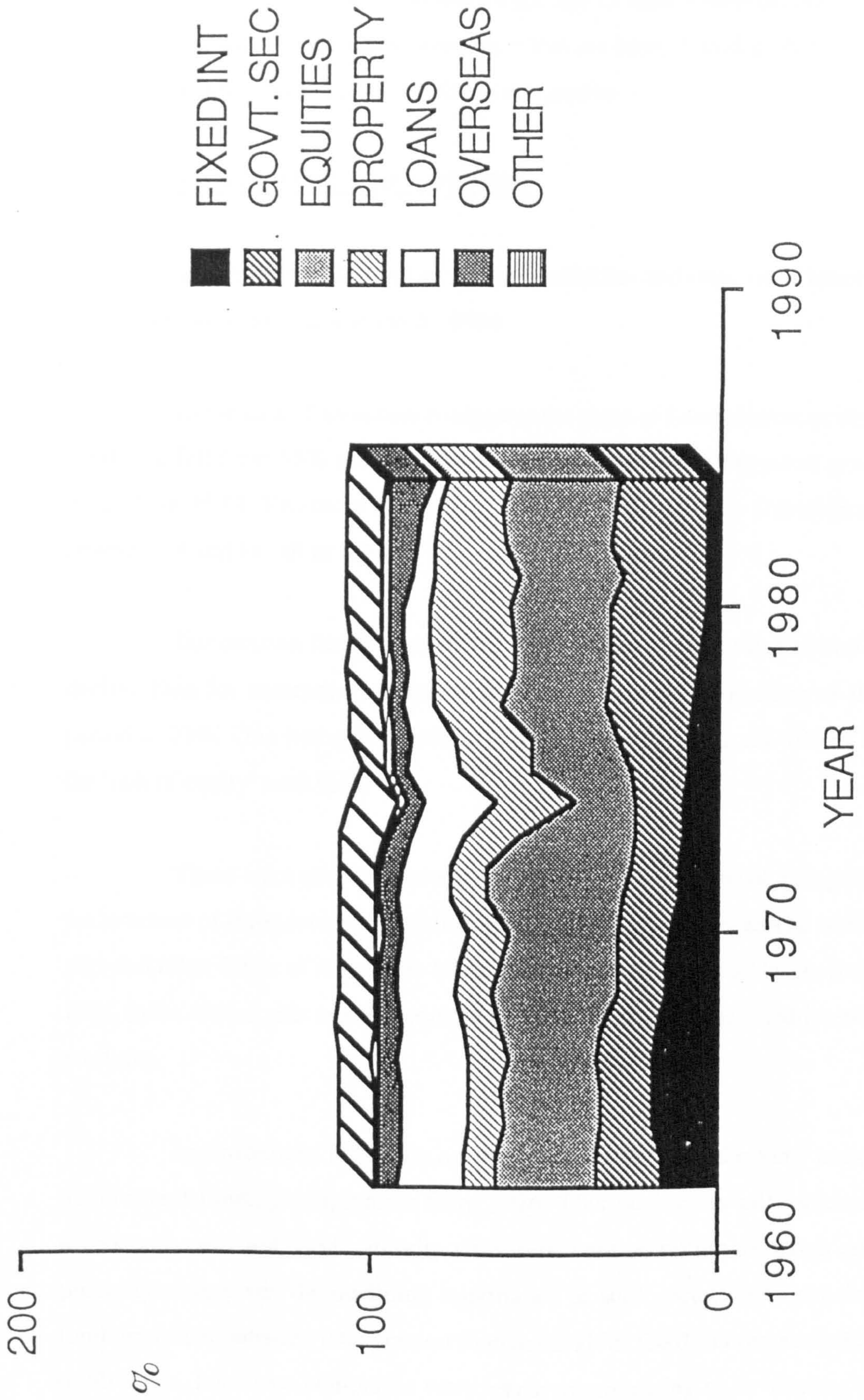
PENSION FUNDS: STRUCTURE OF PORTFOLIO



Source: Bank of England Quarterly Bulletin (1986)

FIGURE 6.2

LIFE ASSURANCE: STRUCTURE OF PORTFOLIO



It is possible now to introduce each type of asset within the portfolio of pension funds and insurance companies that are being tested in this study. These assets are represented in the above two graphs.

1) FIXED INTEREST SECURITIES.

These include British Government securities and other fixed interest for the period of our study ie 1965 - 1984.

In the case of insurance companies the share of fixed interest in their portfolios fell from 35% to 28%. The decline set in from 1968 to a low point of 24% in 1974. Recovery to 33% in 1977 was followed by fluctuations around 30% until a fall in 1984.

For pension funds there was a much sharper and more substantial decline than for insurance companies ie from 46% at the beginning of the period to 20%. This was a continuation of a trend established in the 1950's as the 'cult of equity' took hold.

There were also very strong similarities in the pattern of change in the structure of fixed-interest portfolios, from being fairly evenly spread across gilts and other forms of security to being dominated by gilts. In addition, from 1981, index-linked gilts rapidly acquired a noticeable share in the fixed-interest portfolio.

An important influence on the bond market was the very heavy government funding programme from 1976. This pushed up gilt yields to levels corporate and local authority treasurers were unwilling to match and probably also, given the declining importance of such securities in pension fund portfolios, satisfied total pension fund demand for fixed-interest securities of all kinds. Insurance companies were less accommodating to the decline of gilts in the portfolio from 1965 to 1973 than were pension funds. For much of

this period, insurance companies devoted to gilts a share of cash flow disproportionate to their portfolio share, but this did little more than offset the decline of real gilt values caused by inflation. Portfolio share fell both because of the appreciation of other asset values and because of the revaluation effects of rising interest rates. In the later 1970's the returns on gilts began to look very attractive and pension funds sharply increased their purchases with the expansion of the government funding programme and gilts increased in importance in both types of portfolio. Pension funds became heavy buyers from 1973 while insurance companies delayed their move back into gilts until 1975.

Between 1980 and 1984 the share of gilts fell from 27% to 25% in insurance company portfolios and in pension funds from 23% to 18%. Pension fund demand was probably limited by the very heavy returns on equities. In particular, heavy investment in overseas assets took place at this time.

2) EQUITIES

In insurance company portfolios the share of equities rose as high as 42% at end-1972 and fell as low as 18% at end-1974, and in pension funds as high as 53% at end-1972 and as low as 33% at end-1974. The share of equities increased sharply in 1968, fell back a little to 1970 and then bounced back to end-1972, particularly strongly in the case of insurance companies. The stock market collapse of 1973-1974, in the face of price and dividend controls, the oil price shock and great economic and political uncertainty, sharply reduced the value of pension fund equity holdings and thus the total value of pension fund portfolios and increased the importance of other assets. Pension funds actually dis-invested in ordinary shares in 1973 and 1974, whilst insurance companies continued to invest, but at a lower rate than in the previous two peak years.

The recovery of stock prices in 1975 pushed pension fund equity holdings back to the share held in 1970 before prices boomed and collapsed. It took until 1983 for insurance companies to regain their 1970 share.

3) PROPERTY

Both pension funds and insurance companies were concerned to make investments which provide a hedge against inflation and so increased their exposure to property. The share of property in pension fund portfolios increased from 3% at end-1965 to a peak of 19% in 1981, before falling back to 11% at end-1984. In the insurance company portfolio the property share increased from 9% to 24% at end-1979, dropping back to 17% at end-1984. The relative importance of investment in property increased sharply in 1973-74 with the stock market crash and the portfolio share of property increased because of this and because of the fall in the value of equity holdings.

Insurance companies reduced the proportion of cash flow going into property from 1975, probably due to the property market collapse of 1974-75, but the portfolio share of property increased reflecting the large capital gains available, from 1977 until 1979. In contrast the importance of property in the pension fund portfolio declined to 1977 but recovered after 1980. In the early 1980's property declined in both portfolios as values stagnated or declined.

4) LOANS

In 1965 loans were an important part of insurance company portfolios, accounting for 19% of assets. In pension funds they were unimportant accounting for 2% of assets and by 1984 this share had fallen to 0.2%. In insurance company portfolios loans increased a little to 1966, but subsequently declined almost continuously. This was due to the declining real value of assets fixed in nominal terms and an increased demand for variable-rate loans, as opposed to the fixed rates insurance companies had traditionally

offered. A temporary halt to the decline was seen in 1973-74. This was partly due to the fall in the value of the total portfolio as stock prices collapsed. In particular house purchase loans and loans on company policies increased, probably as the effects of the residential property boom forced purchasers to seek additional sources of finance. Insurance companies may have been willing to respond to the demand at a time when new investment opportunities were limited due to the loss of faith in the equity market.

5) OVERSEAS ASSETS

One of the most significant developments in the structure of pension fund portfolios did not begin until 1979. Until then overseas assets had only been of minor importance. In the insurance company portfolio their share had fluctuated between 3% and 6%, and in pension funds between 3% and 7%. By end-1984, they represented 12% of insurance company assets and 14% of pension fund assets, having risen to 16% in 1983. This rapid increase suggests that until their abolition of exchange control regulations in 1979 they had been having a constraining effect on managers. The strength of sterling during this period was also an influence and the fall in investment in 1983-84 probably reflected the subsequent weakening of sterling which made overseas investment expensive and increased the value of overseas assets.

According to a WM Computer Services study there is evidence that overseas investment had greater returns with lower portfolio volatility risk. Overseas investment had the added advantage of allowing participation in the economies of those countries enjoying faster rates of economic growth than the UK.

Now that the independent variables have been introduced a model is set up where the independent variables are regressed against the market index in an attempt to analyse whether they do indeed move the market index. The model is as follows:

$$I = a + bX_1 + cX_2 + \dots gX_6$$

Where **I** is the market index

a is the constant term

b,c ... g are the coefficients of the independent variables

X₁ ... X₆ are the independent variables - equity, fixed interest securities, government securities, property, loans and overseas assets.

Having collected the data the first step was to calculate the difference from one year to the next for all the variables and then run OLS regressions with the dependent variable being the Index. Diagnostic tests were applied throughout to test the validity of the data.

6.4 - RESEARCH RESULTS

TABLE 6.1 - PENSION FUNDS.

OLS REGRESSIONS: DEPENDENT VARIABLE - INDEX

<u>REGRESSORS</u>	<u>COEFFICIENT</u>
C	34.05* (3.8)
EQUITY	3.74* (1.7)
FIXED INTEREST	9.14* (1.6)
GOVERNMENT	-5.50* (-1.6)
PROPERTY	-6.34* (-1.7)
LOANS	18.51 (0.68)
OVERSEAS	4.77 (1.01)
R²	0.67
DW	1.48
F(6,12)	4.21

(t Values in parentheses)

TABLE 6.2 - INSURANCE COMPANIES

OLS REGRESSIONS: DEPENDENT VARIABLE - INDEX.

<u>REGRESSOR</u>	<u>COEFFICIENT</u>
C	23.03* (2.1)
EQUITY	2.74 (0.3)
FIXED INTEREST	4.35 (0.4)
GOVERNMENT	-2.54 (-0.2)
PROPERTY	-4.80 (-0.4)
LOANS	-1.85 (-0.1)
OVERSEAS	9.98 (0.7)
R²	0.73
DW	1.52
F(6,12)	5.60

(t Values in parentheses)

TABLE 6.21 - INSURANCE COMPANIES.

OLS REGRESSIONS: INDEPENDENT VARIABLE - INDEX.

<u>REGRESSOR</u>	<u>COEFFICIENT</u>
C	36.15* (4.1)
EQUITY	5.54* (4.8)
FIXED INTEREST	18.46* (2.1)
GOVERNMENT	-2.8 (-1.07)
R²	0.61
DW	0.91
F(3,15)	8.14

(t Values in parentheses)

TABLE 6.3 - INVESTMENT TRUSTS.

OLS REGRESSION: DEPENDENT VARIABLE - INDEX

<u>REGRESSOR</u>	<u>COEFFICIENT</u>
C	42.02* (2.9)
EQUITY	11.08* (1.3)
R ²	0.07
DW	1.99
F(1,24)	1.87

(t Values in parentheses)

TABLE 6.4:

OLS REGRESSION: DEPENDENT VARIABLE - INDEX

<u>REGRESSOR</u>	<u>COEFFICIENT</u>
C	42.03* (2.9)
BONDS	-11.06* (-1.3)
R ²	0.07
DW	1.99
F(1,24)	1.88

(t Values in parentheses)

Table 6.1 shows the OLS regression results for pension funds for the years 1965 - 1984. The dependent variable is the All - Share Market Index and the independent variables are equity, fixed interest, government, property, loans and overseas securities. As in the previous empirical chapters diagnostic tests were applied to check the validity of the results. The main tests applied were to test for serial correlation, the correct functional form and heteroscedasticity. The model was found to be statistically well specified.

The results show that the coefficient for equities was positive and significant as predicted; fixed interest was also positive and significant; both the coefficients for government and property were negative and significant. The only results which were not as predicted were loans and overseas securities which were positive rather than the expected negative. However, these were not found to be significant.

The R^2 shows that these variables account for 67% of the variation in the market index. The DW showed no evidence of autocorrelation and the F statistic showed that the overall equation was significant.

The results for insurance companies were not as expected. Table 6.2 shows that although the signs of the coefficients are as expected, they are not significant. There are problems of multicollinearity which were detected by drawing up a correlation matrix. Consequently some variables were dropped. Deleting variables does not necessarily solve the problem and can lead to further problems (see Madalla (1985)), however, in this case a test was applied for data deletion and the results were found to be valid. Table 6.21 shows the coefficient of equity to be positive and significant; fixed interest is also positive and significant and government is negative and significant. The R^2 shows that these variables account for 61% of the variations in the index. The overall equation is significant.

Tables 6.3 and 6.4 give the results for a time series study of 30 investment trust companies for the years 1965 - 1991. The dependent variable is once again the index. In this case there were only two independent variables other than the constant term (c). They could not be put them in one equation because there was a high degree of multicollinearity between them.

Table 6.3 shows that the coefficient for equity was positive and significant as expected. The R^2 was low which is to be expected as there is only one independent variable. Obviously many other factors influence the market index other than investment trust equities. The DW is 1.99 which is a very statistically sound result and the overall equation is significant.

Table 6.4 found bonds to be negative and significant. Once again the R^2 was low for the same reason as above and the overall equation was significant.

6.5 - ANALYSIS OF RESULTS.

The liabilities of pension funds are of a long term nature and therefore they are expected to take a long term view of their investments. For example the proportion of portfolio held as government securities, has remained fairly steady. Throughout the whole data period covered equities account for approximately half the portfolio with only mild fluctuations. Property has taken up an increasing amount of the portfolio and this move may be seen as the pension funds' response to persistent inflation and negative 'real' interest rates. The only volatile asset group is short term assets. This may be because if there is a lack of long term investment of the 'right calibre' ie in terms of risk and expected return, then the pension funds may invest their money short until the right opportunity arises.

The review of the portfolio by the pension funds may be seen as a reconsideration of the choice between the various fixed interest bearing securities (gilts, debentures, loans and mortgages), equity assets (ordinary shares, land, property etc.) and short term assets. The allocation or reallocation of the fund into these broad asset groupings may be termed the fund's strategic decision.

It is a fairly standard and reasonable practice to characterise the strategic allocation decision in terms of the pension funds possessing a desired or optimum balance sheet. The optimum balance sheet consists of a series of desired holding levels for the various asset categories, determined by the fund's attitude towards risk, its liabilities (the pensions paid and payable to beneficiaries and/or their dependents) and the nature of the asset groupings themselves with respect to yield and their other attributes (eg income and capital risk, in both real and nominal terms, marketability/liquidity, and various non yield factors). Of course, this optimum balance sheet is not a directly observable phenomenon as there are many factors which prevent the pension funds from achieving their desired position. One of the factors that may be cited concerns the dominant role played by the pension funds in many financial markets. One particular consequence of such dominance is that it is not always possible for pension funds to operate freely in some markets without unduly affecting the price. This is particularly the case if any fund finds itself requiring a large degree of adjustment in the market for a particular asset. A second factor is that the right type of security (in terms of risk, holding period etc.) is not always immediately available, so that pension funds may have no option but to hold short term assets until better opportunities arise in longer term investment categories. Another factor is the various political pressures to direct their funds that pension funds (and other large institutional investors) find themselves subject to from time to time.

At the beginning of this data period insurance portfolios were spread across British government securities (gilts) and other fixed interest securities

(35%), UK equities (28%), loans(19%) and property (9%). In contrast pension funds were concentrated in fixed interest securities (41%) and equities (47%). In both portfolios, gilts were more heavily represented than other forms of fixed interest security. These differences in portfolio structure reflected developments in the 1950's. Pension funds, which had been overwhelmingly invested in fixed interest securities in the 1940's, had increasingly turned to ordinary shares - 'the cult of equity' - in the expectation of achieving greater positive real returns. The lack of diversification into other assets may have reflected in part the constraints of the 1925 Trustee Act on funds without specific trust deeds to allow investment in instruments other than fixed interest securities and the non retail nature of pension funds, which limited the potential of loan business. In contrast, insurance companies unconstrained by the Trustee Act, had a wider spread of assets including, in particular loans, of which the bulk were to persons.

Both pension funds and insurance companies faced changes in the nature of their liabilities which increased the importance of searching for the highest real returns on assets. A major influence on the liability structure, in pension business especially, was inflation. This was also a dominant influence on investment behaviour because of the impact it had on the real returns on different types of asset. However, there were also other significant shocks and changes during the period. The most prominent being the two oil price shocks in 1973 and 1979; the collapse of the stock market in 1973-74 (and more recently, of course in 1987); price and dividend controls; the rent freeze imposed in 1973 and the property market collapse of 1974-75; and the abolition of exchange controls in 1979.

At the beginning of this data period pension funds saw a switch in the relative importance of equities and fixed interest securities. In contrast, insurance companies saw a small fall in the share of equities, with loans and property gaining a little. In 1967 - 72 there was a marked increase in the share of equities in both types of fund, with equities being dominant in insurance

company portfolios for the first time. This increase was at the expense of fixed interest securities and, within insurance company portfolios, loans. Pension funds also increased their exposure to property. The years 1973 - 75 saw the share of equities fall dramatically, especially in insurance company portfolios, in which they moved from being the largest asset group to only the fourth largest. In both types of funds, property continued to increase in importance, and for insurance companies loans also claimed an increased share. The decline of fixed interest securities was temporarily halted. A major development in both types of fund was the accumulation of short term assets. By end-1975, equities had staged a come back, but in both types of fund property had retained its increased importance and there was a far higher proportion of short term assets than had been the case before 1972. In 1976-79 fixed interest securities experienced a revival and in insurance company portfolios once more became the most important asset. Property increased a little in insurance company portfolios and loans resumed their long term decline. The major feature of 1980-84 was the rapid growth of overseas assets in the portfolios, with a falling away of property. In pension fund portfolios, fixed interest securities declined and in 1984 equities increased. Fixed interest securities also fell a little in insurance company portfolios, equities again became the dominant asset, and loans continued to decline in importance.

The long term trends in both insurance company and pension fund portfolios over the whole period were a decline in the share of fixed interest securities and an increase in the shares of equities, property and overseas assets. In addition, insurance companies reduced the share of loan assets which pension funds had never held to a significant degree. However, the decline of fixed interest securities was far greater and the growth of equities less, in pension funds than in insurance companies. This seems to reflect the increasing diversification of pension funds, from a structure more heavily weighted towards these two assets than that of insurance companies funds and also the continued greater relevance of fixed interest securities, especially gilts, to insurance company liabilities.

6.6 - SUMMARY AND CONCLUSION

Institutional investors invest in a variety of assets each with varying levels of risk attached to them. The main assets they invest in are UK equities, overseas equities, property, fixed-interest securities, government securities amongst others. This final empirical chapter attempted to investigate whether institutional investors switching from one type of asset into another have an effect on the market. A time series study was undertaken for the years 1965-1984 in the case of pension funds and insurance companies and 1965-1991 for investment trusts. By examining switching activities the study sought to show the demand characteristics of these institutional investors and also attempted to provide a clearer understanding of the economic conditions that influence their investment behaviour. The analysis is intended to provide insight into the changing tastes for particular assets. This maybe due to reactions to economic events such as market crashes, the property slump and the removal of controls for overseas trade etc.

The results suggest that some of the movements in the market index are due to institutional investors switching from one type of asset into another.

This study suggests, therefore, that not only may institutional investors prefer to invest in certain types of companies (e.g, large, well established ones) but they may also prefer to invest in certain types of asset. This may have significant implications for the economy as a whole because, for example, they have the capacity to put pressure on share prices if they switch their funds increasingly into equities. It may also have serious effects on the property market where switching into property raises its value. This is particularly important because property is seen as a hedge against inflation, especially in the case of pension funds and insurance companies whose liabilities tend to be long term.

This is an important result because if the switching activities of institutional investors do have substantial effects on the economy as a whole then they have the potential to influence sectors of the economy and can thus have positive or negative effects. This chapter has not established whether institutional investors cause or react to economic events, a mixture of both is likely although the causality has not been established.

CHAPTER 7 - SUMMARY AND CONCLUSIONS

This thesis has been designed to shed light on certain aspects of institutional investor behaviour, particularly their impact on the capital market. This is an important issue because the effects of institutional investors are so widespread and the potential importance of institutional investors is huge. They can influence the type of companies they invest in, move share prices and switch in and out of assets, with significant effects on their prices and consequently the economy as a whole.

At the start of this thesis emphasis was placed on how under-researched the impact of institutional investors is in the UK. Chapter 1 was an attempt to rectify this situation to some extent. Consequently the main studies in this area were reviewed. The studies differed in their areas of analysis but the general consensus in all the studies was that in aggregate institutional investors are growing and very significant. Further analysis of institutional investors in an international framework revealed that institutional investors are relatively more important in the UK than in any of the countries in the survey and that this prominence has continued over the years. This suggests that in the UK this particular source of finance is very important for industry whereas other countries may benefit from a closer relationship between banks and industry and may not need to look for an alternative source of finance.

In Chapter 2 the four groups of institutional investors were analysed individually to see how they differ in their size, their liabilities, their objectives and the competitive structure within which they operate. This was judged to be essential in order to understand their behaviour and to shed light on their preference for particular types of assets.

Chapter 3 explored some of the broad forces that influence the structure of corporate ownership in the UK, in particular the influence of institutional investors. A sample of 278 large UK companies for the year 1989

was examined to see whether factors such as firm size or risk measures affect their choice of firms. The first hypothesis was that there is an inverse relationship between firm size and the concentration of ownership. The second postulated a negative relationship between the instability of a firm's environment and the concentration of ownership. In general, there was a negative and significant relationship between firm size and ownership concentration. This implies that the larger the firm the more diffuse the ownership structure and so it is difficult for any single investor to maintain a controlling interest. This result is consistent with both the results of Demsetz and Lehn and Leech and Leahy.

This may appeal to institutional investors because by holding a relatively small share of a large firm they can benefit in a number of ways such as the ease of exit in the face of poor performance, the lower transaction costs attached to larger firms in comparison to smaller firms and a lower chance of being locked into a firm.

The results were not conclusive for the risk variables which were found, on the whole, to be negatively related to ownership concentration but were not significant in all cases. This is consistent with the results of Leech and Leahy but in contrast to those of Demsetz and Lehn. The result suggests that institutional investors may not wish to get involved with the close running of the company and therefore a tight ownership structure is undesirable. Institutional investors have their own business to run and also hold such a diverse portfolio of assets that they are unlikely to spend too much time on any individual company despite any pressure to do so.

The effects of institutional investors in the capital markets were considered in Chapter 4 focusing on three main aspects - efficiency, the use of information and volatility. It was thought to be important to assess whether the capital market is efficient in order to see whether security prices provide accurate signals for resource allocation. Although the evidence is not

conclusive there is a considerable support for the view that the capital market is efficient in the weak and semi-strong form but not in the strong form. This would imply that there is scope for profit where information differs between investors and so it would pay an investor to be better informed. Furthermore, increasing institutional investor presence implies that much of the market is dominated by informed investors thus leading to a more rapid and realistic adjustment of security prices and providing short term excess profits for those informed investors until the uninformed investors manage to incorporate the signals into their portfolios. Another area of concern was that the increased dominance of the institutions may lead to greater volatility in share prices as they move together in a 'herd' due to similarities in their objectives and attitudes to risk and the information they receive. This herd-like behaviour may lead to a bullish effect on the share prices of the firms in which they invest and a decline in the price of shares in the firms they move out of. With regards to institutional investors following fads we provide anecdotal evidence that this is the case due to similarities in information and objectives. Some of the issues raised here were examined empirically in the next chapter.

Chapter 5 was an empirical study for the years 1970-1987 attempting to explain movements in the FT all-share index in terms of institutional investor equity activity. The results suggest that the trading activities of the institutional investors do influence the general level of share prices in the UK stock market, with purchases resulting in price increases and sales resulting in price declines. Claims that the institutional investors move together in 'herds' due to similarities in information were investigated. The results suggest the existence of long run stable relationships between the institutions but no conclusive evidence was found regarding the existence of fads.

In Chapter 6 the switching activities of the institutional investors were examined to see if they have an effect on the market index. The empirical results suggest that some of the movements in the market index may be due to

switching. This could have significant effects on the economy as a whole because institutional investors have the capacity to put pressure on the prices of assets they prefer and could, in the extreme, cause booms or slumps in prices.

This work has touched on some of the areas of the economy that institutional investors have been involved in. It does not, by any means, cover all the important issues which are necessary if a solid picture is to be formed about institutional investors. Consequently, there are a number of areas for further research, including:

- 1) The necessity for further international comparisons
- 2) Analysis of UK institutional investors in the EC
- 3) Any major changes in the pension fund industry
- 4) The changing rules and regulations regarding institutional investors.
- 5) More rigorous and detailed analysis of the day to day movements of the purchasing and selling activities of institutional investors.
- 6) Developments in the rules of disclosure, in particular, for pension funds
- 7) The effects of institutional investors on mergers and acquisitions
- 8) Analysis of the effects of institutional investors on 'short-termism'
- 9) Further analysis of the issue of volatility
- 10) The potential influence of institutional investors on the management of companies.

The purpose of this investigation has been a positive rather than a normative one and the thesis does not seek to draw explicit policy implications. Nonetheless, the empirical work undertaken has shown that institutional investors are major players in the capital markets in terms of their preferences and the information they have at their disposal. Hence any financial and regulatory policies adopted by the government must take account of their special characteristics.

Thus those who have argued that the growth of institutional investors is important are right, even though this study has not evaluated the (often divergent) policy implications they have drawn from this important insight.

This has been a topic worthy of greater research and analysis not only because institutional investors have been growing continuously and persistently in size but they also branch out and effect so many areas of the economy. The likely growth of institutional investors implies that continuous, ongoing research of its effects on the financial market and industry will be important for the foreseeable future.

APPENDIX A: SAMPLE OF FIRMS

BEERS, WINES, SPIRITS

Boddington Group
Burtonwood Brewery
Greenhall Whitley
Greene King and Sons
H.P. Bulmer
Highland Distilleries Co.
J.A. Devenish
Macallan-Glenivet
MacDonald Martin Distilleries
Mansfield Brewery
Marston Thompson and Evershed
Morland and Company
Vaux Group
Whitbread and Co.
Wolverhampton and Dudley Breweries
Young and Co's Brewery

CHEMICALS, PLASTICS

Allied Colloids Group
Amersham International
Astra Holdings
Blagden Industries
Brent Chemicals International
Caird Group
Croda International
Doeflex
Ellis and Everard
European Colour
Evode Group
Foseco
Hickson International
Laporte
Leigh Interests
Plysu
Rentokil Group
Sutcliffe Speakman
Thurgar Bardex
W. Canning
Wardle Stores

DRAPERY AND STORES

Alexon Group
Amber Day Austin Reed Group
Blacks Leisure
Body Shop International
Brown and Jackson
Burton Group
Cantors

DRAPERY AND STORES cont.

Conrad International
Dixons Group
Dunhill Holdings
Empire Stores Group
Forminster
Hollas Group
House of Leroze
Liberty
Next
Pentos
Ratners Group
Tie Rack
Time Products
Upton and Southern Holdings
Hogg Robinson
Ritz Design group
Wickes
Wilding Office Equipment

LEISURE

Airtours
Anglia TV
Avesco
Boosey and Hawkes
Brent Walker Group
Campari International
Capital Radio
Carlton Communications
Central TV
Chrysalis Group
Ex-lands
Fairline Boats
First Leisure Corporation
Grampian TV
HTV Group
Mecca Leisure
Midsummer Leisure
Noble Raredon
Owners Abroad Group
Pavillion Leisure
Pickwick Group
Quadrant Group
The Really Useful Theatre Company
Scottish TV
Stanley Leisure Organisation
TVS Entertainment
Thames TV
Tyne Tees TV Holdings
Wembley
Yorkshire TV

FOOD AND GROCERIES

Asda Group
Acatos and Hutcheson
Alpine Group
Argyll Group
Associated British Foods
Associated Fisheries
A.G. Barr
Berisford International
Booker
Borthwicks
Brake Brothers
Budgens
Cadbury Schweppes
Carr's Milling Industries
Dalepak Food
Dalgety
Fitch Lovell
J. England
Geest
Greggs
Hazlewood Foods
Hunter Saphir
Iceland Frozen Foods
Kwik Save Group
Normans Group
Nurdin and Peacock
Park Food Group
J. Sainsbury's
Tate and Lyle
Taveners
Tesco
Unigate
United Biscuits

PAPER, PRINTING AND ADVERTISING

Abbott, Mead and Vickers
Addison Consultancy
Associated Paper Industries
Bemrose Corporation
Brunning Group
Bunzl
Burford Holdings
Delyn Packaging
FKB Group
Ferguson Industrial Holdings
Ferry Pickering Group
Fotch - RSS
Geers Gross
Gold Greenless Trott
Goodhead Group
Holmes and Marchant Group
Hunter print Group

PAPER, PRINTING AND ADVERTISING cont.

Jarvis Porter Group
Ketson
Lopex
Lowe Group
More O' Ferrall
Olives Holdings
Osborne and Little
Osprey Communications
Saatchi and Saatchi
St. Ives
Shandwick
Tinsley Robor
VPI Group
Wpp
Wace
Waverley Cameron
Yellowhammer

PROPERTY

Asda Property
BHH Group
Barlows
British Land Company
Bolton
Cabra Estates
Capital and Company
Chesterfield Properties
Christie Group
Clarke, Nickolls and Coombs
Citygrove
Clayform Properties
Connell
Control Securities
Dencora
Erostin Group
Fletcher King
Greycoat
Hanover Druce
Helical Bar
London and Metropolitan
Merival Moore
mountleigh Group
Mountview Estates
Peel Holdings
Priest Marians Holdings
Regalian Properties
Rosehaugh
Trafford Park Estates
Waterglade International Holdings

ELECTRICALS

AMS Industries
Admiral
Alba
Alphameric
Amstrad
Arlen
Astec
Betacom
BICC
Blick
Chloride
Cray Electronics
Crystalite Holdings
Dale Electric International
Delta
Dewhurst
Electron House
Emess
Farnell Electronics
Gardiner Group
Harland Simon Group
Jones Stroud Holdings
Kode International
LEC Refrigeration
Logica
Logitek
Macro 4
MBS
Micro Focus Group
Microfilm Reprographics
Molynx Holdings
Multitone Electronics
Neotronics Technology
Oxford Instruments Group
P and P
Pifco
Racal Electronics
Systems Reliability
Thorn EMI

ELECTRONICS

A Cohen and Co
Aerospace
Ash and Lacy
Beauford
Booth Industries
Brasway
Brooke Tool Engineering
C I Group
CAsting
Chamberlain and Hill
Clayton Son and Co.

ELECTRONICS cont.

APV
Adwest
B M Group
Bullough
Davy Corporation
GKN
Cronite Group
Edbro
B Elliot
Epicure
Fife Indmar
Fairey Group
GEI International
Garton Engineering
Hill and Smith
Jones and Shipman
Neepsend
Richards Group
HAden MacLellan Holdings
Hawker Siddeley Group
Howden Group
IMI
Laird Group
McKechnie
Meggitt
Molins
Renold
Simon Engineering
600 Group
Spirax Sarco
Staveley Industries
T I Group
Triplex Lloyd
Vickers
Westland.

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