WEALTH AND EARNINGS IMPLICATIONS OF CORPORATE DIVESTMENTS: AN EMPIRICAL ANALYSIS OF STOCK RETURNS AND ANALYSTS' FORECASTS OF EARNINGS

By

GEORGE A. ALEXANDROU

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TABLE OF CONTENTS

CHAPTER 3
DIVESTMENT DECISIONS AND THEIR IMPACT ON THE WEALTH OF THE BUYER'S SHAREHOLDERS : THEORY AND EMPIRICAL EVIDENCE

CHAPTER 4
SELL-OFFS AND ABNORMAL RETURNS FOR SELLERS AND BUYERS AND REVISIONS OF ANALYSTS' FORECASTS OF EARNINGS : DATA, METHODOLOGY AND RELATED ISSUES

CHAPTER 5
CORPORATE SELL-OFFS AND THEIR WEALTH EFFECTS FOR SELLERS' SHAREHOLDERS : A JOINT ANALYSIS OF THE ABNORMAL RETURNS AND ABNORMAL EARNINGS FORECAST REVISIONS

CHAPTER 6
CORPORATE SELL-OFFS AND THEIR WEALTH IMPLICATIONS ON THE SHAREHOLDERS OF THE BUYERS

CHAPTER 7
SUMMARY, CONCLUSIONS AND IMPLICATIONS

LIST OF TABLES

LIST OF FIGURES

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DECLARATION

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ABSTRACT

Corporate sell-offs bear close similarities to takeovers and their financial and strategic implications for both sellers and buyers are equally important. The sell-offs, despite their importance, are not as well investigated as the takeovers. Previous studies on the wealth implications of sell-offs on the sellers' shareholders report predominantly positive wealth changes but they are not unanimous. The empirical evidence on the effect of sell-offs on the buyers' shareholders is even more scarce and limited only to the US market. These studies are split evenly between those reporting significant gains to the buyers and those reporting no wealth effect. However, most of the previous studies have used small samples, many important factors have not yet been investigated and attention has not been focused on identifying the potential sources of value creation of sellers and buyers following a sell-off.

This study attempts to shed light on the sources of wealth changes of the shareholders of the seller and buyer following a sell-off announcement by addressing the following research questions:

1) What is the motivation of the sellers for the sell-off, what are the wealth implications of the sell-off announcements on the sellers' shareholders and which are the sources and the determining factors of these wealth changes ?

2) How are the shareholders of the buyers affected by the purchase decision and which factors determine their wealth experience ?

We investigate the effects of corporate sell-offs on the sellers using a sample of 1,941 corporate sell-offs over the period 1987-93. This is the largest study in this area to date. In order to identify the sources of value changes to the sellers' shareholders, we employ the joint reading of cumulative abnormal returns and cumulative abnormal forecast revisions of earnings.

We document that corporate sell-offs are value increasing for the sellers and that at least part of that wealth increase is due to the expected increase of the sellers' profitability. Our results reveal that sellers benefit from the sell-offs only during the years 1992 and 1993. This is an interesting temporal pattern of sellers' gains in the context of the condition of the British economy. We also document a positive relationship between the wealth gains of sellers and the relative size of the sale, the investment opportunities available to the seller, the size of the deal and the condition of the seller's financial health and a negative relationship with the increase in seller's focus, the relative location of buyer and purchased division and the condition of the economic environment.

Employing a sample of 877 sell-offs, in which the buyers are UK companies, we investigate the effects of divestments on the buyers over the period 1987-93. We find that the buyers benefit from the purchase and that these gains are wealth transfers from the sellers. We also find that the wealth gains of the buyers are positively related to the relative size of the purchase, the set of investment opportunities of the seller, the financial health of the buyer and seller, the relative size of seller and buyer and the relative location of buyer and purchased division. However, the condition of the economic environment, the level of fit of purchased division to the operations of the buyer, the investment opportunities of the buyer, the size of the deal and the level of debt in the capital structure of the buyer are not significantly related to the wealth changes of the buyer following the purchase.

CHAPTER 1

MOTIVATION, OBJECTIVES AND OUTLINE OF THE THESIS

1.1 INTRODUCTION

Divestments are a significant part of the contemporary corporate restructuring activity. In the UK, they have become an important part of the strategic tools used to rejuvenate an organisation in the quest to enhance shareholder wealth. Their importance has grown substantially in recent years. As shown in Table 1.1, in 1989 divestments represented about 20% of the total value of corporate restructuring transactions (£10.8bn out of £47.2bn), whereas in 1993 they were up to nearly 50% (£8.6bn out of £17.4bn). However, the importance of divestments is not only evident from their increase in number and the amount of capital involved. Divestments are important corporate decisions because they are a means of implementing corporate strategy, particularly in performance turnaround attempts, and corporate restructuring and also because they have important wealth implications for the corporate stakeholders involved.

In the 1960s, mergers and acquisitions were a major means of corporate expansion and development for the United States (US) firms and UK firms followed

suit. There are a number of theoretical explanations for the intensive conglomerate activity during the 1960s and 70s. The agency theory (Jensen and Meckling, 1976)

Table 1.1 Acquisitions and divestments in the United Kingdom (UK), 1988-1993.

Year	Acquisitions		Divestments		Total	
	No.	Value(£m)	No.	Value(£m)	No.	Value(£m)
1988	1633	24369	608	13254	2241	37623
1989	1402	36416	676	10816	2078	47232
1990	912	17457	612	10221	1524	27678
1991	747	12180	442	6001	1189	18181
1992	684	14428	468	5319	1152	19747
1993	745	8720	503	8640	1248	17360

Source: *The Essence of Mergers and Acquisitions*, S. Sudarsanam, 1995 p.244.

suggests that managers pursuing their own self interests value corporate size and control over corporate assets. A large company is more likely to provide its managers with the opportunity for greater financial remuneration, perquisites and status. Schmidt and Fowler (1990) report significantly greater increase in executive compensation in the group of acquiring companies compared to a control group of non-acquiring companies, in the four years following the takeover. Empirical evidence show a positive correlation between firms becoming targets of successful takeovers and senior management turnover (Walsh, 1989). Managers of bidders may use acquisition of a target as a defensive mechanism against potential predators.

Mannesmann is the largest German mobile phone operator. Vodafone Airtouch, the world largest mobile telephone group *...was seen as stalking the German group for months since early 1999* (Financial Times, 20/10/99). The prime motivation behind Mannesmann's bid for Orange, the third largest UK mobile company, was seen as a defence against Vodafone Airtouch's potential bid for Mannesmann. In the £17bn bid, a price which valued Orange's subscribers at almost double the value of its own subscribers, Mannesmann was seen as overpaying for acquiring Orange and adding debt to a level which raised questions about the future performance of the group. Vodafone Airtouch would not have been then able to own two of the UK mobile networks, i.e. its own and the third largest one of Orange's[1].

Organisational theories suggest that management groups with superior skills can manage diverse businesses more efficiently, by utilising managerial expertise or through managerial economies of scale (Armen and Woodward 1987). A large company comprises a more diverse portfolio of business than a small company and have a larger number of employees and managers with more specialised areas of expertise. These superior human and physical resources of the large companies can potentially be utilised within the company and across its business to offer competitive advantage against its smaller competitors. Antitrust and competition laws prohibiting vertical or horizontal mergers, have given an extra impetus to conglomerate mergers.

[1] The deal however did not lack strategic logic. The global and European mobile telephone market experiencing rapid consolidation with big commercial advantages to the operators who own pan-European networks. With a strong demand for call roaming within Europe, telephone operators have to pay local companies to use their network with cost up to 60% of the operator's gross expenses. Mannesmann will add Orange to its Germany, Italy and France network to become a major player in a market dominated by European companies in contrast to the traditional telecoms business where US companies have the edge.

However, many of these diversifying acquisitions did not create value for shareholders (Servaes, 1996; Berger and Ofek, 1995)

Since the early 1980s there has been a shift of attention towards divestments in the US, the UK and the Continent for a variety of reasons. Divestments can be a tool for implementing a corporate strategy of refocusing businesses on their core competencies where they have a competitive advantage. Increasing international competition through the opening up of cross border markets and bilateral and regional trade agreements, such as the North American Free Trade Agreement (NAFTA), provided the impetus for this refocus on the core business where a sustainable competitive advantage can be achieved. Failure of conglomerisation to deliver improved shareholder value has often resulted in subsequent divestments. An acquirer, following an acquisition, may reconstruct its operations by disposing of the poorly fitted parts of the acquired firm. The divestment proceeds may be used to finance more profitable investment opportunities of the seller (refocusing) or to mitigate financial distress (Sudarsanam, 1995, chapter 15).

1.2 CORPORATE RESTRUCTURING AND DIVESTMENTS

Corporate restructuring is a broader concept than corporate divestment. For large corporations operating in the contemporary economic environment, corporate restructuring is a strategic decision, which can be implemented in various forms and at different levels. Given the main focus of this thesis is the study of corporate

divestments, we simply highlight the corporate restructuring framework of divestments.

Corporate restructuring can be:

- Assets restructuring in the form of sell-offs.
- Financial restructuring in the form of leveraged recapitalisations, dual-class stock recapitalisations and exchange offers.
- Ownership restructuring in the form of spin-offs, split-ups, equity carve-outs, rights issues and shares repurchases.
- Managerial restructuring and
- General restructuring such as mergers, acquisitions, going-private transactions such as management buyouts (MBOs) and management buyins (MBIs) and employee stock ownership plans.

The management of a company acts as an agent for its shareholders. The aim of the agent/managers is to maximise the wealth of the principal/shareholders by deploying the available assets to their maximum value. Similarly, assuming alignment of interests between shareholders and managers, managers use the tax advantages of the gearing to make decisions about the optimum capital structure. The mix of stakeholders in a company changes constantly and the nexus of the agency relationships within the organisation is rarely static. The main managerial responsibility is to make decisions which result in balanced benefits to the entire constituency of corporate stakeholders. The various types of corporate restructuring offer a means of employing the corporate assets in their best use. They are also used as a tool for implementing corporate policy to adjust the operations in a changing environment so as to survive competition in the market place. Jensen (1986), suggests

that the market for corporate control serves as a court of last resort when the company's internal control mechanism fails to discipline managers in pursuing value maximising behaviour. Increased takeover activity has been seen as an important means of disciplining management groups in an active market for corporate control in both the US and the UK (Kennedy and Limmack, 1996). It is also considered a means of increasing corporate value by reducing agency costs.

Corporate divestments can take a number of different forms. These are:

1) **Sell-offs** which are characterised by the exchange of operating assets or divisions for cash, securities or other operating assets of the acquiring firm. This results in no reduction in the asset size of the seller (Hite and Owers, 1983). In a sell-off there is discontinuity of ownership over the divested part of the firm and exchange of assets between the divestor/seller and the acquirer/buyer. This amounts to a partial merger between the acquirer/buyer and the divested part of the "target"/seller. The most frequent form of a sell-off is the sale of operational divisions or subsidiaries of the seller in exchange for a consideration which, at least partly, involves cash.

2) **Management buy-outs (MBOs)** where a subsidiary, a division, or a whole company is sold by its owners to its existing management. Owners may be a parent company which is still trading, a receiver, a current owner-manager, a family firm, a state agent or a local authority. The buyer is a management team within either the parent or the bought-out unit which is becoming the owner-manager. Usually a newly formed shell company which is privately owned by the acquiring management team acquires the divested unit from the original parent company (Hite and Vetsuypens,

1989). The management team is expected to put up a proportion of the purchase price from its own resources. It shares the equity ownership with a buyout specialist who contributes equity capital and arranges debt financing for the balance of the purchase price.

3) **Equity carve-outs** may constitute an alternative to raising new equity directly by the parent company (Schipper and Smith,1986) and occur where a portion of a wholly owned subsidiary's equity is offered for sale to the market without loss of control. An equity carve-out is also referred to as "split-off IPO" since it is actually an initial offering to public trading of some portion of the common stock of the subsidiary. Equity curve-outs differ from spin-offs in that they change the subsidiary's ownership structure and generate cash inflows from the sale of the minority interest.

4) **Split-offs** occur where shares in a subsidiary or in a newly created independent firm with a part of the original firm's assets are given to some of the parent shareholders in exchange for their shares in the divestor, not necessarily on a pro rata basis. The split-off part of the original firm's assets forms a separate independent company. The body of the original shareholders is also divided into two parts. One part is the group of shareholders which exchanges its shareholding in the original company for shares in the newly created split-off company. The other is the group which retains its shareholding in the original company. Thus there is a separation of both the original asset basis and the original shareholders but there are no cash implications.

5) Spin-offs occur where an independent company is created to acquire the business being disposed of and the shares in this new company are distributed to the original stockholders on a pro rata basis with no cash implications for the parent company (Afshar, Taffler, Sudarsanam, 1992). Spin-offs do not require shareholders to give up the original shares and result in a pro rata ownership of the divestor and the new independent unit among them. The common stock of the subsidiary is then separated from that of the parent company and is traded independently (Schipper and Smith, 1986). In a spin-off, in contrast to a sell-off or an MBO, there is a reduction in the asset base of the divestor and a corresponding creation of an independent firm.

6) **Split-ups** occur where the original assets are separated into several parts to form new independent corporations (Hite and Owers, 1983). The new stock certificates on the emerged entities are distributed on a pro rata basis to the old shareholders. The old shares are given up and the old corporate entity ceases to exist. A split-up closely resembles a spin-off in its main features, i.e. the emergence of separate firms with the same owners and no cash implications. However, a basic difference is that in a split-up the original firm ceases to exist.

Although there are many parallels between these types, each of them entails different characteristics in terms of the external financing involved, changes in the asset base and the degree of subsequent control exercised by the original divestor shareholders.

The divestments which result in change in ownership can be summarised as:

Ownership transferred internally	Ownership transferred externally
1. Split-offs	1. Sell-offs
	2. Equity curve-out (partly)
	3. MBOs

The main forms of divestments are sell-offs, MBOs and spin-offs. If the ownership of the divested part is sold to an outside party, we have a sell-off; if it is offered to the existing shareholders, we have a spin-off and if it is transferred to the managers of the division, we have an MBO. In the UK, sell-offs are a very important type of corporate divestment (see Table 1.1 for statistics on number and value of sell-off transactions in the UK).

1.3 DIVESTMENT DECISIONS AND ABNORMAL RETURNS

The increasing importance of divestments has attracted the attention of academic researchers, who have sought an understanding of the impact which divestments have on shareholders' wealth. Research in this field has so far reported mixed results of the effects of divestment announcements on the returns of the seller's shareholders. Studies such as Linn and Rozeff (1984), Klein (1986), Hite *et al* (1987), Afshar *et al* (1992), Kaiser and Stouraitis (2000), report mainly positive and significant abnormal returns to the shareholders of the sellers following sell-off announcements. On the other hand, there are studies, such as Alexander *et al* (1984) and Denning and Shastri (1990) which find no statistically significant abnormal returns for the sellers.

Assuming alignment of managerial and shareholders' interests, voluntary divestments should be wealth generating decisions. Voluntary sell-offs are initiated by the seller and should be considered only if they are positive NPV decisions. However, there is an information content in the sell-off decisions just like in any major corporate

decision and the market reaction to their announcement is contingent on its interpretation of that information. The way the market interprets the message of the divestment announcements is contingent on the state of corporate affairs, the perceived motivation of the seller and transactional details such as relative size. Empirical research has used various variables as a proxy for the financial state of the seller and the managerial motivation of the sell-off decisions.

Existing research in the area of sell-offs may suffer from sample selection bias since relatively small samples have been used in almost all the studies. Studies which have used restrictive sample selection criteria, such as selection of only very large sell-offs, report significantly positive announcement day abnormal returns, whereas studies that have not discriminated by price or relative size have found smaller or insignificant announcement day abnormal returns (Klein 1986). Only two US studies have used samples larger than an average of one hundred sell-offs per sample-year. We define the *sample-year* size as the ratio of the total sample size and the number of years covered by a study. The sample-year size is more relevant measure of how restrictive the sample selection process is[2]. Jain (1985) used a sample of 1064 sell-offs over the period 1976-78 (average of 355 per year) and John and Ofek (1995) used a sample of 321 over the period 1986-88 (average of 107 per year). Most of the other US studies have used smaller sample sizes with averages of less than 20 sell-offs per year and eight studies have samples of less than 10 sell-offs on average per year. The three UK studies (Afshar *et al* 1992, Lasfer *et al* 1996 and Kaiser and Stouraitis 2000) also have relatively small sample sizes of 89, 71 and 55 sell-offs per year respectively.

[2] A study with total sample of 400 events over two years has a sample-year size 200, whereas a study with the same 400 sample size over 20 years has sample-year size just 20. It is indisputable which study's results are more widely applicable.

This thesis addresses the issue of sample selection bias by including all the divestments by UK companies during the period 1987-93. Only companies from the banking, insurance and financial sector are excluded[3]. Limited only by data availability our sample selection process is as comprehensive as possible, and eventually employs a very large sample of 1,942 sellers and 877 buyers, which facilitates more generally applicable conclusions.

Another advantage of our study compared to previous research is that it covers both the late 80s and the early 90s. This has given us the opportunity to investigate the impact of the economic environment on the wealth implications of the divestment announcements. This is a factor as yet unexplored in US and UK studies.

1.4 DIVESTMENT DECISIONS AND ANALYSTS' FORECAST REVISIONS OF EARNINGS

Consensus earnings forecasts of analysts following a company are collected and reported on the Institutional Brokers Estimate System (IBES) database on a monthly basis. For each covered company, in its summary history database, IBES reports each month the mean and median consensus forecast of all the analysts submitting their earnings forecasts during this month. These monthly consensus forecasts of earnings reflect the market expectations about the actual earnings.

[3] Companies of the financial sector are strictly regulated and closely monitored by the Financial Services Authority in the UK, and similar agencies all over the world. Those companies have different capital structure and risk from the other listed manufacturing and trading companies and they are traditionally excluded from the event studies. For more details on our sample selection process see Chapter 4.

Therefore, the abnormal analysts forecast revisions of earnings following a sell-off announcement, measure the change of the market expectations regarding the company's earnings. The level of accuracy of earnings forecasts is assessed by comparing these forecasts to the actual earnings realisations and the relative accuracy of analysts' forecasts of earnings is assessed by comparing the forecast errors resulting from alternative methods. Analysts' forecasts of earnings are normally compared with forecasts based on time series models such as random walk, random walk with drift or more sophisticated models. Financial analysts have more comprehensive and up-to-date information than that which is contained in the series of past earnings. Thus, it is not surprising that analysts' forecasts match and often outperform the accuracy of time series models. "*...it, therefore, requires a great degree of incompetence and perverse subjective function for analysts not to equal or exceed the accuracy of models based on past earnings,*" Schipper (1991). In the US, analysts' forecasts of earnings are more accurate than the predictions of time-series models (O'Brien, 1988). In the UK, analysts' forecast of earnings have been found to be more accurate than naive models over forecast horizons up to 16 months (Capstaff, Paudyal and Rees, 1995). Moreover, there is evidence that financial analysts' forecast errors are smaller in the UK than in US (4-8% vs. over 30%) (Cho, 1994). Analysts' forecasts of earnings optimistically biased at the beginning of the fiscal year and follow a downwards drift, as the year end approaches, become more accurate (Sudarsanam *et al*, 1999). This means that their accuracy is a function of their proximity to the year end. However, we do not focus on the absolute accuracy of the analysts' forecasts of earnings but the impact of the sell-off announcements on their abnormal revisions.

The earnings information hypothesis suggests that important firm specific events like the sell-off announcements convey information about the company's future earnings. The underlining assumptions are: first, that the announcements convey information about the earnings of the firm in the near future and second, that the future cash flows and earnings are correlated (Jain, 1992). Stock price reflects the present value of the expected future net cash flows. The stock market reaction at the time of the sell-off announcements, as with announcement of other major investment and financing decisions, is conditional on the perceived impact of those decisions on the future earnings and eventually on the net cash flow of the firm. Following the seminal work by Ball and Brown (1968), a voluminous literature has examined the relationship earnings and returns. Ohlson (1991) provides a theoretical framework for these studies and develops a model in which the returns are a linear function of the unexpected earnings.

A sell-off announcement which results in positive abnormal returns for the shareholders of the seller and at the same time in positive abnormal earnings forecast revisions, indicates that the source of the created value is the increased profitability of the seller. On the other hand, if the sell-off announcement results in positive abnormal returns and no change (or negative change) in the abnormal earnings forecast revisions of analysts, the source of the wealth increase (decrease) of the seller's shareholders may be wealth transfer from the buyer to the seller (or the reverse). Thus, by utilising the combined reading of the stock price reaction and the earnings forecasts revisions around the sell-off announcements, we may gain insight into the sources of value changes for both sellers and buyers.

There is no research to date on the impact of divestment announcements on the expected earnings of the sellers or buyers. This thesis aims to fill this gap and increase the understanding of the way the market perceives the underlying motivation of the sell-offs and how this perception relates to changes in earnings expectations which may be ultimately reflected in market values. Previous research in the area of takeovers has used this approach to differentiate between synergy and new information for the takeover targets (Brous and Kini, 1993; Sudarsanam *et al,* 1999).

1.5 INCREASE IN FOCUS OF THE SELLER

Recent research in the US has documented that an increase in focus increases the wealth of the shareholders (Comment and Jarrell 1995). John and Ofek (1995) study the effects of change in the focus of the seller's operations following the sell-off announcements on the wealth of the seller's shareholders. They report that the sellers in the focus increasing group earn higher wealth gains than the sellers in the non-focus increasing group. Evidence of the relationship between the divestment announcements, the increase in focus and its implications on the shareholders' wealth is limited to this US study (John and Ofek, 1995).[4] This thesis provides evidence of the impact of divestment decisions on the focus of the sellers and subsequently on the wealth gains of the sellers and the buyers. We investigate the focus characteristic of the sellers and buyers to explain the motivation for the sell-offs.

[4] Kaiser and Stouraitis (2000) use a measure of focus based on the news stories of what divestors say, when they announce the sell-off, as reported in the Financial Times.

Existing studies have only examined the impact of the change of focus of the seller on its shareholders' wealth. John and Ofek (1995) demonstrate that the improvement in performance through an increase in focus is one of the prime motivations of the sellers. They find that the performance of the sellers who experience an increase in their focus following divestment, is substantially improved in contrast to the sellers with no increase in focus. In a sell-off which increases the focus of the seller, the wealth generated by the transaction is *ceteris paribus* higher than the wealth generated in a non-focus increasing sell-off. However, there is no empirical evidence on the differential effect of the focus and non-focus increasing sell-offs on the buyers. This thesis investigates this relationship.

1.6 FIT OF PURCHASED DIVISION TO THE BUYER'S OPERATIONS

The importance of the relationship between the operations of the purchased division and the buyer has to do with the impact of the level of fit on the wealth of the seller and buyer. If the purchased division fits into the operations of the buyer, the wealth gains are expected to be higher than those generated by a purchase of an unrelated business. This will result in higher potential benefits for both the seller and buyer, if they split these higher gains. The purchased division is deemed to fit the operations of the buyer if it is in the same industry as the buyer's core business. Then the potential operational and other synergies are higher and the buyer's expertise in integrating the two business more valuable. John and Ofek (1995) is the only US study which investigates the effect of the fit of the purchased division to the buyer on

the wealth gains of the seller. They report higher wealth increases of the seller when the divested division is related to the operations of the buyer. It is however, surprising that they find no similar impact on the wealth of the buyer, i.e. the buyer does not benefit more when they purchase related divisions. We believe that this counter intuitive finding merits further investigation, which we provide in this thesis.

1.7 PRICE DISCLOSURE, RELATIVE SIZE, POUND GAINS FOR SELLERS AND BUYERS AND CONDITION OF THE ECONOMIC ENVIRONMENT

In earlier studies of the effects of divestment announcements on the shareholders' wealth, the disclosure of the sale price was found to be an important factor (Klein, 1986; Sicherman and Pettway, 1992). The rationale was that in an incomplete information environment, failure to disclose all information leads the uninformed parties to assume that the undisclosed information is unfavourable (Milgrom, 1981). Evidence from these studies suggests more positive share price reaction for the sellers who report the sale price than for those who do not. It is suggested that price disclosure reduces the uncertainty surrounding the sell-offs with significantly favourable impact on the shareholders' wealth (Klein, 1986; Afshar *et al,* 1992).

It has been argued that price and its disclosure alone do not provide enough information to assess the impact of the divestment on the seller. The larger the relative size, i.e., the sell-off price relative to the market value of the seller, the greater the impact on the shareholders' wealth (Lasfer *et al,* 1996). However, the relationship

between the relative size and the returns to the shareholders of the seller is not straightforward. If the benefits of the sale are derived from the higher value use of the assets under the buyer, relative size should not affect the level of the value gains of the seller's shareholders. In this case, what matters is the profit made on the sale. If, however, the wealth gains of the seller's shareholders come from the improvement in the performance of the remaining operations of the seller, either by elimination of the negative synergies or by increase in focus, the impact of the divestment should be positively correlated to the relative size. Thus, the relative size is a proxy for potential improvement of performance. That the larger the relative size of the sale, the more focused are the remaining operations of the seller will become. We investigate the relationship between relative size, focus, abnormal returns and change in performance. To our knowledge, this has not as yet been examined in the literature.

Most of the studies of the effects of divestment announcements focus on their effect on percentage excess returns. These studies mainly report the average percentage gains to the sellers and buyers. The total wealth generation or transfer in a divestment is actually related to both percentage price changes and the actual sizes of seller and buyer. For example, a small wealth transfer from the buyer to the seller can be translated into large abnormal returns if the seller is relatively small compared to the buyer. The issue of the overall monetary gains or losses and how they are split between the sellers and buyers has not yet been resolved. Since the sell-off decisions are initiated by the sellers but normally involve negotiations with a buyer, it is expected that both should benefit from the transaction.

We investigate the monetary gains following the sell-off announcements for both sellers and buyers. Only a couple of US studies have investigated this issue thus far, namely Sicherman and Pettway (1992) and Hanson and Song (1997).

The condition of the economic environment may influence the decision of the sellers to divest. In a recession, companies may face liquidity problems and forced to sell assets to alleviate potential financial distress related to those liquidity problems. In this case, the seller may benefit less (or even wealth losses) and the buyer benefit more compared to sell-offs during booming economic conditions. However, there are no empirical evidence on the impact of the condition of the economic environment on the wealth gains or losses of the sellers and buyers. The observation period of this study spans the late 80s and early 90s where we have both boom and recession periods for the UK economy and this enables us to investigate the impact of the condition of economic environment.

Montgomery, Thomas and Kamath (1984) provide evidence that when the divestment is part of a broader strategic decision, the seller benefits more than when it is an one-off affair. We assume that if a sell-off is part of a series of divestments by the same seller, it forms part of a more general strategic plan, it conveys a more credible signal to the market about its importance for the seller and it is in general more likely to result in higher benefits to the seller than a single divestment.

1.8 OBJECTIVES AND CONTRIBUTION OF THE THESIS

Having summarised the broad issues which are the focus of this thesis we now highlight our specific objectives. This thesis is concerned with wealth implications of corporate divestment announcements in the UK. In particular, we are interested in:

1. Using the largest sample to date of the UK corporate divestment announcements to provide additional evidence of the wealth implications of the divestment announcement for the shareholders of both sellers and buyers. Our sample is the largest ever used in divestment studies, ensuring that the results are robust and valid for general inferences. A large sample avoids problems of sample selection bias and enables us to draw sound conclusions. Our sample is not only much larger than that of any other US or UK study, but also extends over the late 80s and early 90s so as to enable us to investigate the possible impact of the overall economic environment on the effect of the divestment announcements. The three previous UK studies either used small samples of 50 companies per year on average (Kaiser and Stouraitis, 2000) or small samples and limited time-horizon (Afshar *et al,* 1992 used a sample of 178 divestments over 1985-86; Lasfer *et al* (1996) used a sample of 142 divestments over 1985-86).

2. Combining the abnormal returns with the abnormal forecast revisions of earnings by the financial analysts following the divestment announcements to shed light on the possible sources of value changes. Revisions of

analysts' forecasts of earnings convey important information about the changes in the perception of the market on the impact of the divestment decisions of the future earnings of the seller or the buyer. This is extremely useful in view of the fact that the earnings forecasts of analysts are a relatively accurate forecast of the actual earnings and that their revision is contemporaneous to the divestment announcement, i.e., *ex ante* and thus free from contamination from subsequent events or managerial manipulation. This will help to differentiate between the various sources of value creation/change following the sell-off decisions. A combined study of the abnormal returns and the abnormal forecast revisions of earnings has not previously been used in studies investigating the effects of divestments. However, studies of takeovers have utilised the information resulting from the abnormal revisions of earnings forecasts on the takeover announcement date to investigate the sources of the value creation (Pound, 1988; Brous and Kini, 1993 and Sudarsanam *et al,* 1999).

3. Examining other important factors and their impact on the wealth creation following the sell-offs and its distribution between sellers and buyers. In particular, we study the impact of the changes in the focus of the sellers and buyers, the fit of purchased division to the operations of the buyer, the investment opportunity set available to sellers and buyers and their joint effect, the impact of the series of sell-offs by the same seller and the condition of the economic environment. The increase in its focus has been found positively related to the increase on the shareholders' wealth and has

been suggested as a prime motivation of the seller. It has been the subject of only one US study (John and Ofek, 1995) but not investigated yet in the UK. The fit of purchased division to the operations of the buyer is another factor which may determine the level of the wealth improvements following a sell-off. It has been found positively correlated to wealth gains of the sellers (John and Ofek, 1995) but of no impact on the wealth changes of the buyer. The investment opportunity set available to the sellers and buyers can be related to their motivation and therefore determine the level of wealth gains and their distribution between seller and buyer. We investigate the individual and combined effect of the investment opportunities of seller and buyer. A sell-off which is part of a series of divestments by the same seller may convey a more positive message to the market, about possible benefits of the seller, than an one-off sale. This study is the first to examine the impact of a series of sell-off on the wealth of the seller and buyer. Our comprehensive sample of the UK divestment announcements spans the late 80s and early 90s with a backdrop of both an expanding and contracting economic environment. The state of the economic environment can be another important factor which influence the motivation of the involved companies and determine their wealth gains or losses. This factor and its importance has not been investigated yet and our study aim to fill this gap.

4. Another contribution of this thesis is to give a basis for comparison and evaluation of findings regarding the method of payment in takeovers. From the buyers perspective, divestments are partial takeovers. The buyer's

interest in the purchased division is expected to be more pronounced than that of a bidder for the target company in a takeover bid since the transaction is likely to involve more specific and homogeneous assets. In this case, the buyer may not have to suffer the cost of disposing of the unwanted parts of the whole business of an acquired target. There is also ambiguity about the accounting method to be used since merger accounting is ruled out. This may shed more light on the question of the method of payment in takeovers and may confirm or weaken empirical evidence in that area.

In summary, this thesis will contribute to the limited literature on the importance of financial analysts' forecast of earnings and their abnormal revisions around firm specific events, in particular, with regard to the use of abnormal earnings forecast revisions of analysts to identify potential sources of value creation following the corporate sell-off announcements. It will also investigate the importance and impact of new, not yet studied, factors and will offer additional evidence, based on a larger sample, to the findings of the extant research.

1.9 OUTLINE OF THE THESIS

In Chapter 2 we review the literature on the impact of sell-offs on the sellers' shareholders wealth. Our review identifies the role and significance of factors that determine the level and direction of the value implications of sell-offs on the sellers,

as have been examined in previous empirical studies. We also identify a number of other variables that should influence the effect of sell-offs on sellers and have been ignored in the empirical literature, such as the condition of the economic environment, relative size of seller and buyer and a series of sell-offs by the same sellers constituting a premeditated and carefully developed strategic programme.

Chapter 3 reviews the literature on the wealth implications of sell-offs on the buyers' shareholders. The empirical evidence on this area is limited to a very small number of US studies. We focus on the theoretical justification for the impact of various factors and identify a number of them not previously investigated, such as the relative size of seller and buyer and condition of economic environment. The contribution of analysts' forecasts of earnings in the analysis of the value implications of sell-offs is also examined.

Chapter 4 presents the data and methodology used. Our sample selection criteria are presented and their effect on reducing the initial sample collected to the final sample used in our analysis is demonstrated. The methodology of estimating both the expected and abnormal consensus earnings forecast revisions of analysts and the abnormal return is also developed. We discuss the analysts' revision of earning forecasts process and give data on their percentage revision per month to justify the model used in estimating the earnings forecast revisions. We also define the variables that we use in our subsequent analysis and we give their descriptive statistics.

Chapter 5 presents the results of the analysis of the effects of the sell-offs on the sellers' shareholders. We show the annual distribution of cumulative abnormal returns and analysts' forecasts of earnings and discuss the importance of the timing of sell-offs. We investigate the impact of various factors on the abnormal returns and

earnings forecasts and utilise the combined finding to make inferences about the sources of possible wealth changes to sellers' shareholders.

In Chapter 6 we present the analysis of the effect of sell-off decisions on the buyers' shareholders. There is no UK evidence on this issue and most variables which we investigate have not been previously investigated in the few US studies. We use the same approach of combining the reading of both abnormal returns and earnings forecast revisions to make inferences about the sources of value changes to the buyers' shareholders.

Chapter 7 summarises the results of our analysis and suggests directions for further research.

CHAPTER 2

DIVESTMENT DECISIONS AND THEIR IMPACT ON THE SHAREHOLDERS' WEALTH OF THE SELLERS: THEORY AND PRIOR EMPIRICAL EVIDENCE

2.1 INTRODUCTION

Divestments are part of what is known as corporate restructuring. They are important corporate decisions with significant wealth implications for the shareholders of the companies involved. Divestments are decisions to dispose of a portion of the corporate assets (Duhaime and Grant, 1984), or alterations to the firm's portfolio of productive assets a mirror-image of asset acquisitions or mergers (Boudreaux, 1975).

The focus of this thesis is the sell-off and throughout this study the term is used interchangeably with the term divestment. We are interested in the nature of corporate divestment decisions, the factors influencing these decisions and their wealth implications for the shareholders of the sellers. Since divestments can be viewed as partial takeovers and follow their time pattern in volume and value, theories developed in the field of takeovers are useful in understanding many aspects of divestment decisions.

The wealth implications of a divestment decision depend on the stock market's reaction to the announcement of the deal. The deal is based on the informed judgement of the market participants concerning the decision, the nature and form of the transaction and the circumstances of the parties involved.

2.2 WEALTH IMPLICATIONS FOR THE SELLERS

The shareholders of a seller are the residual claimants on the firm. Thus, any change in the value of the seller is reflected in the change of its shareholders' wealth. Research in the field of corporate sell-offs has documented their impact on the wealth of the shareholders of the seller based on the share price reaction around the announcement date. For the seller, the sell-off is basically an exchange of the expected future cash flows related to the disposed assets with present cash flow received from the buyer (Heart and Zaima, 1984) [5]. If this exchange is a positive (negative) NPV transaction, the wealth of the shareholders will increase (decrease). This is reflected in positive (negative) abnormal returns for the seller's shareholders following the sell-off announcement. The value effect of a sell-off is determined by the differential value of the disposed assets to the seller and the buyer and their respective bargaining power. We discuss the value effects of sell-offs on sellers and buyers using the following notation:

$V(s)$ = value of the divested assets to the seller,

[5] In the relatively few cases where the payment is not in cash but shares of the buyer or mixed, the transaction is an exchange of the expected cash flows from the divested assets with another stream of cash flows related to the medium of the payment.

$V(b)$ = prospective value under the buyer,

SP = sale price of the disposed division,

RC = replacement cost of the individual assets sold,

$TMV(s)$ = the wealth of the seller's shareholders before the sale, as represented by the (share price) x (shares).

$TMV^*(s)$ = the wealth of the seller's shareholders after the sale.

$TMV(b)$ = the wealth of the buyer's shareholders before the sale, as represented by the (share price) x (shares).

$TMV^*(b)$ = the wealth of the buyer's shareholders after the sale.

If the management acts in the best interest of the shareholders, the sell-off is desirable and beneficial for both seller and buyer when:

$$V(s) < SP \leq RC < V(b) \tag{2.1}$$

In a perfect and competitive market for corporate assets we have:

$$V(s) = V(b) = SP \tag{2.2}$$

and as a result: $TMV(s) = TMV^*(s)$ and $TMV(b) = TMV^*(b)$. This means, there are no wealth changes for the shareholders of both seller and buyer and thus, the only incentive for either company to enter such a transaction is to restructure the portfolio of its assets. A sell-off transaction, with cash payment, will result in a change in the proportion of the seller's assets to more liquid ones and in those of the buyer to more illiquid ones.

However, the market for corporate assets is not perfect for various reasons. For example, corporate assets are not always divisible or homogeneous. Some of them are very specialised and there is no developed market for them. A lack of records of recent transactions of similar corporate assets hinders the establishment of

unequivocal market value for specialised corporate assets. In these cases, the market value of such corporate asset is what a potential buyer is prepared to pay for it. Information is another important element of an efficient market. Information about the value of corporate assets is not always homogeneous. Differing managerial skills in the exploitation of corporate assets can also increase the heterogeneity of the market for corporate assets. The management team of the buyer may possess superior skills in the form of managerial expertise or specific knowledge generated within the organisation.

This superior knowledge in managing corporate assets together with the nature of the buyer's business, may offer synergy opportunities, which increase the value of the divested assets. Specific synergy between the buyer's business and the purchased divisions of the seller may be a source of value creation in a sell-off transaction.

Another form of synergy motivating a sell-off is "financial synergy". This is where the buyer has the financial resources, not available to the seller, to fully exploit the growth potential of the divested division. In the late 1970s, the need for substantial financial resources to support the growth potential of the US cable television sector, fuelled the wave of acquisitions of large cable operators by cash rich acquirers, such as the American Express, the Time Inc. and the Westinghouse.

Negative synergy can be another motivation for the sale. That is, the disposed assets interfere with the management of the remaining assets of the seller and this negative synergy reduces the overall profitability of the organisation. By selling the specific assets, the seller increases the value of the remaining business.

Focusing on the core business can also be a major motivation of the seller. If a business grows without a specific and well designed strategic plan, it can lose the

focus of its core business. There are a number of reasons for a company to lose focus, such as lack of long-term strategic planning or failure to adjust its strategic objectives to the changing business environment and badly designed or implemented acquisitions. A focus increasing sell-off helps the seller to use its limited financial and/or managerial resources effectively in its more profitable core business.

Under the above conditions, equation (2.2) does not hold. The divested assets can be more valuable to the buyer than to the seller and inequality (2.1) provides the motivation for both seller and buyer to be engaged in a mutually beneficial transaction. Indeed, in a situation where $V(s) < V(b)$, the buyer may be prepared to pay more for the divested assets than their current value to the seller. Where exactly the sale price *(SP)* will be in the region between $V(s)$ and $V(b)$, depends on the relative bargaining power of the seller and the buyer. The management of a seller is expected to take a sell-off decision only if it is value enhancing for its shareholders. The greatest value increase for the seller could be equal to $V(b)-V(s)$ and the smallest zero.

The above managerial behaviour assumes an alignment of interests between managers and shareholders. However, agency theory, as we will discuss in detail later, suggests that potential conflict of interests between managers and shareholders may result in value destroying decisions. Efficient contracting technology or the market for corporate control often fails to alleviate the agency costs and thus sell-offs may result in occasional value diminution. In this case the sale price is less than the value of the disposed assets as an ongoing business to the seller, $PS < V(s)$.

The value of the divested division to the seller post-sale, $V(s)$, is not only related to the sale price and the accounting profits made but also to the value gains from the use of the proceeds. These two components of seller's value change are not

independently observable and its not the focus of our analysis[6]. It is possible that divisions are sold at loss but the benefits of the seller from the use of the proceeds, such as alleviation of financial distress exceed the accounting losses.

The above analysis suggests that wealth effects of sell-offs may depend on firm specific factors. However, following the above analysis and the major body of the empirical evidence, we expect that the sell-off announcements will have positive wealth impact on the seller's shareholders.

We also investigate the impact of the specific factors which may determine the effect of the sell-offs on the wealth of the shareholders of the seller. Academic research on the effect of sell-off decisions has mainly reported significant wealth gains for the sellers with limited evidence of insignificant gains or losses. These wealth gains are found to be related to the relative size of the sale and the state of the financial condition of the seller. Later, empirical research has attempted to investigate important corporate characteristics and circumstances which can successfully separate, *a priori*, sell-offs with a positive and negative effect on the seller shareholders' wealth.

Next, we review the factors determining the effect of sell-offs on the wealth of the seller's shareholders as proposed in the literature. We present the suggested theoretical basis for those factors and the relevant empirical evidence.

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[6] There are not divisional data available for our sample companies. Even in the few cases where there is indeed a statement on whether the sale was at profit or loss there was no specific analysis on the basis this was measured. Problems with historical cost reporting, time and number of fixed assets of the sold division which had been revalued, valuation issues related to developed brand names, company specific nature of assets, nature of the market for the specific assets, nature of sale (i.e. fire sale) and condition

2.3 PRICE DISCLOSURE

In a sell-off there are three cases in which the transaction price is not disclosed. The first is where there is no agreement between the seller and the buyer about the price on the announcement day. The second is where the managers of both seller and buyer agree not to disclose the transaction price. The third is where no buyer has been found by the announcement date. The seller merely announces his intention to sell a specific division and a buyer is found at a later stage.

The basic argument developed in the literature in support of the importance of the disclosure of the sale price is based on the information asymmetry paradigm. The market participants do not possess the same information at any time. Managers are regarded as insiders with private information concerning the value of corporate assets and future growth opportunities. In a sell-off, the disclosure of the sale price resolves the uncertainty and enables the market to assess whether the sale is a potentially positive or negative NPV transaction.

Uncertainty surrounding a sell-off announcement may be related to whether the deal is going to be finalised or failed and to the terms of the deal. Announcement of the transaction price can help to mitigate the uncertainty and result in a positive market reaction. On the other hand, non-disclosure of the transaction price is interpreted by the market as an attempt to conceal an unfavourable deal (Milgrom, 1981).

In an asymmetric information environment, outside investors may not have all the information to fully appreciate the value of the corporate assets. Managers

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of the industry at the time of the sale, make the accounting profit or loss not representative of the value

possessing superior information regarding the true value of the firm may decide to sell part of the assets for their intrinsic value when they believe that the corporate assets are undervalued. Selling part of the corporate assets reveals their actual market value and sends to the market a signal regarding the value of the remaining assets. However, if the sale price is not disclosed, the true value of the assets sold may not be revealed. Thus, the true value of the remaining assets may not be fully appreciated and thus the information asymmetry may not be reduced (Sicherman and Pettway, 1992). Additionally, if such a sale does not impair the seller's growth opportunities, mitigates the underinvestment costs which are associated with the informational asymmetry between managers and outside investors (Myers and Majluf, 1984). Sale proceeds will help the seller to finance its positive NPV investment opportunities with its own liquid funds (at least more than it could have financed before the sale). This is more beneficial for the seller because it enables them not to forgo value increasing NPV investments[7].

The impact of the sale price disclosure to the returns of the seller's shareholders at the initial sell-off announcement was first investigated by Klein (1986). Her sample is divided into the "price" subsample, which includes the sellers

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changes of the seller.

[7] If a company issues new equity to finance its investment opportunities, it faces a negative market reaction due to mixing the positive signal about the available profitable investment opportunities with the negative signal of the equity financing. The market does not separate information about new projects with information about whether the firm is under- or overvalued. Financing which is not subject to the information asymmetry problem alleviates this adverse market reaction problem. According to the *pecking order theory* for capital structure (Myers, 1984) debt financing would be preferable to equity financing, since it has payoffs less correlated to the future states of nature than equity. However, still any risky security which has value related to the future state on nature send a negative signal to the market and the cost involved forces the company to pass up some of its positive NPV projects which other wise would have undertaken with own liquid assets.

that announce the sale price on the initial sell-off announcement day and the "no-price" subsample, which includes sellers who do not disclose the sale price. The cumulative abnormal returns over the period -2 to 0 days around the announcement day 0 were found to be 2.47% (t-value=3.41) for the "price" subsample and 0.02% (t-value=0.06) for the "no-price" subsample. The difference in these cumulative returns (2.45%) is statistically significant (t-value=3.00) at the 1% level.

Sicherman and Pettway (1992) report two-day, (-1,0), cumulative abnormal returns of 1.48% (z-value=6.96) for the "price" subsample of the sellers and 0.31% (z-value=1.88) for the "no-price" subsample, with the difference found to be statistically significant (1.17%; z-value=3.44).

In the only UK study investigating the impact of the sale price disclosure, Afshar, Taffler and Sudarsanam (1992) report that their "price" subsample (142 sellers) have highly significant abnormal returns of 1.06% (t=5.67) on day -1. The "no-price" subsample (36 sellers) exhibits non-significant abnormal returns of 0.06% (t=0.16), with the difference 1.00 significant at the 1% level.

The consensus in the above studies is that the 'good news' for the sellers is the price disclosure rather than the sell-off announcement *per se*. The disclosure of the transaction price, they argue, resolves the uncertainty and helps the market to evaluate the benefits to the shareholders of the seller. This drives the overall positive market reaction reported in the above studies.

In the above literature, an often suggested reason for the negative market response to non-disclosure of the sale price is the unfavourable information inferred by the market. However, we believe that this is not correct. If the managers of the seller have superior bargaining power to impose their preference not to disclose the

price whenever it is unfavourable to the seller and favourable to the buyer, why do they not use this superior bargaining power to secure a profitable deal for the seller? Rather, a possible negative market reaction to non-disclosure of the price in a sell-off most likely results from the uncertainty about whether the transaction is going to be finalised or to fail rather than from the level of its benefits to the seller.

When a buyer has not been found by the announcement day and the seller announces his intention to sell, it is obvious that no price can be disclosed. In this case, the probability that the seller may fail to achieve a beneficial deal mitigates its possible gains. The level and direction of market reaction are then dependent on its assessment of the probability of a profitable sale and the extent of the seller's benefits from such a sale.

2.4 RELATIVE SIZE OF THE SALE

The relative size of the sale and its impact on the wealth of the seller's shareholders has received little attention in the literature. There are no consistent theoretical arguments proposed to evaluate the importance of the relative size. Additionally, there are differences in the definition of relative size in previous studies. Hearth and Zaima (1984) define relative size as " ...the ratio of the announced value of the divestiture to the total assets of the seller". They do not explicitly state what is the assumed value of the total assets of the seller. It is probable that the book value of the seller's total assets was taken as the denominator of the ratio. Thus, the numerator reflects the current market value of the sold assets and the denominator reflects the

values of the assets or, at best, a mixture of historical and past values at the time of the assets' last revaluation, with obvious comparability problems.

Klein (1986) adopts as a measure of the relative size the ratio of the announced transaction price to the market value of the seller's common shares, taken on the last day of the month prior to the sell-off announcement. A similar definition is adopted by Afshar *et al* (1992) in the only UK study of the impact of relative size. We adopt a similar definition of relative size which we call *relative sale size* to distinguish it from the *relative purchase size* as it is defined in the next chapter, section 3.4[8]. This approach mitigates the problem of the comparability of the asset values.

Another problem is the arbitrary cut-off point used in the previous studies to classify the relative size into small or large. This is actually a result of pronounced skewness of the relative size distribution. Hearth and Zaima (1984) adopt an 8% cut-off point; Klein (1986) classifies her sample into three subgroups with cut-offs of 10% and 50% and Afshar *et al* (1992) use a 10% cut-off point.

These studies do not provide a theoretical explanation of the nature of the possible relationship between relative size and the magnitude and direction of the abnormal returns to the shareholders of the seller at the sell-off announcement. The implicit argument may be that if a sell-off decision is good news for the seller, the larger the divestment is the better the good news. Hearth and Zaima (1984) state that the magnitude of market reaction may depend on relative size among other factors such as the difference between the sale price and the value of the disposed assets as ongoing business for the seller. They hypothesise that the possible relationship

[8] We define as relative sale size the ratio of the sale price over the market value of the seller's common shares taken one calendar month before the announcement day.

between relative size and market reaction is positive and this is ultimately confirmed in their findings.

The positive relationship between relative size and abnormal returns of the seller may be due to the former being a proxy for focus or positively related to it. If for example a firm consists of five divisions with relative sizes 5%, 10%, 20%, 30% and 35% and divests assets of more than 35%, it is most likely to have shed one, two or even three of its four divisions[9] with obvious increase of focus. We investigate the relationship of the relative size and the increase in focus in our sell-offs sample. In the early studies where the role of focus in corporate performance was not clearly and explicitly investigated, relative size acted as proxy for focus, capturing, albeit partially, the impact of focus on the abnormal returns. Corporate focus and its impact on the abnormal returns on sell-off announcements has intuitive appeal and recently has been extensively investigated and theoretically justified.

Lang *et al* (1995) find a positive and significant relationship between the abnormal returns to the seller over the period (-1,0). In a regression of the seller's abnormal returns on the payout dummy and the ratio of sales proceeds over the value of the seller's equity, the coefficient of the relative size is 1.22 (t=2.54). However, it is noteworthy that their 40 sellers in the "payout" subsample have a median relative sale size 42%, more than six times greater the 13% of the 53 sellers in the "reinvest" subsample. Therefore, the relative sale size effect may be mixed with the use of the sale proceeds effect.

2.5 CHANGE IN THE FOCUS OF SELLER

Sell-off announcements can be seen as a signal to the market concerning the firm's investment strategy (Rosenfeld, 1984). The market reaction to this signal is contingent upon the perceived quality of the conveyed information about the underlying strategy. In an asymmetric information environment, the quality of the sell-off decision often depends on other related information. For example, sell-off decisions taken within a corporate strategic plan have positive wealth effect on the seller's shareholders, in contrast to decisions taken without having an explicit strategy in place (Montgomery *et al,* 1984).

The most frequently stated motivation for a sell-off is the intention of the seller to focus on its core and more profitable business. Kaplan and Weisbach (1992) report that the most frequent argument for a sell-off is the change of corporate focus or strategy (43 cases in their 103 sample). Kaiser and Stouraitis (2000) find that almost half of the UK sellers in their sample have decided to focus on a particular industry or to shift focus away from an industry. There is empirical evidence that an increase in focus results in an increase in the value of the firm (Comment and Jarrell, 1995; Berger and Ofek, 1995).

Theoretical arguments support the sellers' motivation to improve their performance by focusing on their core business. The seller's management may lack the skills to manage a diverse portfolio of business. The disposed assets may create negative synergy with the remaining business which reduces the value of the firm. Divestment of the non-core business removes poorly performing business and

[9] Assuming that the value of these divisions as ongoing business under the seller is close to their sale

potentially increases profitability. This reflects an increase in the shareholders' wealth and also reduces the probability of the firm becoming a takeover target due to poor performance and depressed share price. More productive utilisation of the limited managerial resources and time in a more focused business enables the seller to develop a sustainable competitive advantage, with beneficial impact on the value of the firm (John and Ofek, 1995). Empirical evidence reported in the literature supports the above arguments.

John and Ofek (1995) study the impact of focus increase of the sellers on their abnormal returns in US sell-offs. They define 'focus' using various measures. First, as a measure of the seller's focus, they use the number of lines of business of the seller before and after the sell-off. Second, they use the Herfindahl index *H*, which is the ratio of the sum of the squared divisional sales over the squared total sales. As a third measure of focus, they use the relationship between the SIC code of the segment containing the divested division and the SIC code of the seller. All measures of focus produce similar results. The abnormal returns of the sellers at the sell-off announcement were significantly higher for the sellers in the focus-increasing group than for the sellers in the non focus-increasing group.

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price.

2.6 RELATIVE BARGAINING POWER OF SELLER AND BUYER

The nature of the sell-off process is different from that of a takeover bid in that it is mainly initiated by the seller and is usually negotiated exclusively with one buyer, in contrast to the open and widely publicised tender offers of takeovers. The sell-off process can be quiet, with the seller and buyer negotiating behind closed doors[10]. The actual difference between sell-offs and takeovers is that in sell-offs participation is limited to invited buyers. The seller's management is not obliged to invite all the potential buyers, to run an auction or even to consider and accept a particular offer.

The sell-off process is not as regulated as that of the takeovers, however it is reasonable to assume that the seller's managers are motivated to achieve the maximum sale price for the divested assets. This assumption does not affect issues of appropriation of the generated wealth and use of sale proceeds. A sell-off is a partial takeover from the buyer's perspective and in that respect there are disclosure requirements imposed by the London Stock Exchange (LSE). The level of disclose based on the class size as shown in the Table 2.1 below.

We have reverse takeover when the size ratio exceeds the 100%, i.e. the target is larger than the listed bidder (buyer). CAO is the Company Announcement Office at the LSE.

For the majority of the sell-offs in our sample there are no publicity requirements, since for 70% of the cases, i.e. the median of the 4th relative sale size quintile, the class size is less than 5%. In less than 8% of our sample the sale is Super Class 1 which requires buyer shareholders' approval.

Table 2.1 Transaction class and buyer's disclosure obligations

Class size	Notify CAO	Send circular	Obtain shareholder approval
3 (less than 5%)	No	No	No
2 (less than 15%)	Yes	No	No
1 (less than 25%)	Yes	Yes	No
Super class 1 (more than 25%)	Yes	Yes	Yes
Reverse takeover	Yes	Yes	Yes

Source: *The Essence of Mergers and Acquisitions*, S. Sudarsanam, 1995, p.93.

The sell-off is economically justified when it creates wealth by transferring corporate assets to higher value use under the buyer. However, the appropriation of this wealth by the seller depends on its bargaining power relative to the buyer. We use two proxies for the seller's bargaining power and we investigate their impact on the wealth gains or losses of the seller following the sell-off announcement. These measures are the financial condition of the seller and the relative size of seller and buyer.

[10] There are always general managerial responsibilities for full disclosure, i.e., to publicly announce decisions or ongoing discussions about important corporate issues.

2.6.1 FINANCIAL STRENGTH OF THE SELLER

There are two alternative interpretation of the importance and impact of the financial condition of the seller which have been adopted in the sell-off literature. In the early studies (Hearth and Zaima, 1984 and Sicherman and Pettway, 1992) the financial condition of the seller has been used as a measure of its bargaining power. The second alternative, adopted by the later studies (Brown *et al*, 1994 and Lasfer *et al*, 1996) has been used as an indicator of the potential wealth gains of the seller. These later studies report that the wealth generating potential of the sell-offs is higher for the financially distressed sellers.

The approach which suggests that the financial situation of the seller can be seen as an indicator of its bargaining power, argues that the financially healthy sellers have a stronger bargaining position than the financially distressed ones. A seller in a strong bargaining position is more likely to be in a position to capture a larger share of the value created in a sell-off than a seller in a weak bargaining position. A financially healthier seller can afford to 'shop around' for a better deal than a seller in financial distress. Given the imperfections of the market for corporate assets as highlighted in section 2.3 above, the financial health of the seller is one of the main determining factors of its bargaining power. The latter plays an important role in how the benefits from the transfer of the assets to a higher value use under the buyer are split between the seller and the buyer (Hearth and Zaima, 1984). At the extreme, a sale by a company in serious financial distress, i.e. in desperate need for cash, can be viewed as a fire sale which destroys value and is motivated by the need to raise cash and to

alleviate the liquidity problems of the seller. A fire sale by a seller in financial distress may have different characteristics than a sale by a financially healthy seller.

Hearth and Zaima (1984) find that sellers in a strong financial position earn larger positive excess returns than sellers in a weak financial position. A seller was classified as having a good financial status if its common stock rating by Standard and Poor was A+, A or A- and a bad financial status if its stock rating was below A-. The group of sellers with a good financial status exhibited higher cumulative abnormal returns than the group of sellers with a bad financial status. However, no tests of significance concerning the difference between the performance of the sellers of these two groups have been reported. Differential stock returns to the sellers, based on classification according to their financial status, supports the hypothesis that financially strong sellers can investigate a better deal and obtain a relatively higher price for the divested assets than the financially distressed sellers.

Sicherman and Pettway (1992) argue that the sellers with a negotiating disadvantage will be forced to accept a lower price than the sellers with a negotiating advantage and that their abnormal returns at the announcement of the sell-off would be lower[11]. They used a credit downgrade of the sellers in the two-year period prior to the sell-off announcement as proxy for financial distress. They find that the group of

[11] Sicherman and Pettway (1992) examine the impact of the relative negotiating power of the selling firm on the allocation of the wealth changes between the seller and the buyer in a sell-off. They did not focus explicitly on the financial health or distress of the seller but on its bargaining power and its change. A non-reverse change in the credit rating of the seller by the credit rating agencies (Moody's and Standard & Poor's) within the two years prior to the announcement of the sell-off was taken as proxy for the change in its bargaining power. The announcement period abnormal returns were greater for the selling firms which did not have credit downgrades during the two years prior to the sell-off announcement than those which did.

non-downgraded sellers, in the two-day announcement period (-1,0), achieved significantly higher abnormal returns than the group of the downgraded sellers.

In contrast, more recent studies have proposed arguments for an inverse relationship between the financial health of a seller and its wealth benefits from sell-offs. Lasfer *et al* (1996) argue that sell-offs are regarded by the stock market as a particularly effective 'escape route' for financially distressed firms. Financially distressed sellers can benefit from a sell-off by using the proceeds to alleviate their liquidity problems and avoid bankruptcy. Sale proceeds can be higher than the equivalent proceeds in liquidation[12] and thus the value of the distressed seller increases following a sell-off. Moreover, assets in suboptimal value use under the seller, due to lack of resources to utilise their growth potential in full, are transferred to higher value use under the buyer and the seller enjoys part of that value increase.

Brown *et al* (1994) find that asset sales by financially distressed firms result in a more favourable share price reaction when sales proceeds are retained by the firm than when they are used to repay debt. This is consistent with the view that asset sales used to repay debt result in a significant loss of option value for stockholders. Alternatively, financial distress is associated with a high level of debt and a resulting high level of lender monitoring. Approval by the lenders that the sale proceeds should be retained and invested by the seller, lends support to the credibility of the managerial decision and results in more positive market reaction.

Lasfer *et al* (1996) use the z-score to classify the sellers into financially healthy (positive z-score) and distressed (negative z-score) firms. In general, the abnormal returns on sell-off announcements for potentially bankrupt firms are

significantly higher than the abnormal returns to the healthy firms. Thus, positive market reaction to sell-off announcements can be associated with a reduction in the probability of bankruptcy. Similar findings were reported in the earlier UK study by Afshar *et al* (1992).

The financial condition of the seller, however, can be correlated with the use of the proceeds. There is evidence that when the sellers pay out the sale proceeds, in the form of either debt reduction or an increase of dividends, they enjoy statistically significant higher abnormal returns than when they retain the sale proceeds (Lang *et al,* 1995). In this thesis we investigate the relationship of financial distress to the use of the sale proceeds.

2.6.2 RELATIVE SIZE OF SELLER AND BUYER

We hypothesise that the relative size of the seller and buyer is an indicator of their relative bargaining power. We expect that the sellers with high relative bargaining power benefit more than the sellers with low relative bargaining power.

Company size is often positively related to specialised managerial skills, negotiating expertise and available resources. These factors increase the negotiating power of the seller and determine the allocation of the excess wealth generated in a sell-off between the seller and the buyer. A big buyer, with a large number of divisions and senior managers experienced at all levels and in all types of

[12] Shleifer and Vishny (1992), argue that the assets prices in a distress sale may have a large liquidity discount if the industry of the disposed division is in downturn.

negotiations, is in a stronger position, i.e. it has higher negotiating power against a small seller.

The level of those characteristics, which are most likely to be related to the bargaining power of a seller or buyer, is positively related to the size of the firm. Thus, a buyer that is much larger than the seller is more likely to have higher bargaining power and is more likely to benefit more than the seller. However, this positive relationship between relative size (or bargaining power) and benefits from the sale may not be constant throughout the whole range. A very large buyer who wants to purchase a division from a much smaller (for example 5% of its size) seller, can afford to pay a relatively high price. The way in which the relationship between the relative size of the seller and the buyer, and their respective benefits from the sale, change with the lever of relative size, is an empirical issue which we investigate in this thesis.

2.7 THE CONDITION OF THE ECONOMIC ENVIRONMENT

There is no empirical evidence concerning the relationship between the state of the economic environment, the sell-off activity and the value implications of the sell-offs. Kaiser and Stouraitis (2000) call recession a period where the British GDP exhibits negative growth and use a dummy variable with value one when the sell-off announcement is made during a quarter of 'recession'. Apparently this is not a reliable definition of recession. Additionally, it is not clear from their paper whether the dummy variable 'recession' refers the sell-off announcements made during the quarter

of decline of the GDP (as stated in the text, p.13) or during the following quarter (as stated in Table 2).

In previous chapter we report that the divestment activity follows the takeover activity by an about two-years lag. We investigate the impact of the condition of the economic environment, i.e. the boom and recession of the UK economy in late 1980's and early 1990's respectively, on the sell-off wealth effects on sellers and buyers. This will shed light on the impact of macro-economic factors on the motivation of the sellers and buyers, the corporate restructuring activity and its wealth implication on the involved companies.

In the UK, divestment activity reached a peak value of £13.2b in 1988 and a peak number of 676 in 1989. In 1991, sell-offs dropped to their lowest number (442) and in 1992 to their lowest value of £5.3b. The motivation of sellers and buyers is different in a booming economy than in an economy in recession, following their changing needs and circumstances. We anticipate that the differential effect of the condition of economic environment reflects on the motivation of seller and buyer and eventually captured in their differential value changes around the sell-off announcements. In recession, be the motivation of a seller is likely to be more defensive, i.e. its decision is driven by liquidity problems. Then, a sell-off provides the easier and cheaper way to obtain the needed cash compared to other sources. This disadvantaged position of seller, however, may result in a discounted sale price, or in any case lower than the one which could have been achieved in more favourable economic conditions. This can be worsened by lower expected cash flows from the divested division and liquidity constraints of the potential buyers in recession. However, the overall value effect of the sell-off on the seller depends also on its value

changes related to the use of the proceeds. The direction of the overall wealth change of the seller is therefore an empirical issue, which is related to the value changes due to assets disposal and the value changes from the use of the proceeds.

In a recession, sellers may find divisions suffer losses due to falling demand and increasing competition in their industries. Smaller companies may suffer more, and merging with other companies or exit from the particular market, by selling the division to a buyer, may be the best option. A seller of such a division is likely to benefit more in a recession than in a boom economy. Not only the seller rids itself of a non profitable or loss making division but also receives cash which helps either to reduce the bankruptcy cost if the seller is in financial distress, or to strengthen its presence in another market with better prospects. On the other hand, if the seller is in financial distress and sells because it needs cash, there may be the case that the whole industry of the divested division is experiencing problems and the potential buyers have also liquidity problems. This will result in sale of the division at a price below the value of its best use (Shleifer and Vishny, 1992). Pulvino (1998), provides evidence of liquidation discounts in the US commercial aircraft industry, applying Shleifer and Vishny's industry-equilibrium model of asset liquidation. He finds that the financial condition of the seller is a key determinant of the price it receives. In particular, Pulvino reports that sellers with low spare debt capacities sell aircraft at a 14% discount to the average market price[13]. This discount exists when the airline industry is depressed but not when it is booming. In recession most of the benefits

[13] An airline is considered to have low spare debt capacity when its leverage ratio is above the industry's median ratio. Where the leverage ratio is defined as the book value of debt plus the capitalized debt obligations divided by the sum of book value of debt, capitalized lease obligations and the book value of equity.

from the sell-offs result from the financial or operational improvement of the seller and value gains from the use of the sale proceeds, such as alleviation or bankruptcy cost. These benefits combined with the possible wealth losses due to liquidity problems of the buyers determine the overall impact of the sell-off on the wealth of the seller's shareholders. In a booming economy the seller's motivation may predominately be to raise the cash to pursue other, more profitable investment opportunities. However, the agency cost of managerial behaviour, which is likely to be higher in a booming than in a recessionary economy, may reduce the probability of an increase in wealth of the seller's shareholders. Again the overall wealth impact of the sell-off is an empirical issue which we investigate.

2.8 LENDER MONITORING

It is well documented in the finance literature that creditors and particularly financial intermediaries like banks play an influential role in monitoring managerial decisions. This influential role stems mainly from two factors:

1. Their comparative advantage in collecting and processing information related to the financial condition, investment opportunities, level of managerial expertise and quality and other confidential or not quantifiable and publicly reported information. This is due to the nature of their relationship with their companies clients.

2. The companies themselves have also benefits by dealing with a financial intermediary and, through confidential disclosure, making it a quasi-insider (Campell, 1979). This spares the company the need to communicate confidential details to the

market. Instead, the market observes and weights the behaviour of the financial intermediary in its evaluation of the company.

Firms with a high degree of bank debt in their structure appear to enjoy a more favourable stock market reaction to important unanticipated managerial decisions (Boyd and Prescott, 1986).

There are several factors that determine a bank - firm relationship:

1)*The interests of the bank*

Banks risk their capital when they lend money to a firm. Therefore, their prime concern is to get the appropriate return for the risk undertaken. They are interested in their customers' credit rating and in obtaining any relevant and timely information to update it. Banks are interested in properly evaluating a firm's performance and managerial decisions since they place at risk their reputation capital together with their fund capital. If a bank fails to convey the right, credible and clear signal to the market about the prospects of its client, looses its competitive advantage against more successful banks.

ii) *The ability of the bank*

The need of the bank to constantly evaluate the performance of a borrower and competition in capital markets, has led banks to invest heavily in developing evaluation technology and gave rise to a substantial accumulation of skills and knowledge in this sector of the banking industry (Campell, 1979).

iii) *The role of the lending banks*

Banks maintain close relations with many firms. Normally they have access to private information from firms. This superior knowledge and their evaluation

technology enable these banks to gain information which is perhaps even superior to an individual borrower's management (Hirschey *et al*, 1990).

iv) *The interests of the firm*

The willingness of a firm to choose a high quality auditor puts it in a positive light. (Titman and Trueman, 1986). A high level of bank borrowing in a firm's capital structure could be seen as a substitute for close monitoring. The market perceives this monitoring as coming from an outsider who has the motivation, the ability and the necessary access to private information and thus reacts more favourably to the financing and investment decisions of firms with substantial bank borrowing.

v) *The market behaviour*

The presence of bank loans in a corporate financial structure is an important factor which is taken into consideration by the capital market participants in their evaluation of both corporate performance and the managerial decisions. Fama (1985), argues that in the presence of a sort-term bank debt and in the absence of a non-renewal signal, other agents need not duplicate bank monitoring by undertaking similar costly evaluations of their claims against the firm. Additionally, James (1987) reports that security issue announcements trigger more negative stock market reaction than announcements of bank lines of credit.

In general, the market regards a high level of bank debt as a positive signal for the prospects of corporate performance. High gearing in the financial structure of a firm, particularly in the form of bank debt, and announcements of its increase have been found to be closely related to positive market response.

The lender monitoring mechanism provided by the banks is very important in the case of corporate sell-offs. Hirschey *et al* (1990) argue that the approval of the

sell-off by the bank-lender reduces the concerns of the market participants about the quality of the decision. The higher the level of the bank debt of a seller, the higher the probability of the bank having private information before the sell-off announcement. Additionally, given the absence of a market mechanism to value corporate assets prior to the sell-off decision, bank-lender approval increases the possibility of a positive market reaction to a positive NPV decision in anticipation of the sale.

Hirschey *et al* (1990) provide evidence that market response to corporate sell-off decisions is influenced by the level of debt in the firm's capital structure. In their sample, the 50 sellers with a high level of bank debt have significant positive abnormal returns of 2.00% (*t*-value=5.13), whereas the 15 sellers with little or no bank debt have no significant abnormal returns of 0.83% (*t*-value=0.93). Regarding the effect of the degree of leverage in general, they found that market reaction to sell-offs is not related to financial leverage.

Lang *et al* (1996) find no evidence of any significant relationship between the ratio of long-term debt over total assets and the abnormal returns to the seller's shareholders. The regression coefficient of long-term debt / total assets is 1.61 for the abnormal returns over the (-1,0) window and -1.29 over the (-5,+5) window with *t*-values 0.42 and -0.23 respectively.

The corporate bond market in the UK is not developed to the same level as its mature US counterpart. Only large FTSE100 firms demonstrate a high level of actively traded corporate bonds with a long history. The banking sector is the main source of corporate debt finance in the UK (Lasfer *et al,* 1996). UK firms usually roll over short-term bank debt, which then resembles long-term debt. Lasfer *et al* (1996) use the ratio of the book value of total debt over the book value of total capital

employed as a debt financing ratio. As total capital employed, they take the sum of the net capital employed plus the short-term debt. We use the same definition of the debt financing ratio. This is consistent with the existing practice of using the book, rather than the market value of equity, in bank loan covenants. Lasfer *et al* (1996) is the only UK study of the relationship of debt financing to the abnormal returns of the sellers at the sell-off announcement.

2.9 THE GROWTH OPPORTUNITIES OF THE SELLER AND BUYER

The market recognition of the firm's valuable investment opportunities can be measured by its Tobin's q-ratio (Lang *et al*, 1996). The q-ratio is the ratio of the market value of the firm and the replacement cost of its tangible assets. By its definition, the q-ratio facilitates direct comparisons across companies without need for any risk adjustment or normalisation required when comparing corporate performance (Lang and Stulz, 1994). Lang and Litzenberger (1989) demonstrate that Tobin's q smaller than 1 is a sufficient indication that a firm is overinvesting, whereas a q-ratio greater than 1 points to a firm being an investment value maximiser.

Tobin's q-ratio has received considerable attention in the empirical literature. Its popularity as a measure of firm's performance is mainly because it provides an estimate of the firm's intangible assets, such as managerial quality, internally generated brands and growth opportunities. Tobin's q has been used as proxy for the market valuation of firm's assets, as performance measure and measure of growth opportunities of firm (Morck, Shleifer and Vishny, 1988; Servaes, 1988 and Lang and

Litzenberger, 1989). It is recognised that the empirical construction of q-ratio is subject to considerable measurement error (Perfect and Wiles, 1994). The Tobin's q-ratio is defined as:

$$Tobin's\ q = \frac{Market\ Value\ of\ the\ Firm}{\text{Re}placement\ Value\ of\ Assets} \qquad (A.1)$$

$$= \frac{Market\ Value\ of\ (Equity\ +\ Debt\ +\ \text{Pr}eferred\ Stock)}{\text{Re}placement\ Value\ (Plant\ +\ Equipment\ +\ Inventories)} \qquad (A.2)$$

The q-ratio offers also a measure of the contribution of the firm's intangible assets to its market value. Management quality is not only an important part of the firm's intangible assets, but influences the quality of future investment decisions and the profitability of the existing. In that respect, q-ratio is a measure of managerial performance. Lang *et al* (1989) suggest that the Tobin's q-ratio is an increasing function of the quality of the firm's current and anticipated projects under the existing management. They also find that the value gains of target, bidder and the total gains in a tender offer are related to the q ratios of both targets and bidders. In particular, they document that the total takeover gain, i.e. the increase in the combined value of bidder and target equity, is the highest in the group of high q bidders taking over low q targets. This group of bidders experiences average gains of 10%, over the period from five days before the announcement to five days after the final revision in terms by the successful bidder. In contrast, the total takeover gain is lowest in the group of low q bidders taking over high q targets. The average gain losses of the bidders in this group, for the same period are 5%. This study focuses on tender offers. However, the

reported evidence from takeovers is that the returns to takeover targets in mergers are smaller than those in tender offers (Huang and Walking, 1987). Servaes (1991), investigates the value effects of takeover in general and reports similar relationship between the value of bidder's and target's q-ratio and the value gains of bidder, target and the overall value.

This relationship between the investment opportunities of sellers and buyers, as proxied by their q-ratio, and their wealth gains or losses following a sell-off, has not been investigated and our study fills this gap. A sell-off transaction, however, has significant differences, in this context, from a takeover. In a successful takeover, before the completion, there is one bidder and one target with uniquely identifiable q-ratios. In a sell-off, the q-ratio of the purchased division is not directly observable.

We investigate the influence of the value of the seller's and buyer's q ratio to the value benefits of the seller and buyer. We suggest that a sell-off transaction between the low q seller and a high q buyer creates the maximum value, by transferring the divested assets from low growth under the existing management of the seller to a high growth under the management of the buyer. This provides both seller and buyer the opportunity to benefit most by sharing a larger value generated by the transaction.

2.10 PREVIOUS RESEARCH ON THE IMPACT OF SELL-OFFS ON THE WEALTH OF THE SELLERS' SHAREHOLDERS.

Research in the area of corporate divestments has mainly documented a positive relationship between the sell-off announcement and excess returns to the seller's shareholders. The magnitude and significance of the excess returns are contingent upon the circumstances of the seller and various factors in its environment. A determining factor for sell-off decisions is managerial motivation. Table 2.2 presents a summary of the results of the previous sell-off studies.

Boudreaux (1975) conducted one of the first US studies on sell-offs. He uses monthly stock price data and makes no distinction between sell-offs and spin-offs. He finds positive price movements prior to voluntary divestment announcements and negative ones prior to involuntary divestments. The increase in the abnormal returns is noticeable from the 3rd month prior to the announcement until the 1st month following the announcement.

Montgomery *et al* (1984) examine the impact of corporate strategy on the value effects of the sell-offs. They use monthly data since they do not have the precise time of the sell-off announcement. Their sample is partitioned into five divestment categories according to the associated motivation:

1. Strategic divestments, 2. Selling undesired units, 3. Selling in response to liquidity concerns, 4. Forced divestments and 5. Undiscussed divestments. The overall CARs for the period -12 months to +12 months is 7.25% (p=0.08). However, the 'strategic divestments' group experiences much higher CARs of 34.5%. These strategic

Table 2.2 Summary results of voluntary sell-off studies on the impact of the sell-off decision on the abnormal returns to the seller's shareholders.

Study	Year	Methodo-logy	Event Dates	CAR (%)	Test Statistic	Sample Size (Period)
Hearth and Zaima	1984	MM	(-5,5)	3.55	t=3.14[a]	58 (1979-81)
Rosenfeld	1984	MAR	(-1,0) (-30,-11) (+11,+30)	2.33 -0.92 1.41	t=4.60[a] -0.61 0.93	62 (1969-81)
Alexander, Benson and Kampmeyer	1984	MKTADJ	(-1,0) (-1,0)	0.40 -0.31	ns ns	53 39 (1964-73)
Linn and Rozeff	1984	na	(-1,0)	1.45	t=5.36[a]	77 (1977-82)
Montgomery, Thomas and Kamath	1984	MM	(-12m, +12m)	7.25	ns	78 (1976-79)
Jain	1985	MM	(-1) (-5,-1)	0.44 0.70	t=5.95 t=4.04	1064 (1976-78)
Klein	1986	MM	(-2,0)	1.12	t=2.83[a]	202 (1970-79)
Hearth and Zaima	1986	MAR	(-1,0)	1.42	t=4.06[a]	75 (1975-82)
Hite, Owers and Rogers	1987	MM	(-1,0)	1.66	z=4.08[a]	55 (1963-81)
Tehranian, Travlos and Waegelein	1987	MM	(-1) (-1)	0.68 0.09	z=3.43 z=0.28	66 80 (1974-82)
Hirschey and Zaima	1989	MM	(-1,0)	1.64 2.83	t=4.02[a] t=5.12[a]	64 26 (1975-82)
Hite and Vetsuypens	1989	MM	(-1,0)	1.12	z=9.12[a]	468 (1973-85)
Hirschey, Slovin and Zaima	1990	MAR	(-1,0)	1.47	t=4.36[a]	75 (1975-82)
Denning and Shastri	1990	MKADJ	(-6,+6) (T-6,T+6)	-0.01 0.01	ns ns	50 (1970-81)

Table 2.2 (continued)

Summary results of voluntary sell-off studies on the impact of the sell-off decision on the abnormal returns to the seller's shareholders.

Study	Year	Methodo-logy	Event Dates	CAR (%)	Test Statistic	Sample Size (Period)
Sicherman and Pettway	1992	MM	(-1,0)	0.92	z=6.33[a]	278 (1981-87)
Afshar, Taffler and Sudarsanam	1992	MM	(-1)	0.85	t=5.23[a]	178 (1985-86)
Kaplan and Weisbach	1992	MM	(-5,+5)	3.48	[a] (na)	271 (1971-82)
Brown, James and Mooradian	1994	MM	(-1,0)	0.48	ns	64 (1989-88)
John and Ofek	1995	MM	(-2,0)	1.50	Significant at 1%	321 (1986-88)
Lang, Poulsen and Stulz	1995	MM	(-1,0)	1.41	z=3.61[a]	93 (1984-89)
Slovin, Sushka and Ferraro	1995	MM	(-1,0)	1.70	t=8.55[a]	179 (1980-1991)
Lasfer, Sudarsanam and Taffler	1996	MAR	(-1,0)	0.82	t=3.34[a]	142 (1985-86)
Hanson and Song	1996	MM	na	0.83	z=4.50	256 (1980-91)
Hanson and Song	1996	MM	(-5,+5)	2.40	t=2.19	96 (1987-91)
Loh and Rathinasamy	1997	na	(0) (-1,1)	1.83 4.18	t=2.53 t=2.96	286 (1981-91)
Kaiser and Stouraitis	2000	MM	(-1,0)	1.17	na	596 (1984-94)

MAR = mean adjusted return model; MM = market model; MKTADJ = market adjusted return model;

CAR = cumulative average residual; na = not available; Event days in brackets, defined relative to the announcement day t=0; [a] indicate significance at .01 level; ns = not significant at .05 level;

* and [+] indicate announcement dates of sell-off intention and completion respectively.

divestments group firms describe their divestment as fulfilling either the strategic decision of the firms to move away or towards "core" business, or to realign their product mix within a given industry. The group of sellers selling undesired units exhibits negative and significant CARs[14], whereas the other groups have CARs not significantly different from zero.

Rosenfeld (1984) studies the impact of 62 US sell-offs on the value of the sellers during the period 1969-81. Over the observation period (-1,0) days, relative to announcement day 0, he finds positive CARs of 2.33% (t=4.60). The sellers, based on the Standard and Poor quality ratings over the year after the announcement, are classified into high, medium and low quality. The sellers' CARs over the period from day -30 to +30 are positively related to the quality ratings, whereas the latter has no impact on the sellers' CARs over the period (-1,0).

Hearth and Zaima (1984) find significant positive abnormal returns for the sellers around the announcement date. Sellers with Standard and Poor common stock rankings of A+, A and A- are classified as having good financial status and those with lower rankings as having poor financial status. Sellers with good financial status have eleven days' CAR(-5,+5) of 4.03% (t=2.43), higher than those of sellers with poor financial status (3.20%, t=2.09) but no significance about the difference is reported. A sale is classified as large whenever the divested assets exceed 8% of the total assets of the seller. That cut-off point is chosen just because it gives rather even subsample sizes (26 large vs. 32 small). Hearth and Zaima find positive and significant CARs for

[14] The authors do state that they expected the returns of the sellers in the group of unwanted sales to be less than the returns of the sellers in the strategic sales group but they do not provide any further explanation about a possible explanation.

the large sell-offs (6.44%, t=3.35) but no significant difference for the small ones (1.23%, t=0.90) and again the significance or not of the difference is reported.

Jain (1985), in a sample of 1,107 US sell-offs over the period 1976-78, finds significant CARs of 0.70% (t=4.04) to sellers for the period (-5,-1) days. Sell-off announcements are preceded by a 110-day period of significant negative returns for the sellers, CAR(-120,-11)=-3.50%, t=-4.54. Miles and Rosenfeld (1983) find similar effects of voluntary spin-offs on shareholders' wealth. The difference is that the spin-offs are preceded by a period of positive CARs. The liquidity problems that may be associated with a poor performance, may provide a partial explanation for the different divestment decisions and their wealth impact. That is, a sell-off decision may be taken as a response to liquidity problems that follow a period of poor performance.

Klein (1986) argues that price disclosure and relative size are important factors which can partly explain the cross-sectional differences in value change following sell-off announcements. At announcement day, the abnormal returns to the sellers are found to be 1.12% (t=2.83). Sellers disclosing the transaction price earn CARs of 2.47% (t=3.41), significantly higher than sellers in the no-price subsample (0.02%, t=0.06). Klein (1986) defines relative size of the disposed assets as the ratio of the sale price over the market value of the common stock of the seller. Sellers are classified into three groups according to their relative size, with cut-off points of 10% and 50%. The abnormal returns of these three groups are: 0.54%, 2.53% and 8.09% indicating a positive relationship between relative size and abnormal returns. Regression analysis confirms this positive relationship.

In an attempt to investigate whether there is a relation between the size of the transaction and the probability of success, Klein (1986) studies the interactive effects

of both price disclosure and probability of success. She proxies the probability of success with the dummy which takes a value of 1 if there is a signed agreement at announcement and 0 if no agreement has been achieved. Klein (1986) argues that if price disclosure is a proxy for success, in a regression of abnormal returns on both price and agreement the coefficient of price should not be significantly different from zero. However, this is not confirmed, as the coefficients of both the price and agreement are significant, indicating that price disclosure is not a proxy for success. Introducing the agreement dummy in the regression of the abnormal returns on relative sale size and price disclosure, does not alter the significance of the positive coefficients of size and price. The agreement coefficient is found to be negative and significant, against the author's intuition and expectations, which suggest that the market reacts more favourably to non-signed agreements but no explanation is offered.

Kaplan and Weisbach (1992) examine the performance of acquisitions divested later. They follow up 271 acquisitions over the period 1971 to 1982 and find that 43.9% had been divested at the end of 1989 with a median time between acquisition and sell-off of 7.0 years. Divestments are classified *ex post* as successful or failed acquisitions based on accounting data, gain or loss on sale and managerial or press comments. A divestiture is classified as unsuccessful if either the acquirer reports a loss on the sale or the press reports that the acquisition was a mistake (the authors suggest that these divestments appear to be performance related). Only 34% of divested acquisitions are classified as failed. At the announcement of the acquisition the sellers in the non-divested group experience negative CAR(-5,+5) over the period (-5,+5) days, relative to the original acquisition announcement day 0, of -1.11% (*t*=-

0.61) significantly higher, at 1%, than the -4.42% (t=-1.28) of the sellers in the unsuccessful group of later divested acquisitions. This imply that the market can make the distinction between a successful and unsuccessful acquisition at the time of acquisition. No significant difference on the CARs of the targets between the two groups is detected.

Regarding the impact of divestments announcements on the sellers' wealth, Kaplan and Weisbach (1992) find overall positive abnormal returns of 3.48% for the total sample of 68 divestitures[15]. The group of successful divestments have a CAR(-5,+5), relative to divestment announcement day 0, of +2.05%, whereas the group of unsuccessful divestments have +5.39%. A negative correlation of -0.27 (significant at 3% level) is found between the CARs of the sellers and the CARs of the bidder at the takeover announcement. These results suggest that an unsuccessful acquisition has a negative effect on the acquirer (negative synergies) and therefore, their divestment is more beneficial.

Tehranian, Travlos and Waegelein (1987) provide evidence of the impact of the existence of long-term performance plans of managerial remuneration on the wealth effects of the sell-off announcements. They find that sellers with long-term performance plans earn positive and significant ARs of 0.68% (z=3.43) at announcement day, compared to a statistically insignificant 0.09% (z=0.28) to sellers with no long-term performance plans (significant difference of 0.59%; z=2.31). This suggests that long-term performance plans improve the alignment of managerial and shareholder interests.

[15] Divestitures in the sample include equity curve-outs and spin-offs, which makes them not directly comparable with our sample of sell-offs.

John and Ofek (1995) investigate the impact of the increase in focus on the wealth changes following a sell-off. Three measures of focus are used: the number of lines of business, the Herfindahl index and the SIC code. Accounting measures of performance, such as operating margins are used to assess the change in profitability for the three years after the sell-off. The group of sellers which, following the sell-off, increase their focus, exhibits an increase in performance (operating margins) in contrast to the group of sellers with no change in focus. The regression coefficients of the measures of focus are found to be positive and significantly different from zero. The sellers earn positive and significant CARs of 1.50% over the period from day -2 to 0, relative to the sell-off announcement day 0. The division average excess return, which is the ratio of the abnormal increase in the seller's equity value over the sale price, is 9.9% over the period (-2,0) days[16].

The seller's abnormal returns at sell-off announcement are found to be positively correlated to the changes in profitability during the ensuing years. They are also found to be positively related to the increase in focus. The abnormal returns to the sellers are higher when the sold divisions are less related to the seller's main industry. John and Ofek (1995) find that the use of the proceeds has no marginal explanatory power beyond that of the increase in focus[17]. Finally, they find that the fit of the division with the buyer's operations is positive when related to the abnormal returns to the seller. When the sold division is unrelated to the seller and related to the

[16] The abnormal dollar increase of the seller's equity value over the period (-2, 0) is calculated as the product of the market value of the seller's equity on day -3 times the seller's abnormal returns over the period (-2, 0).

[17] John and Ofek (1995), use as source, of their use of the proceeds classification, the *Wall Street Journal* announcements. They identify 108 cases of reports about the use of the proceeds (an average of 36 per year, over the 3-year period 1986-88).

buyer, the value gains are significantly higher than when it is related to the seller and/or unrelated to the buyer. No relation is found between the buyer's abnormal returns and the fit of the division to their operations.

Lang, Poulsen and Stulz (1995) argue that managers are self-motivated and sell assets only if this is the cheapest way to get cash to either reduce leverage or to pursue their own self-interests (*Financing hypothesis*). The payout group of sellers, i.e. the sellers who use the sale proceeds to pay back debt or increase dividends, performs worse than the reinvest group prior to the sell-off[18]. Only the sellers in the payout group experience positive and significant CARs over the window (-1,0). Dividing the sample of sellers into four groups by both past performance and use of the proceeds, only the poorly performing group that pays out the proceeds achieves significantly positive abnormal returns.

In an attempt to answer the question whether use of the sale proceeds or past performance drives the abnormal returns of the sellers, Lang *et al* (1995) investigate the relationship between abnormal returns to the sellers and various measures of past performance. However, they find that past performance of the sellers is not as successful as the use of the proceeds in explaining the sellers' wealth gains around the sell-off announcements[19].

Afshar *et al* (1992), in the first study of sell-offs in the UK, find positive and significant abnormal returns for the sellers on day -1 (0.85%, t=5.23). The group of 142 sellers with transaction price disclosure at announcement has significantly higher

[18] Lang *et al* (1995), use as source of information about the use of the sale proceeds 8K filings, the S&P Standard Stock Reports and the annual reports. Their average annual sample size is 15.3 cases per year over the period 1984-89.

[19] The abnormal returns for groups of sellers with bad performance are generally found to be higher than for the groups of sellers with good performance but the difference is not statistically significant.

abnormal returns than the no-price group (1.06% vs. 0.06%). The abnormal returns to the no-price sellers are not different from zero. The same relationship is found in favour of the completion group compared to the intention only group. Of the no-price subgroups, the no-price intention group outperforms the no-price completion group. In a regression of seller's abnormal returns on an intention-completion dummy, price disclosure dummy and z-score, only the z-score has a significantly negative coefficient (-0.22, t=-2.21).

Lasfer *et al* (1996) study the impact of financial distress on the sellers around the sell-off decisions. Both groups of financially distressed and healthy sellers exhibit significant positive abnormal returns around the sell-off announcements (2.12%, t=2.96 and 0.49%, t=1.99 respectively) with a significant difference (1.63%, t=2.21). In the regression of abnormal returns on relative size, debt financing and other explanatory variables, the coefficient of the debt financing ratio is positive and significant. This suggests that a high level of debt in the capital structure of the sellers effectively monitors the managers, which reduces the agency cost and increases the firm value. The interactive variable, (debt financing) x (z-score), has a negative coefficient significant at the 10% level, which implies that the z-score has an incremental impact on abnormal returns over and above that of debt financing. This means that it is not appropriate to use debt as proxy for financial distress. Finally, the completion or intention does not make any difference to the abnormal returns and relative size is positively and significantly related to abnormal returns only for the healthy group of sellers.

Kaiser and Stouraitis (2000), compare the effect of sell-offs in a number of European countries, including 596 UK sell-offs over the period 1984-94. Based on

trading volume changes, they find no evidence of information leakages prior to the sell-off announcement in the UK, in contrast to continental Europe. Seller's abnormal returns for the two-day (-1,0) window, are found to be positive and significant. Variables representing reasons for the sale, use of the proceeds, profitability of the transaction and general control variables were collected mainly from the Financial Times supplemented by the Securities Data Corporation database and the annual reports. From the set of reasons for sell-off, only the 'solicited by the buyers' and those made for 'operational reasons' are found to be significantly correlated to the CARs of the sellers.

Loh and Rathinasamy (1997) examine the impact of the adoption of an antitakeover device prior to a sell-off announcement on the wealth changes around the sell-off announcement. They argue that managers may be self-motivated and adopt antitakeover devises as entrenchment strategy against the market's discipline for failing to implement shareholder wealth maximisation policies. Potential takeover targets may adopt more than one antitakeover devises and a sell-off can be one of those if it follows a previous adoption of another devise[20]. A sell-off following the adoption of an antitakover device, within six months prior to the sell-off announcement, can be seen as a takeover defence mechanism that consolidates a managerial entrenchment strategy. In the study, sellers are classified in the 'device' group if they had adopted at least one of the antitakover devices during the six months prior to the sell-off announcement. The sellers in the 'no-device' group earn positive

[20] The various antitakeover devices adopted by the 104 sellers, prior to the sell-off are (their number and frequency in brackets): poison pill (25- 24%), Leveraged recapitalisations (15- 14%), Fair-price amendment (13- 12%), Classified board of directors (12- 12%), Targeted share repurchase (11-11%) and various other at less than 8% frequency.

and significant CARs of 2.36% (t=2.86), whereas the sellers in the 'device' group earn not significant CARs of 0.90% (t=1.45).

2.11 CRITIQUE OF EXTANT STUDIES

One of the major concerns regarding the extant studies on effects of the sell-off announcements is their very small sample size relative to the total number of sell-offs (see section 2.1 in the previous chapter). This is only partly due to the problem of data availability. The three most common selection criteria that drastically reduce the sample size are the minimum deal size, the minimum size of the seller and the screening of confounding events. The sample reduction in almost all studies is so drastic that they are likely to suffer from sample selection bias. Most studies analyse less than 5% of the total sell-offs during their study period and often limit their sample to very large companies. For example Hite, Owers and Rogers (1987) examine just 2.9 companies per year (55 sell-offs - 19-year period), Hearth and Zaima (1986) 9.4 (75 cases - 8 years) and Alexander, Benson and Kampmeyer (1984) 5.3 (53 cases - 10 years). This seriously affects the representativeness of these studies and most likely invalidates any general conclusions about market reaction to sell-off announcements[21]

Our sample includes all UK reported in Acquisitions Monthly for which data are available and for which there are no confounding events over the event period.

[21] There is no theoretical justification for sampling only among large companies. Additionally, large companies are more likely to have more events and announcements over a give period than the smaller companies and hence may be excluded due to confounding events, which further reduces the sample size.

Our event window is three days long and hence the probability of confounding events is small. Various confounding events in a very large sample are most likely to be randomly distributed so that they cancel out the effect of one another. Thus, our large sample enables us to draw conclusions of more general validity.

Hearth and Zaima (1984) use an arbitrary cut-off point, 8% of the total assets of the seller, to classify the sales into small and large. Besides the lack of any theoretical justification for this, the total assets of the seller are most likely to be reported in historical values or at best at their last revaluation prices. The sale price, by contrast, represents the current market value of the disposed assets which is not fully comparable to the book values of the total assets of the seller. The market value of the common equity of the seller is more appropriate to be used as the denominator of the relative size of the sale. We avoid adoption of any arbitrary cut-off point by classifying a sale as small or large using the quintiles of the relative size variable. Lang *et al* (1995), find that the sellers in the payout group have, in general, worse past performance than the sellers in the reinvest group. They divide their sample into four groups according to use of proceeds and past performance to investigate whether the relation between the abnormal returns and the use of sale proceeds is driven by the underlying poor performance. They conclude that because the abnormal returns for the sellers in the payout group do not differ according to past performance, it is unlikely that the relation between abnormal returns and the use of the proceeds depends on the seller's performance. It is, however, not reliable to use a joint relation (use of proceeds and past performance) on a subsample of 40 (payout group), in order to make assumptions about a single relation (past performance - abnormal returns) for the whole group of 93 sellers. Additionally, for 18 of their 93 sample cases (almost the

Table 2.3 Summary of previous research on sell-offs

Investigated factors-variables which determine the wealth effects of the sell-off announcements on the seller's shareholders and their documented impact.

Study	Variable - factor	Impact
Hearth and Zaima (1984)	size of divestment financial status of seller	Positive Positive
Montgomery, Thomas and Kamath (1984)	Sell-off taken within a broader strategic plan	Positive
Klein (1986)	price disclosure relative size seller-buyer agreement on completion of the deal	Positive Positive Positive
Hite, Owers & Rogers(1987)	Successful completion of announced sell-off	Positive
Tehranian, Travlos and Waegelein (1987)	long-term performance plans in executive compensation contracts	Positive
Hirschey and Zaima (1989)	insider trading	Positive
Hite & Vetsuypens (1989)	MBO (sale to divisional management)	no effect
Hirschey, Slovin and Zaima (1990)	Level of bank debt in the capital structure of the seller	Positive
Sicherman and Pettway (1992)	Financial condition of seller Disclosure of transaction price	Positive Positive
Afshar, Taffler and Sudarsanam (1992)	Price disclosure Completion Financial health of seller	Positive Positive Positive
Kaplan & Weisbach (1992)	Divestment unsuccessful acquisitions	Negative
John and Ofek (1995)	Increase in focus of the seller's operations Fit to the buyer	Positive Positive
Lang, Poulsen and Stulz (1995)	Retention of sale proceeds Past performance of seller	Negative Negative
Lasfer, Sudarsanam and Taffler (1996)	Financial health of seller Level of debt financing of the seller	Negative Positive
Hanson and Song (1996)	Managerial ownership Management buyout	Positive Positive
Loh & Rathinasamy (1997)	Adoption of antitakover device prior	Negative
Kaiser and Stouraitis (2000)	Relative size of sale Increase in focus of the seller Profitability of divested division Return of sale proceeds to shareholders Debt reduction	Positive Mixed no effect positive positive

fifth) the use of the proceeds identified after the sell-off announcement. Apparently the impact of the information release later than the announcement is not the same with the one conveyed by a simultaneous announcement of the sell-off and the use of the proceeds. Therefore it is not appropriate to mix the two subgroups. More importantly, the financing hypothesis as suggested by Lang *et al* (1995) does not take into consideration the circumstances of the seller and in particular its growth opportunities. It is not convincing that the financing hypothesis has the same impact on sellers with good or poor growth options. There is evidence that the documented negative relationship between gearing and future growth for diversified firms does not hold for firms with a high q-ratio, i.e. good growth opportunities (Lang, Ofek and Stulz, 1996). In that light, the relationship between the seller's abnormal returns and the use of the proceeds should be examined in conjunction with the seller's growth opportunities as proxied by its q-ratio[22].

Kaiser and Stouraitis (2000), use variables collected mainly from the published report in the Financial Times, which raises serious credibility issues. The first and most important is related to the credibility of the managerial announcements. Corporate events are subject to personal interpretation and can be seen differently from different perspectives. In an important event like a sell-off decision which can influence market reaction according to the perceived motivation and the prospects which it raises for the company, the management of the seller is likely to put up some window dressing. Managers may not try to completely mislead the market for legal reasons but they have incentives to promote the plausible alternative motivation for

[22] Lang, Stulz and Walkling (1989), suggest that q-ratio is positively correlated to the quality of the firm's current and anticipated future investment projects. This relationship is affected by the quality of the management, the production technology and the costs of trading assets.

the sell-off decision with the most favourable impact on the market. The authors argue that if managers seek to mislead the market, their credibility will diminish with increasing length of their time in service. The full credit which the market gives to new managers is eroded over time by their misleading behaviour. Kaiser and Stouraitis (2000) suggest that the positive and significant regression coefficient of the change of CEO variable, in the regression of CAR(-1,0) on various explanatory variables in the 'increase in focus' subsample, supports the above assertion[23]. However, the coefficient of the new CEO dummy in the overall sample is negative and no explanation is offered for this discrepancy. Additionally, sell-offs are often part of corporate restructuring in response to performance declines. If such a restructuring involves both the sell-off and a change of the CEO, the observed abnormal returns are the result of the joint impact of these confounding events (Lai and Sudarsanam, 1997).

In general, managers have reasons to try to manipulate the market and to promote their interpretation of the events. We therefore conclude that if managers are not trustworthy, their account of the events should not be taken at face value[24]. Thus, their given reason for the sell-off decisions should not be taken as the *ex ante* actual motivation of seller.

If we accept the questionable managerial interpretation for the motivation of a sell-off as reported in the FT we place serious reliance on the objectivity and consistency of the reporting policies of the FT and by the business press in general

[23] This variable, however, is negative in the regression of the whole sample (Table 7).

[24] Lang *et al* (1995) find that managers of the sellers give other reasons for the sell-off but still pay out the proceeds. They also find cases where sellers are engaged in a program of acquisitions and the assets sales provide cash for these acquisitions. However, the seller's managers still give other reasons as motivation for the sell-off, such as elimination of unprofitable divisions or focus in core activities. It is

(Klein, 1986). Reporting policies are an important factor determining the FT coverage of corporate news. There is not evidence of this issue but given the limited newspaper space and journalistic time to cover a very large number of corporate news every day, a selection process is likely in place and the reported news is in the best case a subsample and a summary of the daily corporate press releases. The business news team of FT may be biased towards reporting news about large companies and events which are likely to have a big impact on the market by causing substantial price moves.

Given the journalistic and editorial freedom in the coverage of corporate news, we believe that what is reported in the FT should not be the primary source of variable selection (Jain, 1985). Kaiser and Stouraitis (2000), argue that in the case of discrepancy between managerial and journalistic views on the reasons of a sell-off they accept the journalist's interpretations because they were based on general assessments of the events shared by other analysts. However, journalists are not analysts who follow a company closely so as to have a qualified view and secondly, under the time pressure in their job, it is most unlikely that they would take time to discuss and cross check with analysts, at least not in all the cases. This cross check process may happen indeed in important cases, mainly related to big companies and large-value deals, but in the following up coverage in following days. We avoid these problems of possible managerial and reporting bias by deciding about the about the use of the proceeds based on the level of change of debt (or dividends) after the sell-off as it is reported in the published financial statements. We believe that this is more credible and objective approach and reflects the market interpretation of the

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therefore apparent that managers are prepared to promote other alternative motivations for the sell-offs

motivation of the sell-off and the use of the proceeds. The market knows about the managerial motivation and also about their practice to eventual use the proceeds in different uses that the originally declared (Jain, 1985). Therefore, we assume that the market foresees that seller may eventually use the proceeds to repay debt (if it is what eventually happen and recorded in the following year's financial statements) against managerial suggestions at the sell-off announcement day. Therefore, we classify the use of the proceeds as 'repayment of debt' or 'increase in dividend' if actually in the financial statements of the following year the seller's debt is reduced or the distributed dividends increase above the average increase level of the two years prior to the sell-off announcement.

2.12 SELL-OFFS AND ANALYSTS' FORECASTS OF EARNINGS

2.12.1 EARNINGS AND STOCK RETURNS

The stock markets reaction to accounting earnings information has attracted significant attention in both the US and the UK over the last two decades. The importance of this relationship is related to the issues of the accounting policy making and the market efficiency. The accounting research in this area is driven by the interest of policy makers and accountants of what accounting data convey useful information to investors in relation to their resource allocation decisions. The relevance and usefulness of the accounting data is based on the impact of their release on the market. The market efficiency research is concerned with whether and to what extent the

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if the real motivation is to obtain cash to pursue their own objectives.

market prices of the securities are priced to reflect all the available information, which is crucial for optimal resource allocation. An important question in the market efficiency issue is the speed of market adjustment to new information and related to that whether an information in an economic or an accounting variable leads or lacks the market behaviour. Fama (1981), reports that for the US, in the period 1954-76, the stock market returns lead the economic variables and not the reverse. Huang and Kracaw (1984) provide evidence that the US stock market efficiently reflects information related to the future unemployment and production, i.e. stock market reaction is leading indicator of these economic variables. Kamarotou and O'Hanlon (1989) confirm similar but weaker relationships in Canadian and Japanese stock market but the opposite for the UK, i.e. in the UK, economic variables led the stock market behaviour and were not led by them.

In the relationship between accounting information and stock market reaction, earnings are often referred to as the single most important item of financial statements. Over the entire life of a company, the earnings eventually capture the collective impact of all corporate decisions and events on its value (Ball and Kothari, 1994). In the short term, however, the relationship between earnings and returns to stockholders may not be precise. Short-term reported accounting earnings are based on the notion of accruals which require estimates for variables such as depreciation and accounts receivable etc. This involves some degree of subjectivity in estimating the value of the useful economic life of an asset and its residual value or the level of provisions for doubtful debts and so on. Therefore, 'accounting earnings' is less than a perfect measure of the shareholders' value. However, there is a close relationship between earnings and firm value. Reported current earnings, even though not a perfect

measure of value, reflect some of the value effect of managerial decisions (Ball and Kothari 1994).

Ball and Brown (1968) investigate the relation between earnings and stock prices. They find that the stock price of the firms reporting increased (decreased) earnings at the end of a fiscal year, had also increased (decreased) throughout the entire year compared to the market index. This means that a significant proportion of the information captured in annual reported earnings has been already reflected in the stock returns throughout the year even ahead of earnings announcements. Similar results are reported for Australia (Brown, 1970) and the UK (Firth, 1981). The above evidence indicate that stock returns lead accounting rates of returns, as reported by Kothari and Sloan (1992). However, Watts (1978) finds that holding portfolios with positive earnings forecasts errors and short selling stocks with negative earnings forecasts errors, produces positive abnormal returns. This suggests that accounting earnings lead stock returns. O'Hanlon (1991) reports that, in the UK, both accounting returns and stock market returns lead each other, with the accounting returns lead of the stock returns to be the strongest of the two.

Easton, Harris and Ohlson (1992) demonstrate that over increasingly long intervals, the relation between earnings and returns grows stronger. However, the most effective method is the one that includes previous returns as an explanatory variable in the price-earnings regression. Bernard and Thomas (1990) find that there is a serial correlation in quarterly earning changes and that the current quarter's change in EPS helps to predict the next four quarters' EPS figures.

2.12.2 ANALYSTS' FORECASTS OF EARNINGS AND STOCK RETURNS

Corporate reporting provides an important source of information used by financial analysts. Stickel (1989) finds that analysts usually revise their earnings forecasts following preliminary earnings announcements. Lys and Sohn (1990) find that individual analysts' earnings forecasts convey useful information to the stock market, even when they are preceded by earnings forecasts made by other analysts or by corporate accounting disclosures. Analysts' forecasts of earnings are used in the literature as indicators of market expectation of future earnings (O'Brien, 1988). The most frequently used earnings forecasts are those of the consensus analysts' earnings per share forecasts (EPS), as published by Lynch, Jones and Ryan in their Institutional Brokers Estimate System I/B/E/S service.

Brown, Hagerman, Griffin and Zmijewski (1987) provide evidence that consensus analyst forecasts of earnings are more accurate than earnings forecasts based on time-series models of past earnings. Unexpected earnings based on analysts' earnings forecasts are positively correlated with abnormal stock returns. An advantage of using analysts' earnings forecasts is that the period used to measure changes in expectations of earnings is shorter, which reduces the variance of the estimates due to unrelated events. Since monthly data on financial analysts' earnings forecasts are available, changes in analysts' forecasts are more timely and hence more precise than changes in reported earnings (Jain, 1992).

Shareholders are the residual claimholders on corporate value of which earnings are a direct measure. Since financial analysts' earning forecasts are a good proxy for the actual corporate earnings, changes in the analysts' earnings forecasts

(EF) may represent potential changes in shareholders' wealth. Analysts' earnings forecasts revisions (EFR), in response to corporate events, are a direct test of the information conveyed to the market by those events and their implication for the value of the firm.

2.12.3 CONTRIBUTION OF ANALYSTS' FORECASTS OF EARNINGS IN THE STUDY OF CORPORATE INVESTMENT AND FINANCING DECISIONS

Investigation into the behaviour of the financial analysts' earnings forecasts and their revisions following various corporate investment and financing decisions, is very important and has recently attracted considerable attention in the financial economics literature. There is a growing body of research, mainly in the US, which utilises analysts' forecasts of earnings and their revisions in studying the nature and implications of various corporate investment and financing decisions. These studies mainly test whether the announcement of important corporate decisions convey information about changes in future earnings and firm value, as reflected in the revisions of analysts' forecasts of earnings.

Three areas of financing and investment decisions have been examined by US researchers. These areas are: equity issues, dividend changes and takeover bids. In each case, the abnormal earnings forecasts revisions are estimated at the time of announcement of those decisions and tested for significance. As with the literature on stock market reaction to corporate divestments, many contextual variables have also

been examined in interpreting the revisions of analysts' forecasts of earnings following these corporate decisions.

There are no previous studies on the use of analysts' forecasts of earnings in the area of sell-offs. In the next section we present a brief review of studies using analysts' forecasts of earnings and their revisions in the area of takeovers.

2.12.4 EMPIRICAL EVIDENCE OF TAKEOVER BIDS AND REVISIONS OF ANALYSTS' FORECASTS OF EARNINGS.

Pound (1988) examines the financial analysts' earnings forecasts response to takeover bids announcements and resistance. He reports that the target firms experience positive, but not significantly different from zero, revisions of analysts' forecasts of earnings for the fiscal year of the sell-off (FY1). Thus, Pound suggests that the targets' positive cumulative abnormal returns around the announcement date reflect potential synergistic gains. For the resisted takeover he finds significant negative revision of earnings forecasts. He interprets this as evidence that resistance to the bid by the target's management is value destroying for target shareholders.

However, the methodology used by Pound does not take into account the fact that analysts' forecasts of earnings are subject to an optimism bias. The forecasts are overly optimistic at the beginning of the year and systematically revised downwards with the end of the year. This implies that the expected earnings forecast revision is negative and that the methodology of Pound is biased against finding positive earnings forecast revisions in the announcement month. Also, Pound does not account for serial

correlation in the monthly forecast revisions due to the fact that not all analysts revise their forecasts every month. His approach has been methodologically improved by Brous and Kini in their 1993 paper.

Brous and Kini (1993) examine the wealth changes of targets following takeover bids, their sources and the impact of managerial resistance. Their empirical findings document positive abnormal returns for the shareholders of the targets around takeover bids announcements. Two alternative hypotheses have been suggested to explain this value increase of takeover targets:

1. The *New information hypothesis* which implies that the announcement of the takeover bid conveys favourable information to the market about the potential value of the target firm (Chatterjee, 1992). The new information can be related to undervaluation of the target's shares or can act as "a kick in the pants" to prompt the under-performing management to implement higher-value operating strategies (Bradley *et al,* 1983). These value improvements do not necessarily require a successful bid where the target is acquired by the bidder.

2. The S*ynergy hypothesis* which implies that there are expected synergistic gains which are going to benefit the target firm's shareholders by combining the bidder and the target. These gains are realised only if the bid is successful.

To distinguish between these hypotheses, Brous and Kini (1993) use the abnormal revisions in the analysts' forecasts of earnings. Both hypotheses predict abnormal wealth increases to the shareholders of the targets at the announcement of the bid. However, the two hypotheses predict different patterns of analysts' revisions of earnings forecasts. The synergy hypothesis predicts that analysts would not revise

their earnings forecasts for targets on a stand-alone basis, whereas the new information hypothesis predicts that they would.

Brous and Kini (1993) use a simple model to estimate the expected earnings forecast revisions which correct for optimism bias and serial correlation in forecast revisions[25].Abnormal forecast revisions of earnings (AFRs) of the targets, for the current- (FY1) and following- (FY2) fiscal years, are found on average to be positive. Targets with a low q-ratio have significantly greater AFRs than those with high q-ratio firms. These results support the new information hypothesis but they do not enable us to establish whether the information refers to undervaluation of the stock price or mismanagement (an undiscovered 'gold mine') of the target. For the resisted takeovers, Brous and Kini find that the cumulative abnormal forecast revisions are not significantly different from zero during the resistance period. This suggests that takeover resistance has a neutral effect on the targets' stand-alone value.

Lang and Litzenberger (1989) demonstrate that Tobin's q smaller than 1 is a sufficient condition to identify a company that is overinvesting, whereas a q-ratio greater than 1 is a necessary condition for the company to be a value maximising investor. Generally, the q-ratio is regarded as a good proxy for managerial efficiency. Lang, Stulz and Walkling (1989) find evidence that the shareholders of low q-ratio target firms benefit more than the shareholders of high q-ratio firms in takeover bids.

Brous and Kini (1993) investigate the relationship between the q-ratio and revisions of the analysts' forecasts of earnings for the takeover targets. They divided their sample according to the value of the targets' q-ratios and find that for targets with a low q-ratio, both raw and abnormal forecasts revisions are positive and

[25] We describe this model in the methodology section.

statistically significant, whereas for high q-ratio targets, the mean raw analysts' earnings forecast revision is negative and significant and abnormal revision is not significantly different from zero. The difference between raw or abnormal earnings revisions for low and high q-ratio targets is statistically significant at the 1% level. The negative and significant relation between the firm's Tobin's q-ratio (Q_i) and the announcement-month earnings forecast revisions (EFR) is confirmed by the coefficients of the regression equations:

$$FR_i = \alpha_i + \beta_i Q_i + \mu_i$$
$$AFR_i = \alpha_i^* + \beta_i^* Q_i + \varepsilon_i$$

where FR_i is the raw announcement-month analysts' earnings forecast revision. The intercepts are found to be positive and significant and the slope coefficients negative and significant for all four regressions (two for the group of target firms with q-ratio>1 and two for those with q-ratio<1). The significant difference between the FR and AFR for low and high q targets and the negative relation between the firm's q-ratio and the announcement earnings forecasts revision provide evidence of the new information hypothesis.

2.12.5 COMBINED READING OF ABNORMAL RETURNS AND ABNORMAL REVISIONS OF ANALYSTS' FORECASTS OF EARNINGS

As we discuss in Chapter 1, section 1.4, in order to identify the sources of potential wealth changes following the sell-off announcements, we utilise the combined reading of cumulative abnormal returns (CARs) around the sell-off announcement day 0 and the cumulative abnormal revision of earning forecasts, over

the period from the announcement month 0 to month +3 (CAFR). This methodology applies to the analysis of the effects of a sell-off announcement for both sellers and buyers.

Wealth gains or losses of a company involved in a sell-off transaction, either as the seller or the buyer, are related to its CARs. For example, positive CARs for a seller's shareholders around the sell-off announcement day suggest that this is a wealth increasing decision. However, the source of this wealth increase can be the increased future profitability of the seller, transfer of wealth from the buyer or both. To differentiate between these alternative sources of wealth increase we utilise the cumulative abnormal forecast revisions of earnings (CAFR).[26] If the seller's CAFR is insignificantly different from zero or negative, the source of the seller's wealth gains is transferred wealth from the buyer. This comes about because the buyer pays a price which is higher than the net present value of the expected net cash flows from the assets under the seller. This does not necessarily mean that the buyer losses wealth. It can simply be the case that the sold division is expected to generate even higher future net cash flows under the buyer's ownership and the seller and buyer both benefit by sharing the created wealth. However, it is possible that the wealth gains of the seller are related to transfer of wealth from the buyer which leads to wealth losses for the latter (as captured on its negative CAR). Detailed interpretation of the specific combinations of CAR and CAFR for the sellers and buyers is presented in the discussion of the results in chapters 5 and 6.

[26] Details about the methodology and the estimation of CAFRs see in the Chapter 4.

2.13 CONCLUSION

In this chapter we have reviewed the literature on the impact of sell-offs on the wealth of sellers' shareholders. We also briefly presented the main US and UK empirical results findings. The main finding of the majority of the studies is the positive impact of the sell-off announcements on the sellers' shareholders wealth. However, few studies reported no significant impact. We also reviewed the theoretical impact of the various explanatory variables on the wealth implications of the sell-offs for the sellers and the empirical findings. Summary of these theoretical arguments and their impact are presented in Table 2.4. Early research was mainly focused on the impact of the characteristics of the involved companies and the deal itself such as the size of the sale and the disclosure of the price at the announcement of the sale. Later studies shifted their focus to the economics of the deal such as the change in focus of the seller, the changes in the performance or the financial structure of the seller following the sell-off.

We seek to give additional evidence on these areas of controversy or inconsistent results, as we discuss in the previous section 2.11, using a bigger sample for more reliable and generalisable inferences. We are also filling the gap in the literature regarding the other identified variables that have, a priori, significant impact, such as the relative bargaining power of the seller and buyer and the influence of the economic environment.

In this chapter we examined the likely factors in sell-offs that affect the wealth changes of the sellers. However, another important issue is the wealth implication of the sell-offs for the buyers. A voluntary sell-off agreement is the product of the joint

participation of both seller and buyer, which suggest benefits for both. This prompts the question how the value creation is shared in a sell-off. In the next chapter we discuss these buyer-related factors.

Table 2.4 Summary of factors influencing the impact of sell-offs on the wealth of seller's shareholders.

VARIABLE	IMPACT ON THE SHAREHOLDERS' WEALTH	EMPIRICAL EVIDENCE
Price disclosure	Reduces potential uncertainty about the completion of the deal. Helps the market to evaluate the economic significance of the transaction and its impact on the seller. Positively related to the abnormal returns. In an asymmetric information environment, non disclosure is seen as unfavourable information	US: Positive and significant in Klein 1986 and in Sicherman and Pettway 1992 . UK: Positive and significant in Afshar *et al* 1992 and Lasfer *et al* 1996.
Relative size of the sale	Hypothesised positive relationship. Measure of importance of the sell-off for the remaining assets of the seller. If sell-off is positive NPV decision, the smaller the remaining asset basis of the seller, the higher its impact on the shareholder value. Possible proxy for focus used in early studies.	US: Positive and significant in Hearth and Zaima 1984 and in Klein 1986. UK: Positive and significant in Afshar *et al* 1992.
Lenders' monitoring	Bank debt is an effective means of monitoring managerial behaviour. Banks have a competitive advantage in collecting and processing information. Banks with high debt in a company regarded quasi-insiders and their approval of sell-off decisions result in higher abnormal returns. In contrast, the degree of leverage has no consistent impact on the sell-off returns.	US: Significant with bank debt (Hirschey *et al,* 1990) but insignificant with level of leverage in general (Lang *et al,* 1996). UK: Significant in Lasfer *et al* (1996).
Managerial long-term compensation	Long-term performance plans are positively correlated to wealth changes of seller. They benefit from the alignment of managerial and shareholder interests and deter management from selling in order to improve short-term profitability.	US: Positive correlation between long-tern performance plans and abnormal returns. Tehranian *et al* (1987).
Financial strength of seller	One viewpoint suggests that healthier sellers can shop around for a better deal, i.e., positive relationship. Opposite arguments see sell-offs as possible escape route for financially distressed sellers who, thus, benefit more than the healthier sellers, i.e., negative relationship.	US: Positive relationship in Hearth and Zaima (1984) and Sicherman and Pettway (1992). Negative relationship in Brown *et al* (1994). UK: Negative relationship in both Afshar *et al* (1992) and Lasfer *et al* (1996).

Table 2.4 continued
Summary of factors influencing the impact of sell-offs on the wealth of seller's shareholders.

Change in focus	Increase or shift in focus is the most commonly stated reason for sell-offs. Focus increasing sell-offs result in more positive value changes for the sellers than no focus increasing ones.	US: Positive relationship with profitability. Same with abnormal returns, in John and Ofek (1995). UK: Not significant, in Kaiser and Stouraitis (2000).
Use of the proceeds	The option perspective of the firm predicts that asset sale reduces the value of the firm by eliminating equity's option on any future increase in their value. Alternatively, pay out of the sale proceeds is value increasing since it reduces the free cash-flow cost of managerial discretion. However, retention of the sale proceeds is regarded as value destroying for the poorly performing seller but value increasing for the well performing sellers since it is viewed as market approval of the firm's future.	US: Payout is positive and retention negative for seller's value (full sample) in Lang *et al* (1995). Same for well performing sellers. For badly performing sellers: payout subsample positive and significant - reinvest subsample positive and insignificant. UK: Reinvestment of proceeds is not statistically significant explanatory factor of abnormal returns, in Kaiser and Stouraitis (2000).
Relative size of seller to buyer	The relative size of seller / buyer is used as measure of the bargaining power of seller. The higher the relative size, i.e. the bigger the seller relative to the buyer, the bigger its bargaining power and the higher the benefits for the seller. Another measure of the bargaining power of the seller is its financial condition as suggested in early studies.	Not previously examined.
Economic environment	The condition of the economy being correlated to the sell-off activity, implies that economic environment has an impact on the sell-off activity. Additionally, a booming economy can potentially have less positive impact on the wealth effects of a sell-off on the seller's shareholders, than a contracting one.	Not previously examined.

CHAPTER 3

DIVESTMENT DECISIONS AND THEIR IMPACT ON THE WEALTH OF THE BUYER'S SHAREHOLDERS: THEORY AND EMPIRICAL EVIDENCE

3.1 INTRODUCTION

Inter-corporate sell-offs represent important investment decisions for buyers. Major corporate resources, mainly cash, are exchanged for purchased assets and often the paid price to the seller represents a large proportion of the buyer's market value larger than their own market value.

In this chapter we investigate the wealth implications of the sell-off transactions on the UK buyers over the period from 1987 to 1993. We analyse the characteristics of the buyers, sellers and transactions, in terms of firm size, financial health, investment opportunities, and pre-purchase performance. We also investigate the importance of the characteristics of the transaction and other factors that may influence the decision of the buyer to purchase the specific assets and what determines the wealth gains or losses to the buyers.

There are no previous UK studies on the effect of sell-offs on the buyers, whereas from the limited US research the reported results are broadly mixed. Four of the eight studies report positive and significant cumulative abnormal returns (CARs) to the buyers around the sell-off announcement and four studies report insignificant CARs. In particular, positive and significant CARs are reported by: Rosenfeld (1984) 2.10% with t=2.66; Jain (1985) 0.34% with t=2.43; Hite, Owers and Rogers (1987) 0.83% with t=2.25 and Sicherman and Pettway (1992) 0.50% with t=2.45. No significant CARs are reported by: Hearth and Zaima (1986) 0.25% with t=0.65; Sicherman and Pettway (1987) 0.11% with t=0.73; John and Ofek (1995), 0.40% (the level of significance is not reported) and Hanson and Song (1997) 0.78% with t=0.97. To examine the wealth implications of the sell-offs for the shareholders of the buyers, we draw on the theoretical models developed in the context of mergers and acquisitions aiming to explain the wealth implications of takeovers on the bidders.

A sell-off is a form of partial acquisition for the buyer (Hearth and Zaima, 1986)[27]. Purchase of corporate assets or divisions in a sell-off, from the buyer's perspective, is not different from an acquisition. The value creation logic of acquisitions applies equally to purchase of the whole company, i.e. takeovers and to partial acquisitions of seller's divisions, i.e. sell-offs[28]. Thus the motives for the buying firms may be similar to the motives of the bidder in a takeover bid.

When the managers of the buyer behave in a way which maximises the shareholders' wealth, i.e. there is no agency problem, the purchase announcement

[27] Although "sell-off" is sale by a corporate, we use the term to refer to the purchase by the buying corporate to avoid the unwieldy phrase "assets purchased in a sell-off".

[28] There are of course some differences related to tax issues in the purchase of a company versus purchase of corporate assets. These are mainly related to capital gains tax for the seller and capital allowance step up.

should result in positive abnormal returns for the buyers. This happens when the purchased division or set of corporate assets satisfy specific strategic objectives of the buyer and fit into its long-term strategic plans to create value. The main strategic objectives of the buyer which may be served by the purchase of a division in a sell-off are: growth, market extension, product extension or risk reduction (Sudarsanam 1995, chapter 3).

A purchase of a corporate division is often related to buyer's decision to enter into a new market or develop a new product. A buyer who considers a strategic option to enter a new market or develop a new product, has the following three options. Firstly, organic growth or development. Secondly, joint ventures or strategic alliances and finally, acquisition of an established division in this market. Acquisition of an operating division from a seller, as the preferred mode of entry into a new market, depends on a number of factors such as: the cost and the risk of organic growth; the importance of the speed of entry; the level of the competition and the availability and cost of operating business in this market.

An alternative motivation of the sell-off transaction may be the seller's need of cash and related potential profits for the buyer. If the seller is in financial distress and/or has liquidity problems, it may be forced into a fire sale. The weak bargaining position of the seller may force it to accept a price which results in substantial wealth gains to the buyer.

The agency theory suggests that managers pursue their own wealth maximising objectives ahead of their shareholders interests and take decisions which maximise their own wealth rather than the shareholders' wealth. In the agency theory

context, the managers of buyers value firm size and prefer to invest the free cash flow to negative NPV projects rather than repay debt or return cash to shareholders.

In the next section we discuss the theoretical arguments which have been developed in the literature, in order to explain the buyers' motivation and their shareholders' wealth changes following a sell-off transaction.

3.2 WEALTH GAINS OR LOSSES AND ABNORMAL RETURNS OF BUYER'S SHAREHOLDERS FOLLOWING A SELL-OFF

The area of mergers and acquisitions is extensively researched and the wealth impact of mergers and tenders offers on the bidders is well documented in both the US and the UK. While the reported evidence in the numerous studies do not completely agree, a dominant pattern has been established of small losses or no wealth changes of the bidders. In the UK, around the takeover announcement, Firth (1980) and Sudarsanam *et al* (1996) report negative and significant bidder's abnormal returns and Franks and Harris (1989) and Limmack (1991) insignificant. There is a large number of US studies reporting the same overall pattern of wealth changes of the bidders with what has emerged from the UK studies[29].

The explanation of the observation of no wealth gains or small losses of the bidder, has been mainly based on the efficiency of the market for corporate control. The benefits for the bidder in acquiring a target company can be target assets' specific

[29] We spare details about the differences between early and later studies, pre- and post-announcement performance and industry impact since it is not the focus of this study and we draw on the developed theories with supporting empirical evidence when pertinent to buyers in the sell-off transactions.

or bidder's specific. The bidder is engaged in a auction-like process competing for control of the target's assets with other potential bidders. This forces the bidders to bid away the target's specific benefits. Several alternative theories have been developed to explain the fact that not always the remaining bidder specific benefit from an acquisition are always positive. The hubris hypothesis suggests that bidder's managers commit overoptimistic errors in evaluating the potential benefits of a takeover. The agency theory argues that the bidder's managers behave in a manner which maximises their own personal wealth instead of pursuing their shareholders' best interests. The free cash-flow hypothesis has developed within the agency framework. It suggests that a takeover is decided even when it is a negative NPV project, since the bidder's managers gain benefits from the larger size of their firm. Post-acquisition problems related to the integration of the target into the bidder's operations also account for the documented poor performance of the bidders.

In the area of corporate sell-offs there is relatively limited literature and empirical evidence on the effect of the purchase on the buyers. There are only eight US studies which investigate the wealth effect of corporate sell-off announcements on the buyer's shareholders. The reported empirical evidence is evenly split into positive and significant wealth gains and no significant impact. Two alternative hypotheses have been proposed as an explanation of the buyers' wealth gains.

i. The S*ynergy or Fit Hypothesis* (Hite, Owers and Rogers, 1987 and John and Ofek, 1995). This suggests that the buyer's management has a comparative advantage in managing the divested assets. The source of such competitive advantage can be synergy between the buyer's operations and the acquired division; superior managerial skills of the buyer's management; superior managerial contracting technology

established in the buyer which reduces the agency cost; transfer of resources such as production know-how and R&D knowledge; utilisation and rationalisation of distribution networks and business contacts; transfer of managerial skills and knowledge and utilisation of excess managerial and financial resources.

Sicherman and Pettway (1987) use the similarity on the two-digit SIC code of buyer and purchased division used to classify the buyer and purchased division as related. They report that the shareholders of the group of buyers who buy related assets earn significantly higher cumulative abnormal returns (CARs) than the shareholders of the buyers in the group of 'unrelated assets' purchases.

ii. The W*ealth Transfer Hypothesis* which suggests that the benefits of the buyer is a result of wealth transferred by the seller. This can be due to the seller's weak negotiating position or the agency problem of the seller's managerial behaviour. Sicherman and Pettway (1992) use downgrade of a sellers credit rating over the two years prior to the sell-off announcement as proxy for its financial condition and extent this to its bargaining power. However, they find that buyers (unlike sellers) benefit equally when buying from downgraded and non-downgraded sellers. This does not necessarily refute the wealth transfer hypothesis. It may imply that if the wealth gains of the buyer are wealth transfers from the seller, the seller's, weak negotiating position (as proxied by its credit rating downgrade prior to the sell-off announcement) is not a good indicator of the potential wealth transfer from the seller to the buyer. It may well be the case that the wealth transfer from the seller to the buyer is related to the seller's relatively weaker bargaining power but its credit downgrade not a good proxy of its bargaining power.

The above theories do not necessarily apply mutually exclusively. We suggest that the overall impact of a purchase on the wealth of a buyer comprises three components. We call the first, *value created* which is related to the buyer and the second we call *value distribution* which is related to the nature of the transaction and the relative position of buyer and seller and the third, which we call *value saved*, is related to value improvements of the seller due to elimination of anergies. The value created element is determined by the total value improvements of the purchased division and the buyer. This perspective recognises that the purchase has important operational and therefore value implications to both constituents of the resulting business group. The value distribution element is referred to the proportion of value improvements appropriated by each of the transacting parties and is determined by their relative bargaining power and the transaction characteristics. The value saved element is seller specific and a result its more profitable operations after eliminating the disturbing effect of the disposed division.

In section 2.2 we demonstrated how and under what conditions a sell-off could be a positive NPV decision for both the seller and the buyer. The following inequality (3.1) defines under which conditions a sell-off is a beneficial transaction for both the seller and buyer:

$$V(s) < SP < V(b) \qquad (3.1)$$

where $V(s)$ is the value of the divested division to the seller, $V(b)$ its value to the buyer and SP the selling price. When the managers of the buyer act in the best interest of their shareholders, they try to achieve a sale price closer to V(s), in contrast to the managers of the sellers who try to secure a price closer to V(b). The final price of the transaction depends on the relative bargaining power of the two parties.

When the operations of the sold division fit better into the operation of the buyer than to the seller, synergy gains make the value of the division to the buyer higher than its value to the seller:

$$V(b) > V(s) \qquad (3.2)$$

The source of the potential wealth creation in the case of a sell-off, is then the buyer's operations and the positive synergy benefits with the acquired division. $V(s) < V(b)$ can also be the result of negative synergies ("*anergies*") between the operations of the divested division and the other operations of the seller. In this case, the source of the wealth creation in the sell-off is in the seller and the elimination of the negative synergies. Under the above conditions the sell-off can benefit both the seller and buyer by sharing the created wealth from the transfer of the assets to a higher value $V(b)$.

An average buyer can potentially benefit more from a sell-off than the average bidder from a takeover, since both the synergy and the value distribution elements of value improvements can be potentially higher. In a sell-off, the synergy gains for the buyer are likely to be higher than in a merger, for two reasons. First, the acquired assets in a sell-off are more homogeneous than the whole firm acquired in a merger and can better match the strategic requirements of the buyer. Second, the costs of the transaction are considerably lower, particularly compared to the costs involved in the contested tender offers. In a sell-off, the probability that the buyer has to divest unrelated assets following the purchase of a division is usually less than the probability that a buyer in a merger has to divest parts of the acquired company. If the buyer retains the whole acquired firm, it is faced with potentially high post-acquisition integration and managerial costs. These costs are avoided, or are substantially lower, in a piecemeal purchase of assets from a seller in a sell-off transaction.

Value enhancing managerial behaviour is expected under the assumption of alignment of shareholders and managerial interests. However, the agency theory predicts that managers act in their own self interests and thus that their decisions can be value destroying[30]. If managerial compensation is linked to short-term profits, managers may ignore more profitable long-term projects in favour of short-term earning improvements. Managers may also value firm size and control and the benefits which derive from this and they may even decide to invest in negative NPV projects rather than to return excess cash to their shareholders. Under this scenario, the buyer in a sell-off may pay $PS > V(b)$ which destroys shareholder value and transfers wealth to the seller.[31]

Hearth and Zaima (1986) suggest that sell-offs are firm specific events as their impact is determined by factors which are related to the circumstances of the seller and buyer and their economic and business environment. We specifically investigate these factors which determine the effect of the sell-offs on the wealth of the shareholders of the buyers.

The event study methodology has been employed to measure the effect of the sell-off announcements on the abnormal returns of the buyers. The empirical findings, all from US studies, are mixed. Some studies report positive and significant CARs to

[30] Studies on takeovers report zero or negative wealth changes to the shareholders of the bidders around the takeover bid announcement. Sudarsanam, Holl and Salami (1996) report negative and significant overall CARs to the bidders and Frank and Harris (1989) report negative and significant post-acquisition returns.

[31] Jensen (1986) argues that the free-cash flow problem may result in value destroying managerial decisions. This is not confined only to the buyers. Sellers may also suffer from agency problem and as Lang *et al* (1995) argue. The managers of a seller may decide a divestment as the cheapest method to obtain cash they need to pursue their objective. This may result in accepting a selling price lower than

the shareholders of the buyers and others report CARs not significantly different from zero. These results are generally better from the zero or negative CARs to the shareholders of the bidders which have been documented in both US and UK studies on takeovers (Sudarsanam, 1995, ch.13). This can be attributed to broadly two factors:

First, the market for corporate control is more efficient than the market for specific corporate assets. Takeover targets are 'in the market' and all potential bidders compete in an auction like contest for control of the target company. This, in an efficient market, result in bidding away all potential benefits to the bidders. On the other hand, the sell-off is negotiated between the seller and buyer behind closed doors and no other potential buyer is involved in the process. This may give a stronger negotiating advantage to the buyer in a sell-off relative to a bidder in a tender offer.

Second, the piece meal acquisition of specific and homogeneous assets, such as a division of a seller, in a sell-off may result in higher benefits to the buyer either due to synergy or due to less reorganisation costs. An acquired division by a buyer in a sell-off may fit better to its operation than a whole target company fits to the operations of the bidders in a takeover. In the former case it is also likely that any reorganisation cost would be less.

Potential wealth benefits for the shareholders of the buyer may be diluted or even converted into wealth losses in the presence of potential agency costs of managerial behaviour or weak bargaining position of the buyer. Therefore, the expected wealth effects of the purchase of a division from a seller on the shareholders of the buyer can be positive, negative or zero.

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the value of the disposed division to the seller, i.e. PS < V(s), which will destroy shareholder value and

3.3 PRICE DISCLOSURE

In the majority of the sell-offs the transaction price is disclosed[32]. The transaction price in a sell-off may not be disclosed when an agreement about the price has not been achieved by the announcement day or when the managers of the seller and buyer agree not to disclose the price. The market reaction to the announcement of the sell-off is conditional upon the interpretation of the nature and dynamics of the deal, signalled by the announcement or not of the transaction price. In a sell-off, the disclosure of the transaction price is important because it resolves the uncertainty about the completion of the deal and enables the market to assess the level of the wealth creation and how it is partitioned between seller and buyer.

Uncertainty about the completion of the transaction is a factor which can negatively influence the abnormal returns of the buyer on the announcement date. If the purchase of the corporate assets increases the wealth of the shareholders of the buyer, the level of this increase is conditional upon the completion of the transaction. Disclosure of the agreed price mitigates the uncertainty surrounding the completion of the sell-off and increase the level of market reaction[33]. The direction of market

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transfer wealth to the buyer.

[32] Sicherman and Pettway (1992) report that 145 sell-offs disclose the transaction price and 133 not; Klein (1986) (91 vs. 124); Afshar *et al* (1992) (142 vs. 36) and in this study (1537 vs. 404).

[33] We do not imply that disclosure of the transaction price completely eliminates the uncertainty about the completion of the deal but the increase of the level of market reaction is related to the level of the reduction of the uncertainty. For example, if the market believes that a sell-off will eventually change the wealth of the buyer by ΔW, and the announcement of the transaction price reduces the uncertainty about the completion of the deal by Δp, the latter will change the impact of the sell-off on the wealth of the buyer by: $\Delta p * \Delta W$.

reaction, however, is determined by the perceived implications of the sell-off for the buyer.

As we described in section 2.3, in an asymmetric information environment the negative message conveyed to the market by non-disclosure of the transaction price is related to the seller rather than to the buyer. The seller decides the sale, initiates the negotiations with the buyer and effectively controls its outcome. The transaction price conveys information about the actual value of the assets for sale and the value of the remaining assets of the seller and the level of benefits to the seller. If the sale price is not 'fair' and the seller believes that the market may react negatively, they may insist on non-disclosure of the transaction price. From the buyer's perspective, there are cases when they overpay for the purchased assets and thus they have an incentive not to disclose the transaction price. However, the seller is most unlikely to agree to non-disclosure of a favourable sale price, particularly when this is likely to result in a negative market reaction. The buyer has no control over the transaction and hence no power on disclosure of the price against the seller's will. On the other hand if the purchase is a wealth increasing transaction for the buyer, disclosure of transaction price will reduce the uncertainty about the eventual completion of the deal and this will result in more positive wealth benefit for the buyer. The actual impact of the disclosure of the transaction price is therefore an empirical issue.

The only empirical evidence of the impact of price disclosure on the buyers is reported by Sicherman and Pettway (1992). In a study of 278 US sell-offs between 1981 and 1987, they find that the 145 buyers in the price disclosure subsample, over the period (-1, 0), earn on average positive and statistically significant abnormal returns of 0.82% (significant at 1% level) in contrast to the 133 buyers in the non-

price disclosure subgroup who earn on average abnormal returns of 0.15% which is not significantly different from zero. The difference of 0.67% is significantly different from zero at 10% level.

3.4 THE RELATIVE SIZE OF THE SALE

The *relative sale size*,[34] as demonstrated in the previous chapter, has been found to be positively related to the seller's abnormal returns. Its relationship with the buyer's abnormal returns is not, however, straightforward and its has not been investigated in the empirical literature.

The larger the relative sale size the closer the sell-off resembles a takeover. In the extreme, i.e. when relative sale size of one, the buyer purchases the total of the seller's assets and the sell-off becomes acquisition of the seller. In general, we may expect to see an increasing premium paid by the buyer for the purchase of larger part of a seller's business. Additionally, the cost of post-acquisition integration increases as the buyer purchases more proportion of the seller. As the relative sale size increases and the purchase resembles more a takeover, the buyer may experience wealth changes similar to those of bidders in a takeover. We therefore expect that the relative size of the sale to be negatively correlated to the wealth changes of the buyer's shareholders.

[34] *Relative sale size* has been defined as the ratio of the sold division as measured by the transaction price and the market capitalisation of the seller's equity one calendar month prior to the sell-off announcement.

3.5 THE RELATIVE SIZE OF THE PURCHASE

We define as *relative purchase size* the ratio of the transaction price over the market value of the buyer's common equity one calendar month prior to the sell-off announcement day (in a fashion similar to the definition of the *relative sale size*, in the previous section 2.4). There is no empirical evidence on the possible relationship between relative purchase size and the buyer's abnormal returns. Neither has any theoretical explanation been proposed in the literature to explain such a relationship.

Assuming that in a buyer there is no agency cost of managerial discretion, the purchase of a division is decided on only if it is a value increasing for the buyer. If such a purchase is good news for the shareholders of the buyer, it is likely that the positive impact of the purchase on the buyer's value is greater when the size of the purchased division is larger. This suggests that the wealth benefits of buyer's shareholders are positively related to the relative size of the purchase. Alternatively, the efficiency hypothesis suggests that the purchase of a relative large division offers the opportunity for faster growth to the successful management team of the buyer. Therefore, when a buyer purchases a relatively large division, the market may respond more positively to the perceived valuable growth opportunities. Another element which supports a positive relationship between the relative size of the purchase and the value gains of the buyer is the nature of the decision process and accountability within the company. Decisions of events related to larger values attract more attention from both shareholders and the market. Managers know that big mistakes may cost them their jobs. Therefore, when they purchase a relative large division, they may try harder to ensure that this is a value increasing decision than when they purchase

relatively small divisions. Unsuccessful purchases and rapid expansion of Laura Ashley in the US, in late 90s, claimed not only the job of three managing directors in two years but also more than 90% of the shareholders' wealth.

The buyer is assumed to be in a position to generate value from both small and large purchases. However, this ability of the buyer to increase the value of the acquired assets irrespective their size is not unequivocal. Additionally, the wealth increase of the buyer may not be a linear relationship of the relative size of the purchase. In fact, the rate of buyer's wealth increase relative to the relative size of the purchase may diminish and beyond a certain level it may even reverse. The larger the relative size of the purchase the more difficult and costly it is for the buyer to merge and adjust the operations of the purchased division to its own operations in an efficient way which will increase the added value. There may even be a limit of the relative purchase size, beyond which the buyer has not enough resources to create value by improving the performance of the combined business. The reorganisational costs may be so high that they erode shareholder value or the excess managerial skills capacity of the buyer may be not enough to efficiently manage another, relative large, division.

Under these conditions, we anticipate a negative relationship between relative size of purchase and abnormal returns of buyer's shareholders.

3.6 GROWTH OPPORTUNITIES OF SELLER AND BUYER

The growth opportunities available to the seller and buyer, as represented by the q-ratio, may determine value benefits of the buyer from a sell-off. As we discuss in section 2.9 of the previous chapter, the maximum potential value creation from a sell-off transaction is when a division of a low q seller is purchased by a high q buyer. Higher value created by a sell-off, results *ceteris paribus* in higher potential gains of buyer and seller. There is no empirical evidence of the relationship between the q-ratios of seller and buyer and the value gains of the buyer in a sell-off transaction. We hypothesise that buyer enjoys more value gains when it purchases a division from a low q seller than from a high q seller and these value gains of the buyer are higher for a high q buyer than for a low q buyer.

3.7 RELATIVE BARGAINING POWER OF SELLER AND BUYER

As we discuss in section 2.6, the sell-off transfers the sold division from the seller to the buyer where the corporate assets may be employed in a higher value use. This transfer generates wealth which potentially benefits both the seller and buyer. The exact partition of the wealth benefits depends on the relative bargaining power of seller and buyer. In this section we discuss the appropriate proxies for the relative bargaining power of seller and buyer and how they may affect the value gains of the buyer from a sell-off. In particular, we consider the relative size of seller and buyer,

the financial condition of the seller and the financial condition of the buyer prior to the sell-off.

3.7.1 RELATIVE SIZE OF SELLER AND BUYER

The relative size of seller and buyer as measured by the ratio of their market value of equity one month prior to the sell-off announcement is used as a proxy of their relative bargaining power. The later determines the appropriation of the generated wealth to the seller and buyer. The issue has been discussed in detail in section 2.6.1.

There is no empirical evidence of the relationship between the relative size and the abnormal returns to the shareholders of the buyer around the sell-off announcements and this study investigates this issue.

3.7.2 FINANCIAL CONDITION OF THE SELLER

The financial condition of the seller has been used in the literature as a proxy of the level of its negotiating power (Hearth and Zaima, 1984 and Sicherman and Pettway, 1992). A seller of a weak or weakening financial condition has less negotiating power than a financially strong seller or one whose financial status has improved before the sell-off. In the above mentioned studies the financial status of the seller is found to be positively correlated to his gains from the sale. If the financial

status of the seller is a good proxy for its bargaining power and the latter an indicator of the allocation of the generated wealth in the sell-off, it will then be negatively correlated to the wealth gains of the buyer. This assertion is based on the assumption that the wealth generated in a sell-off transaction is fixed and distributed between seller and buyer proportional to their relative bargaining power.

The existing empirical evidence regarding this issue is not conclusive. There are only two US studies which explicitly investigate the relationship between the seller's financial condition and the wealth changes of the buyer around the sell-off announcements.

Sicherman and Pettway (1987), find that it is not clear whether the shareholders of the buyer benefit more when dealing with a financially weak seller than with a financially strong one. They find that the buyers from both financially weak and financially healthy sellers experience statistically insignificant abnormal returns on the announcement day 0 and days -1 and +1. On day -1: 0.523% vs. 0.091%, on day 0: 0.112% vs. 0.113% and on day +1: 0.118% vs. 0.079%, with the differences statistically insignificant.

Sicherman and Pettway (1992), find that the two-day CAR(-1, 0) for the 77 buyers dealing with financially weak sellers is 0.56%, marginally different from zero and not significantly different from the 0.48% for the buyers dealing with financially strong sellers.

We hypothesise that the financial condition of the seller is a good proxy of its relative bargaining power, which in turn determines the distribution of the wealth gains from the sell-off. Therefore, we expect a negative relationship between the financial condition of the seller and the abnormal returns of its shareholders. As a

better proxy for the seller's financial condition, we use its z-score, estimated on the basis of the most recently published financial statements before the sell-off announcement.

On the other hand, the weak or weakening financial position of the seller may be related to its financial distress. A seller with negative z-score is in financial distress and may decide on divestment as a response to its liquidity problems related to the financial state. Is has been documented that the wealth gains of the financially distressed sellers are higher than those of the financially healthy sellers (Lasfer *et al*, 1996). However, this does not necessarily mean that a buyer from a financially distressed seller loses or benefits less than a buyer from a financially healthy seller. The wealth benefits of the distressed sellers may be related to avoidance of bankruptcy cost and yet the divested division to be transferred to a higher value use and the buyer, or both buyer and seller, to benefit from the created wealth.

3.8 SYNERGY OR FIT HYPOTHESIS

One of the most frequently suggested motivations behind the sell-offs is the synergy gain from the combination of the purchased assets with the buyers' assets. The sources of these synergy gains are either the superior organisational form of the buyer compared to that of the seller or the comparative advantage of the buyer to be able to manage the acquired assets better than the seller. This suggests that the difference V(b)-V(a), i.e. the wealth created in a sell-off, becomes bigger as the value of the division under the buyer V(b) increases. This makes it more likely that both *SP*-

V(s) and *V(b)-SP* increase as *V(b)* increases, which means that both the seller and buyer benefit more. Thus, if a better fit of the disposed division results in an increase of its value under the buyer, we can expect a positive correlation between fit and abnormal returns to the buyer.

John and Ofek (1995) investigate the impact of the fit of the divested assets on the wealth of the shareholders of the seller. They quantify the relatedness of the divested assets to the buyer by a dummy variable which is 1 when one of two main four-digit SIC codes of the divested division is the same as one of the five main four-digit SIC codes of the buyer and zero otherwise. Regressing the seller's cumulative abnormal returns over the period (-2,0) relative to the sell-off announcement on the fit dummy, gives a positive coefficient which is significant at the 10% level. However, it is noteworthy that the fit of the division with the buyer does not have any significant effect on the buyer's abnormal returns. This suggests that the sellers appropriate all the value benefits due to higher bargaining.

Hite *et al* (1987) simply state that sell-offs provide an opportunity to transfer corporate resources to higher value uses. However, they do not explicitly investigate the buyers' ability to achieve higher value.

We investigate the relationship between the fit of the purchased assets to the buyer's business and the buyer's abnormal returns. As a measure of fit, we use the relationship between the industry of the purchased division and the main industry of the buyer. We quantify this relationship by using a dummy variable which assumes a value 1 if the industries are the same, and 0 if different.

3.9 THE IMPACT OF THE ECONOMIC ENVIRONMENT

The impact of the economic environment on the wealth changes of the buyers following the sell-off decision has not yet been studied. It is likely that in a booming economic environment, the buyer benefits more than in an economy in recession. During boom periods there is high growth potential and this may motivate the purchase. The purchase of a division already established in a market is often the more efficient way to capitalise on the growth opportunities of an industry or a market than a new market entry. In boom the buyer is also unlikely to suffer from free cash flow problem, because of the number of available investment opportunities available.

In a contracting economy, on the other hand, the wealth effect of the purchase on the buyer is not straight forward. In recession a seller may face liquidity problems and decide to sell divisions or subsidiaries to raise cash. This provides the opportunity to a financially stronger buyer to exploit the seller's need for cash and acquire the disposed assets under more favourable terms. As we discuss in section 2.8, Pulvino (1998) finds that in recession, US airlines with high leverage (higher than the industry average) sell aircraft at an average discount of about 14%. However, if the seller in a recession is not highly leveraged or in financial distress, it may not lose bargaining power against the buyer. The relative bargaining power of financially healthy or distressed sellers in recession is not the only determining factor of their wealth change following a sell-off.

In a weak economy, sellers may be forced to sell at lower prices because their industry is affected and therefore there are less potential buyers for the divested assets. Shleifer and Vishny (1992) find that firm specific assets, i.e. assets which have limited

alternative use, suffer higher liquidity discounts during economy- or industry-wide recession periods[35]. In a sell-off during recession, therefore, the distribution of the value created, between seller and buyer, is an empirical matter. The distribution of the created value, is however only one of the two aspects of the wealth change of the buyer. The second aspect of change in buyer's value following a sell-off is related to the use of the proceeds. This issue has not been previously investigated. The buyer may realise significant wealth benefits from the purchase of the division, by establishing a competitive advantage against its competitors in the particular industry. On the other hand, the buyer may suffer from free cash flow problem and the purchase destroy value.

In this study we take cognisance of the fact that our data span both the late 1980s and the early 1990s, i.e. we investigate the relationship between the economic environment and the buyer's gains in an economic environment of expansion and contraction respectively.

3.10 LENDERS' MONITORING

The buyers may suffer from the same agency problems as the sellers, as we discussed in section 2.8. Lender's, and in particular bank, monitoring is an important agency control mechanism. A relative highly geared buyer is more likely to be closer monitored by its creditors than a moderately geared buyer. A lender of a company, like an investment bank, with significant contribution of capital gets closely involved

[35] Shleifer and Vishny define as asset illiquidity the difference between their sale price and their value

with its client and develops a clear appreciation of the investment opportunities and growth prospects of the company.

Lenders' monitoring, as defined by the level of bank debt in the capital structure of a company, has been found to be an efficient monitoring mechanism of managerial behaviour (Fama, 1985). Hirschey *et al* (1990) provide evidence that the level of debt in the capital structure of the sellers is positively related to the seller's abnormal returns. There is no evidence of the impact of the level of gearing of the buyer on the returns following a sell-off and this is the first study to investigate this relationship. We hypothesise that a buyer with high level of corporate debt benefits from the purchase more than a buyer with little or no debt on its capital structure. High level of leverage of the buyer is related to lower probability of free cash flow problem. Therefore, the decision to invest in purchasing a division is more likely to be a positive NPV decision.

3.11 PREVIOUS RESEARCH ON THE IMPACT OF SELL-OFFS ON THE WEALTH OF BUYER SHAREHOLDERS

Research in the area of sell-offs has documented an association between sell-off announcement and excess returns accruing to the buyer's shareholders. Some studies report no wealth changes and others positive and significant value gains for the buyers. Table 3.1 provides a summary of the findings reported in the previous studies

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in the maximum value use.

Table 3.1 Summary results of voluntary sell-off studies on the impact of sell-offs on the abnormal returns to the buyer's shareholders.

Study	Year	Methodology	Event Dates	CAR (%)	Test Statistic	Sample Size and Period
Rosenfeld	1984	MAR	(-1,+1) (-30,-2) (+2,+30)	2.10 0.53 4.22	t=2.66 0.22 1.56	30 (1969-81)
Jain	1985	MM	(-1) (-5,-1) (-120,-11) (11,120)	0.34 -0.10 -1.00 -1.10	t=2.43 t=-0.24 t=-0.65 t=-0.77	304 (1976-78)
Hearth and Zaima	1986	MAR	(-1, 0) (-120, 0) (0, +120)	0.25 -0.31 -2.66	t=0.65 t=0.10 t=0.90	73 (1975-82)
Hite, Owers and Rogers	1987	MM	(-1,0) (T-1,T) (-50,-5) (T+1,T+50)	0.83 0.69 -0.60 -1.72	t=2.25 t=1.58 t=-0.01 t=-1.14	51 (1963-81)
Sicherman and Pettway	1987	MM	(0)	0.11	t=0.73	147 (1983-85)
Sicherman and Pettway	1992	MM	(-1, 0) (-30, -2) (+1, +15)	0.50 0.26 0.89	z=2.45 z=0.59 z=2.19	278 (1981-87)
John and Ofek	1995	MM	(-2, 0)	0.40	ns	169 (1986-88)
Hanson and Song	1997	MM	(-5, *T*+5)	0.78	t=0.97	96 (1987-91)

MAR = mean adjusted return model; MM = market model; MKTADJ = market adjusted return model;
CAR = cumulative average residuals; na = not available; Event days in brackets are defined relative to the announcement day t=0; [a] indicates significance at .01 level; ns = not significant at .05 level; * and [+]indicates announcement dates of sell-off intention and completion respectively.

in this area. Various theoretical explanations have been proposed to explain these sell-off wealth implications on buyers, based mainly on the takeover literature.

Rosenfeld (1984) finds that buyers and sellers benefit equally from the sell-offs. He concludes that in a sell-off transaction, unlike in mergers, the shareholders of the sellers and buyers share the benefits almost equally. His initial sample comprises 63 sell-offs for which the sale price is more than 10% of the market value of the seller's equity by the announcement date. The sample is reduced even further to 30 sell-offs by excluding the cases where the sale price is smaller than 10% of the market value of the buyer's equity. Over the period -1 to +1 days around announcement day 0, the 30 sellers in his sample earn a positive and statistically significant 2.76% (t=3.17) and the 30 buyers 2.10% (t=2.66). Over the period -30 to +30 days the respective abnormal returns to sellers and buyers are 6.99% (t=1.78) and 7.06% (t=1.98)[36]. The difference -0.07% is again not significantly different from zero (t=-0.01). These findings indicate that the sell-offs are equally beneficial for sellers and buyers.

Jain (1985) investigates a large sample of 328 US buyers over the period 1976-78. Drawing parallels from takeovers, he argues that the extent of the abnormal returns to the buyers around the announcement date is a measure of the degree of competitiveness of the market for corporate assets. In a competitive market for corporate assets with a large number of potential buyers, all the value gains will accrue to the sellers. Jain finds that the buyers earn a positive and significant 0.34% (t=2.43%) on day -1. In the 110-day period before and after the announcement, i.e. (-120, -11) and (11, 120), the buyers experience negative but not significant cumulative

[36] In the period -30 to -2 days before the sell-off decision, both sellers and buyers have non-significant CARs of 0.74% (t=0.27) and 0.53% (t=0.22) respectively.

abnormal returns (t=-0.65 and -0.77 respectively). Jain does not investigate the sources of value creation for the buyers around the sell-off announcement.

Hearth and Zaima (1986) find that the purchase of a division does not, on average, change significantly the wealth of the buyer's shareholders. In particular, for the period (-1, 0) days, they report insignificant positive cumulative abnormal returns of 0.25% (t=0.65) for their sample of 73 acquiring firms. In the period (-120, 0) days prior to the sell-off announcement, the buyers experience insignificant negative cumulative abnormal returns of -0.31% (t=0.10). For the period after the sell-off completion, (0, +120) days the buyers' mean value of CAR is also insignificant negative (2.66%; t=0.90). Hearth and Zaima (1986) also investigate the wealth effect of the purchase to the buyer's shareholders over the entire pre-announcement, interim and post-completion period. They find evidence that the purchase has a significant overall value impact on the buyer. In particular, they find that from the total 73 buyers, 13 buyers experience significant positive abnormal returns and 10 buyers experience significant negative returns over the entire observation period. The Spearman correlation coefficient of 0.55 between the pre-announcement and post-completion total abnormal returns suggests that buyers with positive (negative) total abnormal returns before the sell-off announcement, are likely to have positive (negative) total abnormal returns after the completion of the transaction.

Hite, Owers and Rogers (1987) find that their sample of 51 successful buyers earns positive and statistically significant cumulative abnormal returns of 0.83% (t=2.25) over the period (-1,0) relative to initial sell-off announcement day 0. In the same period they find cumulative abnormal returns of 0.36% (t=0.44) for the 54 unsuccessful buyers i.e. prospective buyers in sell-off transactions that were cancelled

after their announcement day. In the two-day period around the outcome announcement day T (T-1,T), the successful buyers earn positive cumulative abnormal returns of 0.69% (t=1.58) and the unsuccessful buyers -0.84% (t=1.34).

Sicherman and Pettway (1987) using a sample of 147 sell-offs, find that at announcement day 0, the buyers' abnormal returns are 0.11%, which is not significantly different from zero (t=0.73). They also examine the impact of three specific factors on the buyer's abnormal returns, firstly, the fit of the purchased assets or division with the buyer's existing operations, secondly the level of the buyer's managerial stock ownership and finally the financial status of the seller. The similarity of the two-digit SIC code between the buyer and the industry of the purchased division is used as a broad definition of fit[37]. Sellers are classified as financially weak if they have been downgraded in Moody's and/or Standard and Poor's credit ratings within a period of two years before the sell-off announcement.

The CARs for the buyers of related divisions are positive and significant over the periods (-10,0) days before and (+1, +10) days but not significant on the announcement day 0. The CARs of the buyers of unrelated divisions are insignificantly different from zero, with their difference to the CARs of buyers of related divisions statistically significant. The financial condition of the seller has no impact on buyer's abnormal returns at announcement day 0, or on the days before and after[38]. Over a number of other intervals CARs between buyers from weak and strong sellers do not exhibit significant differences except for the period (-10, -1) (significant at the 10% level). These results, coupled with the insignificant regression coefficient

[37] This has been chosen for practical purposes so that the fit group has sufficient number of cases.

[38] The buyers earn almost identical abnormal returns at announcement day when they transact with financially weak and strong sellers (0.112% and 0.113% respectively).

from regressing the full-sample cumulative abnormal returns on the financial status of the seller, indicate that there is no conclusive evidence as to whether a buyer from a financially weak seller benefits more than a buyer from a financially strong seller.

Sicherman and Pettway (1992) find that in a sample of 278 US sell-offs between 1981-87, the buyers earn positive and significant cumulative abnormal returns of 0.50% (z=2.45) over the period (-1, 0). In the period (-30, -2) prior to the announcement day, the cumulative abnormal returns are 0.26%, which is not significantly different from zero (z=0.59). However, for the period (+1, +15) after the announcement day, the buyers experience positive cumulative abnormal returns of 0.89%, significant at the 5% level (z=2.45).

In a sample of 169 US buyers over the period 1986-88, John and Ofek (1995) find that the buyers have excess cumulative returns over the period (-2, 0) days of 0.40%, which is not significantly different from zero. They suggest three possible explanations. Firstly, the buyers might have been competing in a competitive market for corporate assets which results in bidding away all possible gains to the sellers. This is similar to the wealth effect of mergers on the takeover bidders. Secondly, the transaction gains might have been seller specific and thirdly, the buyers might have suffered from free cash flow problems, which results in the transfer of all potential value gains to the seller. John and Ofek (1995) find no relation between the fit of the purchased assets to the buyer's operations and the returns to the buyer. Given that the seller's abnormal returns are higher when the divested assets are related to the buyer's operations, it is surprising that the buyer does not benefit from the higher wealth created by the relatedness of purchased division with the other operations of the buyer.

Table 3.2 Summary of previous research on sell-offs.
Factors influencing the impact of sell-offs on the wealth of buyer's shareholders.

STUDY	FACTORS –VARIABLES	EMPIRICAL EVIDENCE
Rosenfeld (1984)	Full sample of 30 sellers and buyers	CAAR(-1, 1): Positive 2.10% and significant (t=2.66)
Jain (1985)	Full sample 328 buyers	CAAR(-1): Positive 0.34% and significant (t=2.43)
Hearth and Zaima (1986)	Full sample 73 buyers	CAAR(-1, 0): Not significant 0.25 (t=0.65)
Sicherman and Pettway (1987)	1. Full sample (147) 2. Relatedness of division and buyer 3. Level of managerial stock ownership 4. Financial condition of seller	1. Positive but not significant 2. Positive and significant. t=1.83 for the regression coefficient 3. Positive and significant. M-W U-stat. Highly significant 4. Not clear and conclusive relationship
Hite, Owers and Rogers (1987)	Full sample 81 buyers	CAAR(-1,0): Positive 0.83% and significant (t=2.25)
Sicherman and Pettway (1992)	1. Full sample (278) 2. Disclosure of price (vs. non-disclosure of price) 3. Financial condition of seller (weak vs. strong) 4. Disclosure of price & weak seller 5. Disclosure of price & strong seller 6. Non-disclosure of price & weak seller 7. Non-disclosure of price & strong seller	1. CAAR(-1, 0): Positive 0.50% and significant (z=2.45) 2. CAARs(-1, 0): significant 0.82% vs. not significant 0.15% 3. CAARs(-1, 0): both equally significant 0.56% vs. 0.48% 4. CAAR(-1, 0): 0.86% significant at 5% level 5. CAAR(-1, 0): 0.80% significant at 1% level 6. CAAR(-1, 0): 0.15% not significant 7. CAAR(-1, 0): 0.15% not significant
John and Ofek (1995)	Full sample 169 buyers	CAAR(-2,0): 0.40% (t=0.40) no significant
Hanson and Song (1997)	Full sample 96 buyers	CAAR(-5,+5): 0.78% (t=0.97) no significant

Table 3.2 provides a summary of the factors-variables investigated in the previous empirical research and their documented relationship with the wealth gains of the buyer's shareholders.

3.12 CRITIQUE OF EXTANT STUDIES

Studies on the effects of sell-offs on the buyers suffer in general from the same problem of small samples, as with the studies on sellers, as discussed in section 2.13. The average sample size of the above reviewed studies is 16.7 buyers per year. It is a feature of the six studies that half of them have a yearly single-digit average sample size[39]. This may induce sample selection bias into the results and questions their validity. We address this problem by analysing a very large sample of buyers without restricting it only to the large buyers or sellers or to large transactions.

Rosenfeld (1984) examines a sample of 30 large sell-offs over the period 1969-81 which gives an average of 2.3 cases per year. Deals with a sale price less than 10% of the market value of the seller's equity at announcement day are excluded from the sample. This excludes sell-offs with non-disclosure of the price at the announcement date. Rosenfeld argues that the shareholders of the sellers and buyers share the benefits from the sell-off almost equally, based on similar abnormal returns earned by sellers and buyers, but he does not provide descriptive statistics for his sample. However, based on the fact that the sample is reduced from 65 sell-offs larger

[39] The exact average sample size per year is: 2.3 in Rosenfeld (1984); 101.4 in Jain (1985); 9.2 in Hearth and Zaima (1986); 2.7 in Hite, Owers and Rogers (1987); 49 in Sicherman and Pettway (1987) and 39.8 in Sicherman and Pettway (1992).

than 10% of the market value of the seller's equity to 30 cases larger than 10% of the market value of the buyer's equity, we can assume that the buyers are much bigger on average than the sellers. Thus, relatively similar mean values of CAR imply much higher absolute value gains accrued to the buyers than to the sellers.

It is surprising that Sicherman and Pettway (1987) find very small (0.113%) and non-significant (t=0.73) returns for their 147 buyers between 1983 and 1985 whereas in their 1992 study, using a sample of 278 buyers between 1981 and 1987 (which is most likely to have comprised most of the previous sample of 147 buyers), the same researchers study report much higher abnormal returns of 0.50%, which is statistically significant (z=2.45)[40].

John and Ofek (1995) provide three possible reasons to explain their findings which show no effect of the sell-offs on the buyer's abnormal returns, i.e. a competitive market for corporate assets; the transaction gains may be seller specific; and free cash flow problem of buyers. However, as we discussed in the previous chapter (section 2.2 and 2.10), theoretical arguments and evidence from empirical studies weaken John and Ofek's first suggestion that the market for corporate assets is competitive. Additionally, their second suggestion, i.e. seller specific gains from sell-offs, does not explain the possible motivation of the buyer to participate in such a transaction. Neither do they provide any evidence supporting their third suggestion concerning a possible free cash flow problem on the part of the buyer. The focus of

[40] The fact is that in the first study (1987) the abnormal returns to the buyers refer to the announcement day zero AR(0): 0.113%, whereas in the second study (1992) the abnormal returns are the cumulative abnormal returns on days -1 and 0. However, even then, the cumulative abnormal returns CAR(-1, 0) for the first study are 0.115%, not actually different from the AR(0): 0.113%.

their study is primarily on the sellers, therefore the researchers just coincidentally report their findings on the effects of the sell-offs on the buyers.

3.13 CONCLUSION

In this chapter we have reviewed the literature concerned with the factors that determine the effect of sell-off announcements on the wealth changes of the shareholders of the buyer. As Table 3.1 reports, it appears that there is no consensus about the effect of sell-offs on buyers' abnormal returns around the announcement day. Four studies report positive and statistically significant abnormal returns at conventional levels whereas two of them report abnormal returns which are not significantly different from zero.

We have also reviewed the variables / factors used in the literature to explain the abnormal returns behaviour of the buyers and extended the investigation in a number of new dimensions as summarised in Table 3.3. No UK study has been conducted in this area and there are only a few US studies but they have actually used very small samples. The small size of the samples increases the probability that the reported results are sample specific and that no reliable inferences may be drawn. Our study, which uses a much larger sample than any other study, intends to help resolve ambiguous issues and to shed light on other not yet investigated areas.

In the next chapter we discuss the issues related to the data used in this study and the methodology applied in the subsequent analysis, in both measuring the abnormal returns and abnormal earnings forecast revisions.

Table 3.3 Summary of factors influencing the impact of sell-offs on the wealth of buyer's shareholders.

VARIABLE	IMPACT ON THE SHAREHOLDERS' WEALTH	EMPIRICAL EVIDENCE
Price disclosure	Non-disclosure of price is seen as unfavourable information. Additionally, disclosure reduces potential uncertainty about the completion of the deal. We hypothesise a positive relationship.	US: Positive and significant in Sicherman and Pettway (1992). UK: Not previously examined.
Relative size of the purchase	Hypothesised positive relationship with the changes in shareholders' wealth of buyers.	Not previously examined.
Lenders' monitoring	Bank debt is regarded as an effective means of monitoring managerial behaviour. The level or gearing is hypothesised to be positively related to wealth changes of the buyer.	Not previously examined.
Financial condition of the seller	If it is a measure of the seller's negotiating power it would imply negative relationship. Buying from a healthy seller may be motivated by the buyer's potential to put the assets to higher value use.	US: Negative relationship in Sicherman & Pettway (1992). No relationship in Sicherman & Pettway (1987) UK: Not previously examined.
Financial condition of the buyer	A measure of the buyer's bargaining power or its efficient organisation. Thus, positive relationship.	Not previously examined.
Synergy / Fit	The better the fit of the purchased assets to the buyer's other operations the bigger the wealth gains. Positive relationship.	US: Positive in Sicherman and Pettway (1987). UK: Not previously examined.
Relative size seller - buyer	The relative size of seller/buyer is used as measure of the bargaining power of seller. Negative relationship hypothesised.	Not previously examined.
Economic environment	A booming economy offers better prospects for the buyer to benefit from the investment than a contracting one. Positive relation hypothesised.	Not previously examined.

CHAPTER 4

SELL-OFFS AND ABNORMAL RETURNS FOR SELLERS AND BUYERS AND REVISIONS OF ANALYSTS' FORECASTS OF EARNINGS : DATA, METHODOLOGY AND RELATED ISSUES

4.1 INTRODUCTION

In the previous two chapters we discussed the theories related to corporate sell-offs. We also reviewed the empirical literature and presented evidence concerning the impact of the sell-off decisions on the sellers and buyers. During this review process it became apparent that some important issues had received little or no attention. For example, there are no studies that investigated the nature of the relationship between the sell-off announcements and the abnormal revisions of analysts' forecasts of earnings. It was also evident that the effect of the sell-offs on the buyers had received limited attention in the US and had not been investigated at all in the UK.

In this chapter we describe the methodology which we use in our subsequent analysis. We also define the explanatory variables and give their descriptive statistics. The relationship between these variables is also examined. We describe the sample

selection criteria, define our sample and give its distribution and descriptive statistics for sellers and buyers.

The optimism bias of financial analysts when they make their earnings forecast is widely documented in the empirical literature (O'Brien, 1993). The possibility of deliberate bias in analysts' reporting has been hypothesised and investigated. Important considerations which may influence the analysts' reporting behaviour are: first, the existence of a favourable relationship with the management in the prospect of using the management as valuable source of information (Francis and Philbrick, 1993), second, the existence of a close relationship between the bank-employer of the analyst and the followed company (Dugar and Nathan, 1995), and third, availability of alternative sources of accurate earnings forecasts, such as time-series (Das, Levine and Sivaramakrishnan, 1994). Analysts are often reluctant to issue unfavourable information about a followed company and in such a case may opt to cease forecasting for the particular company (O'Brien and McNichols, 1998). This can happen when analysts are employed by an investment bank working with the company, or by a stock broker and seek to generate trading commissions or when the analysts themselves want to maintain close relationships with the management of the particular company which will secure preferential access to corporate information. This self selection bias leads to an over-representation of favourable forecasts, truncates the distribution of the analysts' forecasts of earnings and may indicate *ex post* optimism bias whereas *ex ante* the individual forecasts are accurate. We test our sample for potential self-selection bias in the distribution of the earnings forecasts of the sellers.

4.2 ANALYSTS' FORECASTS OF EARNINGS

As we discuss in Chapter 3, in order to identify the sources of value gains or losses of sellers and buyers following the sell-off announcements, we combine the analysts' abnormal earnings forecast revisions, with the cumulative abnormal returns of the seller's shareholders. We analyse the information content of the abnormal revisions of analysts' forecasts of earnings using the basic methodology of Brous and Kini (1993). Earnings forecasts are obtained from the IBES summary history database, which is maintained by Lynch, Jones and Ryan Company in New York. It covers more than 10,000 US companies registered after 1976 and more than 18,000 companies world-wide after 1987, including the UK registered companies. From the IBES database we collect consensus earnings forecasts (EF) for the accounting year ending immediately after the sell-off announcement date (FY1) and for the following accounting year (FY2). For month *t,* we estimate the actual revision of the analysts' forecasts of earnings as the difference of the earnings forecast reported in month *t,* minus the earnings forecast reported in month *t-1,* divided by the share price of the company one month prior to the sell-off announcement (equation 4.1). We adjust the calendar announcement month to the IBES reporting month, to ensure that a sell-off announced after the IBES "run date" has as its IBES announcement month the next calendar month[41]. This ensures that the earnings forecasts and their revisions for month zero reflect any possible revision of the analysts' expectations arising from the sell-off announcement.

The forecast revision for the firm *i* is calculated as follows:

$$FR_{i,t} = \frac{F_{i,t} - F_{i,t-1}}{P_i} \qquad (4.1)$$

where: $F_{i,t}$ and $F_{i,t-1}$ are the average forecasts of earnings for a company *i* reported in the months *t* and *t-1* respectively, and P_i is the share price at the end of the month prior to the sell-off announcement month. To minimise the impact of extreme outliers and possible data entry errors, we winzorise the forecast revisions by setting the extreme outliers to three standards deviations from the mean.

During the month of a firm specific event, such as a sell-off announcement, the abnormal revision of the earnings forecasts of the analysts reflects the changes in their expectations concerning the earnings of the firm as a result of this particular event. Early studies which used the consensus earnings forecasts of analysts and their revisions, assumed zero expected forecast revisions (Pound, 1988).

However, later research demonstrated two important features of the analysts' forecasts of earnings. First, at the start of the year, analysts on average tend to overestimate the expected earnings. Then, for the period towards the end of the year, they systematically lower their forecasts of earnings (O'Brien, 1988; Brous, 1992). In our sample we find that over the entire sample period, the mean consensus earnings forecast revision for the sellers is -0.0024 (*t*-stat.=-16.57) for FY1 and -0.0017 (*t*-stat.=-12.72) for FY2. Similarly, for the buyers we also find negative and significant earnings forecast revisions of -0.00076 (*t*-stat.=-7.57) for FY1 and -0.00106 (*t*-stat.=-5.80) for FY2. This has been confirmed in other studies of analysts' forecasts of earnings (Klein, 1990) and suggests the expected forecast revisions of earnings are negative.

[41] IBES collects daily earnings forecasts from the contributing analysts by various means and once

The second feature is that there may be serial correlation in the consensus earnings forecasts of analysts, due to the fact that not all the analysts revise their forecasts every month. The IBES suggests that all contributing analysts provide their forecasts every month and where an analyst submits the same unchanged earnings forecast for a company, the recorded forecast revision is zero. For the percentage change in earnings forecasts, we take the ratio of the sum of earnings forecasts revised upwards and downwards and the total number of reported earnings forecasts. Previous studies in both the US and the UK have found that on average, about 20% of analysts revise their forecasts for FY1 every month. In our sample we find an average of 24.02% for the sellers and 20.86% for the buyers. Table 4.1 gives the distribution of the number of analysts revising their earnings forecasts over the entire estimation and observation period. For the sellers, excluding the outliers months +17 and +18, the percentage of analysts revising their earnings forecasts every month varies from 18% to 31%. For the buyers (excluding month +18), this proportion varies more, taking values from 12% to 26%.

To estimate the expected analysts' forecast revisions of earnings for the sellers and buyers, we use a simple third-order moving average model for the former and a fourth-order moving average model for the latter. Such a model accounts for both the optimism bias and the sluggishness of analysts' earnings forecast revisions. There is an approximately four (five) month time lag in individual analyst's updates for the

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every month, on the Friday following the third Thursday, IBES updates the database ("run date").

Table 4.1 Percentage change of consensus earnings forecasts of analysts for our sample of sellers and buyers for the months -19 to +18 relative to announcement month 0.

	Sellers		Buyers	
	Number	Mean	Number	Mean
Month 19	410	17.77%	139	17.74%
Month 18	533	17.92%	190	13.23%
Month 17	678	19.92%	257	14.66%
Month 16	795	20.14%	318	12.29%
Month 15	925	21.45%	375	14.19%
Month 14	1061	27.18%	423	19.66%
Month 13	1194	30.69%	485	20.92%
Month 12	1325	26.74%	557	19.83%
Month 11	1473	26.71%	625	23.17%
Month 10	1618	31.03%	706	23.42%
Month 9	1760	30.25%	787	21.86%
Month 8	1876	28.12%	837	22.91%
Month 7	1950	26.64%	880	24.49%
Month 6	1991	27.11%	910	23.13%
Month 5	2054	27.68%	944	23.18%
Month 4	2079	26.42%	971	22.99%
Month 3	2121	26.81%	1000	22.56%
Month 2	2162	26.11%	1016	22.40%
Month 1	2203	26.04%	1039	22.12%
Month 0	2231	26.18%	1048	24.09%
Month 1	2184	26.42%	1026	25.92%
Month 2	2150	25.76%	1015	22.94%
Month 3	2093	25.26%	992	22.23%
Month 4	1995	24.84%	965	22.90%
Month 5	1828	23.77%	907	21.40%
Month 6	1640	23.91%	792	22.01%
Month 7	1448	23.88%	692	22.36%
Month 8	1298	24.6%	618	21.39%
Month 9	1127	24.37%	529	23.15%
Month 10	958	21.19%	441	20.55%
Month 11	782	22.95%	357	17.68%
Month 12	614	21.81%	269	21.35%
Month 13	449	22.4%	211	20.99%
Month 14	304	24.53%	144	23.16%
Month 15	142	28.41%	70	23.03%
Month 16	52	18.2%	31	20.33%
Month 17	24	10.88%	14	17.74%
Month 18	7	8.55%	6	4.63%
	1304	**24.02%**	**594**	**20.86%**

sellers (buyers) in our sample[42].

Thus, the *a priori* expected mean forecast revision for firm *i* in month *t* will be:

$$E\{FR_{i,t}\} = k_i + \frac{1}{n}\sum_{s=1}^{n-1} e_{i,t-s} \qquad (4.2)$$

The forecastable component of the earnings forecast revision (k_i) is a measure of the bias of the forecast revision for firm *i*. The parameter k_i is estimated as the average forecast revision during the estimation period, i.e. during all months with available earning forecasts excluding the observation period -3 to +3 months. The unexpected component of the earnings forecast revision ($e_{i,t-s}$), for each of the observation months from -3 to +3, is the difference between the estimated average forecast revision component k_i and the actual forecast revision for that month; $\frac{1}{n}$ is the frequency of analysts' forecast revision on average and *n* is the average lag in number of months between successive revisions by analysts. Our observation period is from month -3 to +3 relative to the announcement month 0. Thus, we need earnings forecasts from back to month -5, so as to estimate the expected forecast revision for month -3. Sellers with no data for the announcement month and the previous five months are excluded from the sample. We select the observation period from month -3 to +3 in order to capture the overall impact of the sell-off announcement on the analysts' forecast revisions. The *ex post* abnormal forecast revision for firm *i* in month *t* is then estimated as:

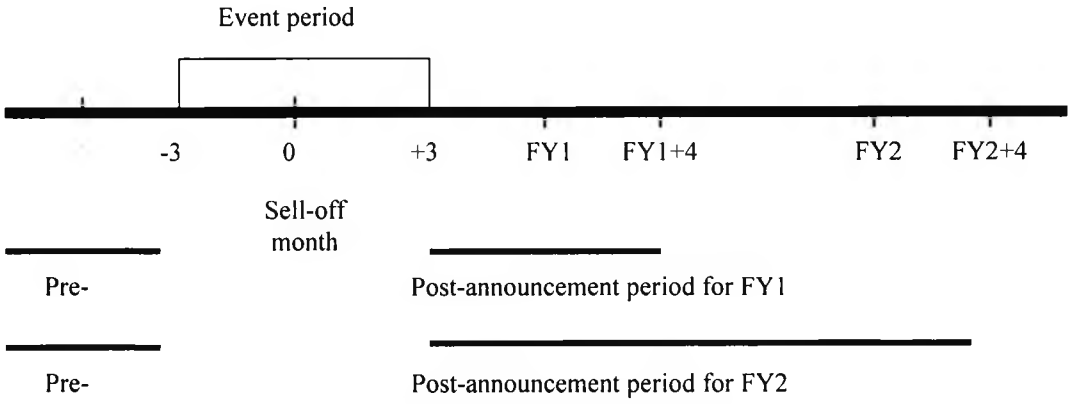
[42] The proportion of analysts revising their earnings forecasts is between 8.50% and 31.03%, with average 24.02% for the sellers and 4.63%-33.03% (average 20.86%) for the buyers. This revision frequency is similar to the 23% reported by O'Hanlon and Whiddett (1991) for their UK sample and the 20% reported by Brous and Kini (1993) for their US sample. We investigate the sensitivity of the

$$AFR_{i,t} = FR_{i,t} - E\{FR_{i,t}\} \quad (4.3)$$

and is tested for significance in the announcement month and over the observation period.

Figure 4.1 shows the observation period (months -3 to +3 relative to the sell-off announcement) and the relative pre- and post-announcement periods for the fiscal years 1 and 2. The number of monthly forecast revisions used to calculate the k_t component ranges between 1 and 27 (with mean 14.76) for current-year forecasts, whereas for the following-year's forecasts the range is between 1 and 27 (with mean 14.29). The mean for both years is 15.

Figure 4.1 Observation period and the relative pre- and post-announcement periods for the fiscal years 1 and 2.



results by using alternative third- and fifth-order moving average models, with no material change in the results.

4.3 EVENT STUDY METHODOLOGY

4.3.1 INTRODUCTION

The event study methodology is widely used and well documented in the financial economic literature. It is used to assess the impact of an economic event or a firm-specific event on the value of the firm. The earliest work on the event study methodology is probably a study by Dolley (1933) on the stock splits published in the Harvard Business Review. Following that study and until late 1960s a number of studies improved the methodology and made a considerable contribution to establish it as it is still used today (Ball and Brown, 1968 and Fama, Fisher, Jensen and Roll, 1969). The event study methodology can be seen as a five-step process: event definition; sample selection; calculation of the expected and abnormal returns; aggregation of abnormal returns and testing the significance and presentation and interpretation of the empirical results.

4.3.2 ACTUAL RETURNS AND COMPOUNDED RETURNS

There are two methods to calculate the actual returns of a company *i*, at day *t*:

i) The simple returns: $R_{it} = \frac{P_{it} - P_{it-1} + D_{it}}{P_{it-1}}$ (4.4) and

ii) The logarithmic returns: $R_{it} = \log \frac{P_{it} + D_{it}}{P_{i,t-1}} = \log(P_{it} + D_{it}) - \log(P_{i,t-1})$ (4.5)

where: P_{it} is the share price of company i on day t and P_{it-1} is the share price on day t-1 and D_{it} is the distributed dividend at day t.[43] If no dividend is distributed at day t, $D_{it} = 0$.

To estimate the company returns over a multiperiod event window (i.e. over a window of k periods, from day t-k to day t), we compound the actual returns as follows:

i) The simple compounded returns:

$$1 + R_{it}(N) \equiv (1 + R_{it}) * (1 + R_{it-1}) * \ldots * (1 + R_{it-N+1}) = \frac{P_{it} + D_{it}}{P_{it-N}} \qquad (4.6)$$

The multiperiod simple net returns are: $R_{it}(N) - 1$ and

ii) The logarithmic or continuously compounded returns:

$$R_t(N) = R_{it} + R_{it-1} + R_{it-2} + \ldots + R_{it-N+1} \qquad (4.7)$$

The cumulative returns, i.e. the multiperiod returns, are therefore the sum of the single-period logarithmic returns.

An advantage of the logarithmic returns is that they are more normally distributed than the simple returns (Fama *et al*, 1969). On the other hand a disadvantage of the logarithmic returns is that the returns of a portfolio in N assets which places weight of w_{ik} in its k^{th} asset, is not $\sum_{i=1}^{N} w_{ik} R_t$, since the logarithm of a sum is not equal to the sum of logarithms. Both simple and logarithmic returns have been used in the empirical research.

[43] Actually, the day t is the ex-dividend day.

4.3.3 ESTIMATING THE EXPECTED RETURNS

The wealth effect of an event or announcement can be captured by the changes in the share price beyond the 'normal' or 'expected' changes. Therefore event study methodology employs an appropriate model to obtain the expected returns and then estimates the abnormal returns (AR_{it}), as the difference between the actual (R_{it}) and expected returns ($E(R_{it})$) : $AR_{it} = R_{it} - E(R_{it})$ (4.8)

Various models used in the literature to estimate the expected returns, such as:

1. The raw return model : $AR_{it} = R_{it}$ (4.9)

2. The market model : $E(R_{it}) = \alpha_i + b_i E(R_{mt})$ (4.10)

Where the constants α_i and b_i are estimated by an ordinary least squares regression of past security returns on the market returns: $R_{it} = \alpha_i + \beta_i R_{mt} + e_{it}$ (4.11)

3. The Capital Asset Pricing Model (CAPM) :

$$E(R_{it}) = R_f + \beta_i \left[E(R_{mt}) - R_f \right] \quad (4.12)$$

Computationally, the beta is the ratio of the covariance of firm and market returns and the variance of the market returns: $$\beta_i = \frac{Cov\left(R_i, R_m\right)}{Var\left(R_m\right)} \quad (4.13)$$

4. Fama and French three-factor model :

$$E(R_{it}) = R_{ft} + \beta_{i1}\left(R_{mt} - R_{ft}\right) + \beta_{i3} SML_t + \beta_{i2} HML_t \quad (4.14)$$

Where: R_{mt} is the market return on the day t,; R_{ft} is the risk-free rate of interest; SML_t is the Fama and French size factor, i.e. the small minus big size portfolio return at time t, and HML_t is the Fama and French's book-to-market factor, i.e. the high minus low book-to-market portfolio return at time t.

5. The mean adjusted return model : $$E(R_{it}) = \frac{\sum_{t=T_1}^{T_2} R_{it}}{n} \qquad (4.15)$$

T_1 and T_2 are the starting and the end date of the observation period and n is the length of the observation period.

6. The market adjusted model : $$E(R_{it}) = R_{mt} \qquad (4.16)$$

This is equivalent to the market model where $\alpha_i = 0$ and $\beta_i = 1$. However, the market adjusted return model has the appealing feature of minimising the small size effect, as argued by Dimson and March (1986), and additionally does not rest on the assumption that the beta of the distributional characteristics of the company's return does not change over the estimation and the observation period. The market adjusted return model is therefore more responsive to changes in the market and economic conditions. However, it relates the firm return only to a single factor, i.e. the market return, which may not reflect the cross-sectional differences between firms. To address this problem the size adjusted and size and market-to-book adjusted return models have been developed, as:

7. The size adjusted model : $$E(R_{it}) = R_{q,t} \qquad (4.17)$$

Where $R_{q,t}$ is the return on the size quintile portfolio, in which the firm i belongs, on the same day t. The size adjusted return model suggests that the expected return of firm i is equal to the return on the portfolio of similar size companies e.g. in the same size quintile as firm i, at time t.[44] The quintiles are formed by ranking all the companies for which Datastream share price data are available and are listed in the

[44] Some studies have used deciles to control for size

London International Stock Exchange (LISE) or in the Unlisted Securities Market (USM) by size in five equal-number groups.

8. The size and market-to-book adjusted model : $E(R_{it}) = R_{q,t}$ (4.18)

Where the expected return of firm i is equal to the return on the portfolio of all companies in the same quintile of both the size and market-to-book value with the firm i, at time t.[45] The quintiles are formed by ranking all the companies listed in the London International Stock Exchange (LISE) and in the Unlisted Securities Market (USM) by size in five equal-number groups. Size is defined as the market capitalisation of equity at the end of each year. Each of these five size portfolios partitioned into five equal-number subgroups according to their companies' market-to-book size, resulting to 25 benchmark portfolios.

Evidence from event studies suggests that in the short-run the results are not sensitive to the model used to measure expected returns. However, in order to examine the sensitivity of our conclusions to the employed model of expected returns, we use a number of alternative models which have been widely used in the empirical research using the event study methodology.

4.3.4 CUMULATIVE ABNORMAL RETURNS

To assess the impact of the sell-off announcement on the sellers, we calculate the change in shareholder wealth in terms of the abnormal returns. These returns are

[45] Some studies have used deciles to create 100 relevant benchmark portfolios.

the average abnormal returns (AAR_t) of the sellers or buyers in our sample, estimated as follows:

$$AAR_t = \frac{\sum_{i=1}^{n} AR}{n} \qquad (4.19)$$

where: AR_{it} is the abnormal return for the i^{th} company in our sample on day t and n is the number of companies in our sample.

Cumulative abnormal return (CAR) is the sum of AAR_t for our sample firms over the observation window from day T_1 to T_2 :

$$CAR_{T_1T_2} = \sum_{t=T_1}^{T_2} AAR_t \qquad (4.20)$$

4.4 ESTIMATION OF ABNORMAL RETURNS

In this study we use the size and market-to-book model, for the measurement of the short-term expected returns, as discussed above. With this method we utilise the important factors of size and market-to-book value, which, as Fama and French (1992) demonstrate, efficiently capture and explain the cross-sectional variation of company returns. Additionally, we avoid the problems related to the use of the CAPM and the substantial criticism against it which has been mounted in the literature since its inception. This criticism is related to issues which range from the theoretical validity of the CAPM to changes in the variance of abnormal returns from the estimation to the observation period and the thin trading problem.

We estimate the simple arithmetic return for company i at day t. Then we calculate the expected return using equation (4.18) and finally, we obtain the abnormal

return as the difference between the actual and expected return. We average cross-sectionally the abnormal returns of the individual companies in our sample to estimate the average abnormal return per day over the days of the observation window (equation 4.19) and using equation 4.20, we cumulate the AARs of the individual days over the various observation windows.

Fama (1998) suggests that because of the small magnitude of daily expected returns, which are actually close to zero, the selection of the model to estimate the expected returns has very small effect on the inferences of short-term event studies. We test the sensitivity of our results to the use of a particular expected returns model by estimating the abnormal returns using (in addition to the size and book-to-market model) the size adjusted model and the market adjusted model.

4.5 TEST STATISTICS

The analysis of the results in the following chapters involves statistical tests of the significance of mean cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) in our sample of sellers and buyers and the various subgroups. The difference between the mean CAR and CAFR for companies in two or more groups is also investigated. We also estimate the percentage of the sellers and buyers with positive CAR and CAFR in our sample and the various subgroups of interest, in order to get a better understanding of the observed values and the distribution of these variables in the particular groups. The percentage of the sellers or buyers with positive CAR and CAFR gives a simple description of the

distribution of these variables in a particular group and indicates whether their observed means are driven by few extreme outliers or the bulk of the observations. Subsequently, we present tests for significance of the observed means, the difference between means and the percentage of positive observations.

To test the significance of the mean value of CARs and CAFRs we use the conventional Student's *t* values, which for large groups like in our analysis are almost similar to *z* values.

The variance of the difference in the mean CARs or CAFRs between two groups is:

$$V_{x_1-x_2} = Var(\bar{x}_1 - \bar{x}_2) = \frac{\sigma_1^2}{n_1} + \frac{\sigma_2^2}{n_2} \qquad (4.17)$$

where σ_1 and σ_2 are the variances estimates from the two sample groups.

To test the significance of the difference in the means between two groups we use alternative methods for equality of inequality of variances. First, we test for equality of variances in the two groups. If the variances in the two groups are equal, the statistic used is:

$$d = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{s^2\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}} \qquad (4.22a)$$

If the variances of the statistics in the two groups are not equal, the significance test is based on the statistic:

$$d = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{\left(\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}\right)}} \qquad (4.22b)$$

which is approximately a standardised normal deviate if n_1 and n_2 are reasonably large (Armitage and Berry, 1994).

To test whether the means in three or more groups are equal, we employ the analysis of variance (ANOVA) method. The ratio of the variance between the groups to the variance within these groups follows an F distribution. The test statistic used to test the equality of the population means is: $F = \frac{s_B^2}{s_W^2}$. When the null hypothesis is true, both s_B^2 and s_W^2 estimate σ^2 and F would be expected to have a value close to 1. A significant result from an ANOVA test implies that the means of the groups are significantly different from each other but it does not indicate which particular group mean is different from which other means. Failure to reject the null hypothesis implies only that the difference between the population means, if any, is not large enough to be detected.

To test of significance for proportion of positive CARs and CAFRs, we need to know the probability distribution of the sample proportion, in order to find the probability of observing a proportion p_0 in a sample of size n. The probability distribution can be constructed as the distribution of the proportion positive in samples of a particular size drawn at random from the population. The central limit theorem suggests that when the sample size is large, the distribution of sample proportions is approximately normally distributed, with variance: $\sigma_{\hat{p}}^2 = \frac{p(1-p)}{n}$, where p is the proportion of the sample with a specific characteristic (in our case the proportion of sellers or buyers with positive CAR or positive CAFR). The rule of thumb is that a sample can be considered large enough for $\hat{p}$ to be approximately normally distributed, when both *n(1-p)* and *np* are greater than 5. This is the normal

approximation to the binomial.[46]. Finally, to transform any value of $\hat{p}$ to a value of the standard normal distribution, we use the formula: $z = \frac{\hat{p} - p}{\sqrt{\frac{p(1-p)}{n}}}$ (4.23)

from which the statistical significance can be easily obtained.

To test the difference in proportions between three or more groups we employ the χ^2 test. This test is based on a comparison of observed frequencies and those expected if the frequencies were independent from the group variable. We construct contingency tables and using the marginal totals we estimate the expected frequencies and base the significance test in the statistic: $X^2 = \sum \frac{(O-E)^2}{E}$. If the null hypothesis that the samples are all drawn randomly from the same population and have the same proportion is true, the above X^2 statistic is approximately distributed as $\chi^2_{(k-1)}$, where k is the number of groups. For computational simplicity the above distribution can be also expressed as: $X^2 = \frac{\sum n_i p_i^2 - R^2 / N}{P(1-P)}$ (4.24)

where: N is the total sample size and P is the marginal probability of the certain characteristic (in our case the percentage of sellers or buyers with positive CAR or CAFR)[47]

[46] The binomial distribution is obtained when we sample a variable (which can assume one of the two values) from an infinite population or from a finite population with replacement, since only then p remains constant from draw to draw. Where there is sampling without replacement from a finite population, the actual sampling distribution is the hypergeometric distribution. However, when the population is very large we can use the binomial distribution to approximate the hypergeometric distribution.

[47] For details about this test see Armitage and Berry (1994), p.228.

4.6 CONTROL VARIABLES

In the empirical literature reviewed in chapters 2 and 3 we discussed the theoretical arguments concerning the justification and importance of the variables used in the previous studies on sell-offs and the major empirical findings. In this section we introduce the variables we investigate in our analysis.

4.6.1 PRICE DISCLOSURE (SPRICE)

Price disclosure reduces the uncertainty surrounding the completion of the deal and helps the market to evaluate the impact of the sell-off on the seller and the buyer. We collect information about price disclosure from the *Acquisitions Monthly*. The dummy variable SPRICE takes value one if the transaction price is disclosed and zero otherwise. The variable PRICE is, when disclosed, the pound (£) transaction price paid by the buyer. If the value of the transaction is reported in another currency than English pounds, we convert the price into pounds at the exchange rate of the announcement day.

4.6.2 RELATIVE SIZE OF THE SALE (RELVDS)

The relative size of the sale is a measure of its importance to the seller. The impact of a very small sale, relative to the size of the seller, is likely to be different from the impact of a relatively large sale. If the sale is a positive NPV decision, its impact on the remaining business of the seller is bigger if the disposed part is large

and the remaining part small, i.e. when the relative size is large. This positive relationship between relative size and the abnormal returns to the seller has been documented in all the studies which investigate the impact of this factor (see section 2.4). We define the relative size of the disposed division to the seller as:

$$RELVDS = \frac{Division's\ Sale\ Price}{Seller's\ Market\ Value} \tag{4.25}$$

where: Division's Sale Price is the agreed price of the sale and Seller's Market Value is the share price of the seller one calendar month before the sell-off announcement, times the number of outstanding shares at the same day.

4.6.3 RELATIVE SIZE OF THE PURCHASE (RELVDB)

In section 3.4 we hypothesise a positive relationship between the relative size of the purchase and the buyer's abnormal returns. We measure the relative purchase price as:

$$RELVDB = \frac{Division's\ Sale\ Price}{Buyer's\ Market\ Value} \tag{4.26}$$

where: the *Division's Sale Price* is the transaction price paid by the buyer and the *Buyer's Market Value* is the share price of buyer one calendar month before the sell-off announcement times the numbers of its outstanding shares at the same day.

4.6.4 RELATIVE SIZE OF SELLER AND BUYER (RELVSB)

The relative size of the seller and buyer can be a proxy for their bargaining power. We define the relative size of seller - buyer as:

$$RELVSB = \frac{Seller's\ Market\ Value}{Buyer's\ Market\ Value} \tag{4.27}$$

where: *Seller's Market Value* is the share price of the seller one calendar month before the sell-off announcement times the numbers of its outstanding shares. A similar calculation is used for the *Buyer's Market Value*.

4.6.5 FINANCIAL STATUS OF SELLER (ZSEL) AND BUYER (ZBUY)

The financial status of the seller has been used as a proxy for its bargaining power (Lasfer *et al*, 1996). The z-score measure provide a comprehensive picture of the seller's financial status around the sell-off announcement. This is related to the motivation for the sell-off. Other possible measures of the financial condition of the seller can be various accounting measures of liquidity, profitability or financial structure, or downgrades the credit rate of sellers by rating agencies like the Moody's and S&P. As measure of the financial condition of a seller, we prefer to use the z-score. This is a comprehensive measure which efficiently captures the combined impact of other individual measures. The z-score gives the financial profile of a company in a single figure (score) and effectively classifies the companies as potential failures or survivals. Sellers with a positive z-score are classified as financially healthy and sellers with a negative z-score as financially distressed. The financial profile of firms classified as financially distressed, on the basis of their negative z-score, resembles to the profile of previously bankrupt firms.

The z-score is the value of a linear function of four financial ratios. It has been developed using linear discriminate techniques and has the following form:

$$z = c_0 + c_1x_1 + c_2x_2 + c_3x_3 + c_4x_4 \tag{4.28}$$

where x_1, x_2, x_3 and x_4 are financial ratios, and c_1, c_2, c_3 and c_4 the coefficients which are proprietary.

There are two versions of the model. The first is used for the manufacturing and construction companies and the ratios are:

$$x_1 = \frac{profit\ before\ tax}{current\ liabilities}, \qquad x_2 = \frac{current\ assets}{total\ liabilities}, \qquad x_3 = \frac{current\ liabilities}{total\ assets}$$

and x_4 = *no-credit interval.*

The Mosteller-Wallace percentage contribution measures for the ratios x_1, x_2, x_3 and x_4 are 53%, 13%, 18% and 16% respectively.

The second version of the model is used for retail companies and the ratios are:

$$x_1 = \frac{cash\ \text{flow}}{total\ liabilities}, \qquad x_2 = \frac{debt}{quick\ assets}, \qquad x_3 = \frac{current\ liabilities}{total\ assets}$$

and x_4 = *no-credit interval.*

With 34%, 10%, 44% and 12% Mosteller-Wallace percentage contribution measures.

The z-score model exhibits true *ex ante* predictive ability and the track record of its performance is reported as 98% success in classifying bankrupt firms as potentially insolvent, i.e. having z-score less than zero (Taffler, 1995).

The impact of the financial status of the buyer on the wealth gains of the seller and buyer has not been investigated in the literature. Possibly it has been regarded as of lower importance than the seller's z-score, in that what matters in a sell-off transaction is the ability and willingness of the buyer to pay the agreed price for the purchased assets. The initiation and final decision for the sell-off may rest with the seller and largely depends on its circumstances but, as discussed in the previous chapter, the financial health of the buyer is also important as a measure of its

bargaining power and the potential of wealth creation. As measure of the financial status of the buyer we use its z-score as described above.

4.6.6 LENDERS' MONITORING (BR, TL_ER)

Lenders are regarded as efficient monitors of managerial behaviour and corporate value increases with the level of gearing. As we discuss in the two previous chapters, the level of lenders' monitoring on sellers and buyers can be a significant factor which determines the level of the value gains or losses of the companies involved in a sell-off transaction. Both sellers and buyers can benefit from higher levels of debt.

We use two measures of the level of debt in sellers and buyers which proxy for the level of lenders' monitoring: first, the borrowing ratio and second, the ratio of total loan and equity and reserves.

The *borrowing ratio* (BR) is the ratio with total debt as numerator and the equity capital and reserves minus intangibles as denominator.

The *total long-term loan to equity and reserves* (TL_ER) is the ratio with the total loan capital repayable after one year as numerator and the equity share capital and reserves of the seller or buyer as denominator. The numerator includes bank debt, bonds, debentures, convertibles and 'debt-like' hybrid financial instruments. The denominator does not include preference capital which are deduced from equity capital and reserves. Capital and other grants shown as deferred liabilities are transferred to reserves. Goodwill shown against reserves is transferred to total

intangibles. Proposed dividends are deduced if the balance sheet is shown before appropriations.

The accounting data for calculation of the above variables are collected from the most recently published financial statements before the sell-off announcement, from the Datastream.

4.6.7 GROWTH OPPORTUNITIES OF SELLER AND BUYER (QSEL, QBUY)

The growth opportunities available to the seller and buyer can affect their wealth benefits from a sell-off. We use the q-ratio of the seller and buyer as a measure of their growth opportunities. A transfer of corporate assets from a low q seller to a high q buyer provides higher wealth generation opportunities than the opposite transfer, i.e. from high q seller to low q buyer.

The Tobin's q-ratio is defined as the ratio of the market value of the total assets over their replacement cost (Lang and Litzenberger, 1989). However, for data availability reasons, we use the market-to-book value of the seller as a proxy for its q-ratio *(QSEL)*. The q-ratio of the buyers *(QBUY)* is defined in a similar way.

Using the market-to-book value of sellers and buyers as a proxy for their q-ratio may be imperfect, but even a precise measure of q-ratio is imperfect measure of a seller's or buyer's investment opportunities. Any measure of the q-ratio reflects the average of the market value of the existing corporate investments relative to the replacement cost of the assets in place and not the more relevant value of marginal investment opportunity available. Additionally, alternative measures of q-ratio, due to data unavailability, would reduce dramatically the size of our sample and make

impossible any meaningful comparison and inference from the analysis.[48] Lang and Stulz (1994, p.1256) report that both the q-ratio and the firm's market-to-book value exhibit the same negative relationship with the degree of diversification and are highly correlated. This offers some support to our choice to use market-to-book value as proxy for the q-ratio.

4.6.8 INCREASE IN FOCUS OF THE SELLER (FOCUS)

As we discuss in section 2.5, a sell-off results in an increase in seller's focus, when a diversified seller sells peripheral business to concentrate its operations in the area of its core competence. John and Ofek (1995) report higher gains for the shareholders of a seller who increases the focus of its operations as a result of the sell-off. They adopt three bases of estimating measures of change in the seller's focus: the Herfindahl index, the number of lines of business of seller before and after the sell-off and the similarity of the SIC code of disposed division and seller.

We estimate the change in seller's focus by comparing the industry of seller and division. Our FOCUS variable is a dummy variable which takes the value one when the disposed division is in a different industry from the main industry of the seller (focus increasing sell-off) and zero otherwise (focus decreasing sell-off). Since the industry classification codes for the divested divisions are mostly not available, we

[48] Some measures of the q ratio, like the Lindenberg and Ross (1981) method as modified by Smirlock, Gilligan and Marshall (1984) are impossible to be estimated, since data required to set the acquisition schedule for plant and equipment are not available in the UK over our sample period. The controversy about the 'best' measurement of q-ratio extents in a number of other issues, such as: the level of assumed annual depreciation; the reliability of the book values of assets other than plant, equipment and inventory as measure of their market value; the use of the book value of debt etc.

decide as to whether we classify the sell-off as focus increasing or decreasing on the basis of the information provided in the Acquisitions Monthly, Extel, Datastream or Financial Times. Similarly, due to unavailable data on divisional sales we cannot use Herfindahl Index (H) measure of focus.

4.6.9 ECONOMIC ENVIRONMENT (BOOM)

As we discuss in sections 2.7 and 3.9, the state of the economy may determine the level and the distribution of gains between seller and buyer following a sell-off. We use the binary variable BOOM to measure the condition of the UK economic environment in our sample period. We assign the value one to the BOOM variable when the sell-off decision is taken during booming economic period and zero when the decision is taken during recession. We use Pepper's (1998) classification of the condition of the UK economy, as presented in Table 4.2, for our sample period 1987-1993. Various factors can determine the economic cycle. The best measure of the economic activity is the composite coincident indicator, which includes a number of macroeconomic factors and attaches weights on their importance. This information is calculated by the Office of National Statistics and published quarterly. The variables included in this coincident indicator change from period to period. In particular, over our sample period, and until 1992, the coincident indicator included: income based estimate of GDP, manufacturing production, retail sales volume and proportion of companies which were operating below capacity. Since 1992 the coincident indicator changed to include: factor cost estimate of GDP, industrial production, volume of retail sales, percentage change in stocks of materials and proportion of companies

operating below capacity. The last two items are obtained from the Industrial Trends Survey, published by the Confederation of British Industry.

Over our sample period 1987-1993, both booming and recessionary conditions occur in the UK economy. There is a boom from the beginning of 1987 to the 1st quarter of 1990 (included); a recession from the 2nd quarter of 1990 to the 2nd quarter of 1992 and finally again a boom from the 3rd quarter of 1992 to the end of 1993. The total boom period is more than double the recession period, 57 and 27 months respectively (68% - 32%).

Table 4.2: States of the economic environment over our sample period.

Economic condition	*Months*	*%*	*From*	*To*
Boom	39	46.4	January 1987	March 1990
Recession	27	32.1	April 1990	June 1992
Boom	18	21.4	July 1992	December 1993
TOTAL	84	100		

4.6.10 PRE-ANNOUNCEMENT UNCERTAINTY (STDAR and STDEARN)

The level of information uncertainty about the seller or buyer prior to the sell-off announcement may influence the revision of the analysts' forecasts of earnings following the sell-off announcement. Assuming that uncertainty is inversely related to the amount of available information, it is more likely that a sell-off announcement releases more information about the earnings or the value of small firms which are

relatively neglected by analysts, than those of larger firms. Bamber (1987) and Peters (1993) provide evidence of an inverse relationship between firm size and earnings surprise. We measure the level of information uncertainty concerning the earnings and value of sellers and buyers by adopting two measures of pre-sell-off information uncertainty: first, the standard deviation of the abnormal returns over the period from day -250 to day -10 relative to the announcement day 0. Second, the standard deviation of the consensus analysts' forecast of earnings during the months before the sell-off announcement. This standard deviation of the consensus analysts' forecast of earnings is measured as the maximum variance of individual analysts' forecasts from the month -18 to month -4 relative to sell-off announcement month 0. Ajinkya *et al* (1991) argue that the variance of analysts' forecast of earnings is a measure of heterogeneity of prior beliefs of analyst expectations related to the uncertainty about a firm's future profitability. The variance of the pre-announcement abnormal returns is an obvious measure of the uncertainty about the value of a firm.

The relationship of these variables with the changes in value of the sellers' and buyers' or the changes in the analysts' expectations about the future profitability of sellers and buyers has not yet been investigated.

4.6.11 FIT OF DIVESTED DIVISION AND BUYER (FIT)

In section 3.8 we discuss importance which the synergy hypothesis places to the fit of purchased division and the existing operations of the buyer. Acquiring a division in the same industry has many advantages for the buyer, such as smaller reorganisation costs, more relevant managerial expertise, less information asymmetry problem and benefits from increasing market share. John and Ofek (1995) provide evidence that better fit of the divested division and buyer result to higher value gains for the sellers but not for the buyers.

We measure the fit of buyer and purchased division by using a dummy variable FIT which takes values one when the industry of the purchased division is the same with the main industry of the buyer and zero otherwise. Given the lack of divisional data the fit of purchased division into the buyer's operations is accessed on the basis of the similarity of the buyer's and purchased division's industry, in the same fashion like the focus in the section 4.6.8 above. Our measure of fit may be imperfect indicator of the actual degree of similarities between the operations of buyer and purchased division but is the closest direct estimate that we can get for our data.

4.6.12 RELATIVE LOCATION OF PURCHASED DIVISION AND BUYER (BSLOCAL2, BSLOCAL3, BSLOCAL4)

The relative location of the buyer and purchased division may be important determinant factor of the seller's and buyer's value gains from a sell-off. A buyer located in the same country as the purchased division may have more information about the real value and the growth potential of the purchased division. Additionally, a local buyer may be facing lower investigation or transaction costs in completing the purchase (valuation costs, deferential tax status, cost of due diligence etc.). On the other hand, a buyer based in a country different from the operations of the purchased division, may face higher information asymmetry costs or cost of entry into a new market. There is no empirical evidence on the impact of relative location on the wealth of sellers and buyer.

In our analysis we use the variable BSLOCAL2 which takes four different values in respect to the relative location of buyer and purchased division, i.e. UK-UK

when both buyer and purchased division are UK companies, UK-F when a UK buyer purchases a foreign subsidiary of a UK seller, F-UK when the a foreign buyer purchases a UK division and F-F when both buyer and purchased division are foreign companies. We also use the dummy variable BSLOCAL3, which takes the value one when the buyer and the purchased division are located in the same country and zero if they are based in different countries.

We also investigate whether a UK location of the buyer is significant determinant of seller's and buyer's gains from the sell-off transaction. The motivating assumption is that a UK seller may benefit more when transacting with a buyer who does not knows the seller's circumstances as well as a locally based buyer. To test this suggestion we construct the dummy variable BSLOCAL4 takes the value one if the buyer is UK company and zero if it is a foreign company.

Table 4.3 presents the list and definitions of the explanatory variables which we use in our subsequent analysis.

4.7 SAMPLE SELECTION

The sample used in this study comprises all the voluntary sell-offs by UK listed companies between January 1987 and December 1993. From the divestment section of the *Acquisitions Monthly* (*A.M.*) we collect the date of the sell-off announcement, the names, locations and sectors of seller, buyer and divested division and the transaction prices when they are reported. The *A.M.* reports all the sell-offs

Table 4.3 Definition of variables.

VARIABLE	DEFINITION
SPRICE	The transaction price in £m.
SPRICE2	Dummy variable of value 1 when price is disclosed.
MVSEL	The market capitalisation of seller's equity one calendar month before the sell-off announcement.
MVBUY	The market capitalisation of buyer's equity one calendar month before the sell-off announcement.
STDAR	The standard deviation of abnormal returns over the period from day -250 to day -10 relative to announcement day 0.
STDEARN	The standard deviation of pre-announcement earnings forecasts, over the period from month -18 to month –4.
RELVDS	Relative divestment size, defined as ratio of the sale price / the seller's market value of equity.
RELVDB	Relative size of purchase, defined as the sale price / the buyer's market value of equity.
RELVSB	Relative size of seller and buyer, defined as the seller's market value of equity / the buyer's market value of equity.
ZSIGNS	The value of the z-score of a seller as calculated based on the financial statements published before the sell-off announcement.
ZSIGNB	The value of the z-score of a buyer as calculated based on the financial statements published before the sell-off announcement.
TL_ER	Total long-term loans repayable after one year to equity and reserves minus intangibles.
BR	Borrowing ratio as the ratio of total debt to equity capital and reserves minus intangibles.
QSEL	The q-ratio of the seller as proxied by the market-to-book value of seller.
QBUY	The q-ratio of the seller as proxied by the market-to-book value of buyer.
FOCUS	A dummy variable which takes value 1 when the focus of the seller increases following the sell-off and zero otherwise.
FIT	A dummy variable which takes value 1 if the industry of the purchased division is the same with the main industry of the buyer and zero otherwise.
BSLOCAL2	A classification variable which takes four values for the four different relative locations of the buyer and the purchased division: UK-UK, UK-F, F-UK and F-F.
BSLOCAL3	A dummy variable with value 1 when the buyer and the purchased division are companies located in the same country.
BSLOCAL4	A dummy variable which takes value 1 when the buyer a UK company and zero otherwise.
BSLOCAL5	A dummy variable with value 1 when the divested division is a UK company.
BOOM	Dummy variable with value 1 if the sell-off is announced during a period of booming economic activity in the UK.

made by UK sellers to either domestic or foreign buyers without any exclusion of small deals or sales by small sellers. We confirm the announcement dates and transaction prices with the *Financial Times* (FT) reports. Not all of the 3,210 sell-offs are reported in the FT and also a number of transaction prices were missing. However, this exercise is useful in order to exclude cases with simultaneous announcements of other important investment or financing decisions by the seller or buyer during the period -2 to +2 days, relative to sell-off announcement day 0. Such important simultaneous announcements can be takeover bids where they are either bidders or targets, joint ventures, debt redemption, earnings announcements, dividend increases or decreases, rights issues and management changes. This process resulted to elimination of 127 cases from the sellers' sample and 59 from the buyers' sample.

We aggregate multiple sell-offs by the same seller or buyer to a single case if they are announced on the same day. We also identify sell-off announcements from the same seller occurring within the period of six months or one month (multiple sell-offs). Share price data are collected from the Datastream International (DS) which also provides data about the market capitalisation of sellers and buyers, distributed dividend, ex-dividend dates, market-to-book values, gearing and earnings. Financial analysts' consensus earnings forecasts are obtained from the IBES database. The summary history files of IBES report, amongst others, the mean forecasts of earnings per share (EPS) for individual firms on a monthly basis. Contributing brokers are asked to send IBES, at least once a month reports which contain, *inter alia*, every estimate of the analysts following a particular share of the annual EPS next to be reported ('fiscal year 1'- FY1) and for the year after that ('fiscal year 2'-FY2).[49]

[49] See Chapter 2, section 2.12 for details.

4.8 SAMPLE FILTER AND DESCRIPTIVE STATISTICS

The initial sample comprises 3,210 sell-off announcements by UK sellers between January 1987 and December 1993 collected from the Acquisitions Monthly. As subsequent analysis requires further data, the size of the respective samples differs in different stages of our analysis.

The initial sample of 3,210 sell-off announcements by UK sellers, reduced by 127 cases because of simultaneous announcements. From the remaining transactions, sellers in only 2,525 cases have data on the Datastream database and from those only the seller in 2,359 announcements are covered by IBES. To calculate the returns of a seller we need data about the share price, distributed dividend and ex-dividend day. Additionally, to estimate the abnormal forecast revisions we need data from at least month -5 relative to announcement month 0[50]. These data requirements reduce our sample to 1,941 cases with both returns and earnings forecast data.

Table 4.4, Panel A, gives the annual distribution of number, mean and median size of sellers, buyers and divested divisions. The size of sellers and buyers is measured by the market capitalisation of their equity one calendar month prior to sell-off announcement and the size of divested division by the disclosed transaction price. The number of sell-offs increases from a minimum of 199 in 1987 to a maximum of

[50] Our observation period is -3 to +3 months relative to the announcement month 0. We need therefore earnings forecast revisions from month -4 (as required by the model 4.2) and thereforeconsensus analysts' forecast of earnings from month -5.

Table 4.4 Descriptive statistics for the sample of sellers.

Panel A: Annual distribution of the number and size of sellers and buyers, as measured by the mean and median market capitalisation of their equity one calendar month prior to the sell-off announcement and reported transaction price. Values are quoted in millions of pounds. Transaction prices reported in foreign currencies have been translated into pounds at the exchange rate on the announcement date.

Year	Sellers			Buyers			Divestment size		
	No	Mean (£m)	Median (£m)	No	Mean (£m)	Median (£m)	No	Mean (£m)	Median (£m)
1987	199	1803.39	772.11	82	1348.09	278.24	165	38.06	10.00
1988	328	1412.46	608.21	114	686.04	202.45	280	36.67	7.50
1989	363	1501.74	510.42	145	679.42	158.26	307	35.07	8.75
1990	290	1751.84	365.90	88	845.85	152.04	227	43.03	8.80
1991	247	2288.78	736.73	69	948.68	277.65	175	29.08	8.50
1992	244	2834.95	1004.09	67	1093.59	206.19	185	28.43	10.30
1993	270	3179.63	1111.16	96	881.98	222.70	198	39.32	10.79
Total	1941	2056.10	701.98	661	885.18	196.97	1537	35.93	8.90

Panel B: Annual distribution of the size (price) of the disposed division relative to the market capitalisation of equity of the seller and buyer and the relative size of seller and buyer.

Year	Divestment / Seller			Divestment / Buyer			Seller / Buyer		
	No	Mean	Median	No	Mean	Median	No	Mean	Median
1987	165	0.05	0.01	73	0.12	0.03	81	12.03	3.32
1988	280	0.07	0.02	106	0.13	0.04	114	13.67	2.06
1989	307	0.08	0.02	130	0.18	0.04	145	30.15	2.67
1990	227	0.13	0.03	77	0.15	0.05	88	142.20	2.74
1991	175	0.15	0.03	60	0.15	0.03	69	43.48	2.26
1992	185	0.11	0.02	58	0.25	0.04	67	49.22	5.42
1993	198	0.06	0.01	86	0.18	0.03	96	49.44	3.70
Total	1537	0.09	0.02	590	0.16	0.04	660	46.15	2.92

363 in 1989. It then drops to a low of 244 in 1992 and finally recovers to 270 in 1993. The mean size of the sellers fluctuates more than 200%. From £1,803m in 1987 it drops to a minimum of £1,412m in 1988 and then increases continually throughout the next years to a maximum of £3,180m in 1993. However, the rate of change in the average seller size is not constant. The median market capitalisation of seller fluctuates even wider (more than 300%) from £366m in 1990 to £1,111m in 1993. The pattern of changes of the annual median size of seller differs from that of the changes of the mean size. The median size of the sellers is £772m in 1987 and continuously decreases over the next three years to a minimum of £366 in 1990. This trend reverses over the next three years when the median seller size increases to the maximum of £1,111m in 1993. The overall mean market capitalisation of the sellers in our sample is just over two billion pounds (£2,056) and the median almost a third of that (£702m). It is evident that the seller size (both average and median) increases after the recession of the UK economy in 1990-91. During this period larger companies probably decided to sell divisions to cope with liquidity problems.

We have market capitalisation data for 661 buyers[51]. The annual distribution of buyers varies from a low of 67 in 1992 to a high of 145 in 1989. The overall mean (median) buyer size is £885m (£197m). Thus, sellers are 2 to 3 times larger than buyers. The selling price is disclosed in 1,537 cases with a mean sale value of £35.93m (median £8.90m). The changes in the mean and median size of the divested divisions over the years are smaller than those of the sellers (40% change of the mean and 30% of the median for the divisions, compared to 200% and 300% respectively

[51] Market capitalisation information is not available where buyers are private companies, consortium buyers or foreign companies.

for the sellers). The smallest average annual deals occur during the recession, in years 1991 (£29m) and 1992 (£28m).

Panel B of Table 4.4, shows the annual distribution of relative sale size, relative purchase size and relative size of seller and buyer. The sellers in our sample divest on average a relatively small part of their business. The size of the divested division is on average 9% of the market capitalisation of the seller (median 2%), whereas the purchase is on average relative larger for the buyer (mean 16% and median 4%). The buyer is much smaller than the seller, with the seller, on average, 46 times larger than the buyer. However, the distribution of the relative size of seller and buyer is heavily right-skewed and the median relative size is just 3.

During the recession years of 1991 and 1992, the average seller size is higher than the overall average (£2,289m and £2,835m respectively against £2,056m), the average divestment size is lower than the overall average (£29m and £28m against £36m) and yet the relative sale size is higher than the overall average (0.15 and 0.11 against 0.9). This suggests that during this period there are more small sellers selling relatively larger-than-the-average part of their business and a few really large sellers drive up the average sellers' size for these years.

In this study we also investigate the implications of sell-offs for the buyers, by analysing all the UK buyers involved in sell-offs over the period 1987-1993. The initial sample of 1,313 purchases comprises buyers which have Datastream data and of those only 1,159 purchases involve buyers with available IBES data. Data requirements for abnormal returns and earnings forecast revisions, similar to the above discussed for the sample of sellers, further reduce our sample of buyers to 877

Table 4.5 Descriptive statistics for the sample of buyers.

Panel A: Annual distribution of the number and size of buyers and sellers, as measured by the mean and median market capitalisation of their equity one calendar month prior to sell-off announcement and reported transaction price. Values are quoted in millions of pounds. Transaction prices reported in foreign currencies have been translated into pounds at the exchange rate on the announcement date.

Year	Buyers			Sellers			Divestment size		
	No	Mean (£m)	Median (£m)	No	Mean (£m)	Median (£m)	No	Mean (£m)	Median (£m)
1987	103	1496.67	340.47	74	1541.30	571.82	90	29.99	7.00
1988	150	799.97	290.01	104	1086.77	451.48	129	23.19	7.25
1989	173	881.41	189.98	132	1041.22	281.80	151	29.62	4.50
1990	132	920.98	174.27	95	1145.65	265.04	110	26.83	4.40
1991	90	1178.70	328.52	67	1355.26	367.39	73	21.20	5.80
1992	105	1103.16	277.34	73	2739.44	702.64	90	16.57	4.58
1993	124	954.73	216.13	86	2389.71	771.75	113	23.31	4.50
Total	877	1013.12	252.36	631	1536.69	435.77	756	24.85	5.00

Panel B: Annual distribution of the mean and median relative purchase size, relative sale size and divested division size (price). The relative purchase (sale) size is the ratio of the market capitalisation of buyer's (seller's) equity on day -1 relative to sell-off announcement day 0 and the size of divested division.

Year	Divestment / Buyer			Divestment / Seller			Seller / Buyer		
	No	Mean	Median	No	Mean	Median	No	Mean	Median
1987	90	0.0611	0.0179	66	0.0874	0.0196	74	7.58	0.91
1988	129	0.0927	0.0256	93	0.0815	0.0268	104	7.13	1.03
1989	151	0.1089	0.0266	116	0.1204	0.0359	132	6.53	1.40
1990	110	0.0673	0.0305	79	0.2039	0.0213	95	5.16	1.17
1991	73	0.0569	0.0242	57	0.1828	0.0217	67	19.27	0.97
1992	90	0.0873	0.0221	63	0.2001	0.0171	73	29.68	1.43
1993	113	0.0858	0.0239	81	0.1249	0.0201	86	19.63	1.61
Total	756	0.0835	0.0239	555	0.1380	0.0246	631	12.35	1.14

cases. Table 4.5 gives descriptive statistics of this final sample of buyers. Panel A of the table presents the annual distribution of the number of buyers and sellers and their respective mean and median size as measured by their market capitalisation of equity one calendar month prior to the sell-off announcement. The number of divested divisions for which the transaction price is disclosed and their mean and median size are also reported (columns eight, nine and ten). The number of buyers in our sample increases from 103 in 1987 to a maximum of 173 in 1989, drops back to a minimum of 90 in 1991 and recovers over the next two years to 124. The annual mean (median) market capitalisation of the buyers is £1,013m (£252m), with a maximum of annual average of £1,497m in 1987 and a minimum of £800m (£290m) in 1988. The mean (median) market capitalisation of the sellers is £1,537m (£436m) with a maximum of £2,739m (£703m) in 1992 and a minimum of £1,041m (£282m) in 1989. The mean size of the purchased assets is £25m (£5m the median) and varies from a maximum of £30m (in 1989) to a minimum of £17m (in 1992). In Panel B, we see that on average, the sellers divest 13.80% of their assets (median relative sale size 2.46%) and the buyers purchase assets less than 10% of their size (mean relative purchase size 8.35% and median 2.39%). The average relative size of sellers and buyers is 12.35 (median 1.14).

For a comparison purposes between our sample of buyers presented in Table 4.5 and the buyers related to the UK sellers in our sample of sellers presented in previous Table 4.4, we provide Table 4.6. Table 4.6 gives descriptive statistics for the buyers related to the sample of 1,941 sellers. This sample comprises 514 buyers, which is a subsample of the sample of 877 UK buyers. Alternatively, only 514 sell-offs, from the sample of 877 cases used in the analysis of the sell-off effects on buyers

Table 4.6 Descriptive statistics for the subsample of buyers that transact with seller which are included in the analysis of the effects of the sell-off announcements on sellers.

This Table provides summary descriptive statistics for comparison between the group of buyers that found to be related to the sellers (1941 cases) used in the analysis of the effects of the sell-off announcements on the sellers and the sample of the UK buyers (877) used to analyse the effect of the sell-off announcements on the buyers.

Panel A: Number and size of the buyers and sellers, as measured by the mean and median market capitalisation of their equity and the reported mean and median transaction price. Values are quoted in millions of pounds. Transaction prices reported in foreign currencies have been translated into pounds at the exchange rate on the announcement date.

Year	Buyers			Sellers			Divestment size		
	No	Mean (£m)	Median (£m)	No	Mean (£m)	Median (£m)	No	Mean (£m)	Median (£m)
Total	514	1073.95	312.76	514	1771.50	638.10	454	35.61	7.78

Panel B: Number, mean and median relative purchase size, relative sale size and relative size of seller and buyer.

Year	Divestment / Buyer			Divestment / Seller			Seller / Buyer		
	No	Mean	Median	No	Mean	Median	No	Mean	Median
Total	454	0.0986	0.0279	454	0.0944	0.0166	514	13.7958	1.88

Panel C: Annual distribution of number of buyers

Year	1987	1988	1989	1990	1991	1992	1993	Total
Number of buyers	62	83	113	74	53	56	73	514

involve the same buyers with the sample used in the analysis of the effects of sell-offs on the sellers. Such a large difference (more than 41%) in these two groups of buyers is reflected in the difference in the characteristics of the two groups.

Comparing Tables 4.5 and 4.6, we see that the average buyer size in our analysis of buyers (*first group*-Table 4.5) is almost the same as the average buyer size in the *second group* (Table 4.6) (£1,013m vs. 1,074m), the average seller is almost

15% smaller (£1,537m vs. £1,771m) and the size of the divested division almost 43% smaller (£24.85 vs, £35.61m). These differences are also reflected in relative size ratios. The average relative purchase size is larger for the second group (0.084 vs. 0.099), the relative sale size is lower for the second group (0.138 vs. 0.094) and the relative size of seller and buyer is larger (12.35 vs. 13.80).

In Panel C, Table 4.6, we present the annual distribution of the number of buyers which is smaller for the second group but they exhibit the same pattern of change over the years, with a minimum number in 1991 (90 vs. 53) and maximum number in 1989 (173 vs. 113).[52]

4.9 CONCLUSION

In this chapter we have discussed the methodology used in our analysis. We have described and justified the use of the third-order moving average model to estimate the abnormal forecast revisions of earnings by the financial analysts for the sellers and a fourth-order moving average model for the buyers of our sample. We have also presented the method of estimating the abnormal returns and cumulative abnormal returns over our event windows.

The sample selection criteria have also been presented and we have demonstrated how they reduce the size of the initial sample. As we have discussed in

[52] In further analysis, not reported here, we find that the average CARs and CAFRs and the percentage of buyers with positive CARs and CAFRs are not substantially different for the samples of Tables 4.4 and 4.6. This demonstrates the credibility of empirical results based on relatively large samples and in particular the validity of our findings.

chapters 2 and 3 a number of factors influence the sell-off decision and determine its impact on the wealth of the shareholders of the seller and buyer. In this chapter we have described the way in which we calculate these variables and we give their descriptive statistics.

In the following Chapters 5 and 6 we present and discuss the results of our analysis for the sellers and buyers respectively.

CHAPTER 5

CORPORATE SELL-OFFS AND THEIR WEALTH EFFECTS FOR SELLERS' SHAREHOLDERS : A JOINT ANALYSIS OF THE ABNORMAL RETURNS AND ABNORMAL EARNINGS FORECAST REVISIONS

5.1 INTRODUCTION

As we have discussed in chapter 2, a sell-off is often a major capital restructuring decision for the seller with important wealth implications for its shareholders. Most of the empirical research in this area reports that sell-offs are positive Net Present Value (NPV) transactions with significant positive abnormal returns for the shareholders of the seller around the sell-off announcement date (see Hirshey and Zaima, 1989; Lasfer *et al.*, 1996; John and Ofek, 1995; Lang *et al,.* 1995; Loh and Rathinasamy, 1997)[53]. Various factors which determine the increase in the wealth of the seller's shareholders have been examined. Lasfer *et al* (1996) find that sell-offs by financially distressed divestors, as indicated by their z-score, generate significantly higher wealth gains for their shareholders than those by financially

[53] Some early US studies, however, reported neither significant positive nor negative abnormal returns (Alexander, Benson and Kampmeyer, 1984; Denning and Shastri, 1990).

healthy sellers. In contrast, Sicherman and Pettway (1992), adopting previous credit rate downgrade as measure of financial condition of the seller, report that sellers gain more when they have not been previously downgraded. Afshar *et al* (1992) and Sicherman and Pettway (1992) report a positive impact of the transaction price disclosure on sellers' value gains. It therefore appears that the stock market reaction to sell-offs is conditioned by a variety of seller and buyer characteristics as well as the transactional details.

In this chapter we extend the previous literature by investigating the impact of many other, hitherto neglected, characteristics of buyers and sellers on the wealth gains to sellers. These fall into the following broad categories: the materiality and characteristics of the divestment; the set of investment opportunities and relative financial condition of seller and buyer; the condition of the economic environment; the strategic plans of the seller and the relative bargaining strengths of the buyer and seller.

We examine the impact of the sell-off announcements on both the stock returns and the abnormal earnings forecast revisions of financial analysts for the sellers, around the sell-off announcement. Abnormal earnings forecast revisions, following the sell-off announcements, reflect changes in market expectations about the future earnings of the seller. The abnormal revisions in analysts' forecasts of earnings in the month of the sell-off announcement reveal the impact of the sell-off on the expectations of future earnings. As we discussed in chapter 3, this combined study of the seller's cumulative abnormal returns (CARs) around the sell-off announcement day and cumulative abnormal earnings forecasts revisions (CAFRs) on the sell-off

announcement month 0 and subsequent months can shed light on the possible sources of wealth changes of the seller due to the sell-off.

A wealth increase of a seller, following the sell-off, may be related to either wealth transferred from the buyer or improved profitability of the seller, or both. In any case, the wealth gains of a seller, following a sell-off decision, are related to positive CARs. If the sell-off results in increased seller's profitability, the expectations about its future earnings will be positively revised and reflected in significantly positive CAFRs. However, if the seller's future profitability is not affected (or declines) and therefore expectations about its future earnings, as captured by the CAFRs, do not change (or become negative), the value benefits to the seller may be wealth transfers from the buyer.[54] As we suggest in our discussion of the results in this chapter, similar arguments apply for other combinations of CARs and CAFR.

There is no empirical evidence concerning the earnings information content of the sell-offs. There is only one previous UK study that has examined the implications of the takeover bids on the expected earnings of the targets (Sudarsanam *et al,* 1999). This study uses the CAFRs for the targets in takeover bids to differentiate between synergy and the new information hypotheses as sources of the documented wealth increase of takeover targets. It finds evidence supporting the new information hypothesis as a source of the value increase of targets.

[54] The use of CAFRs to identify the sources of value changes of the seller is however limited. If following a sell-off, the CAFRs of the seller are zero whilst its CARs are positive, the source of value increase of the seller is the potential transfer of wealth from the buyer to the seller. However, if the CAFRs of a seller were positive, together with its CARs, this would not mean that the only source of value increase of the seller was its increased profitability. Part of this value increase could be due to a transfer of wealth from the buyer.

5.2 THE EFFECT OF DIVESTMENTS ON THE WEALTH OF SELLER'S SHAREHOLDERS - FULL SAMPLE

Panel A of Table 5.1 shows the average abnormal returns (ARs) as estimated by the size and market-to-book adjusted model presented in section 4.3.3, for each day over the 21-day period from day -10 to day +10, centred on the announcement day 0 and the cumulative abnormal returns (CARs) from day -10. In brackets we provide the *t*-statistics for the null hypothesis of zero ARs and CARs. The percentage of sellers with positive ARs and CARs is also given in columns 3 and 5 and tested against the null hypothesis of 50% percentage positive (*t*-statistics in brackets). Table 5.1, Panel B, presents the CARs for different event windows, before, after and around the sell-off announcement day 0, and the respective percentage of sellers with positive CARs. The test statistics are reported in brackets underneath.

Before day -2, both the ARs and CARs are not significantly different from zero. On days -2 and -1 the ARs are significantly positive at levels 10% and 1% respectively. Over the following period, i.e. from day 0 to day +10, the ARs are insignificantly different from zero except on day +3 when the ARs are significantly positive (0.07%, with t=1.77). The percentage of positive ARs is significantly less than 50% for most of the days before and after the sell-off announcement. On days -1 and 0, however, it is not significantly different from 50%, as on the days -8 and +3. The CARs are significantly positive over the period from day -1 to day +5 and then become insignificantly different from zero, except for days +8 and +9. The percentage of sellers with positive CARs is lower from 50% for most of the days before day -2 but insignificantly different form 50% after day -1. The highest average daily AR of

Table 5.1 Full sample daily average size and market-to-book abnormal returns (ARs) and cumulative abnormal returns (CARs).

Panel A: Daily size and market-to-book average abnormal returns *(ARs)* for the whole sample of sellers for the period -10 to +10 days, around the sell-off announcement day 0, and cumulative abnormal returns *(CARs)* from day -10. ***, **, * mean significance at 1%, 5% and 10% levels, two-tail test. The third and fifth columns give the percentage of sellers with positive ARs and CARs respectively. These percentages are tested using the binomial test against the null hypothesis of 50%. Test statistics are in parentheses.

Day	*AR*	*% positive*	*CAR*	*% positive*
-10	-0.0005	46.9***	-0.0005	46.9***
	(-1.31)	(-2.71)	(-1.31)	(-2.71)
-9	0.0000	45.8***	-0.0001	46.4***
	(0.10)	(-3.71)	(-0.04)	(-3.16)
-8	0.0004	48.3	-0.0001	47.1***
	(1.09)	(-1.48)	(-0.05)	(-2.52)
-7	-0.0000	46.9***	-0.0001	47.6**
	(-0.07)	(-2.75)	(-0.06)	(-2.16)
-6	-0.0001	47.7**	-0.0004	48.5
	(-0.25)	(-2.07)	(-0.40)	(-1.34)
-5	0.0002	45.5***	-0.0001	48.4
	(0.58)	(-4.03)	(-0.12)	(-1.39)
-4	0.0001	47.8*	0.0001	49.0
	(0.22)	(-1.93)	(0.02)	(-0.84)
-3	-0.0002	45.3***	-0.0001	47.8*
	(-0.44)	(-4.17)	(-0.05)	(-1.93)
-2	0.0008*	46.2***	0.0008	48.0*
	(1.87)	(-3.35)	(0.64)	(-1.79)
-1	0.0025***	51.3	0.0036***	50.3
	(4.45)	(1.11)	(2.44)	(0.25)
0	0.0005	49.1	0.0042***	51.2
	(1.01)	(-0.79)	(2.67)	(1.02)
1	-0.0002	46.4***	0.0040***	51.0
	(-0.44)	(-3.14)	(2.43)	(0.84)
2	-0.0005	46.0***	0.0038**	51.0
	(-1.16)	(-3.55)	(2.23)	(0.89)
3	0.0007*	48.7	0.0049***	51.3
	(1.77)	(-1.18)	(2.70)	(1.11)
4	-0.0003	46.1***	0.0047**	51.5
	(-0.88)	(-3.41)	(2.53)	(1.29)
5	-0.0006	46.1***	0.0040**	50.0
	(-1.50)	(-3.41)	(2.07)	(0.02)
6	-0.0007	46.3***	0.0032	50.2
	(-1.59)	(-3.23)	(1.62)	(0.20)
7	-0.0003	47.6*	0.0031	49.8
	(-0.71)	(-2.09)	(1.53)	(-0.16)
8	-0.0001	47.3**	0.0035*	49.6
	(-0.20)	(-2.36)	(1.65)	(-0.39)
9	0.0002	47.8*	0.0038*	49.2
	(0.42)	(-1.91)	(1.75)	(-0.70)
10	0.0000	45.4***	0.0037	49.5
	(0.03)	(-4.10)	(1.64)	(-0.48)

Panel B: Cumulative size and market-to-book abnormal returns *(CAR)* and their *t*-statistics (in brackets) for various intervals around the sell-off announcement day 0, for the whole sample of 1,941 sellers. ***, **, * mean significance at 1%, 5% and 10% levels, two-tail test. The third column give the percentage of sellers with positive CARs. These percentages are tested using the binomial test against the null hypothesis of 50%. Test statistics are in parentheses.

Interval	*%CAR*	% positive
-10 to +10	0.0037	49.5
	(1.64)	(0.48)
-10 to 0	0.0042***	51.2
	(2.67)	(1.02)
0 to +10	-0.0008	48.8
	(-0.50)	(-1.08)
-5 to +5	0.0042***	51.3
	(2.40)	(1.09)
-5 to 0	0.0045***	51.7
	(3.51)	(1.51)
0 to +5	0.0002	49.4
	(0.14)	(-0.53)
-2 to +2	0.0034***	51.2
	(2.79)	(1.00)
-2 to 0	0.0037***	52.5**
	(3.74)	(2.20)
0 to +2	0.0003	48.9
	(0.39)	(-0.94)
-1 to +1	0.0026***	51.1
	(2.59)	(0.85)
-1 to 0	0.0028***	50.0
	(3.28)	(0.11)
0 to +1	0.0005	47.7**
	(0.64)	(-2.04)

0.25% (t=4.45) is observed on day -1. This is almost three times the AR on day -2 (0.08% with a t=1.87) and five times the AR on day 0 (0.05% with a t=1.01).

The above evidence suggests that there may be a leakage of information about the sell-off just before the announcement day. The information about the sell-off might be leaked to the market up to a couple of days before the official announcement and its effect may get impounded in the share price. For our subsequent analysis we select the period from day -2 to day 0 as the relevant estimation window which captures the effect of the sell-off announcement on the sellers. The reasons for this choice are: first, this three-day window, (-2,0) includes the announcement day 0 and because of possible information leakage as we discuss above, the relevant days are -1 and -2. Second, the data over this period are 'clean' from other confounding events because we have excluded from our sample sellers with other announcements. Third, the market response on the days immediately before and after is insignificant, and fourth, it is a relatively short period around the announcement day 0 in line with the common practice of the short-term studies.

Panel B of Table 5.1, presents sellers' CARs over various windows before, after and around the announcement day 0. The cumulative abnormal returns over the period from day -2 to day 0 (CAR) are positive and statistically significant at the 1% level (0.39%, t=4.00). The CARs over all the longer periods (-5,+5), (-2,+2) and (-1,+1) are also positive and significantly different from zero. However, the proportion of sellers with positive CARs over these periods is not significantly different from 50%. All the subperiods before the announcement day 0, i.e. (-10, 0), (-5, 0), (-2, 0) and (-1, 0) have CARs positive and significant at the 1% level. In contrast, the subperiods after the announcement days, i.e. (0, +10), (0, +5), (0, +2) and (0, +1) have

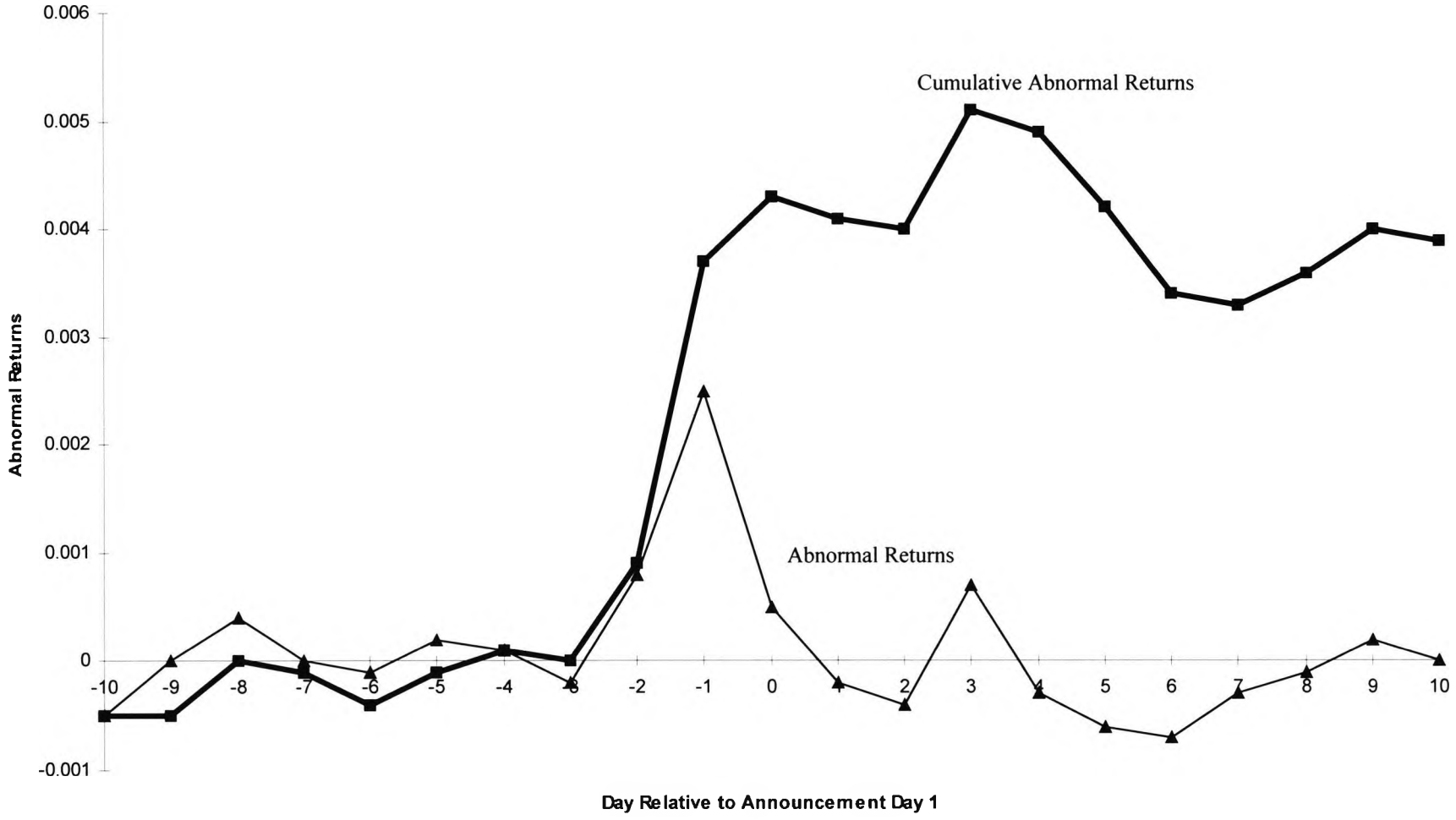
CARs not significantly different from zero. The most significant positive CARs of 0.39% (t=4.00) occur over the window (-2,0), which is the only period with a percentage of sellers with positive CARs significantly higher than 50%.

Figure 5.1 depicts the graph of the ARs of sellers for the days of the period -10 to +10 days centred on the announcement day 0, and the CARs starting from day -10. This confirms that sell-offs in general create significant wealth for the sellers. They are, on average, positive NPV decisions for the sellers.

As we discuss in section 4.4, the choice of model to estimate the abnormal returns has very little effect on the results in the short-term event methodology studies (Fama, 1998). In the appendix. Table A 5.1 presents the CARs for the sellers over various windows before, after and around the announcement day for three models, namely the market adjusted model and the size adjusted model returns.

The CARs over our event window (-2,0) are almost identical with those reported in Table 5.1 for the size and market-to-book adjusted returns. In particular, the mean market adjusted CAR is 0.35%, the size adjusted 0.36% and the size and market-to-book adjusted 0.39%, all significant at the same 1% level. The same applies for all the other windows, except the mean CAR in the window (-10, +10), where the significance of the size and market-to-book CAR is marginally short off the 10% level, which is the level of significance for the mean CAR of the other two models.

Figure 5.1 Average abnormal returns (ARs) and cumulative abnormal returns (CARs) to sellers over the 21-day period (-10,+10) centred on the sell-off announcement day 0.



The percentage of sellers with positive CARs is also very similar for the three models and almost all are insignificantly different from 50%.[55]

For the subsequent analysis we present and discuss the results based on the CARs derived from the size and book-to-market model.

5.3 SELL-OFFS AND ANALYSTS' FORECASTS OF EARNINGS

As we discuss in section 4.2, the mean consensus forecast revision of earnings outside the observation period (k_i in equation 4.2) is -0.0024 (-0.24%, with a t=-16.57) for the fiscal year ending immediately after the sell-off announcement (FY1) and -0.0017 (-0.17%, with t=-12.72), for the next fiscal year (FY2). This is comparable with the -0.25% for FY1 and -0.13% for FY2 reported by Sudarsanam *et al* (1999). Additionally, as shown in Table 4.1, almost a quarter of the analysts (24% on average) revise their earnings forecasts over the entire period between months -19 to +18, relative to the sell-off announcement month 0. This is higher than the 20% reported by Sudarsanam *et al* (1999) and the 23% reported by O'Hanlon and Whiddett (1991). Therefore, we use a third-order moving average to estimate the expected earnings forecast revisions, as in equation (4.2).

In Table 5.2a, raw and abnormal earnings forecast revisions of sellers, for the year ending after the sell-off (FY1), are presented. The raw forecast revisions are consistently negative and significant at the 1% level throughout the observation period

[55] In the (-2,0) window, the percentage of sellers with positive CAR20 from the size and market-to-book model is significantly higher than 50% (at level 5%) in contrast to the insignificance in the other models.

-3 to +3 months. The percentage of sellers with positive FRs is significantly less than 50% for all months.

The abnormal earnings forecast revisions (AFRs) in month -1 are significantly negative (-0.04%, t=-1.97), in month +3 significantly positive (0.04%, t=2.51) and not significantly different from zero in all the other months. The percentage of sellers with positive AFRs is higher than 50% and significant at the 1% level in all the months, except in month -1, when it is not significantly different from 50%. Since analysts revise their forecasts almost every four months, in order to capture the whole effect of the sell-off announcement, we cumulate the abnormal forecast revisions of earnings over the period from the announcement month 0 to month +3. This is the measure of the cumulative abnormal analysts' forecast revisions of earnings (CAFR) that we use in our subsequent analysis. For our sample of sellers, the overall mean CAFR is positive and significant at the 1% level (0.09%, t=3.16) and 53.4% of sellers experience positive CAFR, which is significantly higher than 50%.

In estimating the earnings forecast revisions we scale the earnings changes by the share price of the seller. Therefore, if we assume that the sellers in our sample have an average price earnings ratio (PER) of 20[56], a mean CAFR of 0.09% implies a 1.8% cumulative revision of earnings per share (EPS). This earnings forecast revision of the sellers on the sell-off announcement appears of small magnitude.

[56] A PER of 30 (or 15) for our sample of sellers would suggest 2.7% (or 1.35%) mean cumulative revision of EPS.

Table 5.2a Forecast revisions of earnings (FR), abnormal forecast revisions of earnings (AFRs) for sellers for the year of sell-off announcement (FY1) and cumulative abnormal returns (CARs) for sellers.

Raw forecast revision (FR) for a seller, in a particular month, is the difference of the change of consensus analysts' forecast of earnings from the previous month, scaled by the share price at the end of the previous month. FY1 is the fiscal year of the sell-off announcement, i.e. the accounting year which finishes immediately after the announcement. Abnormal forecast revision (AFR) is the difference of the actual raw FR from the expected FR. The latter is estimated by a third-order moving average model. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the seller's AFRs over the period from the sell-off announcement month 0, to month +3 thereafter. CAR is the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns to a seller over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in brackets. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: Earnings forecast revisions (FRs), abnormal earnings forecast revisions (AFRs), CFR and CAFR for sellers and percentage positives					
Month relative to event month	FR (mean)	FR (% positive)	AFR (mean)	AFR (% positive)	No of Obs
-3	-0.0023*** (-11.06)	31.8*** (-16.81)	0.0003 (1.36)	55.0*** (4.34)	1852
-2	-0.0024*** (-11.93)	30.6*** (-18.25)	0.0002 (0.95)	53.5*** (2.99)	1869
-1	-0.0028*** (-13.68)	30.2*** (-18.73)	-0.0004** (-1.97)	51.7 (1.47)	1900
0	-0.0024*** (-12.48)	29.7*** (-19.60)	0.0001 (0.46)	53.2*** (2.80)	1941
+1	-0.0022*** (-12.26)	31.7*** (-17.25)	0.0002 (1.23)	55.6*** (4.91)	1924
+2	-0.0022*** (-11.82)	32.6*** (-16.07)	0.0002 (1.38)	54.2*** (3.70)	1884
+3	-0.0018*** (-10.00)	32.9*** (-15.66)	0.0004*** (2.51)	55.7*** (4.94)	1851
Cumulative (0 to +3)	-0.0084*** (-17.02)	33.7*** (-15.20)	0.0009*** (3.16)	53.4*** (2.98)	1941
Panel B: Abnormal size and market-to-book returns at day -1, CAR and percentage of sellers with positive AR and CAR					
Event Window	Abnormal returns and cumulative abnormal returns		% positive		
-2 to 0	0.0037*** (3.74)		52.5** (2.20)		1941
-1	0.0025*** (4.45)		51.3 (1.11)		1941

Panel B of Table 5.2a reports the cumulative abnormal returns of the sellers' shareholders over the event window (-2,0) and the abnormal returns of the sellers at day -1, where the highest market reaction is observed. Both the CAR and AR are positive and significant at the 1% level. The percentage of sellers with positive CAR is 52.5% (which is significantly higher than 50%, t=2.20) and for AR 51.3% (not significantly different from 50%, t=1.11).

The findings presented above suggest that the observed wealth gains of the sellers following the sell-off announcements, as captured in the positive and significant CAR, are related to the expected increase in the seller's profitability.

Table 5.2b, Panel A, presents the FRs and AFRs of sellers for the second year after the sell-off announcement (FY2). The raw FRs and CAFR, as in FY1, are all negative and significant during the observation period from month -3 to +3. The corresponding percentages of sellers with positive FRs and CAFRs are all significantly lower than 50%. The AFRs are smaller in magnitude, negative before the announcement month 0 and positive after (over the months +1, +2 and +3) but not all of them are significant. In particular, the AFRs in months -1 and 0 are significantly negative and in month +3 significantly positive. The CAFR are not significantly different from zero (0.01%, t=0.39) and the percentage positive not significantly different from 50%. (50.5%, t=0.34). These findings suggest that the sell-off announcements do not affect significantly the expected profitability of sellers for the second year after the sell-off announcement.

The CAR over the observation window (-2,0) and the AR on day -1, as reported in Table 5.2b Panel B, are positive and significant but the percentage of the sellers with positive CAR and AR is not significantly different from 50%. It is

Table 5.2b Forecast revisions of earnings (FR), abnormal forecast revisions of earnings (AFRs) for sellers in the second year after the sell-off announcement (FY2) and cumulative abnormal returns (CARs) for sellers.

Raw forecast revision (FR) for a seller, in a particular month, is the difference of the change of consensus analysts' forecast of earnings from the previous month, scaled by the share price at the end of the previous month. FY2 is the second fiscal year of the sell-off announcement, i.e. the accounting year which starts after the end of FY1. Abnormal forecast revision (AFR) is the difference of the actual raw FR from the expected FR. The latter is estimated by a third-order moving average model. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the seller's AFRs over the period from the sell-off announcement month 0, to month +3 thereafter. CAR is the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns to a seller over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in brackets. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: Earnings forecast revisions (FRs), abnormal earnings forecast revisions (AFRs), CFR and CAFR for sellers and percentage positives

Month relative to event month	FR (mean)	FR (% positive)	AFR (mean)	AFR (% positive)	No of Obs
-3	-0.0014***	32.7***	-0.0002	48.8	892
	(-5.20)	(-10.99)	(-0.65)	(-0.74)	
-2	-0.0017***	32.3***	-0.0002	51.4	999
	(-8.12)	(-11.94)	(-1.00)	(0.85)	
-1	-0.0020***	31.5***	-0.0005**	51.9	1130
	(-8.24)	(-13.38)	(-2.22)	(1.25)	
0	-0.0020***	31.7***	-0.0004*	53.1**	1276
	(-8.92)	(-14.07)	(-1.75)	(2.24)	
+1	-0.0016***	34.4***	0.0001	53.1**	1259
	(-7.94)	(-11.66)	(0.60)	(2.23)	
+2	-0.0016***	34.4***	0.0001	53.0**	1237
	(-9.31)	(-11.58)	(0.69)	(2.08)	
+3	-0.0014***	30.6***	0.0003*	52.8*	1217
	(-8.53)	(-14.64)	(1.77)	(1.92)	
Cumulative (0 to +3)	-0.0065***	33.7***	0.0001	50.5	1276
	(-13.33)	(-12.32)	(0.39)	(0.34)	

Panel B: Abnormal size and market-to-book returns at day -1, CAR and percentage of sellers with positive AR and CAR.

Event Window	Abnormal returns and cumulative abnormal returns	% positive	
-2 to 0	0.0043***	51.9	1276
	(3.72)	(1.37)	
-1	0.0027***	50.5	1276
	(4.14)	(0.39)	

therefore evident that the positive effect of the sell-off announcement on the seller's expected earnings and value gains is stronger for the year of divestment than for the subsequent year.

In interpreting these findings it is important to realise that the joint reading of abnormal earnings forecast revisions and abnormal returns for FY1 and FY2 is not straightforward. The results reported in Tables 5.2a and 5.2b are derived from different samples, since for data availability reasons, the FY2 sample is a subsample of 1,276 sellers from the total sample of 1,941 sellers. Because of this difference in samples and in order not to constrain the applicability of conclusions, in the subsequent analysis we report results only from the overall sample (FY1).

To check the robustness of results reported in Tables 5.2a and 5.2b in respect of the model used to estimate the expected revisions of earnings forecasts, we repeat the analysis using a fourth-order moving average model in equation (4.2) and report the results in the appendix, Tables A5.2a and A5.2b.

In Table A5.2a, for FY1, the raw FRs and the CFR are all significantly negative and the percentages of sellers with positive FRs and CFR are in all the event period months significantly lower than 50%, as in Table 5.2a. The AFRs and CAFR also exhibit the same pattern with the results reported in Table 5.2a. In particular, the AFRs are small and insignificant except for those in month -1, which are significantly negative (-0.03%, t=-1.79) and in month +3 which are significantly positive (0.06%, t=3.11). The percentages of sellers with positive AFRs and CAFR are all significantly higher than 50%. Table A5.2b presents the raw and abnormal FRs over the observation period for the FY2 when a fourth-order moving average model is used for the estimation of AFRs. The reported findings are again very similar to those reported

in Table 5.2b, where a third-order moving average model is used for the estimation of AFRs. This very close similarity of FRs and AFRs, when the AFRs are estimated by a third- and fourth-order moving average model, supports the robustness of results with respect to the model used.

5.4 EARNINGS FORECAST REVISIONS AND CHANGES IN THE NUMBER OF ANALYSTS FOLLOWING

As we discuss in Chapter 4, section 4.1, if a number of analysts with unfavourable information choose not to report their earnings forecast revisions, changes in analysts' forecasts of earnings can be positively biased (McNichols and O'Brien, 1997). If this is true for our sellers' sample, the lower tail of the distribution of the earnings forecasts would be censored and the observed average forecast revision would be higher than the true unobservable average of all expectations. To test for such self-selection bias in the analysts' forecasts of earnings in our sample, we investigate the difference in CAFR of the group of sellers which shows an increase in the number of analysts contributing forecasts, and the CAFR of the group of sellers with a decrease in the number of forecasting analysts. As we see in Table 5.2a and 5.2b, the number of analysts making earnings forecasts for each seller changes over time. This finding is similar to that of previous research (Brous and Kini, 1993; Sudarsanam *et al*, 1999).

We use two measures of change in the number of analysts following the sellers during the observation period, i.e. from month -3 to month +3 relative to the sell-off

announcement month 0, compared to the number of analysts making earnings forecasts outside the observation period (estimation period). The first measure is based on the maximum number of analysts forecasting over the observation and estimation periods. The second measure is based on the mean number of analysts forecasting during the observation and estimation periods.

Table 5.3 shows the CAFR for the sellers, partitioned into three groups according to the change in the maximum and mean number of forecasting analysts during the observation and estimation periods. For both measures of the increase in the number of analysts, i.e. maximum (in Panel A) and mean (in Panel B), there is no significant difference among the mean CAFR of the three groups. The same applies to the difference between the CAFR of the sellers in the group registering an increase and that registering a decrease in the number of forecasting analysts.

In Panel A, the group of sellers registering an increase, a decrease and no change in the number of forecasting analysts has a CAFR of 0.05% (t=0.73), 0.06% (t=1.47) and 0.16% (t=2.94) respectively, which are not significantly different (F=1.48). The difference in CAFR between the increase and decrease in the number of forecasting analysts is not significant (t=0.11). The percentages of sellers with positive CAFR in the three groups are: 53.8% (t=1.41), 50.1% (t=0.07) and 57.6% (t=3.99), which are significantly different (F=8.94). However, there is no difference between the percentage of sellers with positive CAFR in the groups demonstrating an increase and decrease in the number of forecasting analysts (t=0.18).

Panel B, Table 5.3 presents the same analysis when we use the change in the mean number of analysts as a measure of the change in the number of analysts over the estimation and observation period. The group showing an increase in the number

Table 5.3 Cumulative abnormal forecast revisions of earnings (CAFR) for the sellers in FY1, partitioned by the change in the number of forecasting analysts.

The increased (decreased) number of analysts group comprises sell-offs where the number of analysts forecasting the seller's earnings within the period -3 to +3 months, relative to sell-off announcement month 0, increases (decreases) relative to the number of analysts who forecast outside this window. We use two measures of the number of analysts who give earning forecasts for the seller: First, the maximum number of analysts and second, the average number of analysts. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A. Number of analysts in estimation and observation period is the maximum of analysts giving earning forecasts.

	CAFR	% posit.	No of obs.
Number of analysts increased	0.0005 (0.73)	53.8 (1.41)	340
Number of analysts decreased	0.0006 (1.47)	50.1 (0.07)	920
Number of analysts unchanged	0.0016*** (2.94)	57.6*** (3.99)	681
F-stat	1.48	8.94***	

t-statistics for the differences in the CAFR means and the proportions of sellers with positive CAFR for the groups with increasing and decreasing number of analysts

t-stat	0.11	0.18	

Panel B. Number of analysts in estimation and observation period is the mean of analysts giving earning forecasts.

	CAFR	% posit.	No of obs.
Number of analysts increased	0.0006** (2.10)	53.3*** (2.51)	1464
Number of analysts decreased	0.0017** (2.17)	51.8 (0.74)	407
Number of analysts unchanged	0.0024 (1.15)	64.3*** (2.49)	70
F-stat	1.45	4.15***	

t-statistics for the differences in the CAFR means and the proportions of sellers with positive CAFR for the groups with increasing and decreasing number of analysts

t-stat	1.24	1.32	

of analysts is now the largest of the three groups. Its size is almost three times the size of the group showing a decrease in the number of analysts, which is exactly the opposite of the previous case presented in Panel A. The CAFR of the group demonstrating an increase in the number of forecasting analysts is significantly positive (0.06%, t=2.10) and in the group demonstrating a decrease in the number of analysts, it is even higher (0.17%, t=2.17) but the difference is not significant (t=1.24). The percentages of sellers with positive CAFR in the three groups are significantly different (F=4.15) but this is due to the high percentage in the group showing no change in the number of forecasting analysts (64.3%, t=2.49). The difference in the percentages of sellers with positive CAFR, between the groups showing an increase and a decrease in the number of analysts is not significant (t=1.32).

The above documented similarity in CAFR between the two subgroups of sellers, i.e. the group showing an increase and the group showing a decrease in the number of analysts, suggests that there is no self-selection bias in analysts' forecast of earnings in our sample.

5.5 CUMULATIVE ABNORMAL RETURNS, CUMULATIVE ABNORMAL ANALYSTS' FORECASTS REVISIONS OF EARNINGS AND ABNORMAL POUND RETURNS TO THE SELLERS

In order to assess the economic significance of sell-offs for sellers, we estimate the average Abnormal Pound Returns (APRs) to the sellers. The APRs represent the abnormal monetary value changes (measured in £) for the divestor's shareholders. The

APR of a seller depends on its CAR and market capitalisation and therefore, on the length of the window used. We measure the APRs over the same window (days -2 to 0) which is used for the CARs. The APR is the product of CAR times the market capitalisation of the seller on day -3 prior to the sell-off announcement. We select the market capitalisation on day -3 because as we discuss in section 5.2 above, until day -3 there is no value impact of the announcement on the seller. Table 5.4 shows the annual distribution of the average CAFR, CAR and APR of sellers as well as the overall sample average.

It is evident that the wealth implications of sell-offs differ from year to year. There are no significant value changes for the sellers over the period 1987-1990 and the overall positive value effect of the sell-off announcement is attributed to the positive and significant CARs in the years 1991, 1992 and 1993. Similarly, the seller's CAFRs are statistically insignificant over the period between 1987 and 1990 and positive and significant over the period 1991-1993. This indicates that the effect of the sell-off may be related to the changing condition of the UK economy over our sample period. This is investigated in a later section.

The annual average APR is positive and significant only in the years 1989 (£8.29m, t=2.71) and 1992 (£22.24m, t=2.90) but not significantly different from zero in any other year. The overall average abnormal increase of the value for sellers is £3.17m, which is statistically insignificant. The total abnormal wealth created for all the 1,941 sellers in our sample, over the three-day window (-2,0), is £6,521.76m. This, compared with the total value of £61,152.97m of the disposed divisions, shows that the sellers, following the sell-offs, enjoy an average of 8.82% wealth increase relative to the size of the divested division. This is comparable with the 9.9% reported by John

Table 5.4 Annual distribution of average cumulative abnormal forecast revisions of earnings (CAFR), average cumulative abnormal returns (CAR) and average abnormal pound returns (APR) to sellers.

Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the period from the sell-off announcement month 0 to +3 months thereafter. CAR is the cumulation of the seller's abnormal returns (ARs) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns to the sellers over the returns to the matching size and market-to-book quintile portfolio. Abnormal pound gains (APR) of sellers is the product of CAR and the market capitalisation of their equity on day -3 prior to the sell-off announcement day 0. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Year	CAFR (mean)	CAFR (% positive)	CAR (mean)	APR20 (mean in £m)	CAR and APR (% positive)	No of obs.
1987	0.0003	46.2	0.0030	-7.38	50.3	199
	(0.49)	(-1.07)	(1.01)	(-0.88)	(0.07)	
1988	-0.0001	50.0	0.0008	-0.67	48.5	328
	(-0.31)	(0.00)	(0.61)	(-0.21)	(-0.55)	
1989	-0.0007	49.9	0.0027	8.29***	52.6	363
	(-1.40)	(-0.05)	(1.51)	(2.71)	(1.00)	
1990	-0.0001	43.1**	0.0033	0.12	52.8	290
	(-0.06)	(-2.37)	(1.15)	(0.03)	(0.94)	
1991	0.0025**	61.1***	0.0063*	5.48	55.9*	247
	(2.36)	(3.59)	(1.84)	(0.73)	(1.86)	
1992	0.0020*	55.3*	0.0076**	22.24***	57.8**	244
	(1.83)	(1.67)	(2.26)	(2.90)	(2.04)	
1993	0.0034***	69.6***	0.0048*	-7.32	51.1	270
	(4.72)	(7.01)	(1.87)	(-0.81)	(0.37)	
Total	0.0009***	53.4***	0.0039***	3.17	52.6**	1941
	(3.16)	(2.98)	(4.00)	(1.39)	(2.25)	

and Ofek (1995). The percentage of sellers with positive CAR and APR is significantly higher than 50% in the years 1991, 1992, and overall, but insignificantly different in the other years.

The overall mean CAR is 0.39%, significant at 1% level (t=4.00). However, this is due to the positive CAR in years 1991, 1992 and 1993 (0.63%, t=1.84, 0.76%, t=2.26 and 0.48%, t=1.87 respectively), since during the other years the sellers experience small, positive and insignificant mean CARs. The percentage of sellers with positive CAR is higher than 50% only in years 1991 and 1992. Similarly, the overall positive and significant mean CAFR (0.09%, t=3.16) is a result of positive and significant CAFR in years 1991, 1992 and 1993 (0.25%, t=2.36; 0.20%, t=1.83 and 0.34%, t=4.72 respectively). The percentage of sellers with positive CAFR is smaller than 50% before 1991 but significant only in year 1990 (43.1%, t=-2.37) (in 1988, 50%) and significantly higher after 1991 (61.1%, t=3.59 in 1991, 55.3%, t=1.67 in 1992 and 69.6%, t=7.01 in 1993).

The above findings show that the effect of sell-off decisions on sellers can vary considerably from year to year. This should be borne in mind when comparisons of the empirical evidence from different studies are attempted. However, the overall pattern is that the average annual wealth effect of sell-offs on sellers is positive, insignificant before 1992 and significant in 1992 and 1993. The average annual APRs are mixed and insignificant, except in 1989 and 1992 when they are significantly positive. The annual average CAFRs are insignificant before 1991 and positive and significant there after.

5.6 MATERIALITY OF THE TRANSACTION

How material a divestment is for the seller and how this materiality affects the wealth of its shareholders is investigated in Table 5.5. We divide our sample of sellers into quintiles based on the *relative sale size* (RELVDS). The relative sale size is defined as the ratio of the sale price and the seller's market capitalisation one calendar month prior to the sell-off announcement. As a result, in this section our analysis is confined to the 1,537 sell-off announcements for which we have transaction price data. The average relative sale size in these quintiles varies from of 0.20% in the 1st quintile, to 36.22 in the 5th quintile. Table 5.5 shows that CARs are significantly different across the relative size groups (F=5.63, p<0.00).[57] The CARs of the sellers increase from -0.08% (t=-0.04) in quintile 1 to 1.30% (t=3.25) in quintile 5 but they are statistically significant only in quintiles 4 and 5. The same pattern is observed in the percentage of the sellers with positive CARs, which increase from 46.1% (t=-1.37) in quintile 1 to 59.7% (t=3.49) in quintile 5 and also become significantly higher than 50% in quintiles 4 and 5. Therefore, only sellers who sell relatively large parts of their business experience positive and significant wealth gains following the sell-off. These findings are consistent with results reported by Hearth and Zaima (1984), Klein (1986) and Afshar *et al* (1992). However, it should be mentioned here that these studies partition their sample into two or three groups employing rather arbitrary cut-off points.

The average CAFR is positive and significant only in quintile 2 but not significantly different from zero in the other quintiles. The percentage of sellers with

[57] For details about the significance tests see section 4.5 of the previous chapter.

positive CAFRs is not significantly different from 50% in all quintiles except in quintile 4 (55.4%, t=1.88). These findings indicate that the relative sale size does not have the same impact on the seller's earnings as it has on their returns. In particular, analysts generally tend to ignore the relative sale size when they revise their earnings forecasts whereas the stock market investors do not. The latter group appears to believe that a sell-off is good news for the seller and the larger the divestment relative to its size, the better the news.

Table 5.5 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by the relative sale size (RELVDS).

Relative sale size (RELVDS) is the ratio of the size of the sold division as it is defined by the transaction price (PRICE), when it is disclosed, and the market capitalisation of the seller's equity one calendar month prior to the sell-off announcement. The RELVDS is multiplied by 100 and reported as %. Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. CAR is the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns to the sellers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

RELVDS quintile	RELVDS mean (median) (%)	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Quintile 1	0.20 (0.19)	-0.0004 (-0.25)	46.1 (-1.37)	0.0004 (1.00)	49.5 (-0.17)	307
Quintile 2	0.81 (0.80)	-0.0009 (-0.59)	47.2 (-0.97)	0.0013** (2.17)	51.1 (0.40)	307
Quintile 3	2.07 (1.96)	0.0023 (1.36)	53.7 (1.32)	0.0005 (0.96)	53.2 (1.14)	308
Quintile 4	5.61 (5.32)	0.0063*** (2.69)	56.4** (2.24)	0.0010 (1.48)	55.4* (1.88)	307
Quintile 5	36.22 (20.74)	0.0130*** (3.25)	59.7*** (3.49)	-0.0003 (-0.22)	48.7 (-0.46)	308
Total	0.0900 (0.0197)	0.0039*** (3.48)	52.6** (2.03)	0.0022*** (3.74)	51.6 (1.25)	1537
F-stat		5.63***	14.63***	0.65	3.38***	

5.7 IMPACT OF THE CONDITION OF THE ECONOMIC ENVIRONMENT

Table 5.6 shows that the majority of sell-offs occur during periods of economic boom (1,085 in boom vs. 856 in recession). However, given that the length of bomm and recession is 57 and 27 months respectively[58], the average number of sell-offs in a month during the boom is 19, which is much lower than an average of 32 sell-offs per month during the recession. The motivation of a seller may be different during a boom compared with a recession. This may be related to different value gains from sell-offs taking place during a recession compared with those taking place during periods of economic growth.

The mean CAR of the sellers is 0.61% (t=3.76) during the recession and 0.21% (t=1.80) during the boom, with the difference significantly greater than zero. Equally, the percentage of sellers who realise positive CAR is significantly higher than 50% during the recession but not during the boom, with their difference statistically significant at the 1% level (t=2.97). The source of these superior value gains to the sellers during the recession can be related to either higher wealth transfers from buyers to sellers or to more valuable use of the sale proceeds by the seller. To differentiate between these alternative sources of superior value increase to the sellers during the recession, we investigate the effect of sell-off announcements on their CAFR.

The CAFR of sellers during the boom is 0.01%, insignificantly different from zero (t=0.06), whereas they are significantly positive during the recession (0.21%, t=3.97). The percentage of sellers with positive CAFR is also significantly higher

during the recession than during the boom (57.7%, t=4.51 vs. 49.9%, t=-0.03, with their difference statistically significant t=5.04). Therefore, the larger value gains to the sellers during the recession is a result, at least in part, of the expected increase of their future profitability during the recession compared to their expectations during the boom.[59] In periods of economic recession, the need for restructuring by selling the less profitable part of the seller's operations is more vividly demonstrated than in a boom.

Table 5.6 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by the condition of the economy.

The condition of the UK economy over the sample time-period is taken from the Annual Abstract of Statistics (Pepper 1998). Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns of the sellers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Boom	0.0021* (1.76)	50.6 (0.40)	0.0001 (0.06)	49.9 (-0.03)	1085
Recession	0.0058*** (3.45)	55.0*** (2.87)	0.0021*** (3.97)	57.7*** (4.51)	856
t-stat	1.85*	2.84***	3.36***	5.04***	

[58] The relative length of boom and recession is 68% - 32%, i.e. our 84-month sample period comprises of 57 months of boom and 27 months of recession.

[59] Partial transfer of wealth from the buyer cannot be ruled out, which does not alter the fact that the expected profitability to the seller increases significantly during the recession but not during the boom.

In periods of economic boom the negative contribution of divisions lacking strategic fit or contributing negative synergy may be masked by the strong performance of other businesses in the seller's portfolio. Such 'benign neglect' is a luxury a firm cannot afford in a recession and therefore its motivation for the sell-off is to focus on profitable businesses and increase its overall profitability.

The positive and significant CAR of sellers during boom periods combined with insignificant CAFR, suggest that the small value gains to the sellers during boom may wealth transfers from buyers.

5.8 INVESTMENT OPPORTUNITIES OF SELLER AND BUYER

Lang *et al* (1989) argue that the q ratio is an indicator of the investment opportunities of a firm. As we discuss in Chapter 2, section 2.9, the investment opportunities available to sellers and buyers, as represented by their q-ratio, may affect the wealth changes of the seller, following the sell-off decision. A high q seller may benefit more from divesting a division than a low q seller because the former has the potential to invest the sale proceeds in more profitable investment opportunities. Alternatively, a high q buyer has the potential to put the purchased assets to higher value use than a low q buyer. Therefore, the potential for wealth creation from the sell-off transaction is higher in the former case than in the latter. The higher value available to be split between seller and buyer will, *ceteris paribus*, increase the chances for the seller to benefit more.

Table 5.7 presents the mean CAR and CAFR for the seller partitioned by the value of their q ratio. Panel A, shows that high q sellers have positive and statistically significant CAR (0.37%, t=3.96) which are paralleled by a significant increase in their expected future profitability (0.08%, t=3.03). The percentage of sellers with positive CAR and CAFR is significantly higher than 50% (53.4%, t=2.70 and 53.4%, t=2.74 respectively). The low q sellers do not experience value increases (CAR=0.61%, t=1.52), with only 49.4% of them having positive CARs. However, the expected profitability of low q sellers increases significantly following the sell-off (CAFR=0.28%, t=2.03). These findings indicate that high q sellers benefit more from a sell-off, which is, at least partly, a result of an increase in their expected future profitability. A high q seller may sell divisions with lower than average growth opportunities in order to invest in higher growth investment opportunities. This increases its expected future earnings and is impounded into the share price to result in positive abnormal returns.

In the section 5.7 we demonstrate that the condition of the economic environment determines the wealth effect of the sell-off transaction on the seller. To investigate the extent to which the condition of the economic environment influences the sell-offs and their effects on high and low q sellers, we report the impact of the boom or recession on the wealth changes and expected profitability of low and high q sellers in the Panels B and C.

Sell-offs decided during boom economic periods have an insignificant wealth effect on both high and low q sellers. The CAR for high q sellers is 0.19% (t=1.63)

Table 5.7 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by the q ratio of the seller and the condition of the economic environment.

The q ratio of a seller is proxied by its market-to-book value one month before the sell-off announcement. The high (low) q ratio group comprises the sellers with q ratio higher (lower) than 1. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal return (CAR) are the cumulation of the seller's abnormal returns (ARs) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns to the sellers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: CAR and CAFR of sellers partitioned by value of the q ratio of seller.

Seller's q	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
High q	0.0037*** (3.96)	53.4*** (2.70)	0.0008*** (3.03)	53.4*** (2.74)	1606
Low q	0.0061 (1.52)	49.4 (-0.20)	0.0028** (2.03)	54.9 (1.51)	233
t-stat	0.59	2.96***	1.46	1.11	

Panel B: CAR and CAFR of sellers partitioned by value of the q ratio of seller during economic boom.

Seller's q	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
High q	0.0019 (1.63)	51.1 (0.69)	0.0003 (1.00)	50.9 (0.56)	931
Low q	0.0062 (1.31)	47.7 (-0.48)	-0.0024* (-1.70)	44.0 (-1.25)	109
t-stat	0.88	1.82**	1.87*	3.70***	

Panel C: CAR and CAFR of sellers partitioned by value of the q ratio of seller during recession.

Seller's q	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
High q	0.0062*** (4.02)	56.4*** (3.38)	0.0014*** (3.20)	56.9*** (3.58)	675
Low q	0.0061 (0.95)	50.8 (0.18)	0.0074*** (3.29)	64.5*** (3.23)	124
t-stat	0.02	2.69***	2.63***	3.64***	

and for low q sellers 0.62% (t=1.31), with their difference insignificant (t=0.88). High q sellers have average CAFR insignificantly different from zero (0.03%, t=1.00) and low q sellers significantly lower than zero (-0.24%, t=1.70), with significant difference (t=1.87). The percentages of sellers with positive CAR and CAFR are both insignificantly different from 50%.

In panel C of Table 5.7, we see that during boom economic conditions, the high q sellers experience significant value gains from the sell-off (CAR of 0.62%, t=4.02), which are related to an expected increase in their profitability (CAFR of 0.14%, t=3.20). The percentages of high q sellers with positive CAR and CAFR are 56.4% (t=3.38) and 56.9% (t=3.58) respectively. The low q sellers have insignificant CAR (0.61%, t=0.95) but significantly positive CAFR (0.74%, t=3.29) and their percentages positive are 50% and 64.5% (t=3.23). These findings are very similar to those reported in Panel A for the overall sample.

The low q sellers do not gain value benefits in either boom or recession. Additionally, during boom economic periods they experience negative and significant CAFR (-0.24%, t=-1.70), whereas during the recession their CAFR is significantly positive (0.74%, t=3.29). This indicates that, during the recession, a low q seller cannot capitalise on its expected increase of profitability possibly due to its weak bargaining position. Liquidity problems of the low q sellers during recession may be the cause of their weak negotiating position. In contrast, during the boom, despite the fact that they experience a negative CAFR of -0.24% (t=-1.70), low q sellers do not lose wealth (CAR=0.62%, t=1.22). The high q sellers experience positive and significant value gains during the recession (0.59%, t=3.79) but not during the boom (0.20%, t=1.63) and the same applies for their expected profitability.

As we mention above, the level of wealth created from a sell-off decision can be related to the q ratio of the buyer and this could be reflected in the wealth gains of the seller. Table A5.3, in the Appendix, shows the impact of the set of investment opportunities for buyers, as it is represented by their q ratio, on the wealth changes of the sellers' shareholders. Overall, the q ratio of the buyers appears to be unrelated to the value gains of the sellers. Sellers to both high and low q buyers have CARs which are not significantly different from zero. The same applies for the sell-offs during boom periods. Only during the recession can the sellers to low q buyers earn positive and significant CAR. However, data availability drastically reduces the sample to 618 cases. This weakens the power of results and also precludes a comparison with the original sample reported in Table 5.7.

In Table 5.8 we investigate the joint impact of the investment opportunities of sellers and buyers on the wealth changes of sellers. The sellers are classified into four groups on the basis of the combined value of the q ratio of sellers and buyers: high q sellers to high q buyers (H_s - H_b); low q sellers to high q buyers (L_s - H_b); high q sellers to low q buyers (H_s - L_b) and low q sellers to low q buyers (L_s - L_b). The sample is again reduced to 613 cases with more than two thirds of them in the group of high q sellers to high q buyers (H_s - H_b).

When the seller has a low q ratio and the buyer a high q ratio (group L_s-H_b), the divested assets are transferred from the lowest to the highest value use. This potentially results in the highest value creation and maximum wealth gains to the seller. However, in none of the four groups does the seller experience significant wealth benefits. These findings do not support the view that the relative investment opportunities of the buyer and seller influences the value gains to the sellers.

Table 5.8 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by the relative value of the q ratio of seller and buyer.

The q ratio of a seller (buyer) is proxied by its market-to-book value one month before the sell-off announcement. High q ratio groups (H_s , H_b)comprise the sellers or buyers with q ratio higher than 1. Low q ratio groups (L_s , L_b)comprise the sellers or buyers with q ratio lower than 1. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns of the sellers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Relative q buyer-seller	CAR (mean)	CAR (% positive)	No of obs.
H_s - H_b	0.0006 (0.37)	50.8 (0.33)	469
H_s - L_b	0.0086 (1.47)	53.2 (0.51)	66
t-stat	1.56	0.89	
L_s - H_b	0.0063 (0.64)	53.8 (0.55)	54
L_s - L_b	0.0046 (0.66)	47.8 (-0.21)	24
t-stat	0.14	0.77	

5.9 BUSINESS STRATEGY

5.9.1 THE IMPACT OF CHANGE IN SELLER'S FOCUS

We examine two aspects of business strategy: first, whether a sell-off increases the focus of the residual portfolio of the seller's businesses or not and second, whether it is part of a programmed series of sell-offs. We classify the sellers into the *focus*

increasing group (Focus increase) and *focus decreasing* (Focus decrease) group, as it is defined in Chapter 4, section 4.6.8. A sell-off is focus increasing for the seller if the industry of the divested division is different from the main industry of the seller, i.e. when the divested division peripheral to the seller's operations. If the divested division is part of the main operations of the seller, i.e. from its main industry, the sell-off is focus decreasing for the seller. The value of our dummy variable FOCUS is one if the sell-off is focus increasing and zero if it is focus decreasing.

In Table 5.9 the reported average CAR of sellers in the focus decreasing group is positive and statistically significant (0.53%, t=4.06), whereas in the focus increasing group it is not significantly different from zero (0.22%, t=1.49), with difference not significant (t=1.55). The same applies to the percentage of the sellers with positive CAR (51.6%, t=0.91 and 53.5%, t=2.28 respectively). In contrast, the future profitability of the sellers, improves only for those sellers who increase their focus (0.14%, t=3.38). This suggests that when a sell-off is used as a strategic tool to increase the focus of the seller, analysts forecast increased profitability of the remaining business. This is in line with theoretical predictions and empirical evidence that corporate value increases with focus (Comment and Jarrell, 1995).

The increased forecast of profitability for sellers in the focus increasing group, following the sell-off, should normally be related to their value gains, by capitalisation of the expected increase in future cash flows into the share price. However, the evidence is that an increase in focus does not result in an increase in the value of the selling company, despite its increased forecast profitability. These findings suggest that the transaction price may be unfavourable to the seller and result in the transfer of

Table 5.9 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by the change in the focus of the seller and the condition of the economic environment.

The seller is classified into the focus increasing group when the sell-off increases their focus. The focus of the seller increases following the sell-off if the divested division is not in the main business of the seller, i.e. the seller divests non-core operations. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns of the sellers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: CAR and CAFR of sellers partitioned by the change in focus of the seller.

Change in focus	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Increasing	0.0022 (1.49)	51.6 (0.91)	0.0014*** (3.38)	53.7** (2.10)	816
Decreasing	0.0053*** (4.06)	53.5** (2.28)	0.0004 (1.10)	52.9*** (1.91)	1056
t-stat	1.55	1.07	1.66*	0.45	

Panel B: CAR and CAFR of sellers partitioned by the change in focus of the seller during the boom economic periods.

Change in focus	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Increasing	0.0008 (0.46)	50.9 (0.41)	-0.0002 (-0.42)	48.6 (-0.63)	496
Decreasing	0.0032* (1.84)	50.5 (0.22)	-0.0001 (-0.18)	50.0 (0.00)	548
t-stat	0.97	0.17	0.12	0.61	

Panel C: CAR and CAFR of sellers partitioned by the change in focus of the seller during the recession periods.

Change in focus	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Increasing	0.0047 (1.61)	54.2 (1.49)	0.0039*** (4.53)	61.6*** (4.14)	320
Decreasing	0.0070*** (3.35)	55.9*** (2.58)	0.0010 (1.61)	56.1*** (2.75)	508
t-stat	0.66	0.60	2.73***	1.99**	

the potential wealth benefits from sellers to buyers. Alternatively, the sellers in the focus increasing group may sell a division with low profitability, which increases the profitability of the remaining business but they can only do it at a price which offsets the potential benefits from the expected increase of their future profitability.

On the other hand, sellers in the focus decreasing group may sell divisions for which they can secure a profit, as suggested by their positive on average CAR. This increase in the value of the seller is transfer of wealth from the buyer, since the future profitability of the seller, as reflected in its CAFR, does not change.

Panel B presents the CAR and CAFR for both focus increasing and focus decreasing increasing sell-offs in boom periods. Panel C presents similar results of recession period sell-offs. When economic conditions are good there is little difference in the impact of the sell-off on the sellers in the two groups. On the other hand, during the recession, focus increasing sell-offs lead to significantly more positive earnings forecast revisions than focus decreasing sell-offs (the CAFR in the two groups are: 0.39%, t=4.53 and 0.10%, t=1.61 respectively with difference significant t=2.73). However, the value gains are not significantly different. Thus, focus increasing sell-offs during recessions are seen by analysts as beneficial to future earnings but such benefits are not reflected in shareholder returns.

5.9.2 THE IMPACT OF A SELL-OFF PROGRAMME

When a seller takes a sell-off decision as part of a general strategic plan, its shareholders benefit more than when the seller has no such general strategic plan

(Montgomery *et al*, 1984). If the strategic plan of the seller is related to restructuring of its operations by divesting a significant part of its business, it is more profitable if it is implemented through a series of sell-offs than in a one-off transaction. The divestment of a large part of a seller business may involve many divisions or subsidiaries and the whole process is complex with lengthy procedures such as the identification concerning a suitable buyer, negotiations of the financial aspects of the deal, completion of due diligence and other legal issues and transfer of the ownership of the assets to the buyer. A programme of divestments through a series of sell-offs can be seen by the stock market as a coherent strategy on the part of the seller to restructure its operations rather than an ad hoc decision. This can possibly convey a more credible message about future benefits to the seller and therefore evoke a more positive stock market reaction. Therefore, the value gains to a seller who disposes of corporate assets through a series of sell-offs are expected to be higher than those from a one-off divestment.

We assume that when the same seller divests more than one division within a six month period, this constitutes a divestment within a strategic restructuring programme. We classify a sell-off as belonging to the *multiple sale* (MS) group (and the dummy variable MS6 takes the value 1 if the sell-off is part of a divestment programme, i.e. when there is more than one sell-off by the same seller within a period of six calendar months. If there is only one sale by the same seller within six calendar months, the sell-off is classified as belonging to the *single sale* (SS) group (dummy variable MS6 takes value zero). Alternatively, we classify the sell-off in the MS group if there is more than one sale by the same seller within an interval of one calendar month (MS1 dummy assumes value one). Table 5.10 presents the CAR and

Table 5.10 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by programmed multiple versus single sell-offs.

We assign a sale in the programmed multiple sale group, when there are more than one sales by the same seller within six months period. In this case the dummy variable MS6 assumes value 1, otherwise MS6=0. Alternatively, in Panel B, we classify the sale as part of a programmed multiple sale, if there are more than one sales by the same seller within one month period. Then the dummy variable MS1 assumes value 1, otherwise MS1=0. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns of the sellers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: Multiple sale within the last six months

Frequency of sale	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
MS6 = 1	0.0034*** (3.07)	52.9** (2.04)	0.0007** (2.28)	52.9** (2.04)	1266
MS6 = 0	0.0045** (2.20)	51.9 (0.94)	0.0013** (2.20)	54.4** (2.27)	675
t-stat	0.45	0.69	0.91	1.04	

Panel B: Multiple sale within the last month

Frequency of sale	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
MS1 = 1	0.0052*** (3.21)	54.8** (2.49)	0.0012*** (3.21)	53.9** (2.00)	649
MS1 = 0	0.0032** (2.60)	51.4 (1.00)	0.0008** (1.95)	53.1** (2.23)	1292
t-stat	1.02	1.72*	0.84	0.40	

CAFR of the sellers partitioned according to whether the sell-off is part of a sale programme.

The results for both alternative measures of the sell-off programme, i.e. six months and one month intervals, are similar. The sellers in both the MS and SS groups earn positive and significant CAR, which, however, are not significantly different between the two groups. The CAFR is also positive and significant for both groups of sell-offs but not significantly different. These findings are against our expectations and suggest that there is no significant beneficial impact of a sell-off CAFR on the sellers[60]. It is possible that the bulk of the positive market reaction related to the announcement of a sell-off programme is mainly captured around the initial sell-off announcement. Therefore, subsequent divestments in the same programme do not result in any significant market reaction if there is no new information in their announcement. Companies, however, do not report feedback information related to completion or abandonment of previously announced investment or divestment programmes and often it is not clear if a sell-off is related to a previously announced programme of divestments or is an independent new decision.

5.10 THE BARGAINING STRENGTH OF THE SELLER

As we discuss in Chapter 2, and as documented in the literature (Hearth and Zaima, 1984, Sicherman and Pettway, 1992) the sell-offs are motivated by the potential of value gains to the seller and buyer by the transfer of corporate assets from

a low value use to a higher value use. The benefits to a seller from the generated wealth are positively determined by its bargaining power. We employ two alternative measures of the bargaining power of the seller: the state of the seller's financial health, as measured by its z-score, and the relative size of seller and buyer.

5.10.1 THE IMPACT OF THE FINANCIAL HEALTH OF SELLER

In Table 5.11 we present the impact of the financial health of a seller, as measured by its z-score, on the shareholders' wealth changes, following the sell-off announcements. We classify a seller into the *financially healthy* group, if its z-score, estimated on the basis of the latest published financial statements before the sell-off announcement, is higher than or equal to zero and to the *financially distressed* group if the z-score is less than zero. The z-score of a seller is calculated by equation (4.28) as described in section 4.6.5 of the previous chapter. The z-score is an efficient measure of the bankruptcy risk of a company. If, for example, the z-score of a seller were negative, the financial profile of this seller would be similar to other failed companies and it would be in financial distress.

[60] Alternatively, our assumption that more than one sales from the same seller within six months or one month implies the existence of a strategic program is not accurate.

Table 5.11 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by the z-score of the seller (ZSIGNS).

ZSIGNS is a dummy variable assuming value one if the z-score of the seller is positive and zero if the z-score of seller is negative. The z-score of the sellers is estimated on the basis of the latest published accounts before the sell-off announcement, as we discuss in section 4.6.5. The financially healthy sellers is the group of sellers with z-score positive and the financially distressed sellers is the group of sellers with negative z-score. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns of the sellers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: CARs and CAFRs of the sellers partitioned by the sign of their z-score estimated from the latest published accounts the year before the sell-off.

Financial condition of the seller	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Healthy	0.0057*** (4.84)	54.2** (2.74)	0.0013*** (4.09)	55.3*** (3.47)	1063
Distressed	-0.0026 (-0.72)	53.2 (0.91)	0.0017 (1.48)	55.7 (1.61)	203
t-stat.	2.66***	0.61	0.32	0.24	

Panel B: CARs and CAFRs of the sellers partitioned by the sign of their z-score estimated from the latest published accounts the year before the sell-off, during boom economic periods.

Financial condition of the seller	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Healthy	0.0032** (2.15)	51.7 (0.82)	0.0007* (1.81)	52.0 (0.98)	598
Distressed	-0.0046 (-1.10)	51.6 (0.31)	0.0012 (0.81)	53.8 (0.73)	91
t-stat.	1.89**	0.04	0.33	0.78	

Panel C: CARs and CAFRs of the sellers partitioned by the sign of their z-score estimated from the latest published accounts the year before the sell-off, during recession.

Financial condition of the seller	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Healthy	0.0090*** (4.71)	57.4*** (3.24)	0.0021*** (3.97)	59.6*** (4.13)	465
Distressed	-0.0009 (-0.17)	54.5 (0.95)	0.0020 (1.25)	57.1 (1.51)	112
t-stat.	1.69**	0.61	0.01	1.00	

As we report in Panel A, Table 5.11, the financially healthy sellers experience positive and significant CAR of 0.57% (t=4.84), in contrast to the negative and small CAR of the financially distressed sellers (-0.26%, t=-0.72). The difference in CAR between the two groups is statistically significant at the 1% level (t=2.66). Similarly, the percentage of healthy sellers with positive CAR is significantly higher than 50% (54.2%, t=2.74) in contrast to that of distressed sellers (53.2%, t=0.91). The former group of sellers experiences positive and significant CAFR (0.13%, t=4.09), whereas the CAFR for the sellers in the latter group is not significantly different from zero (0.17%, t=1.48). The percentages of sellers with positive CAFR have the same pattern as the mean CAFR. These findings support our expectations that the wealth benefits of a seller, following a sell-off announcement, are positively related to its bargaining power, as proxied by the seller's z-score.

Panels B and C, Table 5.11, show that the same relationship, reported in Panel A, applies largely to both the CAR and CAFR between the groups of financially healthy and financially distressed sellers, for both boom and recession. The more positive value impact of the sell-off announcements on the financially healthy sellers compared with the distressed ones is confirmed in both boom and recession periods. The same applies to the effect of the sell-off announcements on expectations concerning the future profitability of sellers.

Our findings suggest that sell-offs are better news for the financially healthy sellers than for the financially distressed. This is analogous to the early US evidence concerning the relationship between sellers' wealth gains and the financial status of the seller (Hearth and Zaima, 1984; Sicherman and Pettway, 1992). In these studies, financial status has been used as proxy for the relative bargaining power of the sellers.

The Standard and Poor's common stock rankings has been used as proxy for the financial status of the seller (Hearth and Zaima, 1984). Sicherman and Pettway (1992) use a credit downgrade of the seller as direct evidence of weak bargaining power. Both studies report that buyers with higher bargaining power, i.e. with better financial status, earn significantly higher CARs following the sell-off announcements.

More recent UK evidence, however, suggests that, due to bankruptcy avoidance, there are more benefits from the sell-offs to the financially distressed group of sellers than for the healthy firms. Lasfer *et al* (1996) use the value of the z-score as proxy of the financial health of a seller and find that financially distressed sellers earn significantly higher CARs than financially healthy sellers. Huge differences in samples and event periods between our study and Lasfer *et al* (1996) may account for the disparity in the findings.

5.10.2 THE IMPACT OF THE RELATIVE SIZE OF SELLER AND BUYER

As we discuss in section 2.6.2, when the seller is a larger company than the buyer, it is likely to have a stronger bargaining position and be able to achieve a higher price for the sold division, which results in larger wealth gains for its shareholders. To test this hypothesis, we divide our sample of sellers into five quintiles based on the relative size of the seller and buyer (RELVSB). The size of seller and buyer is measured by their respective market capitalisation of equity one calendar month prior to the sell-off announcement. Table 5.12 presents the

Table 5.12 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by the relative size of seller and buyer.

RELVSB is the relative size of the seller and buyer as measured by the ratio of their respective market capitalisation of equities one calendar month prior to the sell-off announcement. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns of the sellers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

RELVSB quintile	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Quintile 1	0.0054 (0.94)	51.2 (0.26)	0.0001 (0.11)	53.0 (0.70)	132
Quintile 2	0.0006 (0.17)	52.3 (0.53)	0.0006 (0.56)	48.5 (-0.35)	132
Quintile 3	-0.0047 (-1.46)	46.9 (-0.71)	-0.0003 (-0.44)	51.5 (0.35)	132
Quintile 4	0.0040 (1.41)	49.6 (-0.09)	0.0013 (1.20)	50.8 (0.17)	132
Quintile 5	0.0023 (0.89)	52.0 (0.44)	0.0006 (1.11)	55.3 (1.22)	132
Total	0.0015 (0.93)	50.5 (0.24)	0.0005 (1.04)	51.8 (0.93)	660
F-stat	1.11	1.47	0.37	1.03	

relationship between the relative size of a seller and buyer (RELVSB) and the changes to the seller's wealth and profitability, following the sell-off announcement.

Our sample is restricted to 660 sell-off announcements due to lack of market capitalisation data for a substantial number of our sample buyers. In all the relative size quintiles, the mean CARs are small and insignificantly different from zero (0.54%, t=0.94 in the 1st quintile; 0.06%, *t*=0.17 in the 2nd; -0.47%, *t*=-1.46 in the 3rd

; 0.40%, t=1.41 in the 4th and 0.23%, t=0.89 in the 5th). The difference between the average CARs in the five relative size quintiles is insignificant (F=1.11). The same applies to the percentages of sellers with positive CAR. These results provide no evidence of any systematic impact of the relative size of seller and buyer on the wealth changes of sellers. We believe that the significant reduction of our total sample to less than a third, may be driving the reported results. The overall CAR of this subsample is insignificantly different from zero (0.15%, t=0.93), in contrast to the positive and statistically significant CAR of our overall sample of 1,941 sellers (0.37%, t=3.74). This suggests that the reduced sample in Table 5.12 may differ substantially from the full sample.

5.11 THE RELATIVE LOCATION OF BUYER AND PURCHASED DIVISION

When the buyer and the purchased division are not in the same country, the information asymmetry problem for the buyer is higher and hence the seller may benefit more from the sale. UK buyers of UK located divisions and foreign buyers of divisions located in their own country have an information advantage compared to buyers of divisions in a different country from their own. Buyers operating in the same market as the purchased division are more familiar with the potential and problems of the whole market or a particular local industry. They are also better informed in relation to the particular division through news in the business press, their business contacts or their bankers. Finally, they face fewer costs of formal evaluation of the purchased division compared to the non-local buyers. Therefore, the non-local buyer

in a sell-off transaction may be at a disadvantage in relation to the seller, compared to a local buyer, allowing the seller higher profits from the sale.

To investigate the relationship between the relative locations of the buyer and the purchased division and the wealth changes of the seller, we divided our sample into four subgroups. If a UK buyer purchases a UK division, the sale is classified as belonging to the UK-UK group. This is by far the largest of the four subgroups with 986 cases. UK-F is the group of 101 sell-offs where UK buyers purchase foreign divisions divested by UK parents. F-UK is the group of foreign buyers who purchase UK divisions and F-F is the group of foreign buyers who purchased foreign divisions. Of course, in each case, the seller is a UK company.

In Table 5.13, Panel A, we see that the sellers in the UK-UK group do not gain any wealth benefits (CAR of 0.04%, t=0.28) but that they do experience positive and significant CAFR (0.08%, t=2.06). The percentage of sellers with positive CAR are insignificantly different from 50% (48.9%, t=-0.68) and the percentage of positive CAFR is significantly higher than 50% (52.9%, t=1.85). The other group of sellers that experiences positive CAFR, is the F-UK group (0.13%, t=1.82). Therefore, the sellers, which are all UK companies, increase their expected profitability only when they divest UK divisions to either UK or foreign buyers. A possible explanation for this is that the UK sellers divest UK divisions only when the profitability of these divisions is lower than the average profitability of the portfolio of the seller's business. This results in an increase in the profitability of the remaining business. When we compare the effect of divesting UK against non-UK divisions, we find that the sellers earn, in both cases, significant positive value gains (0.30%, t=2.49 and 0.56%, t=3.30 respectively) but the mean CAR are not significantly different. The

Table 5.13 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by the relative location of the buyer and the disposed division.

First reported the location of the buyer and then the country of the operations of the disposed division. The seller is always UK company. UK-UK = UK buyer and UK purchased division, UK-F = UK buyer and non-UK division, F-F = both buyer and division are non-UK companies. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns of the sellers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: CAR and CAFR of sellers partitioned by the location of buyer and division

Relative location Buyer – Division	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
UK – UK	0.0004 (0.32)	48.7 (-0.83)	0.0008** (2.06)	52.9* (1.85)	986
UK - F	0.0079** (2.01)	57.4 (1.51)	0.0011 (1.35)	56.4 (1.29)	101
F – UK	0.0105*** (4.14)	59.1*** (3.56)	0.0013* (1.82)	57.5*** (2.87)	367
F – F	0.0053*** (2.92)	54.8** (2.03)	0.0007 (1.17)	50.6 (0.24)	451
F-stat.	5.79***	13.06***	0.16	4.43***	

Note: The difference of seller's CAR between the groups UK-UK and F-UK is statistically significant (3.61, p=0.00), whereas the difference of the CAFR is insignificant (0.57, p=0.15).

Panel B: CARs and CAFRs of the sellers partitioned by the relative location of buyer and division, i.e. whether the buyer and the sold division are located in the same country.

Relative location Buyer – Division	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Same Location	0.0018 (1.59)	50.1 (0.06)	0.0008** (2.24)	52.5* (1.77)	1304
Different Location	0.0085*** (4.73)	58.1*** (4.01)	0.0012** (2.20)	55.6*** (2.73)	601
t-stat.	3.15***	3.94***	0.60	2.18**	

Panel C: CARs and CAFRs of the sellers partitioned by the location of the buyer, i.e. whether the buyer is a UK company or a foreign company.

Location Buyer	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
UK Buyers	0.0011 (0.89)	49.5 (-0.33)	0.0009** (2.28)	53.3** (2.15)	1087
Non-UK Buyers	0.0076*** (5.03)	56.7*** (3.88)	0.0010** (2.10)	53.7** (2.10)	818
t-stat.	3.33***	4.33***	0.19	0.26	

CAFR of the sellers divesting UK divisions are positive and significant (0.10%, t=2.72) but not significant different from the 0.08% (t=1.50) of the sellers who divests non-UK divisions. These results are not reported here but are the aggregate of groups UK-UK and F-UK (divestment of UK divisions) and F-F and UK-F (divestment of non-UK divisions)

On the other hand, the sellers in the UK-F group achieve positive and significant CAR, which highlights the information asymmetry problem a UK buyer faces when it purchases an overseas business rather than a UK division. In the former case the seller benefits more (CAR=0.79%, t=1.94) than in the latter case (CAR=0.04%, t=0.28). A buyer who purchases a non-local division confronts the same problem. This is supported by the positive and significant CAR of sellers of UK divisions to foreign buyers (1.03%, t=3.93). To accurately evaluate a company in another country is difficult and costly and this creates a competitive disadvantage for the UK buyer of foreign divisions, which enables the sellers to earn significant CAR.[61]

In the results presented in Table 5.13, Panel A, there is an indication that the relative location of the buyer and purchased division determines the value gains to the seller. We investigate this possibility and report the results in Panel B, Table 5.13. We partition the sellers into two groups. *Same location* (SL) is the group of sellers who sell divisions based in the same country as the buyers. *Different location* (DL) includes all other sellers. Both groups of sellers have positive and significant CAFR of comparable magnitude (0.08%, t=2.24 the sellers in the SL group and 0.12%, t=2.20

[61] In Panel A we have combined sell-offs to foreign buyers, based in the same country with the divested divisions (F-FL, 318 cases) with the sell-offs to foreign buyers in a country different from that of the divested division (F-FF, 134 cases). In the F-FF group of sellers, both CAR20 and CAFR03 are very close to zero and those of the F-FL group very similar to the F-F group in Panel A.

in the DL group). However, sellers in SL group do not earn abnormal value gains (0.18%, t=1.50) in contrast with the sellers in the DL group (0.82%, t=4.43). This confirms that sellers experience smaller wealth gains when the buyer is located in the same country as the divested division.

We also investigate whether the seller's gains are related to the location of the buyer. Sellers are partitioned into two groups: those selling to UK buyers and those selling to non-UK buyers. In Panel C, Table 5.13, we see that the sellers of both groups experience positive significant but similar CAFR (0.09%, t=2.28 and 0.10%, t=2.10 respectively). However, only the sellers to non-UK buyers realise positive and significant CAR (0.76%, t=5.03) compared to the insignificant CAR of 0.11% (t=0.89) to sellers to UK buyers. This suggest that a UK buyer has stronger bargaining position with the seller (which, in our sample, is always a UK company), compared to a non-UK buyer. Therefore, sellers to non-UK buyers benefit from either the expected increase in their profitability, or the wealth transferred from the buyer, or both. On the other hand, sellers to UK buyers seem unable to capitalise the increase in their expected profitability into wealth gains.

5.12 CHARACTERISTICS OF THE TRANSACTION

We investigate and report the impact of the disclosure of transaction price and the size of the transaction on the wealth changes of the seller's shareholders, following the sell-off announcement. The importance of the first variable has been theoretically justified and empirically documented in the previous research (details are

discussed in Chapter 2, section 2.3). We are interested in the second variable, i.e. the size of the divested division, because we want to investigate its impact both as determinant of the value changes of the sellers and as a source of bias in the sell-off studies.

5.12.1 DISCLOSURE OF TRANSACTION PRICE

As we discuss in chapter 2, section 2.3, the disclosure of the transaction price is expected to have a positive impact on the seller's wealth gains from the sell-off transaction. The price disclosure resolves the uncertainty related to the successful completion of the deal. It also reveals the true market value of the divested assets, which helps to reduce the information asymmetry regarding the true value of the remaining assets of the seller. Non-disclosure of the transaction price may be interpreted as an attempt by the seller to conceal unfavourable information. A positive relationship between price disclosure and the seller's abnormal returns around the sell-off announcement, has been documented in the previous literature (Klein, 1986; Sicherman and Pettway, 1992; Afshar *et al*, 1992). In Table 5.14 we present CAR for the sellers divided into two groups. The *price* group comprises all the sellers in transactions where the sale price is announced and the *no price* group where the sale price is not announced.

In the majority of transactions, the transaction price is disclosed (1,537 vs. 404). The price group of sellers earns positive and significant CAR of 0.39% (t=3.48),

Table 5.14 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by the disclosure of the transaction price (PRICE).

The price group comprises the sellers when the transaction is disclosed. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns of the sellers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Disclosure of Transaction Price	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Price	0.0039*** (3.48)	52.6** (2.03)	0.0006* (1.77)	51.6 (1.25)	1537
No Price	0.0030 (1.40)	52.2 (0.87)	0.0022*** (3.74)	60.1*** (4.08)	404
t-stat.	0.36	0.30	2.22**	6.37***	

whereas the no price group experiences insignificant CAR of 0.30% (t=1.40) but their difference is not significant (t=0.36). The same applies to the percentage of sellers with positive CAR, i.e. 52.6% (t=2.03) for the price group and 52.2% (t=0.87) for the no price group and an insignificant difference (t=0.30). The CAFR is positive and significant for the sellers in both groups (0.06%, t=1.77 and 0.22%, t=3.74). These findings suggest that disclosure of the transaction price is related to significant wealth gains to the seller, which are, at least partly, a result of the expected increase of its future profitability. On the other hand, when the transaction price is not disclosed, the seller does not realise positive abnormal returns, despite its expected increase in future earnings. Theoretical justification of a positive relationship between seller's gains and sale price disclosure have been attempted in the literature, indicating a causality with

direction from the price disclosure to positive seller's gains. The proposed explanations suggest that the reduction of the uncertainty about the successful conclusion of the deal, following the disclosure of the transaction price, or the information conveyed to the market about the real value of the seller's remaining assets, may be a source of the seller's value increase (Sicherman and Pettway, 1992, Lasfer *et al*, 1995).[62] However, we suggest that the correct interpretation of the empirical evidence (in the light of the above proposed suggestions), should not ignore that the disclosure of the transaction price may just be a by-product of the seller's benefits, i.e. the seller may disclose the transaction price whenever it is favourable. The positive and significant CAFR to the sellers in the no price group matched with their insignificant CAR supports this suggestion. It may be the case that a seller does not announce the transaction price because it would reveal that the positive wealth effects of the transaction (i.e. increase of seller's expected profitability) are transferred to the buyer and the seller does not increase its shareholders' wealth.

5.12.2 IMPACT OF THE SIZE OF THE TRANSACTION

In this section, we investigate the impact of the size of the divested division on the wealth gains of sellers. This provides evidence of potential sample selection bias in studies which exclude small deals. Our sample is reduced to 1,537 cases for which we have transaction price data. We divide this sample into five quintiles based on the value of the transaction price and present the CAR, together with the percentage of

[62] For more details see section 2.3.

sellers with positive CAR, in Table 5.15. We also report the average CAFR and the percentage of sellers with positive CAFR for the sellers in each quintile.

Table 5.15 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by quintiles of the transaction price.

PRICE is the transaction price paid by the buyer for the acquired assets. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns of the sellers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

PRICE quintile	PRICE mean (median) £m	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
quintile 1	1.05 (1.03)	0.0001 (0.04)	50.0 (0.00)	0.0014 (1.41)	48.5 (-0.51)	307
quintile 2	3.69 (3.60)	-0.0020 (-0.90)	46.6 (-1.17)	0.0013 (1.54)	55.4* (1.88)	307
quintile 3	9.00 (8.90)	0.0060*** (2.34)	53.0 (1.05)	0.0008 (1.11)	48.1 (-0.68)	308
quintile 4	24.13 (22.9)	0.0069** (2.57)	54.4 (1.52)	-0.0000 (-0.01)	50.2 (0.06)	307
quintile 5	141.50 (82.95)	0.0083*** (3.08)	58.8*** (3.09)	0.0005 (0.62)	47.7 (-0.80)	308
Total	35.93 (8.90)	0.0039*** (3.48)	52.6** (2.03)	0.0006* (1.77)	51.6 (1.25)	1537
F-stat		3.25***	7.89***	0.49	5.01***	

The sellers in the first and second quintile experience small or insignificant value changes, i.e. CAR of 0.01% (t=0.04) and -0.20 (t=-0.90) respectively. The percentages of sellers with positive CAR, in these quintiles, are also not significantly different from 50%. In quintiles 3, 4 and 5, however, CARs are all positive and

significant and increase in both magnitude and significance from quintile 3 to quintile 5 (0.60%, t=2.34 in quintile 3; 0.69%, t=2.57 in quintile 4 and 0.83%, t=3.08 in quintile 5). This suggests that the wealth gains of the sellers are positively related to the size of the divestment. In particular, sellers do not benefit from any value gains from sales of divisions smaller than £5.6m, which is the highest size value in the second size quintile. Therefore, studies which exclude small divestments from their sample, induce sample selection bias in their results. The CAFR are insignificantly different from zero in all size quintiles, which indicates that the observed wealth gains of sellers in the top three size quintiles are wealth transfers from the buyer.

5.13 IMPACT OF THE LENDERS' MONITORING

The monitoring effect of the lenders and in particular the banks may be an important factor which determines the extent of the value benefits of the sellers following the sell-off. In section 2.8 we present the theoretical arguments which justify a positive relationship between the lenders monitoring of managerial behaviour and value of the levered company. We show that corporate lenders monitor the actions of the managers, so as the latter avoid value destroying decisions. We also suggested that the approval of managerial decisions from 'quasi' insiders, like banks, with knowledge and motivation to protect the value of the corporate assets, sends a positive message to the market. In this section we investigate the impact of the level of debt in the capital structure of the sellers on their value changes following the sell-off announcements. Lasfer *et al* (1996) find that the wealth benefits of sellers from the

sell-offs are positively related to the level of debt. However, they do not investigate directly the impact of the level of debt on the value changes of the seller but they classify their sample into financially health and financially distressed firms and observe that the means of the debt level of the two subsamples are significantly different. In line with the theoretical arguments presented in section 2.8, we expect a positive relationship between level of debt and value gains for the sellers. We use two measures of the seller's level of debt, as they defined in section 4.6.6. The ratio of total loans to equity and reserves (TL_ER) and the borrowing ratio (BR), as they both measured from the most recent financial statements of the seller prior to the sell-off announcement. We investigate the relationship between the CAR and CAFR for the sellers and their TL_ER and BR and report the result of the analysis in Table 5.16.

In Table 5.16, Panel A we present the average CAR and CAFR for the sellers divided into five quintiles by the value of their TL_ER. The average CAR are positive and significant only in quintiles 2 and 3 (0.66%, t=3.12 and 0.48%, t=2.51). The percentage of sellers with positive CAR is also significantly higher than 50% only in these two quintiles. For sellers with low or high level of total debt, i.e. those in quintiles 1, 4 and 5 the CAR are insignificant and their percentage with positive CAR insignificantly different from 50%. This increase in value of sellers in quintiles 2 and 3 is a result, at least partly, of the increase in their expected profitability, as reflected in their positive and significant CAFRs (0.18%, t=3.05 and 0.13%, t=2.00). On the other hand, sellers with extreme low or high debt level do not benefit from the sale. This is not in line with our expectations of positive relationship between debt level and gains from the sell-off for the sellers. The CAFR of sellers in the 5th quintile are positive and significant but their CAR insignificantly different from zero.

Table 5.16 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by the ratio of total loans to equity and reserves (TL_ER) and the borrowing ratio of the seller (BR), for the year immediately prior to the sell-off (FY_1).

TL_ER is the ratio of total loans of the seller to its total equity and reserves, as defined in section 4.6.6. The borrowing ratio (BR) is the ratio of the seller's total debt to its equity capital and reserves minus its intangibles. Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the seller's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the sellers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: Total loans to equity and reserves of seller.

TL_ER quintile	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
quintile 1	0.0037	50.4	0.0001	52.3	354
	(1.39)	(0.16)	(0.15)	(0.85)	
quintile 2	0.0066***	54.6*	0.0018***	54.5*	354
	(3.12)	(1.73)	(3.05)	(1.71)	
quintile 3	0.0048**	54.9*	0.0013**	54.8*	354
	(2.51)	(1.81)	(2.00)	(1.82)	
quintile 4	0.0028	51.3	0.0002	52.5	354
	(1.34)	(0.49)	(0.45)	(0.96)	
quintile 5	0.0018	53.4	0.0016**	54.9*	355
	(0.85)	(1.24)	(2.29)	(1.87)	
F-stat	0.71	2.21**	1.52	0.93	

Panel B: Borrowing ratio of seller.

BR quintile	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
quintile 1	0.0021	47.0	0.0004	48.3	360
	(0.82)	(1.13)	(0.56)	(-0.63)	
quintile 2	0.0055***	53.6	0.0008	55.6	360
	(3.17)	(1.34)	(1.30)	(2.12)	
quintile 3	0.0029	53.6	0.0011*	57.9***	361
	(1.38)	(1.35)	(1.81)	(3.04)	
quintile 4	0.0076***	55.1*	0.0006	53.6	360
	(3.67)	(1.90)	(1.12)	(1.37)	
quintile 5	0.0038	57.0**	0.0022***	52.6	361
	(1.54)	(2.64)	(2.87)	(1.00)	
F-stat	0.94	8.50***	1.18	7.26***	

This suggests that the lender of the highly geared sellers may favour the divestment of the less profitable parts of the business, which increases the expected profitability of the remaining assets. However, the seller does not enjoy the benefits of this increase in profitability. Apparently, the sale is decided on terms which transfer to the buyer the possible gains of the increased seller's profitability.

Panel B, presents the same analysis for the other measure of the seller's gearing, i.e. the borrowing ratio. The results are similar to those presented in Panel A. In particular, the sellers in quintiles 1, 3 and 5 do not benefit from the divestment, in contrast to the sellers in quintiles 2 and 4 and again the insignificant CAR of quintile 5 are related to positive and significant CAFR. Therefore, our findings do not provide support to the hypothesis that sellers with higher level of debt experience higher wealth gains following the sell-off decisions. It is possible that the level of seller's debt, as expressed by the used measures, i.e. the ratio of the total loans of the seller to its total equity and reserves or the borrowing ratio, is not good proxy for lender monitoring.

5.14 IMPACT OF THE LEVEL OF THE INFORMATION UNCERTAINTY

As we have discussed in section 4.6.10, in an environment of high uncertainty about the future earning of the seller, the forecasting analysts may revise their earnings forecasts more positively, following the sell-off announcement. In this section we investigate the relationship between information uncertainty and analysts' forecasts revisions of earnings. We proxy the information uncertainty about the seller with the

standard deviation of the consensus analysts' forecasts revisions of earnings prior to the sell-off announcement (STDEARN). As an alternative measure we use the standard deviation of the abnormal returns over the period from say -250 to day -10 (STDAR).

Table 5.17, Panel A, shows the CAFR of the sellers divided in quintiles by the value of the STDEARN. The average CAFR increases from a significantly negative (-0.09%, t=-2.31) in quintile 1 to a positive and significant of 0.25% (t=4.12) in quintile 4. The percentage of sellers with positive CAFR is insignificantly lower than 50% in quintiles 1 and 2 but increases to significantly higher than 50% in quintiles 3, 4 and 5. This positive relationship between CAFR and information uncertainty is much stronger in the Panel B. There, the increase in CAFR from significantly negative to significantly positive and the percentage of sellers with positive CAFR from lower than 50% to higher than 50% is almost monotonic with the level of STDAR.

The above results provide support to the hypothesised positive relationship between the information uncertainty, as measured by either the STDEARN or by STDAR, and the abnormal forecast revisions of earnings by the financial analysts forecasting for the sellers. In results (non reported here) there was no relationship between the seller's CAR and the above measures of information uncertainty.

Table 5.17 Cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by quintiles of the standard deviation of the abnormal returns of sellers (STDARs) over the period from day -250 to day -10 prior to the sell-off announcement and by quintiles of the standard deviation of the consensus analysts' forecast revisions of earnings (STDEARN) for the sellers over the period from month -18 to month -4 prior to the sell-off announcement.

STDAR is the average standard deviation of the abnormal returns to sellers over the period from day -250 to day -10 relative to sell-off announcement day 0. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. STDEARN is the average standard deviation of the consensus analysts' forecasts of earnings for the sellers over the period from month -18 to month -4 relative to sell-off announcement month 0. Cumulative abnormal returns (CAR) are the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns of the sellers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: STDEARN (%)					**Panel B:** STDAR (%)				
STDEARN quintile	STDEARN	CAFR (mean)	CAFR (% positive)	No of obs	STDAR quintile	STDAR	CAFR (mean)	CAFR (% positive)	No of obs
Quintile 1	0.85	-0.0009**	48.2	359	quintile 1	0.0104	-0.0005***	45.6*	388
	(0.90)	(-2.31)	(-0.69)			(0.0108)	(-1.90)	(-1.73)	
Quintile 2	1.53	0.0001	46.4	360	quintile 2	0.0131	-0.0012***	47.2	388
	(1.51)	(0.23)	(-1.37)			(0.0137)	(-2.40)	(-1.12)	
Quintile 3	2.28	0.0015**	56.8***	359	quintile 3	0.0155	0.0011*	54.4*	388
	(2.26)	(2.29)	(2.61)			(0.0154)	(1.94)	(1.73)	
Quintile 4	3.50	0.0025***	61.4***	360	quintile 4	0.0194	0.0012**	56.7***	388
	(3.47)	(4.12)	(4.44)			(0.0193)	(2.01)	(2.66)	
Quintile 5	9.42	0.0015	55.3**	360	quintile 5	0.0325	0.0040***	62.9***	388
	(6.87)	(1.54)	(2.01)			(0.0283)	(3.82)	(5.25)	
F-stat		4.17***	22.36***				9.76***	31.38***	

5.15 CUMULATIVE ABNORMAL RETURNS TO SELLERS (CAR): IMPACT OF ANALYSTS' EARNINGS FORECAST REVISIONS (CAFR) AND OTHER VARIABLES ON ABNORMAL RETURNS.

Sell-offs are corporate decisions taken in a complex business environment and therefore their impact on the sellers' value may be determined by a number of different factors. In Chapter 2 we review the literature; we discuss the evidence of a number of factors found to be significant in determining the changes on the wealth of the seller's shareholders following the sell-off announcements and we present a summary of those factors in Table 2.3. In Chapter 2 we also discuss the theoretical justification of the observed relationship between the sellers' wealth changes and various explanatory variables which have been proposed in the previous literature or investigated in this study for the first time. In the previous sections of this chapter we present the analysis and provide evidence on the relation between the wealth changes of the sellers (measured by their CAR) and the revisions of analysts' forecasts of earnings (measured by their CAFR) and various factors for a large sample of 1,941 sell-offs by UK sellers, over the period 1987-93.

In Table 5.18 we report descriptive statistics of the various variables which we have investigated in this chapter in respect to their impact on the changes of sellers' wealth and analysts' forecast of earnings following the sell-off announcement. Before we use theses explanatory variables in a multiple regression analysis, we examine their distribution, based on the descriptive statistics reported in Table 5.18 and the visual inspection of the shape of their distribution. When the distribution of a variable is heavily skewed we take its logarithm, which is more normally distributed. The

market value of seller and buyer (MVSEL and MVBUY respectively), measured by their market capitalisation of equity one calendar month prior to the sell-off announcement and the transaction price are reported in £m. Before we proceed with the multiple regression analysis we give a brief definition of the variables presented in Table 5.18.

CAR is the cumulative abnormal return on seller, using the size and market-to-book model, over the three-day observation window from day -2 to the sell-off announcement day 0. The abnormal forecast revisions AFR0, AFR1, AFR2 and AFR3 are the differences between of the actual consensus analysts' forecast revisions (FRs) and the expected FRs in months 0, +1, +2 and +3 respectively relative to the sell-off announcement month, estimated by a third-order moving average model, as described in section 5.3. The CAFR is the sum of the seller's AFRs over the period from the sell-off announcement month 0, to month +3 thereafter. RELVDS is the relative sale size, as it is defined by the ratio of the sale price and the market capitalisation of seller's equity one calendar month before the sell-off announcement, and lnRELVDS is its logarithm. RELVDB is the relative purchase size, as it is defined by the ratio of the sale price and the market capitalisation of buyer's equity one calendar month before the sell-off announcement, and lnRELVDB is its logarithm. RELVSB is the relative size of seller and buyer, as it is defined by the ratio of the market capitalisation of seller's and buyer's equity one calendar month before the sell-off announcement, and lnRELVSB is its logarithm. SPRICE is the transaction price in £m, when announced, and lnSPRICE is its logarithm. ZSIGNS is the z-score of the sellers as calculated by equation (4.28) and described in section 4.6.5. STDAR is the standard deviation of the seller's abnormal returns over the period from day -250 to

day -10 relative to sell-off announcement day 0 and lnSTDAR its logarithm. STDEARN is the standard deviation of the analysts' forecasts of earnings from month -18 to month -4 relative to sell-off announcement month 0 and lnSTDEARN its logarithm. PRICE is a dummy variable which takes value one if the transaction price is disclosed on the sell-off announcement day and value zero if it is not disclosed. BOOM is a dummy variable which assumes value one when the sell-off announcement is made during boom economic periods, as defined in section 4.6.9 and value zero when the announcement is made during recession. QSEL (QBUY) is a dummy variable used as a measure of the q ratio of the seller (buyer), as it is proxied by the market-to-book value of the seller (buyer). This variable takes the value one if the market-to-book value is greater than one and zero otherwise. MS6 is a dummy variable which assumes value one if there are more than one sell-offs from the same seller within a period of six calendar months and zero otherwise. MS6 (MS1) is a zero-one dummy variable which takes value one if there are more than one sell-offs from the same seller within a period of six (one) calendar months. BSLOCAL3 is a dummy variable which takes value one if the buyer and the purchased division are located in the same country and value zero if buyer and purchased division are based in different countries. BSLOCAL4 is a dummy variable which takes value one if he buyer is a UK company, i.e. in the same country with the seller, and zero if the buyer is a non-UK company. BSLOCAL5 is a dummy variable which takes value one if the divested division is a UK company and zero if it is a non-UK company. TL_ER is the ratio of total loan to equity and reserves of the seller, as defined in section 4.6.6.

The values of the relevant descriptive statistics (mean, median, standard deviation) of the variables: SPRICE, MVSEL and MVBUY and the visual inspection

Table 5.18 Descriptive statistics for the variables

A brief definition of the variables is provided in the text above and detailed in Chapter 4, section 4.7. The number of observations is different for each variable because complete data was not available for all variables.

Panel A: Continuous variables and log transformations when used in the analysis.

VARIABLE	MEAN	MEDIAN	STD DEV	No OF OBS.
CAR	0.0039	0.0011	0.0425	1941
CAFR	0.0010	0.0003	0.0138	1941
AFR0	0.0001	0.0001	0.0079	1941
AFR1	0.0002	0.0002	0.0070	1925
AFR2	0.0002	0.0002	0.0071	1885
AFR3	0.0005	0.0002	0.0076	1852
RELVDS	0.09	0.02	0.28	1537
lnRELVDS	-3.92	-3.93	1.82	1537
RELVDB	0.16	0.04	0.43	590
lnRELVDB	-2.61	-2.58	1.67	590
RELVSB	46.15	2.92	335.40	660
lnRELVSB	0.98	1.07	2.46	660
SPRICE (£m)	35.93	8.90	91.20	1537
lnSPRICE	2.19	2.19	1.76	1537
MVSEL (£m)	2055.04	701.71	3438.95	1941
lnMVSEL	6.31	6.55	1.89	1941
MVBUY (£m)	885.18	196.97	1860.41	661
lnMVBUY	5.25	5.28	1.96	661
STDAR	0.0182	0.0154	0.0095	1940
STDEARN	3.5191	2.2600	5.1740	1799
ZSEL	3.54	3.24	4.07	1267
TL ER	0.3023	0.6133	1.7137	1818

Panel B: Dummy variables

	ONE	ZERO	PROPORTION	TOTAL
PRICE	1537	404	79% - 21%	1941
BOOM	1086	865	56% - 44%	1941
QSEL	1606	233	87% -13%	1839
QBUY	534	86	86% - 14%	620
FOCUS	816	1057	44% - 56%	1873
MS6	1266	675	65% - 35%	1941
MS1	649	1292	33% - 67%	1941
BSLOCAL3	1304	601	68% - 32%	1905
BSLOCAL4	1087	818	57% - 43%	1905
BSLOCAL5	1353	552	71% - 29%	1905
Z-SCORE	1064	203	84% - 16%	1267

of their scatter plots suggest that these variables are not normally distributed.[63] The same applies for the variables RELVDS, RELVSB, STDAR and STDEARN. Therefore, we use the logarithms of these variables, which are more normally distributed, as evident from their descriptive statistics and their graphs. This is the common practice in studies using these variables in multiple regressions (John and Ofek, 1995, Brous and Kini, 1994).

In this section we adopt the multiple regression technique to find the joint impact of the various explanatory variables on the CARs of sellers. The independent the CAR and the explanatory variables are the CAFR and other significant variables from those investigated in the previous sections of this chapter. Details on the theoretical basis of the relationship of each individual variable to the CAR are discussed in the relevant sections of Chapter 2 and evidence of that relationship in our sample are presented in the previous sections of this chapter.

Table 5.19 presents the results of our regression analysis. In the first model (Model 1) we investigate the relationship between the cumulative abnormal returns (CAR) to sellers and the abnormal revisions of their earnings forecasts (CAFR) following the sell-off announcement. Consistent with theoretical predictions and our expectations both slope and regression coefficient are positive and significant. In the multiple regressions we exclude the CAFR from the set of possible explanatory variables. Our focus is to explain the wealth gains or loses of the sellers following the sell-off announcements as a result of the joint impact of a number of relevant factors.

In the univariate analysis reported in the previous sections of this chapter we find that the explanatory variables: RELVDS, QSEL, ZSIGNS and SPRICE found to

[63] Visual inspection of the graphs of these variables confirms the non-normality suggestion.

be significantly positively related to the seller's CAR. In contrast, the variables BOOM, FOCUS, BSLOCAL3 and BSLOCAL4 found to be negatively related to CAR. Finally, the variables MS6, MS1 and RELVSB found to have insignificant impact on the changes of the seller's wealth (CAR) following the sell-off announcement.

In the second model (Model 2) we use CAR as the dependent variable and as explanatory variables the lnRELVDS, lnRELVSB, QSEL, MS6, lnPRICE, BSLOCAL3, FOCUS, BOOM, ZSIGNS and TL_ER. In selecting the explanatory variables for the Model 2 we excluded the variable MS1, since it is highly correlated to variable MS6 and contributes less to the explanatory power of our model. Table A5.5 in the Appendix of this chapter provides the pairwise Pearson correlation coefficients for the explanatory variables. The table reports the correlation coefficients and underneath their significance level. The correlation coefficient of variables MS6 and MS1 is 0.5575, significant at the 1% level. We also exclude the variable BSLOCAL4, since it is highly correlated with the variable BSLOCAL3 (coefficient 0.5521, significant at the 1% level)

The Ordinary least squares (OLS) coefficients of the multiple regression model determine the exact relationship between the dependent and the explanatory variables. To correct for heteroscedasticity we use the robust estimators of the standard error. This has no impact on the point estimates of coefficients but reduces the standard errors and the confidence intervals.

In Model 2 only two of the nine possible explanatory variables included have significant regression coefficients. In particular, lnRELVDS (0.0037, t=2.73) and

Table 5.19 Regression of the cumulative abnormal returns to sellers (CAR) on the cumulative abnormal earnings forecast revisions (CAFR) and other explanatory variables.

The explanatory variables defined in Chapter 4, section 4.7 and a summary of their descriptive statistics are given in Table 5.19.

	MODEL 1	MODEL 2	MODEL 3
Intercept	0.0034***	0.1044	0.0080
	(3.44)	(1.61)	(0.92)
CAFR	0.3417***		
	(4.37)		
LnRELVDS		0.0037***	0.0018
		(2.73)	(1.53)
LnRELVSB		0.0012	
		(1.35)	
QSEL		-0.0018	
		(-0.32)	
MS6		0.0016	-0.0062
		(0.49)	(-1.30)
LnPRICE		0.0002	
		(0.18)	
BSLOCAL3		0.0018	
		(0.38)	
FOCUS		-0.0061**	-0.0077*
		(-2.11)	(-1.78)
BOOM		-0.0018	
		(-0.59)	
ZSIGNS		0.0038	0.0136**
		(0.86)	(2.05)
TL_ER		0.0005	
		(0.17)	
Adj. R^2	0.01		0.03
F-stat.	19.08***	2.30**	4.08***
No of Obs.	1865	365	365

FOCUS (-0.0061, t=-2.11). The significance and direction of impact of these two explanatory variables is in line with our univariate analysis findings, as reported in previous sections 5.6 and 5.9.1.

We also use the stepwise selection process to identify the explanatory variables which have the most significant impact on the dependent variable. Model 3 presents the results of the multiple regression analysis by including only the significant explanatory variables used in Model 2. Additional to the two previously significant explanatory variables in Model 2 (lnRELVDS and FOCUS), the state of financial health of the seller (ZSIGNS) and the multiple sale programme (MS6) within which the sell-off is decided are also significant. The lnRELVDS and the ZSIGNS are positively related to seller's CAR (coefficients: 0.0018, t=1.53 and 0.0136, t=2.05 respectively). In contrast, the increase of seller's focus (measured by the FOCUS dummy) and the multiple sale programme (measured by the dummy MS6) are negatively related to the CAR. The coefficients of all these variables are in line with our univariate analysis findings except the negative impact of the sell of programme. However, the regression coefficient of the MS6 explanatory variable is statistically insignificant.

The above multivariate regression analysis suggests that the wealth of the seller's shareholders is positively related to the relative size of the sale and the financial health of the seller and negatively related to the change in focus of the seller and the existence of a larger divestment programme within which the seller decides the particular sell-off and followed by other divestments.

5.16 CONCLUSIONS

A relatively small number of studies have investigated the effect of corporate divestments upon the wealth of the sellers' shareholders following a sell-off announcement, compared to the voluminous literature in the area of takeovers. However, as we discuss in this chapter, sell-offs are equally important events for the sellers. The consensus of the studies on sell-offs is that they are decisions which have a positive wealth effect on the sellers. A number of determining factors have been investigated in order to establish their importance and impact on the wealth changes of the sellers around the sell-offs. However, the relatively small sample sizes used in past studies raises concerns about the extent of applicability of their conclusions. This study extends this literature and examines several determinants of value gains from divestments hitherto unexplored. These determinants reflect the economic environment at the time of divestments, the seller's business strategy and investment opportunity set, and the bargaining strength of the divestor vis a vis the seller in addition to other characteristics of the transaction.

To estimate the wealth gains or losses of the seller's shareholders, we calculate the abnormal returns of the seller around the sell-off announcement. We investigate the effect of the announcement on a large sample of 1,941 divestments by UK companies between 1987 and 1993. The combined reading of cumulative abnormal returns and cumulative abnormal earnings forecasts revisions of sellers helps to identify the source of value gains of sellers. We find that both CAR and CAFR of the sellers in our sample vary significantly from year to year. There are two years where changes in both abnormal returns and earnings are not significant (1987, 1988) one

year where both are significant (1993) and other years with mixed significance. The relative size of the divestment is found to be positively correlated to the value gains of the sellers but no clear relationship is found between the relative size of the sale and the abnormal forecast revisions of sellers' earnings.

The condition of the economic environment is found to be significantly related to the level of the wealth gains of the sellers. In particular, the sell-offs during times of recession are more beneficial to the sellers, whereas those in boom economic periods make a rather limited contribution to the seller's shareholder wealth. The sellers experience performance improvement only after sell-offs during a recession. This result indicates that the value gains to the sellers' shareholders during a recession are at least partly due to their improved profitability, which does not, however, exclude partial wealth transfer from the buyers. On the other hand, the value gains during a boom, appear to be wealth transfers from the buyers to the sellers.

The impact of the investment opportunities available to sellers and buyers upon the wealth of the sellers' shareholders is significant. We find that the sellers' investment opportunities are more important to the value changes of the sellers following the sell-off announcements than to those of the buyers. The impact of the set of the investment opportunities available to the buyers and their joint effect with the investment opportunities available to the sellers, on the wealth changes of sellers' shareholders is rather limited. Both high and low q sellers improve their performance following the sell-off announcement but only the high q sellers experience value gains. If the q ratio is a proxy for the bargaining power of the sellers, this finding is in line with previous evidence of higher benefits attributed to sellers with higher bargaining power.

The focus increasing sell-offs improve the profitability of the sellers following the sell-off but they do not change their shareholders' wealth. In contrast, sellers who decrease their focus gain significant wealth benefits. This indicates the different motivation of the sellers making focus increasing and focus decreasing sell-offs. In the first case the motivation of the seller to improve its profitability may result in the sale of unprofitable divisions which do not attract a premium price. Alternatively, the desire of sellers to sell a particular division in order to improve their profitability is a bargaining disadvantage which transfers the benefits from the sale to the buyer. However, when sellers can achieve a beneficial deal (resulting in a value increase as reflected in the positive and significant CARs of non focus group sellers), they sell the particular division despite the lack of increased focus and no improvement in their subsequent profitability.

The sell-off has no different wealth implications for the sellers when it is taken as a part of a series of divestments by the same seller or as a one-off decision and the same applies for the future profitability of sellers. The relative size of seller and buyer has been used as a proxy for their relative bargaining power and has been reported as being positively correlated to the wealth gains of the sellers. In our sample there is no evidence of any relationship between the relative size of seller and buyer and the seller's value of expected profitability following the sell-off. We suggest that this no-effect may be partly a by-product of the drastic reduction of our sample to less than a third due to a lack of market capitalisation data for the buyers.

The relative location of the buyers and the divested divisions is an important factor which determines the level of gains to the sellers. We document that the sellers benefit most when selling to no-UK buyers and also when the buyer and the purchased

division are not companies based in the same country. This lends support to the asymmetric information hypothesis.

Other characteristics of the transaction are also found to have significant impact on the sellers' value changes. In particular, the announcement of transaction price is positively related to the sellers' gains. Sellers gain more from large divestments than from small ones. It is also interesting that relatively small sellers (smaller than £1bn) benefit more from divestments in both value gains and profitability improvements, whereas the larger sellers do not.

The sellers with a z-score larger than zero are found to benefit from sell-offs, whereas sellers in financial distress (with a z-score less than zero) experience negative but small and insignificant value changes. This supports the distressed sale paradigm which suggests that sellers in financial distress have a bargaining disadvantage relative to the buyers and therefore they cannot capture any benefits from divestments. Alternatively, a sell-off by a seller in financial distress is seen as bad news and thus destroys value.

In multivariate regressions we investigate the joint impact of various factors on the seller's wealth. The state of the financial health of the seller (ZSIGNS) and the logarithm of the relative sale size (lnRELVDS) are positively related to the cumulative abnormal returns (CAR) following the sell-off announcements. However, the increase in focus of the seller (FOCUS) and the existence of a divestment programme within which the seller decides the sell-off (MS6) are inversely related to its CAR following the sell-off announcement. However, we suggest that these results should be interpreted cautiously given that the sample size is reduced from 1,941 to just 365 cases.

APPENDIX

Table A5.1 Cumulative Abnormal Returns *(CAR)* and t-statistics for various intervals around the sell-off announcement day 0, for the whole sample of 877 buyers, using different methods to estimate the abnormal returns.

	MARKET ADJUSTED RETURNS		SIZE ADJUSTED RETURNS	
Interval	*%CAR*	% positive	*%CAR*	% positive
-10 to +10	0.0040*	49.3	0.0039*	49.1
	(1.82)	(-0.63)	(1.76)	(-0.81)
-10 to 0	0.0038**	50.0	0.0040***	50.5
	(2.46)	(0.00)	(2.59)	(0.45)
0 to +10	-0.0003	49.1	-0.0006	48.2
	(-0.16)	(-0.82)	(-0.38)	(-1.62)
-5 to +5	0.0039**	51.1	0.0041**	51.6
	(2.28)	(0.92)	(2.38)	(1.36)
-5 to 0	0.0041***	51.4	0.0043***	51.4
	(3.27)	(1.22)	(3.45)	(1.17)
0 to +5	0.0003	49.6	0.0001	49.0
	(0.21)	(0.32)	(0.02)	(-0.84)
-2 to +2	0.0031**	51.9*	0.0033**	51.3
	(2.59)	(1.70)	(2.68)	(1.15)
-2 to 0	0.0035***	51.6	0.0036***	51.4
	(3.62)	(1.38)	(3.67)	(1.24)
0 to +2	0.0001	48.1*	0.0001	48.1*
	(0.12)	(-1.63)	(0.12)	(-1.66)
-1 to +1	0.0023**	49.6	0.0024**	50.8
	(2.37)	(-0.36)	(2.51)	(0.73)
-1 to 0	0.0026***	50.1	0.0027***	51.0
	(3.12)	(0.05)	(3.21)	(0.87)
0 to +1	0.0002	46.2***	0.0003	47.0***
	(0.27)	(-3.31)	(0.38)	(-2.62)

Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tail test.

Table A5.2a Forecast revisions of earnings (FR), abnormal forecast revisions of earnings (AFRs) for sellers for the year of sell-off announcement (FY1), based on a fourth-order moving average model, and cumulative abnormal returns (CARs) for sellers.

Raw forecast revision (FR) for a seller, in a particular month, is the difference of the change of consensus analysts' forecast of earnings from the previous month, scaled by the share price at the end of the previous month. FY1 is the fiscal year of the sell-off announcement, i.e. the accounting year which finishes immediately after the announcement. Abnormal forecast revision (AFR) is the difference of the actual raw FR from the expected FR. The latter is estimated by a fourth-order moving average model. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the seller's AFRs over the period from the sell-off announcement month 0, to month +3 thereafter. CAR is the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns to a seller over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in brackets. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: Earnings forecast revisions (FRs), abnormal earnings forecast revisions (AFRs), CFR and CAFR for sellers and percentage positives					
Month relative to event month	FR	FR (% positive)	AFR	AFR (% positive)	No of Obs
-3	-0.0023*** (-11.06)	31.8*** (-16.84)	0.0002 (0.94)	54.0*** (3.47)	1853
-2	-0.0024*** (-11.93)	30.6*** (-18.25)	0.0001 (0.79)	52.6** (2.25)	1869
-1	-0.0028*** (-13.68)	30.2*** (-18.75)	-0.0003* (-1.79)	52.3** (2.00)	1901
0	-0.0024*** (-12.48)	29.7*** (-19.62)	0.0001 (0.78)	52.3** (2.00)	1941
+1	-0.0022*** (-12.26)	31.7*** (-17.27)	0.0002 (1.06)	54.6*** (4.10)	1925
+2	-0.0022*** (-11.82)	32.6*** (-16.09)	0.0002 (1.26)	54.6*** (4.05)	1885
+3	-0.0018*** (-10.00)	32.9*** (-15.68)	0.0006*** (3.11)	55.2*** (4.53)	1852
Cumulative (0 to +3)	-0.0084*** (-17.02)	33.7*** (-15.22)	0.0010*** (3.29)	53.8*** (3.32)	1941
Panel B: Abnormal size and market-to-book returns at day -1, CAR and percentage of sellers with positive AR 1 and CAR					
Event Window	Abnormal returns and cumulative abnormal returns		% positive		
-2 to 0	0.0038*** (3.76)		52.6** (2.23)		1866
-1	0.0025*** (4.46)		51.3 (1.13)		1941

Table A5.2b Forecast revisions of earnings (FR), abnormal forecast revisions of earnings (AFRs) for sellers in the second year after the sell-off announcement (FY2), based on a fourth-order moving average model, and cumulative abnormal returns (CARs) for sellers.

Raw forecast revision (FR) for a seller, in a particular month, is the difference of the change of consensus analysts' forecast of earnings from the previous month, scaled by the share price at the end of the previous month. FY2 is the second fiscal year of the sell-off announcement, i.e. the accounting year which starts after the end of FY1. Abnormal forecast revision (AFR) is the difference of the actual raw FR from the expected FR. The latter is estimated by a fourth-order moving average model. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the seller's AFRs over the period from the sell-off announcement month 0, to month +3 thereafter. CAR is the cumulation of the seller's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns to a seller over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in brackets. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: Earnings forecast revisions (FRs), abnormal earnings forecast revisions (AFRs), CFR and CAFR for sellers and percentage positives					
Month relative to event month	FR	FR (% positive)	AFR	AFR (% positive)	No of Obs
-3	-0.0014*** (-5.20)	32.7*** (-10.99)	-0.0002 (-0.76)	50.9 (0.54)	892
-2	-0.0017*** (-8.12)	32.3 (-11.94)	-0.0003 (-1.39)	50.7 (0.41)	999
-1	-0.0020*** (-8.24)	31.5*** (-13.38)	-0.0006*** (-2.73)	49.9 (-0.06)	1130
0	-0.0020*** (-8.89)	31.7*** (-14.04)	-0.0004** (-1.83)	52.2 (1.54)	1276
+1	-0.0016*** (-7.95)	34.4*** (-11.69)	0.0001 (0.31)	52.1 (1.52)	1260
+2	-0. 0016*** (-9.31)	34.4*** (-11.55)	0.0001 (0.41)	51.4 (0.97)	1238
+3	-0.0014*** (-8.52)	30.7*** (-14.06)	0.0003* (1.72)	52.5* (1.72)	1218
Cumulative (0 to +3)	-0.0065*** (-13.32)	31.3*** (-14.96)	0.0001 (0.04)	49.0 (-0.70)	1277
Panel B: Abnormal size and market-to-book returns at day -1, CAR and percentage of sellers with positive AR 1 and CAR					
Event Window	Abnormal returns and cumulative abnormal returns		% positive		
-2 to 0	0.0043*** (3.71)		51.9 (1.34)		1236
-1	0.0026*** (4.12)		50.5 (0.36)		1276

Table A5.3 Cumulative abnormal returns (CAR) for sellers partitioned by the q ratio of the buyer.

The high q ratio group comprises the cases where the q ratio of the buyer is higher than 1. CAR is the cumulative excess returns of the seller over the returns on a matching size and book-to-market benchmark portfolio over the period from day -2 to announcement day 0. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: CARs by value of the q ratio of buyer

Buyer's q	CAR (mean)	CAR (% positive)	No of obs.
High q	0.0009 (0.51)	50.8 (0.35)	532
Low q	0.0054 (1.06)	51.2 (0.22)	86
t-stat	0.90	0.16	

Panel B: Boom periods.

Buyer's q	CAR (mean)	CAR % positive	No of obs.
High q	0.0019 (0.90)	51.3 (0.49)	337
Low q	-0.0083 (-1.00)	40.5 (-1.15)	37
t-stat	1.19	3.20***	

Panel C: Recession periods.

Buyer's q	CAR (MEAN)	CAR (% positive)	No of obs.
High q	-0.0008 (-0.25)	49.7 (-0.07)	195
Low q	0.0157** (2.61)	59.2 (1.29)	49
t-stat	2.28**	2.33***	

Table A5.4 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for sellers partitioned by the ratio of total loans to equity and reserves (TL_ER) of the seller and the borrowing ratio of the seller (BR), on the first year ending immediately after the sell-off (FY1).

TL_ER is the ratio of total loans of the seller to its total equity and reserves. The borrowing ratio (BR) is the ratio of the seller's total debt to its equity capital and reserves minus its intangibles. Section 4.7.6 gives details of the definition and calculation of these ratios. Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the seller's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the sellers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: Total loans to equity and reserves of seller.

TL_ER quintile	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
quintile 1	0.0018	51.2	0.0003	51.4	350
	(0.67)	(0.44)	(0.36)	(0.53)	
quintile 2	0.0064***	53.0	0.0008	50.9	350
	(2.85)	(1.09)	(1.51)	(0.32)	
quintile 3	0.0065***	56.0**	0.0023***	58.3***	350
	(3.33)	(2.23)	(3.67)	(3.14)	
quintile 4	0.0024	52.5	0.0011**	56.9***	350
	(1.39)	(0.93)	(2.40)	(2.59)	
quintile 5	-0.0004	49.1	0.0007	52.1	351
	(-0.20)	(-0.33)	(0.94)	(0.80)	
F-stat	1.91*	3.88***	1.49	6.47***	

Panel B: Borrowing ratio of seller.

BR quintile	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
quintile 1	0.0027	46.2	0.0012*	52.1	357
	(0.96)	(-1.41)	(1.73)	(0.79)	
quintile 2	0.0057***	54.9*	0.0008	48.9	358
	(3.00)	(1.84)	(1.46)	(-0.42)	
quintile 3	0.0067***	54.9*	0.0016***	52.8	358
	(3.46)	(1.84)	(2.73)	(5.03)	
quintile 4	0.0018	52.0	-0.0001	54.2	358
	(0.88)	(0.75)	(-0.10)	(1.59)	
quintile 5	0.0016	54.5*	0.0016**	50.6	358
	(0.68)	(1.68)	(2.19)	(0.21)	
F-stat	1.08	8.35***	1.16	2.39***	

Table A5.5 Pairwise Pearson correlation coefficients among the variables used in chapter 5.

Description of the variables is given in the text above, Chapter 5, section 5.16 and a detailed definition in Chapter 4, section 4.7.

	CAR	CAFRO3	lnRELVDS	lnRELVSB	QSEL	MS6	MS1
CAR	1.00						
CAFR	0.1007 0.00	1.00					
lnRELVDS	0.1260 0.00	-0.0108 0.67	1.00				
lnRELVSB	-0.0466 0.23	0.0286 0.46	-0.6969 0.00	1.00			
QSEL	-0.0159 0.50	-0.0575 0.01	-0.2407 0.00	0.1958 0.00	1.00		
MS6	-0.0114 0.62	-0.0228 0.32	-0.2507 0.00	0.2485 0.00	0.0587 0.01	1.00	
MS1	0.0223 0.34	0.0170 0.45	-0.1665 0.00	0.1656 0.00	0.0662 0.00	0.5175 0.00	1.00
lnSPRICE	0.0782 0.00	-0.0296 0.25	0.4397 0.00	-0.1384 0.00	-0.0586 0.03	0.2047 0.00	0.1266 0.00
BSLOCAL3	-0.0700 0.00	-0.0138 0.55	-0.1061 0.00	0.0193 0.62	-0.0085 0.72	-0.0787 0.00	-0.0470 0.04
BSLOCAL4	-0.0736 0.00	-0.0043 0.85	-0.1326 0.00	-0.0653 0.09	-0.0300 0.20	-0.0950 0.00	-0.0629 0.01
FOCUS	-0.0310 0.19	0.0384 0.10	-0.0671 0.01	0.0620 0.12	0.0178 0.45	-0.0086 0.71	-0.0044 0.85
BOOM	-0.0428 0.06	-0.0793 0.00	-0.0035 0.89	-0.0633 0.10	0.0751 0.00	0.0247 0.28	0.0225 0.32
ZSIGNS	0.0858 0.00	-0.0121 0.67	-0.0856 0.01	0.0238 0.62	0.0538 0.06	-0.0056 0.84	0.0140 0.62
BR	0.0518 0.03	0.0129 0.58	-0.1195 0.00	0.0483 0.23	0.0216 0.37	0.0829 0.00	0.0832 0.00
TL_ER	-0.0176 0.46	0.0098 0.67	-0.0734 0.01	0.0152 0.71	0.0136 0.57	0.1001 0.00	0.0366 0.12

Table A5.5 continued

Pairwise Pearson correlation coefficients among the variables used in chapter 5.

	lnSPRICE	BSLOCAL3	BSLOCAL4	FOCUS	BOOM	BR	TL_ER
LnSPRICE	1.00						
BSLOCAL3	-0.2125 0.00	1.00					
BSLOCAL4	-0.3291 0.00	0.5521 0.00	1.00				
FOCUS	-0.0581 0.03	0.0537 0.02	0.0699 0.00	1.00			
BOOM	-0.0390 0.13	0.0699 0.02	0.0867 0.00	0.0888 0.00	1.00		
ZSIGNS	0.0472 0.14	-0.0066 0.82	0.0416 0.14	0.0095 0.74	0.0842 0.00	1.00	
BR	0.0546 0.04	0.0262 0.27	-0.0009 0.97	0.0482 0.04	0.0475 0.04	0.1554 0.00	1.00
TL_ER	0.0706 0.01	0.0392 0.10	-0.0105 0.66	-0.0062 0.80	-0.0096 0.68	0.0788 0.01	0.5841 0.00

CHAPTER 6

CORPORATE SELL-OFFS AND THEIR WEALTH IMPLICATIONS ON THE SHAREHOLDERS OF THE BUYERS

6.1 INTRODUCTION

In the previous chapter we examined the effect of sell-offs on sellers. In line with most of the existing empirical evidence, our findings show that the sell-offs are value increasing decisions for the sellers' shareholders. In Chapter 6 we investigate the buyers' motivation and the wealth implications of sell-offs on the buyers' shareholders. For this, we analyse both abnormal stock returns and abnormal forecast revisions of earnings. The empirical evidence in this area is limited to a small number of US studies[64]. The reported evidence is mixed. Some studies find that the sell-off announcement results in positive abnormal returns to the buyers' shareholders and others report no significant impact. There are no studies in the UK investigating sell-offs from a buyer's perspective.

[64] Rosenfeld (1984); Zaima and Hearth (1985); Jain (1985); Hearth and Zaima (1986); Sicherman and Pettway (1987); Hite, Owers and Rogers (1987); and Sicherman and Pettway (1992).

The buyer purchases corporate assets usually in the form of acquiring a seller's operating division or subsidiary. This is similar to a partial acquisition of a target by a bidder. The nature and economics of the two transactions are similar. In a sell-off, like in a takeover, there is a change of ownership over a set of corporate assets, which are transferred from the seller to the buyers, with managerial and organisational changes likely to follow. However, as we discuss in Chapter 3, there are important differences between acquisitions of corporate assets via a takeover and purchases of operating assets or divisions via a sell-off. Studies on the value implications of sell-offs on buyers frequently draw on theories developed to explain motivation and wealth implications of mergers and acquisitions.

In Chapter 3, we argue that the market for corporate assets is less competitive than the market for corporate control. This provides the buyers, in a sell-off transaction, with the opportunity for larger benefits than the bidders in a takeover bid. The higher potential gain of buyers compared to bidders is further enhanced by the fact that buyers usually face a fewer restructuring costs, since they acquire divisions that are a more homogenous set of assets than when a whole company is acquired. This avoids the need to unbundle the acquired target and dispose of the unwanted assets or lines of business.

Possible sources of a buyer's value increase are: *synergy* of the operations of the purchased division with the operations of the buyer, or *transfer* of wealth from the seller. The transferred wealth can be a loss of seller's wealth due to its weak negotiating position. Alternatively, sellers may not be able to retain all the value gains from sell-offs but are compelling to share part of these gains with the buyers.

Both the synergy and transfer hypotheses anticipate positive value gains to the buyer, reflected in positive and significant CARs around the sell-off announcements. To distinguish between these two potential sources of value increase, we use the abnormal forecast revisions of earnings. The synergy hypothesis is supported when the buyer's CARs are positive and significant and accompanied by positive and significant CAFRs. In contrast, if the buyer's positive and significant CARs match insignificant or negative CAFRs, this offers support to the transfer hypothesis. With the transfer hypothesis the buyer can enjoy value gains even when the purchased assets do not enhance its future earnings. Thus, while its CAR may be positive and significant, its CAFR may not be significant. However, in a single sell-off, the two sources of value to the buyer are not necessarily mutually exclusive. The buyer may increase its future profitability as a result synergy gains and also enjoy transfer of wealth from the seller due to the relatively weak negotiating power of the latter.

6.2 VALUE GAINS TO BUYERS OF SELL-OFF TRANSACTIONS

Table 6.1, Panel A presents the average abnormal returns (ARs) to the buyers, as estimated by the size and market-to-book adjusted model presented in section 4.3.3, for each day over the 21-day period from day -10 to day +10 relative to the announcement day 0 and the cumulative abnormal returns (CARs) from day -10. The percentage of buyers with positive ARs and CARs is also given. The *t*-test statistics for the null hypothesis of zero ARs and CARs are also given in brackets. Columns

Table 6.1 Full sample daily Abnormal Returns (ARs) and Cumulative Abnormal Returns (CARs) for buyers.

Panel A: Daily size and market-to-book average abnormal returns *(ARs)* for the whole sample of buyers for the period -10 to +10 days, around the sell-off announcement day 0, and cumulative abnormal returns *(CARs)* from day -10. ***, **, * mean significance at 1%, 5% and 10% levels, two tail test. The third and fifth columns give the percentage of sellers with positive ARs and CARs respectively. These percentages are tested using the binomial test against the null hypothesis of 50%.

Day	*Ars*	*% positive*	*CARs*	*% positive*
-10	0.0002	44.5***	0.0002	44.5***
	(0.45)	(-3.28)	(0.45)	(-3.28)
-9	-0.0002	47.2*	0.0001	48.3
	(-0.41)	(-1.66)	(0.09)	(-0.98)
-8	0.0007	50.1	0.0008	48.8
	(1.20)	(0.03)	(0.78)	(-0.71)
-7	0.0006	49.9	0.0014	50.7
	(1.21)	(-0.03)	(1.25)	(0.44)
-6	0.0003	46.3**	0.0018	50.9
	(0.66)	(-2.20)	(1.40)	(0.51)
-5	0.0011**	48.1	0.0029**	51.8
	(2.21)	(-1.15)	(2.11)	(1.05)
-4	0.0005	49.2	0.0035**	53.0*
	(1.04)	(-0.47)	(2.30)	(1.79)
-3	0.0019***	50.7	0.0055***	53.8**
	(3.19)	(0.44)	(3.33)	(2.27)
-2	0.0008	47.0*	0.0063***	52.9*
	(1.38)	(-1.76)	(3.58)	(1.72)
-1	0.0008	50.2	0.0066***	53.7**
	(1.17)	(0.10)	(3.60)	(2.20)
0	0.0019***	52.0	0.0090***	54.9***
	(3.25)	(1.18)	(4.50)	(2.87)
1	0.0009*	50.6	0.0099***	54.7***
	(1.83)	(0.37)	(4.74)	(2.81)
2	0.0018***	50.0	0.0117***	55.0***
	(3.36)	(0.00)	(5.40)	(2.94)
3	0.0004	47.8	0.0120***	55.3***
	(0.88)	(-1.28)	(5.37)	(3.14)
4	0.0006	49.5	0.0130***	55.2***
	(1.06)	(-0.30)	(5.60)	(3.08)
5	0.0010*	51.4	0.0137***	56.0***
	(1.89)	(0.85)	(5.76)	(3.55)
6	0.0010*	48.8	0.0150***	56.9***
	(1.67)	(-0.71)	(5.94)	(4.09)
7	0.0006	48.8	0.0148***	56.0***
	(0.93)	(-0.71)	(5.92)	(3.55)
8	-0.0001	49.6	0.0148***	56.3***
	(-0.30)	(-0.24)	(5.84)	(3.75)
9	0.0002	47.1*	0.0151***	56.7***
	(0.31)	(-1.72)	(5.80)	(3.96)
10	-0.0002	45.0***	0.0151***	56.9***
	(-0.46)	(-2.94)	(5.64)	(4.09)

Panel B: Cumulative Abnormal Returns *(CAR)* and their t-statistics (in brackets) for various intervals around the sell-off announcement day 0, for the whole sample of 877 buyers. ***, **, * mean significance at 1%, 5% and 10% levels, two tail test. The third column gives the percentage of sellers with positive CARs. These percentages are tested using the binomial test against the null hypothesis of 50%.

Interval	*%CAR*	*% positive*
-10 to +10	0.0151***	56.9***
	(5.64)	(4.09)
-10 to 0	0.0090***	54.9***
	(4.50)	(2.87)
0 to +10	0.0080***	54.9***
	(4.37)	(2.90)
-5 to +5	0.0116***	56.5***
	(5.58)	(3.76)
-5 to 0	0.0066***	53.9**
	(4.09)	(2.24)
0 to +5	0.0067***	55.2***
	(4.84)	(3.03)
-2 to +2	0.0066***	54.3**
	(4.44)	(2.53)
-2 to 0	0.0038***	52.8
	(3.13)	(1.64)
0 to +2	0.0048***	54.8***
	(5.03)	(2.83)
-1 to +1	0.0040***	53.4**
	(3.30)	(1.97)
-1 to 0	0.0030***	53.0*
	(2.84)	(1.77)
0 to +1	0.0029***	54.7***
	(3.56)	(2.76)

three and five report the percentage of buyers with positive ARs and CARs tested against the null hypothesis of 50% positive.

In Panel B we report the CARs to the buyers for different event windows, before, after and around the sell-off announcement day 0. We also give the percentage of buyers with positive CARs and the corresponding *t*-statistics of the null hypothesis of 50% positive.

The abnormal returns for days 0, +1 and +2 are positive and significantly different from zero (at the 1%, 10% and 1% levels respectively). The highest average daily abnormal return of 0.19% occurs at the sell-off announcement, day 0. The average daily abnormal returns at days 0 and +2 are the highest over the entire period -10 to +10 (matched only by similar returns at day -3). The percentage of buyers with positive ARs is significantly lower than 50% on days -10, -9, -6 and -2. After day -2, it becomes insignificantly different from 50% until days +9 and +10 when it drops back to significantly lower than 50%.

Panel B of Table 6.1, presents the CARs for various windows from day -10 to +10 around the event day 0. These CARs are all positive and significantly different from zero. The percentage of buyers with positive CARs is also significantly higher than 50%. We select the three-day window (0,2) as the relevant event period, which captures the effect of the sell-off announcements on the buyers. This period includes the announcement day 0 and the days on which the buyers experience a significant impact from the announcement and have no other confounding announcements. We do not extent our observation window back to day -3 for two main reasons: firstly, the significantly positive average AR on day -3 is followed by two days (-2 and -1) with insignificant returns and may not, therefore, be related to the sell-off announcement at

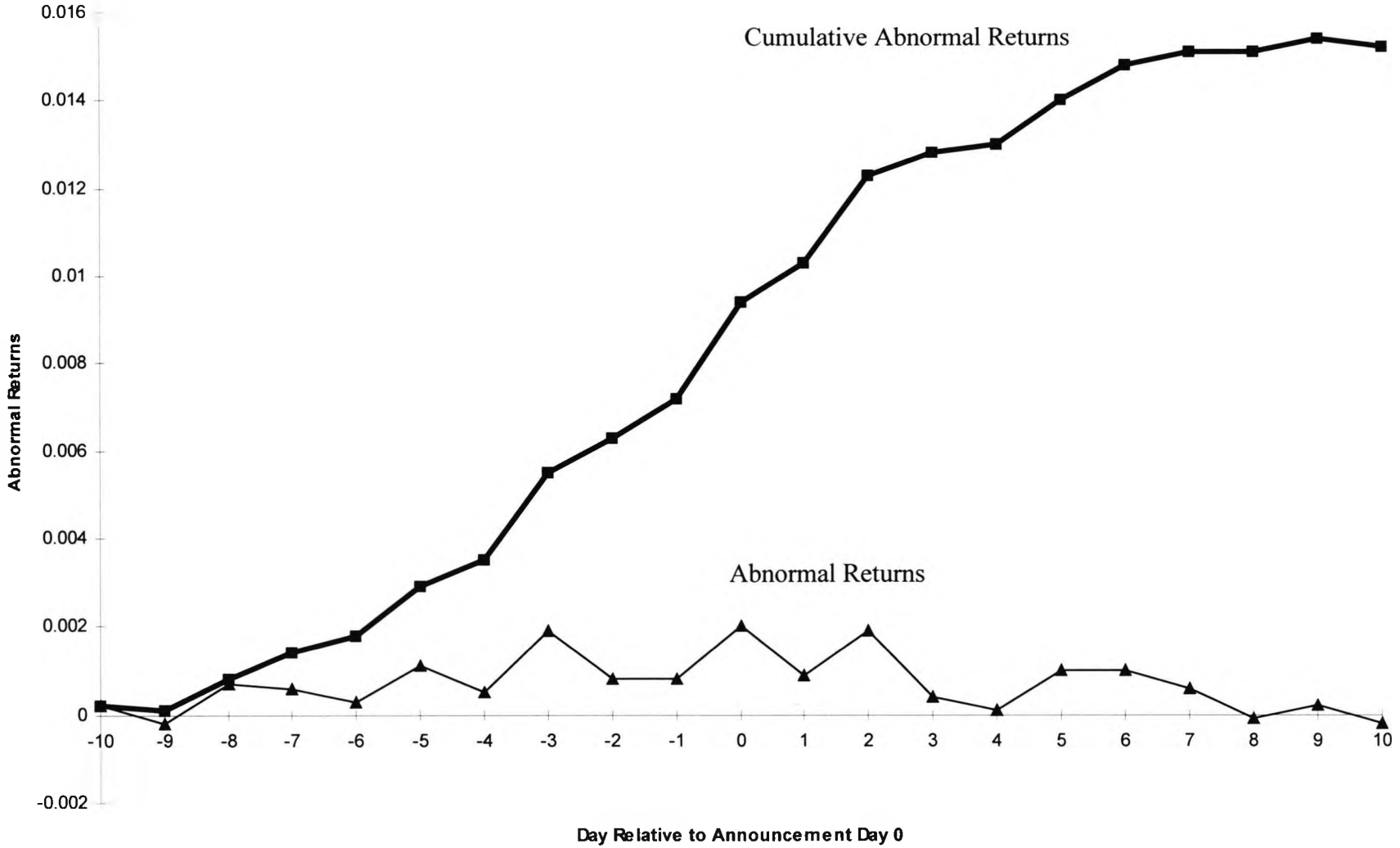
day 0; secondly, we do not want to extend our observation window over a period when other important announcements may have been made and therefore may be responsible for the significant ARs on day -3. To extent our observation window back to day -3 simply because the ARs on that day are significant is not justified and even if we had have decided to do so, we would have cleaned our sample for confounding announcements over this period which would have reduced more our initial sample.

Figure 6.1 illustrates the ARs for the period from day -10 to day +10 relative to announcement day 0 and the CARs from day -10. It is evident that the abnormal returns on days 0, +1 and +2 are positive and higher than the abnormal returns on the days before and after (except from day -3). The contribution of the positive and significant ARs of the period (0,+2) to the increase in CARs is substantial. In particular, the average per day CARs increase of 0.17%, over the period from day 0 to day +2, is the largest average multiperiod increase throughout the period -10 to +10 day.[65]

The issue of the expected return model in the short-run event studies is not as controversial as it is in the long-run event studies. Fama (1998) argues that the selection of the expected return model does not substantially affects the results in the short-term event studies and a number of event studies which provide a sensitivity analysis of their results, confirm that. In Chapter 5 we presented evidence demonstrating that the cumulative abnormal returns of sellers over the observation

[65] Only the single day returns of days 0 and -3 are higher than the average daily increase of CARs to the buyers over the period (0,2).

Figure 6.1 Average abnormal size and market-to-book adjusted returns (ARs) to the buyers in our sample over the 21-day period (-10,+10) centred on the sell-off announcement day 0 and the cumulative abnormal returns from day -10.



period are not different for three alternative models of estimating abnormal returns (Appendix, Table A5.1). In the appendix, Table A6.1 presents the CARs for the buyers over various windows before, after and around the announcement day for three models, namely the market adjusted model the size adjusted model and the size and market-to-book adjusted model.

The CARs over our event window (0.2) are almost identical for the three models. In particular, the average CAR is 0.45% for the market adjusted model, 0.45% for the size adjusted model and 0.48% for the size and market-to-book adjusted model, all of which are significant at the same 1% level. The percentage of buyers with positive CAR is insignificantly different from the 50% for the market adjusted model and significantly higher for the other two models. Over the other windows, the CARs to the buyers are significantly positive at the same level of significance for the three models, except for the periods (-2,0) and (-1,0) where the levels of significance of buyers' CARs from the market adjusted model are 10% and 5% respectively against 1% for the CARs from the two other models. Therefore, similar to our findings in the previous chapter and in line with the empirical evidence reported in the literature (Fama, 1989), the choice of the particular model to estimate the benchmark expected returns is not crucial for the overall findings of the event studies focus in short-term windows.

In this study we base our subsequent analysis on the cumulative abnormal return of buyers over the period from day 0 to day +2, relative to sell-off announcement day 0 (CAR), as measured by the size and market-to-book model. As we report in Table 6.1, the average CAR to a buyer, following the sell-off

announcement, is significantly positive (0.48%, t=5.03), suggesting that the purchase of corporate assets from a seller is a value increasing decision for the buyer.

Our findings of positive and significant abnormal returns to the buyers in a sell-off transaction compare more favourable to the returns to the bidders involved in a successful takeover, as they reported in both the US and the UK studies. In a takeover bid the bidders experience small gains or losses which depend on many contextual factors. In the US the bidders in 1960s experience positive and significant returns of slightly over 4% (Bradley, Desai and Kin, 1988). The same study reports that the gains of the bidders in 1970s dropped to an insignificant 1.3% and in 1980s became significantly negative, slightly under 3%. Similar results are reported in other empirical studies.[66] The insignificant gains of the bidders are confirmed for more recent periods in both the US and the UK (Rao and Vermaelen, 1998; Higson and Elliott 1998). This has been attributed to the increasing competitive market of corporate control. At the same time the reported gains to the target shareholders have increased and this is attributed to the developments in the corporate defence and government regulation. However, the abnormal returns to bidder's shareholders are influenced by other factors such as the hostility of the bid and the method of payment. This dependence of the wealth gains of the bidder on other contextual factors makes direct comparison to the gains of the buyer in a sell-off not always straightforward.

[66] Jensen and Ruback (1983) provide an excellent review of the early US studies.

6.3 SELL-OFFS AND ANALYSTS FORECASTS OF EARNINGS

The value gains to a buyer from purchasing divested assets, as reflected in the positive average CAR, can be explained by either the synergy or the transfer hypothesis. As we discuss in section 6.1 above, the synergy and transfer hypotheses have the same implications for the abnormal returns of a buyer but different implications for the analysts' forecast of earnings. According to the synergy hypothesis, the operating performance of the buyer is expected to improve following the purchase of the division and hence the abnormal forecast revision of earnings is expected to be positive. On the other hand, the transfer hypothesis implies that the operating performance of the buyer does not necessarily improve following the purchase and thus, the cumulative abnormal forecast revisions of earnings may not be significantly different from zero. The predictions of these two hypotheses for the buyers are not dichotomous, i.e. the transfer hypothesis need not exclude a simultaneous increase in the future profitability of the buyer. When both the value and the earnings of the buyer increase following a purchase, we cannot assume that the wealth gains of the buyer are exclusively due to synergy. They might be partially due to an increase in the buyer's profitability (synergy hypothesis) and partially due to a transfer of wealth from seller to buyer (transfer hypothesis). However, if a buyer's value increases without a change (or with a decline) in its earnings, then the only possible source of value is the transfer of wealth from seller to buyer (transfer hypothesis). To differentiate between the synergy and transfer hypotheses, we utilise the combined reading of cumulative abnormal returns and cumulative abnormal forecast revisions of earnings.

To estimate the cumulative abnormal forecast revisions of earnings, we use the methodology described in Chapter 4. In our buyers' sample, the mean analysts' forecast revisions of earnings outside the observation period (k_i in equation 4.2) is -0.08% (t=-7.57) for the fiscal year ending immediately after the sell-off announcement (FY1) and -0.11% (t=-5.80) for the year following (FY2). These mean analysts' forecast revisions in FY1 and FY2 are lower than those documented for the sellers in the previous chapter (section 5.4) or by Sudarsanam *et al* (1998), but they are still statistically significant at the 1% level. This indicates that the consensus analysts' forecasts of earnings are initially overly optimistic and are revised downwards as we approach the year's end. UK analysts do not revise their earnings forecasts every month (O'Hanlon and Widdett, 1991). This sluggishness in the revisions of analysts' forecasts of earnings is evident in our buyers' sample (as in the analysis of the sellers' sample, in the previous chapter). As Table 4.3 reports, from the total number of analysts forecasting for buyers, on average only 21% update their earnings forecasts every month (compared to 24% for the sellers and 23% reported by O'Hanlon and Widdett, 1991).

To estimate the expected revisions of analysts' forecasts of earnings, we use a fourth-order moving average model as described in Chapter 4 (equation 4.2). Such a model accounts for the optimism and sluggishness in analysts' forecasts of earnings. This model differs from the third-order moving average model used for the sellers in Chapter 5, since analysts following the sellers revise their earnings forecasts on average every four months (24%), whereas analysts following the buyers revise their earnings forecasts almost every five months (21%). This is against our expectations, since buyers are much smaller firms than sellers (average size of buyer £1,013m vs.

£1,537m average size of seller, as reported in Table 6.1) and therefore we expected buyers to have fewer or less active analysts following them. To capture the overall impact of sell-off announcements on the analysts expectations about the buyers' future earnings, we cumulate the analysts' abnormal forecast revisions of earnings over the period from the announcement month 0 to month +3 thereafter.

In Table 6.2a we report the raw and abnormal earnings forecast revisions for the buyers, for the fiscal year ending immediately after the sell-off announcement (FY1). The raw earnings forecast revisions (FRs) are consistently negative throughout the entire observation period -3 to +3 months relative to sell-off announcement month 0 and significant at the 1% level.[67] The percentage of buyers with positive FRs is significantly less than 50% in every month. The abnormal earnings forecast revisions (AFRs) are mixed. Before and up until the announcement month 0, they are insignificant. Thereafter, in months +1 and +2 significantly positive and in month +3 significantly negative. The proportion of buyers with positive AFRs is statistically insignificantly different from 50% in every month, except in month -3 when it is 53.3% (t=1.92).

The cumulative abnormal forecast revision CAFR over the period 0 to +3 is 0.03%, insignificantly different from zero (t=1.53) and the proportion of buyers with

[67] We have adjusted announcement month for the fact that the earning forecast revisions for a particular month are collected by IBES up until the 3rd Friday of each month, called the *run date*. Sell-off announcements made after the third Thursday of each calendar month have as IBES month 0, the next calendar month (for the purpose of estimating the analysts' forecasts revisions).

Table 6.2a Forecast revisions of earnings (FR), abnormal forecast revisions of earnings (AFRs) for buyers for the year of sell-off announcement (FY1), based on a fourth-order moving average model, and cumulative abnormal returns (CARs) for buyers.

Raw forecast revision (FR) for a buyer, in a particular month, is the difference of the change of consensus analysts' forecast of earnings from the previous month, scaled by the share price at the end of the previous month. FY1 is the fiscal year of the sell-off announcement, i.e. the accounting year which finishes immediately after the announcement. Abnormal forecast revision (AFR) is the difference of the actual raw FR and the expected FR. The latter is estimated by a fourth-order moving average model. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the buyer's AFRs over the period from the sell-off announcement month 0, to month +3 thereafter. CARs are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to day +2. Abnormal returns are the excess returns to a buyer over the returns to its matching size and market-to-book quintile portfolio. Significance test statistics are given in brackets. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: Earnings forecast revisions (FRs), abnormal earnings forecast revisions (AFRs), CFR and CAFR for the buyers and percentage positives

Month relative to event month	FR (mean)	FR (% positive)	AFR (mean)	AFR (% positive)	No of Obs
-3	-0.0004*** (-3.30)	34.1*** (-9.11)	0.0002 (1.64)	53.3* (1.92)	821
-2	-0.0005*** (-4.59)	33.8*** (-9.37)	-0.0001 (-0.20)	50.9 (0.52)	837
-1	-0.0005*** (-4.21)	34.3*** (-9.22)	0.0000 (0.04)	50.1 (0.07)	858
0	-0.0003*** (-3.35)	36.9*** (-7.73)	0.0002 (1.57)	48.7 (-0.78)	877
+1	-0.0003*** (-3.02)	34.6*** (-9.01)	0.0002* (1.81)	49.7 (-0.20)	858
+2	-0.0003** (-2.35)	33.5*** (-9.61)	0.0002** (2.03)	50.9 (0.52)	843
+3	-0.0007*** (-5.74)	31.4*** (-10.69)	-0.0002** (-2.08)	47.3 (-1.53)	830
Cumulative (0 to +3)	-0.0015*** (-5.49)	41.5*** (-5.03)	0.0003 (1.53)	50.5 (0.30)	877

Panel B: Abnormal Returns at day 0 and CAR and percentage of buyers with positive AR and CAR

Event Window	Abnormal returns and cumulative abnormal returns	Percentage Positive	
0 to +2	0.0048*** (5.03)	54.8*** (2.83)	877
0	0.0019*** (3.25)	52.0 (1.18)	877

positive CAFR is 50.5%, insignificantly different from 50% (t=0.30). If we assume an average price earnings ratio (EPS) of 20 (or 30), the mean CAFR of 0.03% over the months 0 to +3 represent an average EPS revision of about 0.6% (or 0.9%). This is a small average change and only a third of the 0.9% average change of earnings forecasts for sellers reported in the previous chapter.

Table 6.2b presents the raw analysts' forecast revisions of earnings (FRs) and the percentage of buyers with positive FRs, alongside the abnormal earnings forecast revisions (AFRs) and the percentage of buyers with positive AFRs, for the second fiscal year (FY2) after the sell-off announcement. The FRs are predominantly negative and significant throughout the period from month -3 to month +3, except in months -2 and -1 when they are statistically insignificant. The percentage of buyers with positive FRs is significantly less than 50% in all months. The CFR03 is significantly negative (-0.17%, t=-4.23) and the percentage of buyers with positive CFR03 significantly less than 50% (43.3%, t=-2.93). The abnormal forecast revisions of earnings (AFRs) over the same period and the CAFR are insignificantly different from zero (-0.02%, t=47.7). The percentage of buyers with positive AFRs and CAFR is insignificantly different from 50%, except in months -2 and +2, when it is 55.3% (t=1.97) and 45.6% (t=-1.91) respectively. This supports the findings for FY1 reported in Table 6.2a. However, not all analysts forecasting for a buyer give earnings forecasts for both FY1 and FY2. From our sample of 877 buyers with earnings forecasts for FY1 only half have forecasts for FY2. This drastic reduction of the sample from FY1 to FY2 makes comparisons difficult and therefore we focus our subsequent analysis only on the 877 sample of buyers with earnings forecasts for FY1.

Table 6.2b Forecast revisions of earnings (FR), abnormal forecast revisions of earnings (AFRs) for buyers in the second year after the sell-off announcement (FY2), based on a fourth-order moving average model, and cumulative abnormal returns (CARs) for buyers.

Raw forecast revision (FR) for a buyer, in a particular month, is the difference of the change of consensus analysts' forecast of earnings from the previous month, scaled by the share price at the end of the previous month. FY2 is the second fiscal year and follows the FY1, i.e. FY2 is the accounting year which starts after the end of first year (FY1). Abnormal forecast revision (AFR) is the difference of the actual raw FR and the expected FR. The latter is estimated by a fourth-order moving average model. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the buyer's AFRs over the period from the sell-off announcement month 0, to month +3 thereafter. CARs are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to day +2. Abnormal returns are the excess returns to a buyer over the returns to its matching size and market-to-book quintile portfolio. Significance test statistics are given in brackets. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: Earnings forecast revisions (FRs), abnormal earnings forecast revisions (AFRs), CFR and CAFR for buyers and percentage positives

Month relative to event month	FR (mean)	FR (% positive)	AFR (mean)	AFR (% positive)	No of Obs
-3	-0.0005*** (-3.36)	32.9*** (-5.88)	-0.0001 (-0.67)	50.8 (0.29)	295
-2	-0.0003 (-1.42)	35.0*** (-5.60)	0.0002 (0.82)	55.3* (1.97)	351
-1	-0.0001 (-0.61)	36.3*** (-5.54)	0.0003 (1.60)	52.5 (0.99)	408
0	-0.0004** (-2.34)	37.0*** (-5.68)	-0.0001 (-0.29)	50.4 (0.18)	476
+1	-0.0003* (-1.73)	38.8*** (-4.85)	0.0001 (0.60)	49.0 (-0.42)	469
+2	-0.0006*** (-3.42)	34.1*** (-6.83)	-0.0002 (-1.14)	45.6* (-1.91)	463
+3	-0.0006*** (-3.79)	30.5*** (-8.30)	-0.0001 (-0.67)	47.3 (-1.17)	455
Cumulative (0 to +3)	-0.0017*** (-4.23)	43.3*** (-2.93)	-0.0002 (-0.68)	47.7 (-1.01)	476

Panel B: Abnormal Returns at day 0 and CAR and percentage of buyers with positive AR and CAR

Event Window	Abnormal returns and cumulative abnormal returns	Percentage Positive	
0 to +2	0.0046*** (3.66)	55.1** (2.22)	476
0	0.0023*** (3.13)	51.5 (0.64)	476

In Panel B in Tables 6.2a (FY1) we present the cumulative abnormal returns to the buyers over the event window from day 0 to day +2 (CAR) and abnormal returns on announcement day 0 (AR0). Both CAR and AR0 are positive and statistically significant at the 1% level (0.48%, t=5.03 and 0.19%, t=3.25 respectively). However, only the percentage of buyers with positive CAR is significantly higher than 50% (54.8%, t=2.83). In Table 6.2b (FY2) the reported findings on the abnormal returns are similar to those reported in Table 6.2a, Panel B, for the FY1, despite a substantial reduction in the sample size.

These findings suggest that the sell-off announcements are wealth generating decisions for the buyers but they do not convey significant information to the market about changes in the expected profitability of buyers. This is important because it rejects the synergy hypothesis, i.e. the overall observed increase in the value of the buyers, as reflected in the positive and significant CAR, is more likely to be due to a transfer of wealth from the seller to the buyer. Therefore, a combined reading of positive and statistically significant cumulative abnormal returns for the buyers' shareholders following the sell-off announcements (CAR = 0.48%, t=5.03) and the insignificant cumulative abnormal forecast revisions of earnings (CAFR = 0.03%, t=1.53), provides support for the wealth transfer hypothesis, i.e. the sell-offs increase the value of the buyers through a transfer of wealth from the sellers.

We repeat the analysis using a third-order moving average model to estimate the expected revisions of analysts' forecasts of earnings, as in equation (4.2), and report the results in the appendix, Tables A6.2a and A6.2b. This is a robustness test of the results reported in Tables 6.2a and 6.2b in respect of the model employed to estimate the expected revisions of earnings forecasts.

In Table A6.2a, for FY1, the raw FRs and the CFR03 are all significantly negative and the percentages of sellers with positive FRs and CFR03 are all significantly lower than 50%, as in Table 6.2a. However, the AFR0 and CAFR are now positive and statistically significant, whereas the percentage of buyers with positive AFRs and CAFR are similar to those reported in Table 6.2a. The results of the analysis for FY2 are reported in Table A6.2b. These results are very similar to the results presented in Table 6.2b in respect of signs, significance and levels of significance. Exceptions are the AFR in month -1 which are significantly positive at 0.04% (t=1.97) compared to 0.03% (t=1.60) reported in Table 6.2b. Similarly, the percentage of buyers with positive AFR in month +2, is insignificantly different from 50% (48.4%, t=-0.70), compared to the significantly lower than 50% (45.6%, t=-1.91) percentage reported in Table 6.2b. These findings indicate that our results may be sensitive to the model employed to estimate the expected revisions of analysts' forecasts of earnings. The subsequent analysis of earnings forecast revisions is based on the use of the fourth-order moving average model to estimate the expected earnings forecast revisions.

In Chapter 5, we find that the sellers benefit from the sell-offs and their wealth benefits are at least partly a result of the increase of their future profitability. Other possible sources of value increase for the seller could be the appropriation of a part of the wealth created in the sell-off transaction or transfer of wealth from the buyer associated with value losses of the buyer. Our findings in this section rule out this last option. The joint reading of evidence provided in Chapter 5, section 5.3, and in this section suggest that, in general, both the sellers and buyers benefit from the sell-off

transaction. Possible source of these wealth benefits are the increased profitability of the seller, the transfer of the particular corporate assets to higher value use or both.

Hearth and Zaima (1986) suggest that the purchase of a corporate division through a sell-off transaction is a partial acquisition for the buyer, with economics that are similar to a full acquisition. In Chapter 3, section 3.2, we discuss in detail the similarities and differences between takeovers and purchases of corporate assets through sell-offs. The UK studies which use daily returns to investigate the impact of takeover bids around the bid announcement report negative or no gains to the bidders. In particular, Sudarsanam *et al* (1996) investigate 429 bids over the period 1980-90 and find that on the announcement day 0, the bidders experience a significant 1% decline in their value. Barnes (1998) reports that in his sample of 755 UK takeover bids, over the period 1987-93, the bidders experience insignificant wealth changes of 0.4% over the period from day -40 to day 0. This study is similar to ours in terms of time period and size.

Comparing our findings on the wealth effects of the UK sell-offs on the buyers with the effects of takeover bids on the bidders, we see that the sell-offs are more beneficial means of corporate growth. This is in line with theoretical suggestions (as we discuss in Chapter 3, section 3.2) that the nature of the sell-off transaction makes the market for corporate assets less competitive than the market for corporate control and this offers the opportunity to the buyers to perform better than the bidders. Alternatively, the buyer may face smaller reorganisation costs for the purchased division than the bidder for the whole target firm or the fit of the purchased division to the operations of the buyer is better than that of the whole target to the bidder's

operations. In section 3.8 we investigate the impact of the fit of the purchased division to the operations of the buyer.

6.4 EARNINGS FORECAST REVISIONS AND CHANGE IN THE NUMBER OF ANALYSTS

As shown in Tables 6.2a and 6.2b, the number of analysts making earnings forecasts for a given buyer changes over the estimation period. This finding is similar to that of Brous and Kini 1993 (Table 3, p.210 and Table 5, p.214). McNichols and O'Brien (1997) suggest that the optimism bias of analysts' forecasts of earnings may be a product of the analysts' self-selection process. Pessimistic analysts, instead of submitting downwards revised earnings forecasts, may opt out of forecasting. This results in a truncated distribution of earnings forecasts which is upwardly biased. Thus, the distribution of earning forecast errors appears *ex post* to be over-optimistic even if each forecast were unbiased *ex ante*.

We test for potential changes of the distribution of analysts' forecasts of earnings before and after the sell-off announcement due to changes in the number of forecasting analysts. Our sample of buyers is divided into three groups, on the basis of the change in the number of analysts making earning forecasts over the estimation and observation period, i.e. the groups of increase, decrease and no-change in the number of forecasting analysts. Table 6.3, Panel A, shows the average CAFR for buyers in the three groups of the change in the maximum number of analysts making earning forecasts from the estimation to the observation period. The observation period is: -3

Table 6.3 Cumulative abnormal forecast revisions of earnings (CAFR) for the buyers in FY1, partitioned by the change in the number of forecasting analysts.

The increased (decreased) number of analysts group comprises sell-offs where the number of analysts forecasting the buyer's earnings within the period -3 to +3 months, relative to sell-off announcement month 0, increases (decreases) relative to the number of analysts who forecast outside this window. We use two measures of the number of analysts who give earning forecasts for the buyer: First, the maximum number of analysts and second, the average number of analysts. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs for buyers over the sell-off announcement month 0 to +3 months thereafter. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A. Number of analysts in estimation and observation period is the maximum of analysts giving earning forecasts.

	CAFR (mean)	CAFR (% positive)	No of obs.
Number of analysts increased	0.0002 (0.64)	49.3 (0.16)	152
Number of analysts decreased	0.0001 (0.20)	51.4 (0.53)	360
Number of analysts unchanged	0.0006* (1.81)	50.1 (0.05)	365
F-stat	0.69	0.22	

Panel B: *t*-statistics for the differences in the CAFR means and the proportions of buyers with positive CAFR for the groups with increasing and decreasing number of analysts

t-stat	0.32	0.51	

Panel C. Number of analysts in estimation and observation period is the mean of analysts giving earning forecasts.

	CAFR (mean)	CAFR (% positive)	No of obs.
Number of analysts increased	0.0002 (1.10)	49.0 (-0.48)	630
Number of analysts decreased	0.0005 (0.96)	56.8* (1.95)	206
Number of analysts unchanged	0.0006 (0.45)	41.5 (-1.09)	41
F-stat	0.17	3.36***	

Panel D: *t*-statistics for the differences in the CAFR means and the proportions of buyers with positive CAFR for the groups with increasing and decreasing number of analysts

t-stat	0.45	1.70*	

to +3 months relative to the announcement month 0 and the estimation period is: -18 to +18 months excluding the observation period -3 to +3. In Table 6.3, Panel B, we present the same analysis using an alternative measure of changes in the number of analysts making forecasts for the buyers, i.e. the mean number of analysts and any changes from the estimation to the observation period.

In Panel A, Table 6.3, the group of buyers with the largest CAFR (0.06%, t=1.81) is the one which exhibits no change in the number of forecasting analysts (*no-change* group). The CAFR in the increase in the number of analysts group (*increase* group) is an insignificant 0.02% (t=0.64) and similarly, in the decrease in the number of analysts group (*decrease* group) 0.01% (t=0.20). Their difference also insignificant (t=0.32), as reported in Panel B. The percentage of buyers with positive CAFR is insignificantly different from 50% for buyers in both the increase and decrease groups and their difference is also insignificant (t=0.51). In Table 6.3, Panels C and D report results that agree with the above findings. The CAFR of the three groups are insignificantly different from zero and not significantly different from each other (F=0.17) but the percentages of buyers with positive CAFR are significantly different from each other (F=3.36). However, Panel D reports that there is no significant difference between the CAFR for the buyers in the increase and decrease groups (t=0.45). The difference in the percentage of buyers with positive CAFR is significant but only at a marginal level of 10%.

The above evidence showing an insignificant difference in the CAFR of the two groups of buyers, i.e. the increase and decrease in the number of reporting analysts, suggests that there is no self-selection bias in the analysts' forecasts of earnings for the buyers in our sample. Therefore, the observed CAFR for the buyers,

following the sell-off announcement, is related to an actual change in the analysts' expectations regarding the future profitability of the buyers.

6.5 CUMULATIVE ABNORMAL RETURNS, CUMULATIVE ABNORMAL ANALYSTS' FORECASTS REVISIONS OF EARNINGS AND ABNORMAL POUND RETURNS TO BUYERS

In Table 6.4 we present the annual distribution of average CAFR, CAR and APR. The overall pattern, i.e. no significant CAFR and the percentage of buyers with positive CAFR not different from 50%, prevails almost every year, except for 1989, which has significantly negative CAFR of -0.07% (t=-1.67) and 1993, which has positive and significant CAFR of 0.13% (t=2.67). The average CARs are positive and significant every year, except in 1988 and 1993 when they are insignificant. The percentage of buyers with positive CARs is insignificantly different from 50% in all years.

The CARs give a measure of the percentage change in the value of the buyers following the purchase of the divested assets. The same percentage change can be very different in nominal terms for buyers of different sizes. For a very large buyer, a given percentage change represents a much larger absolute change in pound values (£), and hence it is economically more important than for a value change of a relatively small buyer. To assess the economic significance of the purchase, we calculate the Abnormal Pound Returns (APRs) to the buyers. APR is the value change of the buyer measured in pounds and is calculated as the product of the cumulative abnormal

Table 6.4 Annual distribution of cumulative abnormal forecast revisions of earnings (CAFR), cumulative abnormal returns (CAR) and average abnormal pound returns (APR) to buyers.

Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the period from the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to day +2. Abnormal returns are the excess returns to buyers over the returns to the matching size and market-to-book quintile portfolio. Abnormal pound returns (CAR) to buyers is the product of CAR and the market capitalisation of their equity on day -1 prior to the sell-off announcement day 0. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Year	CAFR (mean)	CAFR (% positive)	CAR (mean)	APR mean (£m)	CAR and APR (% positive)	No of obs.
1987	0.0002	50.5	0.0079**	-1.54	53.0	103
	(0.22)	(0.10)	(2.26)	(-0.29)	(0.60)	
1988	0.0003	47.3	0.0028	0.28	50.3	150
	(0.65)	(-0.65)	(1.30)	(0.13)	(0.08)	
1989	-0.0007*	47.4	0.0031*	0.83	51.5	173
	(-1.67)	(-0.68)	(1.68)	(0.25)	(0.38)	
1990	0.0004	54.5	0.0040*	5.03	60.8**	132
	(0.59)	(1.05)	(1.77)	(0.98)	(2.46)	
1991	0.0010	52.2	0.0113***	3.75	62.5**	90
	(1.32)	(0.42)	(3.75)	(0.92)	(2.35)	
1992	0.0004	48.6	0.0082**	8.10	65.4***	105
	(0.88)	(-0.29)	(2.68)	(1.64)	(3.14)	
1993	0.0013**	54.8	0.0002	-1.85	45.5	124
	(2.67)	(1.08)	(0.08)	(-0.41)	(-0.99)	
Total	0.0003	50.5	0.0048***	1.89	54.8***	877
	(1.53)	(0.30)	(5.03)	(1.20)	(2.83)	

returns over the period 0 to +2 (CAR) and the market capitalisation of the buyer in day -1, prior to the sell-off announcement. We use the market capitalisation of the buyer on day -1 because, as we discuss in section 6.2, it is the closest day to the observation period (0,2) that is not affected by the sell-off announcement. The APR over the observation period (0,2) is estimated as: $APR = CAR*MVBUY$

Table 6.4 presents the annual distribution of CAFR, CAR and APR over the period 0 to +2 days for the buyers. The overall average APR of the buyers is £1.89m which is 0.19% of the £1,013.12m average size of the buyers. The total wealth gain of the 877 buyers, over the event window (0,2) is £1,658m. This, compared with the £21,793.8m total value of the purchased assets (877 purchases at 24.85m average purchase size), indicates that the average increase in value of the buyer is almost 7.6% of the value of the purchased division. The most beneficial year for buyers' wealth gains is 1992. In that year, buyers experience average abnormal value gains of more than £8m, over the event period (0,2). In the years 1990, 1991 and 1992, the buyers enjoy substantial average wealth gains of £5.20m, £4.80m and £8.10m respectively (they are not, however, statistically significant). In these years, the percentage of buyers with positive APR is significantly higher than 50% (60.8%, 62.5% and 65.4% respectively). On the other hand, in 1987, 1988, 1989 and 1993 the APRs of the buyers are small positive or negative and the percentage of buyers with positive CAFRs is not different from 50%. The annual APR does not always follow the sign and significance of annual CAR. In year 1987, for example, the CAR is significantly positive (0.79%, t=2.26), whereas the APR is negative but not significant (-1.54m, t=-0.29). Similarly, in year 1993, the CAR is positive but the APR is negative and both

are not significant. Finally, in year 1990, the CAR is significantly positive (0.40%, t=1.77) but the APR is not significant (5.03m, t=0.98).

These results indicate that the effects of the sell-offs on buyers may differ from year to year and this time sensitivity should be considered when we evaluate the results of studies in different time periods. In 1987, for example, the value gains of the buyers may a result of wealth transfers from the sellers. In 1989 (at the peak of the economic boom) potential transfers of wealth from the sellers not only offset any averse impact of the expected decline in the buyers' earnings but make the transaction profitable for the buyers. However, in 1993 the situation appears to reverse and the buyers do not capitalise on the expected increase of their earnings and their value decline following the sell-off announcement.

6.6 ECONOMIC SIGNIFICANCE AND JOINT EFFECT OF SELL-OFFS ON SELLERS AND BUYERS IN THE SAME TRANSACTION

In the previous section 6.5 and in section 5.5 of the previous chapter, we investigated the economic significance of the sell-off transactions for the buyers and sellers respectively. For that purpose we estimated the APRs as a measure of the of the value change of a seller or buyer around the sell-off announcement date. In this section we investigate the wealth effect of the sell-off announcements jointly on the seller and buyer involved in the same transaction. The analysis is based on a sample of 514 sell-offs from UK sellers to UK buyers. This is a subsample of the 1,941 sellers and 877 buyers used in the previous analysis and includes all the sell-off

announcements made by UK sellers to UK buyers with the required data for our analysis available on the IBES and Datastream databases.

Table 6.5 presents the annual distribution of abnormal pound returns to sellers, buyers and jointly. Overall, the findings suggest that corporate sell-off are not wealth generating decisions. The seller and buyer lose jointly an average of £0.40m per transaction. This is not a significant amount given their average size of £1,792.84m and £1,088.20 respectively. The seller suffers an average wealth loss of £2.34m per transaction, which is almost equal to the £2.17m wealth gain of the buyer in the same deal. The proportion of sellers experiencing wealth gains is almost the same with those experiencing wealth losses (51% - 49%). The buyers, however, experience wealth gains in a significantly higher proportion than wealth losses (55% -45%). This is counter intuitive given that the transaction is initiated by the seller and one would expect that it will be decided only if it is beneficial for the shareholders of the seller.

The sellers suffer wealth losses in all years except 1989 and 1992 (gains of £2.63m and £18.89m respectively). However, these losses are significant only in year 1993 (-£23.69m). The non parametric test suggests that the sellers experience wealth increases and decreases at almost similar proportions. The buyers realise mainly wealth increases following the announcement of the purchase of the divested division. These wealth gains of buyers are maximum in 1992 (£8.71m), followed by those in years 1990 (£6.45m), 1989 (£4.08m), 1991 (£3.60m) and 1993 (£1.20m). In years 1987 and 1988 the buyers lose on average £7.62m and £1.54m per transaction respectively. The buyers experience in higher proportions wealth gains than losses. This difference is significant in years 1990, 1991 and 1992.

Table 6.5 Annual distribution of average abnormal pound returns to sellers (APRS), buyers (APRB) and joint abnormal pound returns to sellers and buyers (APRJ).

Abnormal pound gains of sellers (APRS) is the product of their CAR and the market capitalisation of their equity on day -3 prior to the sell-off announcement day 0. CAR is the cumulation of the seller's abnormal returns (ARs) over the period from day -2 to the announcement day 0. Abnormal pound gains of buyers (APRB) is the product of their CAR and the market capitalisation of their equity on day -1 prior to the sell-off announcement day 0. CAR is the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to day +2. Net joint abnormal pound returns (APRJ) is the sum of APRS and APRB of the seller and buyer involved in the same sell-off transaction. Abnormal returns are the excess returns to the sellers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

	SELLERS		BUYERS		JOINT	
Year	APRS mean (£m)	APRS (% positive)	APRB mean (£m)	APRB (% positive)	APRJ mean (£m)	APRJ (% positive)
1987	-4.45	46.8	-7.62	51.7	-12.30	48.3
(62)	(-0.26)	(-0.51)	(-1.13)	(0.26)	(-0.60)	(-0.26)
1988	-2.39	43.8	-1.54	45.7	-5.00	47.4
(83)	(-0.61)	(-1.13)	(-0.48)	(-0.78)	(-0.95)	(-0.45)
1989	2.63	55.5	4.08	51.8	6.87	52.3
(113)	(0.64)	(1.15)	(1.00)	(0.38)	(1.31)	(0.48)
1990	-1.99	56.8	6.45	62.5**	3.95	54.2
(74)	(-0.28)	(1.17)	(0.74)	(2.19)	(0.34)	(0.71)
1991	-4.55	0.44	3.60	61.5*	-1.04	0.51
(53)	(-0.62)	(-0.85)	(0.68)	(1.71)	(-0.11)	(0.14)
1992	18.89	50.9	8.71	64.3**	27.44	56.4
(56)	(1.18)	(0.13)	(1.26)	(2.23)	(1.57)	(0.95)
1993	-23.69*	52.9	1.20	52.8	-22.43	53.6
(73)	(-1.82)	(0.48)	(0.18)	(0.47)	(-1.46)	(0.60)
Total	-2.34	50.7	2.17	54.9**	-0.40	51.8
(514)	(-0.63)	(0.31)	(0.97)	(2.20)	(-0.09)	(0.81)

The annual distribution of the joint wealth effect of sell-off announcements on sellers and buyers follows no systematic pattern. In 1987 and 1988 the losses of both sellers and buyers give a total average loss of £12.30m and £5.00m respectively. The following two years, 1989 and 1990, higher gains of the buyers drive the total to a

positive £6.87m and £3.95m respectively. In the subsequent years negative and positive total wealth changes alternate, i.e. loss of £1.04m in 1991, gain of £27.44m in 1992 and loss of £22.43m in 1993. If we exclude years 1987 and 1988 from the analysis[68], the sellers will be losing on average an insignificant £2m per transaction, whereas the buyers will be gaining a significant £4.6m with the total an insignificant £2.6m.

The contribution of this analysis is to link the effect of a sell-off announcement on both seller and buyer. This is important to appreciate the level of the actual wealth changes in monetary terms to the shareholders of the seller and buyer involved in a single transaction. The above findings indicates potential agency cost of managerial discretion or cost of financial distress if the seller is in need of cash.

6.7 MATERIALITY OF THE TRANSACTION

In Table 6.6, we present evidence of the impact of the relative size of the purchase on the wealth changes of the buyers' shareholders. The *relative purchase size* (RELVDB) is calculated as the ratio of the transaction price to the market capitalisation of the buyer's equity one calendar month prior to the sell-off announcement. We partition our sample buyers, for which we have transaction price data, into five quintiles, on the basis of the relative purchase size.

We find that the larger purchases, relative to the buyer's size, are in general more beneficial to the buyers' shareholders. Buyers in the 4th and 5th largest quintiles

[68] These results are not presented here.

enjoy positive and significant CAR, in contrast to buyers of relatively smaller divisions. The average CAFRs of buyers in all quintiles are insignificantly different from zero and the proportions of buyers with positive CAFR are insignificantly different from 50%. These indicate that when the buyers experience wealth benefits from a sell-off, as in the case of relative large purchases classified in quintiles 4 and 5, this is a result of transferred wealth from the sellers. It is also evident that only relatively large purchases (larger than 3.5% of buyer's size, which is the cut-off point between quintile 3 and 4) affect positively the wealth of the buyer's shareholders.

Table 6.6 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the relative purchase size (RELVDB).

Relative purchase size (RELVDB) is the ratio of the size of the sold division as it is defined by the transaction price (PRICE), when it is disclosed, and the market capitalisation of the buyer's equity one calendar month prior to the sell-off announcement. The RELVDB is multiplied by 100 and reported as %. Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the buyers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

RELVDB quintile	RELVDB Mean (Median)	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Quintile 1	0.00 (0.00)	0.0031 (1.32)	53.1 (0.74)	0.0002 (0.37)	55.0 (1.22)	151
Quintile 2	0.01 (0.01)	0.0011 (0.52)	47.9 (-0.50)	0.0004 (0.83)	45.0 (-1.22)	151
Quintile 3	0.02 (0.02)	0.0021 (1.00)	52.7 (0.65)	0.0005 (1.05)	54.3 (1.06)	151
Quintile 4	0.06 (0.06)	0.0059*** (2.69)	52.7 (0.66)	0.0001 (0.22)	47.7 (-0.57)	151
Quintile 5	0.32 (0.20)	0.0092*** (3.67)	61.1*** (2.70)	0.0001 (0.23)	45.4 (-1.14)	152
F-stat		2.11**	4.28***	0.08	5.65***	

6.8 RELATIVE SIZE OF THE SALE

As we discuss in Chapter 3, section 3.4, the relative sale size may affect the level of wealth changes of the buyer. A sale of a relatively large part of the seller's business may be seen as akin to a takeover by the buyer. In such a case we may observe that the transacting companies experience wealth changes similar to target and bidder in a takeover bid, i.e. the buyer does not benefit substantially and all the benefits accrue to the seller. Alternatively, if the increase in the relative sale size is related to larger purchased divisions, the buyer may find it more costly to adjust the acquired business to its existing business and therefore, benefits less than when the purchased division is small and equals the relative sale size.

Table 6.7 presents the CAR and CAFR for buyers and the percentage of buyers with positive CAR and CAFR partitioned in relative sale size quintiles. The CARs to the buyers are significantly positive in the 1st , 2nd and 5th quintiles and insignificant in quintiles 3 and 4. The percentage of buyers with positive CARs is insignificantly different from 50% in all the quintiles. The CAFRs are insignificant in all but the 3rd quintile where they are significantly negative (-0.13%, t=-0.66). The percentage of buyers with positive CAFR is significantly lower than 50% in quintiles 3 and 4 (38.7%, t=-2.44 and 41.4%, t=-1.83 respectively).

The above findings do not support the suggestion that higher relative sale size makes a sell-off akin to a takeover, which suggests that there are larger benefits to the seller and smaller benefits to the buyer engaged in relatively large divestments. The buyers benefit from divestments of either small or large relative sale size but not from divestments of medium relative sale size. These value gains are not related to changes

in the expected profitability of buyers. It therefore appears to be no systematic relationship between relative sale size and value gains of the buyers.

Table 6.7 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the relative sale size (RELVDS).

Relative sale size (RELVDS) is the ratio of the size of the sold division as it is defined by the transaction price (PRICE), when it is disclosed, and the market capitalisation of the seller's equity one calendar month prior to the sell-off announcement. The RELVDS is multiplied by 100 and reported as %. Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the buyers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

RELVDS quintile	RELVDS mean (median)	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Quintile 1	0.19 (0.18)	0.0054** (1.99)	54.5 (0.96)	0.0001 (0.15)	48.6 (-0.28)	111
Quintile 2	0.82 (0.80)	0.0069*** (2.67)	56.5 (1.36)	0.0004 (0.72)	50.5 (0.09)	111
Quintile 3	2.60 (2.46)	0.0004 (0.17)	45.9 (-0.86)	-0.0013* (-1.66)	38.7** (-2.44)	111
Quintile 4	8.47 (7.60)	0.0040 (1.40)	57.1 (1.56)	-0.0004 (-0.91)	41.4* (-1.83)	111
Quintile 5	56.90 (34.86)	0.0052** (2.04)	56.6 (1.37)	0.0007 (1.30)	51.4 (0.28)	111
F-stat		0.88	5.12***	1.69*	6.32***	

6.9 THE IMPACT OF THE CONDITION OF ECONOMIC ENVIRONMENT

In Table 6.4 we see that the annual distribution of buyers' wealth gains from the purchase varies considerably from year to year over our sample period. In this section, we investigate the impact of the condition of the economic environment on the wealth effects of sell-off decisions on buyers. As we have discussed in the previous chapter, our sample of sell-offs spans from the late 1980s to the early 1990s and comprises decisions taken within an economic environment of both expansion and recession. The condition of the UK economy during the sell-off decision period is likely to affect the motivation for the sale or purchase and the expected earnings and growth potentials of sellers and buyers. However, the precise impact of the condition of the UK economy on the wealth changes of the buyers has not been previously empirically investigated.

Table 6.8 presents the CARs and the CAFRs for buyers during a boom and a recession. The wealth gains of buyers during the recession are 0.78% (t=4.15). This is more than twice the size of the gains during boom periods (0.37%, t=3.35), with the difference statistically significant at the 10% level. More than 63% of the buyers during the recession enjoy positive CARs which is significantly higher than the 52% that do so during boom periods. CAFRs of 0.8% during the recession are statistically significant at the 10% level (t=1.67), as against insignificant CAFRs of 0.02% (t=0.70) during the boom. The difference between the buyer's CAFRs in the two groups is not statistically significant (t=1.14) but the percentage of buyers with positive CAFRs during the recession is greater that 50%, whereas during the boom it is less than 50%.

These findings suggest that the value gains of the buyers, from the sell-offs during boom economic periods, are a result of transferred wealth from the seller. On the other hand, during periods of recession, the higher value gains of buyers result from, at least partly, the expected increase in their profitability following the purchase. A possible explanation is that during the recession the buyers choose to engage in sell-offs only if the purchased division is expected to increase their profitability.

Table 6.8 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the condition of the economy.

The condition of the UK economy over the sample time-period is taken from the Annual Abstract of Statistics (Pepper 1998). Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the buyers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, one tail test.

	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Boom	0.0037*** (3.35)	51.7 (0.84)	0.0002 (0.70)	49.9 (-0.04)	641
Recession	0.0078*** (4.15)	63.4*** (4.07)	0.008* (1.67)	52.1 (0.65)	236
t-stat	1.91*	5.65***	1.14	1.06	

6.10 IMPACT OF THE INVESTMENT OPPORTUNITIES OF BUYER AND SELLER

The investment opportunities set available to the buyer determines the extent to which the purchased assets can be utilised at a high-value use and *ceteris paribus* creates higher wealth gains. Table 6.9 presents the CARs and the CAFRs for the high and low q buyers.

The vast majority of buyers are high q-ratio companies (749, i.e. 88%). This is comparable to the proportion of high q sellers (87%), as reported in Table 5.6, Panel A in the previous chapter. Both high and low q buyers have positive and significant CARs, with the low q buyers achieving slightly better abnormal returns than the high q buyers but the difference is not significant. The CAFRs of both the low q and high q buyers are insignificant. These findings suggest that the shareholders of both high and low q buyers realise similar wealth increases following the sell-off announcements.

The growth potential of high and low q buyers may be different during a boom and a recession. This may be reflected in the differential gains to the buyers between those two periods. We further investigate this relationship by accounting for the condition of the economic environment. In Panel B of Table 6.9, we report the CARs and CAFRs for the buyers during booming economic conditions. Almost 90% of the buyers have high q (564 high q-buyers vs. 59 low q-buyers). The high q buyers earn positive and significant CAR of 0.40% (t=3.42) which are accompanied by insignificant CAFR of 0.02% (t=0.78). On the other hand, the low q buyers experience small and insignificant CAR (0.38%, t=1.13) and CAFR (-0.05%, t=-0.40). Therefore, only the high q buyers benefit from the purchases of divisions in sell-offs during the

Table 6.9 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the value of the buyer's q ratio and the condition of the economic environment.

The q ratio of a buyer is proxied by its market-to-book value one month before the sell-off announcement. The high (low) q ratio group comprises the buyers with q ratio higher than one (lower or equal to one). Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the buyers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: CAR and CAFR of buyers partitioned by value of the buyer's q ratio.

Buyer's q	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
High q	0.0046***	54.9***	0.0003	51.0	749
	(4.52)	(2.65)	(1.39)	(0.55)	
Low q	0.0063**	54.6	0.0003	43.0	100
	(2.29)	(0.91)	(0.34)	(-1.40)	
t-stat	0.56	0.15	0.04	3.86***	

Panel B: CARs and CAFRs of buyers partitioned by value of the buyer's q ratio during economic boom.

Buyer's q	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
High q	0.0040***	52.3	0.0002	50.5	564
	(3.42)	(1.06)	(0.78)	(0.25)	
Low q	0.0038	50.0	-0.0005	42.4	59
	(1.13)	(0.00)	(-0.40)	(-1.17)	
t-stat	0.06	0.91	0.56	3.22***	

Panel C: CARs and CAFRs of buyers partitioned by value of the buyer's q ratio during recession.

Buyer's q	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
High q	0.0065***	62.8***	0.0007	52.4	185
	(3.11)	(3.47)	(1.33)	(0.66)	
Low q	0.0101**	61.5	0.0013	43.9	41
	(2.14)	(1.44)	(1.08)	(-0.78)	
t-stat	0.70	0.31	0.53	1.99**	

boom, which may be due to a wealth transfer from the sellers. The low q buyers neither improve their profit performance following a purchase nor do they experience value gains from the transaction. As shown in Panel C, during a recession, both high and low q buyers earn positive and significant CARs accompanied by insignificant CAFRs.

In Table 6.9 we see that the buyer's expected earnings do not increase following the sell-off announcement, which suggests that the reported buyer's gain is wealth transferred from the seller. This does not necessarily mean that the seller's value will diminish, since the transferred wealth may be part of the value increase to the seller following the sell-off. A factor related to the potential increase in the seller's wealth,following a sell-off, is its investment opportunities. The set of investment opportunities available to the seller may reveal its motivation for the sale. Sellers with high q may be more interested in selling part of their less profitable business to pursue other more profitable investment opportunities. This may offer buyers a negotiating advantage which results in higher benefits from the transaction. Table 6.10 confirms this conjecture.

As shown in Table 6.10, only buyers from high q sellers benefit from the purchase, during boom and recession periods. In Panel A, the buyers from high q sellers experience positive and significant CARs of 0.47% (t=3.69), whereas buyers from low q sellers have insignificant value gains of 0.43% (t=1.17). For the buyers from high q sellers, the percentage of buyers with positive CAR is significantly higher than 50% but for the buyers from low q sellers, insignificantly different from 50%. Panels B and C of Table 6.10, show that broadly the same pattern for the buyer's CARs and CAFRs applies for both boom and recession periods. The only difference is

Table 6.10 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the value of the seller's q ratio and the condition of the economic environment.

The q ratio of a seller is proxied by its market-to-book value one month before the sell-off announcement. The high (low) q ratio group comprises the sellers with q ratio higher than 1 (lower or equal to 1). Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the buyers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: CARs and CAFRs of buyers partitioned by value of the seller's q ratio.

Seller's q	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
High q	0.0047*** (3.96)	54.7** (2.07)	0.0000 (0.02)	48.2 (-0.80)	504
Low q	0.0043 (1.17)	57.8 (1.43)	0.0007 (1.14)	43.0 (-1.29)	86
t-stat	0.09	1.24	1.01	2.07**	

Panel B: CARs and CAFRs of buyers partitioned by value of the seller's q ratio during economic boom.

Seller's q	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
High q	0.0039*** (2.92)	53.1 (1.18)	-0.0001 (-0.34)	48.2 (-0.71)	384
Low q	0.0020 (0.40)	47.9 (-0.29)	0.0001 (0.06)	38.0* (-1.70)	50
t-stat	0.35	1.71*	0.20	3.38***	

Panel C: CARs and CAFRs of buyers partitioned by value of the seller's q ratio during recession.

Seller's q	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
High q	0.0072** (2.86)	59.8** (2.13)	0.0004 (0.61)	48.3 (-0.37)	120
Low q	0.0075 (1.37)	71.4** (2.54)	0.0016 (1.48)	50.0 (0.00)	36
t-stat	0.06	2.30**	0.91	0.32	

that, for the buyers from low q sellers, the percentage of buyers with positive CARs is significantly higher than 50%. However, this group of buyers comprises only 36 cases, which weakens the validity of inferences. Therefore, the overall evidence suggests that the observed value gains to buyers are mainly related to wealth transfers from the high q sellers especially in boom periods.

6.11 THE FINANCIAL HEALTH OF THE BUYER

In Table 5.11 of the previous chapter we present evidence that only financially healthy sellers benefit from the sell-off transaction and that these benefits derive, at least partially, from their increased expected profitability. In particular, the financially healthy sellers experience positive and statistically significant gains of 0.56% (t=4.57), whereas the financially distressed sellers experience insignificant losses of -0.41% (t=-1.13). This holds in both boom and recession. Here we investigate the impact of the buyer's financial health on its wealth benefits from the purchase. In Table 6.11 we see that less than 10% of the buyers are financially distressed companies. This proportion is almost half of the one reported for the sellers in Table 5.11. In particular, 9.8% financially distressed buyers reported in Table 6.11 vs. 16%

Table 6.11 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the z-score of the buyer (ZSIGNB) and the condition of the economic environment (BOOM).

The z-score of buyer (ZSIGNB) is estimated from the most recent published financial statements before the sell-off announcement, as discussed in section 4.7.5. Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the buyers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, one tail test.

Panel A: CARs and CAFRs of buyers partitioned by value of buyer's z-score.

Financial condition of the buyer	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Healthy	0.040*** (3.42)	55.2** (2.33)	0.0005** (1.97)	52.7 (1.20)	509
Distressed	0.0064 (1.55)	58.2 (1.21)	0.0008 (0.70)	50.9 (0.13)	55
t-stat	0.63	1.13	0.28	0.67	

Panel B: CARs and CAFRs of buyers partitioned by value of buyer's z-score during the economic boom.

Financial condition of the buyer	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Healthy	0.0038*** (2.85)	53.7 (1.39)	0.0006** (2.02)	52.8 (1.05)	360
Distressed	0.0015 (0.27)	47.1 (0.34)	-0.0006 (-0.49)	38.2 (-1.37)	34
t-stat	0.41	1.96**	0.92	4.39***	

Panel C: CARs and CAFRs of buyers partitioned by value of the buyer's z-score during recession.

Financial condition of the buyer	CAR	% positive	CAFR	% positive	No of obs.
Healthy	0.0045* (1.88)	58.9** (2.15)	0.0003 (0.62)	52.3 (0.57)	149
Distressed	0.0143** (2.46)	76.2** (2.40)	0.0032 (1.36)	71.4** (1.96)	21
t-stat	1.48	3.53***	1.19	3.77***	

financially distressed sellers in Table 5.11.[69] This is an indication that sellers may to some extent, decide on the sell-off because of problems related to their poor financial condition.

In Table 6.11, Panel A we see that only financially healthy buyers benefit from the purchase. The buyers are classified into two groups: financially healthy buyers if their z-score is greater than zero and financially distressed buyers, if their z-score is less than zero. The z-score is estimated on the basis of the most recent published financial statements before the sell-off announcement, as described in Section 4.6.5. The gains to financially healthy buyers are positive and statistically significant (CAR of 0.40%, t=3.42) and are, at least partially, a result of an increase in their expected profitability (CAFR of 0.05%, t=1.97). The value change of financially distressed buyers is insignificant (CAR of 0.64%, t=1.55) and so is the abnormal revision of their forecasted earnings (CAFR of 0.08%, t=0.70). The percentage of buyers with positive CAR is significantly higher than 50% for the financially healthy buyers but not for the financially distressed buyers. The percentage of buyers with positive CAFR is insignificantly different from 50% for both groups of buyers.

Panel B, Table 6.11 shows the CARs and CAFRs of the financially healthy and distressed buyers, following a sell-off decision during the boom economic periods and demonstrates that they exhibit the same pattern, as in Panel A. The only difference in the results presented in Panels A and B, is that in Panel B both the differences in

[69] Due to no data availability regarding the z-score of buyers and sellers, both samples have been reduced by similar proportions. In particular, in section 5.11.1 only 1,269 of the sellers have data available to estimate their z-score (a reduction 34.6%) and in this section, only 564 of the buyers have z-score data (a reduction of 35.7%).

the percentage of buyers with positive CAR and CAFR, between the groups of financially healthy and distressed buyers, are significant.

Panel C, Table 6.11, shows that during a recession, both financially healthy and financially distressed buyers benefit from the purchase but this is not due to an increase in their expected profitability. Despite the fact that the differences between the mean CAR and CAFR of the two groups are also not significant (as in Panels A and B), the magnitude of CAR and CAFR for the financially distressed buyers is now greater than that of the financially healthy buyers. Additionally, the percentage of financially distressed buyers with positive CAR and CAFR is now significantly higher than the respective percentages of financially healthy buyers, i.e. the reverse of the differences in the proportions reported in Panel B.

The above findings suggest that, in a recession, the overall pattern of value benefits, formerly accumulated only to financially healthy buyers, changes and both financially healthy and financially distressed buyers benefit from the sell-offs (with the proportions of the gaining buyers in the latter group significantly higher than those in the former). However, the overall results are driven by the majority of the sell-offs during the boom, i.e. 394 (70%) sell-offs during a boom as against 170 (30%) during a recession (which is proportional to the length of these periods: 68% vs. 32%, as reported in Table 6.8). This evidence should be interpreted cautiously because of the small size of the financially distressed buyers during a recession period (only 21 cases).

The combined reading of the evidence presented in this section with that presented in Table 5.11 of the previous chapter, suggests that a sell-off decision is justified, on shareholder value creation grounds, only for the financially healthy

buyers and sellers. A sale by a financially distressed seller may be an escape route but does not create shareholder value. Similarly, a purchase by a financially distressed buyer can be potentially value increasing only during a recession period. However, we cannot strongly support this conclusion and its general applicability, due to the small sample size in this case.

6.12 THE FIT OF PURCHASED DIVISION TO THE BUYER'S OPERATIONS

Synergy gains from a sell-off may be higher for a buyer when the purchased division fits with its existing business. This argument has an intuitive appeal and has been theoretically justified in the existing literature, as we discuss in Chapter 3, section 3.8. In Table 6.12, we present evidence of the relationship between the fit of the purchased division to the operations of the buyer and its wealth changes following the sell-off transaction. The dummy variable FIT, as defined in section 4.6.11, assumes value one (*fit* group of buyers) if the purchased division is in the same main industry as the buyer's and zero otherwise (*no fit* group of buyers).

Panel A, Table 6.12, shows that the buyers in the fit group experience positive and significant value gains from the purchase (CAR of 0.49%, t=4.16). These gains are comparable to the gains of the buyers in the no fit group (CAR of 0.46%, t=2.86) and the difference in the buyer's gains between the two groups is insignificant (t=0.14). The percentage of buyers with positive CAR in the fit group is significantly higher than 50% (55.1%, t=2.51) but, for the buyers in the no fit group (54.2%, t=1.33) it is insignificantly different from 50%.

Table 6.12 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the fit of the purchased division to the buyer's operations and the condition of the economic environment.

The fit of the purchased division and the buyer is defined on the basis of similarity of the industry of purchased division and buyer, as discussed in section 4.7.11. The dummy variable FIT takes the value 1 if the purchased division is in the same industry as the buyer and 0 otherwise. Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the buyers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, one tail test.

Panel A: CARs and CAFRs of buyers partitioned by fit of purchased division to the operations of the buyer.

Fit of purchased division and buyer	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
FIT=1	0.0049*** (4.16)	55.1** (2.51)	0.0007*** (2.78)	52.7 (1.36)	622
FIT=0	0.0046*** (2.86)	54.2 (1.33)	-0.0006 (-1.36)	45.1 (-1.57)	255
t-stat	0.14	0.43	2.67***	3.62***	

Panel B: CARs and CAFRs of buyers partitioned by fit of purchased division to the operations of the buyer during the boom.

Fit of purchased division and buyer	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
FIT=1	0.0036*** (2.60)	51.0 (0.43)	0.0004 (1.48)	51.5 (0.62)	443
FIT=0	0.0038** (2.23)	53.1 (0.86)	-0.0004 (-0.87)	46.5 (-0.99)	198
t-stat	0.08	0.84	1.56	2.00**	

Panel C: CARs and CAFRs of buyers partitioned by fit of purchased division to the operations of the buyer during recession.

Fit of purchased division and buyer	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
FIT=1	0.0080*** (3.76)	65.1*** (4.01)	0.0014*** (2.73)	55.9 (1.57)	179
FIT=0	0.0072* (1.79)	57.9 (1.19)	-0.0012 (-1.17)	40.4 (-1.46)	57
t-stat	0.16	1.80*	2.40**	3.75***	

The abnormal forecasts revisions of earnings (CAFR), however, show that only the buyers in the fit group increase significantly their expected profitability, with an average CAFR of 0.07% (t=2.78). This evidence suggests that by purchasing divisions that fit their existing business, the buyers experience significant benefits which derive, at least partly, from the increase in their expected profitability. On the other hand, for the buyers in the no fit group, the CAFR is -0.06% (t=-1.36). This suggests that the value gains to buyers in the no fit group are possibly a result of wealth transferred from the sellers.

Panel B reports the results of the same analysis for the sell-offs during the boom periods of the UK economy. As above, the buyers in both groups earn significant and comparable gains (0.36% and 0.38% respectively). The CAFR, however, are insignificant for the buyers in both groups. They are positive for the buyers in the fit group (0.04%, t=1.48) and negative for the buyers in the no fit group -0.06%, t=-1.36) and their difference is insignificant (t=1.56). In a recession, as Panel C shows, the relationship between CAR and CAFR and level of fit of purchased division to the operations of the buyer is the same as for the overall sample, reported in Panel A. Therefore, the wealth gains to buyers of both fit and no fit group during a boom, result from wealth transferred from the sellers. During a recession, the same applies to the buyers in the no fit group, whereas, for the buyers in the fit group, their wealth increase is a result, at least partly, of the expected increase in their profitability.

6.13 RELATIVE BARGAINING POWER OF SELLER AND BUYER

As we discuss in Chapters 2 and 3, sections 2.6 and 3.7, the distribution of the value generated by the sell-off transaction and in general the wealth benefits from the deal are related to the relative bargaining power of the companies involved. As proxies of the relative bargaining power, we identify the relative size of seller and buyer and the state of the financial health of the seller. In Chapter 5 we investigate the relationship between these two proxies of bargaining power and the wealth gains to the sellers. We find that the state of the financial health of the seller, as represented by the its z-score is positively correlated to the CARs (Table 5.11). However, the relationship between the seller's CAR and the other measure of the relative bargaining power, i.e. the relative size of the seller and the buyer is found to be insignificant.

The sell-off transaction may generate wealth by transferring corporate resources from a low value use under the seller to a higher value use under the buyer. In this case, there is a question of how the created wealth is divided between the two companies. Alternatively, the seller may improve its performance by increasing the focus on its more profitable business. The buyer may also benefit due to synergy gains between its existing operations and the purchased business. Whatever is the source of the value benefits to the companies involved in a sell-off transaction, both parties are expected to exert their bargaining power to appropriate the maximum possible gains. Therefore, their relative bargaining power is important factor which determines the level of the wealth gains of both seller and buyer.

In this section we investigate the impact of the relative bargaining power of seller and buyer, as proxied by their relative size and the financial health of the seller, to the wealth gains of the buyer.

6.13.1 RELATIVE SIZE OF SELLER AND BUYER

We expect that the relative bargaining power of seller and buyer, as measured by their relative size (RELVSB), is positively related to their wealth benefits from the sell-off transaction. If the sell-off is a wealth generating transaction, the party with the stronger bargaining position may benefit more. To investigate the impact of the relative size of seller and buyer on the wealth gains of the buyer, we divide the buyers into five quintiles based on their relative size (RELVSB). The relative size of seller and buyer, RELVSB, is the ratio of the market capitalisation of equity of seller and buyer one calendar month before the sell-off announcement. Table 6.13 reports the average CAR and CAFR along with the percentage of buyers with positive CAR and CAFR for the buyers in the various quintiles of RELVSB.

Only the buyers purchasing from relatively larger sellers benefit from the purchase. Buyers in quintiles 3, 4 and 5 enjoy positive and significant CARs of 0.44% (t=1.89), 0.49% (t=2.14) and 0.75% (t=2.68) respectively. In contrast, the buyers in quintiles 1 and 2, have positive but small and insignificant CARs of 0.29% (t=1.15) and 0.29% (t=1.15). The percentages of buyers with positive CARs are higher than 50% in all quintiles but significantly higher only in quintile 5 (58.4%, t=1.88) and not significantly different from each other (F=1.03). The CAFR for the buyers are

insignificant in all quintiles and the percentage of buyers with positive CAFR is insignificantly different from 50% in all but the 3rd quintile, where it is significantly lower than 50% (38.1%, t=-2.75). This suggests that the wealth gains to buyers in quintiles 3, 4 and 5 are possibly transfers of wealth from the seller.

Table 6.13 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) to buyers partitioned by the relative size of seller and buyer (RELVSB).

The relative size of the seller and buyer (RELVSB) is measured by the ratio of their respective market value of equity one calendar month prior to the sell-off announcement. CAR is the excess of the buyer's returns over the returns on a matching size and book-to-market benchmark portfolio over the period from the announcement day 0 to day +2, relative to announcement day 0. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, one tail test.

RELVSB quintile	RELVSB mean (median)	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
quintile 1	0.04 (0.03)	0.0029 (1.15)	57.5 (1.64)	0.0001 (0.16)	50.8 (0.18)	126
quintile 2	0.30 (0.28)	0.0029 (1.30)	53.2 (0.72)	0.0011** (2.10)	51.6 (0.36)	126
quintile 3	1.22 (1.14)	0.0044* (1.89)	54.0 (0.90)	-0.0003 (-0.59)	38.1*** (-2.75)	126
quintile 4	4.40 (4.05)	0.0049** (2.14)	52.4 (0.54)	-0.0009 (-1.62)	49.2 (-0.18)	126
quintile 5	55.49 (22.73)	0.0075*** (2.68)	58.4* (1.88)	0.0001 (0.06)	48.8 (-0.27)	127
F-stat		0.59	1.03	1.64	8.43***	

The above findings indicate that there is a positive relationship between the relative size of seller and buyer and the wealth gains to the buyer, which is contrary to our expectation of a negative relationship. However, this is not related to value losses to the sellers in the respective quintiles of RELVSB. As we report in Table 5.12, in all

the RELVSB quintiles, there are no value gains or losses to the sellers. The combined reading of Tables 6.13 and 5.12 suggests that a sell-off transaction creates value when a relatively small buyer purchases from a large seller but all the benefits are transferred to the buyer. A possible explanation is that the seller and buyer split the generated wealth but due to the difference in their size (in quintiles 4 and 5 the buyer is much smaller than the seller) this has a significant impact only on the buyer.

6.13.2 STATE OF FINANCIAL HEALTH OF SELLER

In section 5.10.1 of the previous chapter we document that the financial condition of a seller is positively correlated to its wealth gains from the sell-off transaction. The findings were reported in Table 5.11 and interpreted as evidence supporting the hypothesised positive relationship between the seller's wealth gains from a sell-off and its bargaining power.

In this section we investigate the effect of this factor, i.e. the relative bargaining power of seller and buyer as measured by the z-score of the seller, on the wealth gains of the buyer from the purchase of the divested assets. We expect to observe a reverse relationship between the seller's z-score and the value gains to the buyer. Table 6.14 reports the CAR and CAFR for the buyers partitioned into two groups. We divide our sample in two groups. The group of buyers who transact with financially healthy sellers (sellers with z-score higher than zero) and the group of buyers who purchase from financially distressed sellers (sellers with z-score less than zero).

The buyers who purchase divisions of financially healthy sellers experience positive and significant CAR of 0.52% (t=3.50) but those in the other group experience insignificant CAR (0.43%, t=1.40). The percentage of buyers with positive CAR is higher than 50% in the first group (57.9%, t=2.84) but not in the second (52.0%, t=0.35). The CAFR are insignificant for both groups (-0.01% with t=-0.19 and 0.04% with t=0.45 respectively). This evidence suggests that the buyers who transact with financially healthy sellers benefit significantly from the purchase, in contrast to the buyers from financially distressed sellers. These value benefits are not related to an increase in the buyers' expected profitability following the purchase. A combined reading of Tables 6.14 and 5.11 indicates that the value gains to the buyers from financially healthy sellers are part of the increase in those sellers' wealth. Financially healthy sellers, as reported in Table 5.11, enjoy value gains (CAR of 0.56%, t=4.57) as a result of the increase in their expected profitability (CAFR of 0.13%, t=4.09). These financially healthy sellers share part of their benefits from the sell-off with the buyers. The data reported in Panels B and C reveal that this applies to both boom and recession periods.[70]

[70] The only difference is that in recession, unlike the boom, the differences in the percentages of buyers with positive CAR02 and CAFR03 are not statistically significant.

Table 6.14 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the z-score of the seller (ZSIGNS) and the condition of the economic environment (BOOM).

The z-score of seller (ZSIGNS) is estimated from the most recent published financial statements before the sell-off announcement, as discussed in section 4.6.5. Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the buyers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, one tail test.

Panel A: CARs and CAFRs of buyers partitioned by value of seller's z-score.

Financial condition of the seller	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Healthy	0.0052*** (3.50)	57.9*** (2.84)	-0.0001 (-0.19)	44.5* (-1.99)	323
Distressed	0.0043 (1.40)	52.0 (0.35)	0.0004 (0.45)	54.7 (0.81)	75
t-stat	0.26	1.92*	0.48	3.30***	

Panel B: CARs and CAFRs of buyers partitioned by value of seller's z-score during the economic boom.

Financial condition of the seller	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Healthy	0.0034** (2.08)	55.5* (1.73)	-0.0003 (-0.59)	44.0* (-1.90)	247
Distressed	0.0042 (0.95)	46.7 (-0.45)	-0.0001 (-0.06)	53.3 (0.45)	45
t-stat	0.21	2.37**	0.17	2.51**	

Panel C: CARs and CAFRs of buyers partitioned by value of the seller's z-score during recession.

Financial condition of the seller	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Healthy	0.0112*** (3.25)	65.8*** (2.90)	0.0005 (0.78)	46.2 (-0.68)	76
Distressed	0.0044 (1.13)	60.0 (1.12)	0.0011 (0.73)	56.7 (0.74)	30
t-stat	1.31	0.93	0.35	1.61	

6.14 THE IMPACT OF THE RELATIVE LOCATION OF BUYER AND PURCHASED DIVISION

In section 5.11 of Chapter 5 we discuss how information asymmetry may determine the level of wealth gains to the seller and buyer. In Table 5.13 we report evidence concerning the wealth changes of the sellers, supporting the information asymmetry hypothesis. Sellers were found to gain more when selling to buyers located in a different country from that of the purchased division. In this section we examine this relationship from the buyer's perspective. The information asymmetry hypothesis suggests that buyers of foreign divisions may experience lower value benefits than buyers of local divisions. Information constraints related to the nature of the operations of a foreign division or its market, may result in overpayment by the buyer, or in less successful management of those assets which results in lower future profitability.

In Table 6.15 we investigate the impact of the relative location of the buyer and purchased division on the wealth gains of the buyer. Our sample buyers are all UK companies and we classify them into two groups: the UK-UK group where the purchased division is a UK company, and the UK-F group where the purchased division is a non-UK company.

When UK buyers purchase UK divisions (UK-UK group), they experience higher wealth gains (average CAR of 0.50%, t=4.95) than when they purchase subsidiaries based in foreign countries (UK-F group) (average CAR of 0.28%, t=0.93). This is possibly related to the fact that UK buyers are less well informed

Table 6.15 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the relative location of buyer and purchased division and the condition of the economic environment.

We classify the buyers of our sample into two groups of relative location buyer and purchased division: UK-UK and UK-F. First we record the location of the buyer and then the country of the operations of the disposed division. The seller is always a UK company. The UK-UK group comprises the UK buyers that purchase UK divisions of the sellers and the UK-F group the UK buyers that purchase non-UK divisions. Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the buyers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, one tail test.

Panel A: CARs and CAFRs of buyers partitioned by the relative location of buyer and purchased division.

Relative location Buyer-Division	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
UK - UK	0.0050***	55.2***	0.0004*	50.9	811
	(4.95)	(2.91)	(1.71)	(0.53)	
UK - F	0.0028	50.8	-0.0004	45.5	66
	(0.93)	(0.12)	(-0.60)	(-0.74)	
F-stat.	0.69	2.07**	1.13	2.53**	

Panel B: CARs and CAFRs of buyers partitioned by the relative location of buyer and purchased division during the boom.

Relative location Buyer-Division	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
UK - UK	0.0040***	52.0	0.0002	50.2	590
	(3.41)	(0.96)	(0.83)	(0.08)	
UK - F	0.0005	48.0	-0.0003	47.1	51
	(0.16)	(-0.28)	(-0.40)	(-0.42)	
F-stat.	0.84	1.57	0.64	1.22	

Panel C: CARs and CAFRs of buyers partitioned by the relative location of buyer and purchased division during recession.

Relative location Buyer-Division	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
UK - UK	0.0076***	63.6***	0.0008*	52.9	221
	(3.88)	(4.01)	(1.79)	(0.87)	
UK - F	0.0102	60.0	-0.0006	40.0	15
	(1.60)	(0.77)	(-0.56)	(-0.77)	
F-stat.	0.34	0.74	1.19	2.60***	

about the real value of foreign businesses, or the higher cost of entry into a foreign market, or the higher cost of post-acquisition integration of the foreign purchase.

The difference in the value gains to the buyers in the two groups is related, at least partly, to the differences in their expected future operating performance. The buyers of UK divisions have wealth benefits from the purchase which seem to reflect the increase in their forecast profitability. On the other hand the buyers of foreign divisions experience no value gains or an increase in forecast earnings. The proportion of buyers who purchase a business in another country is very small (only 7% of the total transactions) and the vast majority of them (almost 80%) do so during a boom period.

In the panels B and C of Table 6.15, we report the combined effect of the condition of the economic environment and the relative location of the buyer and the purchased division. The buyers of local divisions (UK-UK) realise positive and significant value gains in both boom and recession periods, with CARs of 0.40% (t=3.41) and 0.76% (t=3.88) respectively. During the boom the percentage of buyers with positive CAR is higher than 50% for the UK-UK group of buyers and lower for the UK-F group, but insignificant for both and with an insignificant difference (t=1.57). During the recession we cannot make valid inferences for the buyers of foreign divisions, because of the small size of this group (only 15 cases). The mean abnormal forecast revisions of earnings (CAFR) is positive and significant only for the UK-UK group of buyers during the recession period. Similarly, the difference between the percentage of buyers with positive CAFR in the groups UK-UK and UK-F is significant during the recession but insignificant during the boom. This suggests that part of the value gains to the buyers in this group may result from an increase in their

expected profitability. In the other group, the CAFR are insignificant, indicating that the value gains to the buyer in the UK-UK group during a boom period are wealth transfers from the seller.

This evidence provides further support to the information asymmetry hypothesis, as in the case of the sellers, as documented in the previous chapter.

6.15 CHARACTERISTIC OF THE TRANSACTION

In this section we investigate the impact of the characteristics of the sell-off transaction on the wealth changes of the buyers. In particular, we investigate the impact of the disclosure of the transaction price, as well as the impact of the size of the deal. The disclosure of the transaction price is positively related to the value gains to sellers, as we present in section 5.12.1 (Table 5.14). The same applies to the size of the transaction (Section 5.12.2, Table 5.15).

6.15.1 PRICE DISCLOSURE

Sell-offs are usually initiated and controlled[71] by the sellers. No disclosure of the transaction price may be seen by the market as an attempt of the seller to conceal negative information about an unfavourable deal for them and hence, positive for the buyer. On the other hand, as we discuss in sections 5.12.1 and 2.3, nondisclosure of

the transaction price may increase possible uncertainty about the successful completion of the deal which can have a negative impact on the value changes of both sellers and buyers. Sicherman and Pettway (1992), report a positive relationship between the disclosure of transaction price and the value gains to US buyers, in the period 1981-87. However, this relationship has not been investigated in the UK. Table 6.16 reports the CARs and CAFR of buyers, partitioned by the disclosure of the sale price.

The sale price is disclosed in more than 86% of the cases (756 of the total 877). The buyers in both the price and no price group earn positive and significant CARs (0.43%, t=4.23 in the price group and 0.77%, t=2.94 in the no price group). However, in the price group 63% of the buyers has positive CAR (t=2.82), which is significantly higher (t=4.63%) than the 53% (t=1.91) in the price group. Additionally, the average CAFR for both price and no price group is small and insignificant (0.03%, t=1.13 and 0.07%, t=1.54 respectively) with their difference also insignificant (t=0.84). However, the percentage of buyers with positive CAFRs in the no price group is higher than 50% (57%, t=1.55) and lower than 50% in the price group (49.5%, t=-0.29), with their difference significant (t=3.71).

In section 5.12.1 we discuss two possible interpretations of the positive relationship between the price disclosure and the value gains to the sellers, as suggested in the literature. In particular, the reduction of uncertainty regarding the successful completion of the deal and the communication to the market of information concerning the value of the remaining assets to the seller. Both hypotheses

[71] Sellers have control over the initiation and outcome of the transaction in the sense that at any stage

Table 6.16 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the disclosure or not of the transaction price.

A buyer classified into *price* group, if the transaction price is disclosed on the announcement of the sell-off, otherwise the buyer is classified into the *no price* group. Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the buyers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, one tail test.

	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Price	0.0043*** (4.23)	53.5* (1.91)	0.0003 (1.13)	49.5 (-0.29)	756
No price	0.0077*** (2.94)	62.8*** (2.82)	0.0007 (1.54)	57.0 (1.55)	121
t-stat	1.23	4.63***	0.84	3.71***	

accommodate positive value gains for the seller from the disclosure of the transaction price and imply a causality from the price disclosure (cause) to the seller's value gains (effect). An alternative explanation might be that the price is disclosed only if the transaction is beneficial for the seller.

A combined reading of the findings in this section and those reported in section 5.12.1 of the previous chapter is more appropriate than an attempt to interpret the results of Tables 5.14 and 6.16 separately. If the disclosure of the transaction price were controlled by the seller, we suggest that it would only be disclosed when it was more favourable to the seller and less favourable to the buyer. Therefore, disclosure of the transaction price may be positively related to value gains of the seller and

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they can call off the deal, if they are not satisfied with its ultimate value implication for them.

negatively to those of the buyer and the opposite effect would be related to the non disclosure of the transaction price.

The above suggestion is supported by the results reported in Tables 5.14 and 6.16. In particular, the evidence is that a positive relationship exists between the disclosure of the transaction price and the value gains to the sellers (section 5.12.1), and a negative relationship between the price disclosure and the value gains to the buyers (section 6.15.1). This supports our suggestion that the transaction price is disclosed when it is more favourable to the sellers and less so to the buyer.

6.16.2 IMPACT OF THE SIZE OF THE DEAL

In this section, we investigate the impact of the size of the deal on the wealth gains to the buyers by partitioning our sample of buyers into five quintiles according to the sell-off price. This analysis may be useful for two reasons: first, because it explains the direct relationship between transaction size and the wealth changes of buyers, and second, because it helps detect the extent to which the exclusion of relatively small size deals can potentially induce sample selection bias in the results. The latter is important particularly where the effect of the sell-offs on buyers of small divisions is systematically different from their effect on the buyers of large divisions, and where studies exclude some small transactions. In this analysis we use the subgroup of 756 buyers for which we have transaction price data.

Table 6.17 reports the CARs and CAFRs for the buyers partitioned in quintiles based on the size of the transaction. The buyers in all but the smallest price

Table 6.17 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the quintile of transaction price.

Transaction price is the price paid by the buyer for the acquired assets. The price is reported in £m and when it is announced in a foreign currency, we translate it into pounds sterling using the exchange rate of the announcement day. Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the buyers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, one tail test.

PRICE quintile	PRICE Mean (median)	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
quintile 1	0.79 (0.78)	0.0021 (0.85)	45.3 (-1.14)	0.0008 (1.26)	53.6 (0.90)	151
quintile 2	2.51 (2.50)	0.0036* (1.81)	50.3 (0.08)	0.0006 (01.05)	46.4 (-0.90)	151
quintile 3	5.36 (5.00)	0.0050** (2.12)	55.7 (1.39)	-0.0009* (-1.68)	44.4 (-1.38)	151
quintile 4	12.93 (12.50)	0.0041* (1.72)	56.3 (1.50)	0.0004 (1.00)	51.0 (0.24)	151
quintile 5	102.16 (42.30)	0.0068*** (3.07)	60.1** (2.47)	0.0004 (0.78)	52.0 (0.49)	152
F-stat		0.59	7.35***	1.52	4.48***	

quintile enjoy positive and significant CARs, which are not in general different from each other (F=0.59). The percentage of buyers with positive CAR is lower than 50% in the first quintile and higher than 50% in all the other quintiles, but only in the highest (5^{th}) the buyers have an average percentage positive CAR significantly higher than 50% (60.1%, t=2.47).

The magnitude of the CARs increases moderately with the sale price. This increase is much clearer in the proportion of buyers who have positive CARs. The proportion of buyers with positive CARs increases from 45.3% in the first quintile of

the sale price to 60.1% in the fifth quintile. The differences in percentages of buyers with positive CARs across quintiles is also statistically significant (F=7.35).

The mean CAFRs, on the other hand, are insignificant in all the quintiles except in the 3rd quintile, where they are significantly negative (-0.09%, t=-1.68). The percentage of buyers with positive CAFR is insignificantly different from 50% in all the size quintiles. This analysis suggests that whereas the value gains to the buyer increase with an increase in the size of the divested division, analysts do not seem to regard size as particularly relevant to their decision to revise their earnings forecasts. However, this increase of buyer's value with the size of divestment is not strictly monotonic and only in quintile 5 the percentage of buyers with positive CAR is significantly higher than 50%.

6.16 IMPACT OF LENDERS' MONITORING

In section 2.8 we discuss the importance of the monitoring role of lenders and in particular the banks. The managers of buyers with a higher level of debt in their capital structure may be more closely monitored. Approval of buyers' investment decisions by their debtholders is more likely to attract more positive market reaction. We anticipate that the buyers with large gearing benefit more from the purchase than those with less gearing. There is no empirical evidence concerning the relationship of the level of the buyer's debt and its gains from the purchase of the divested division. We investigate this relationship employing two measures of the level of the buyer's debt, i.e. the borrowing ratio (BR) and the ratio of total loans to total equity and

reserves (TL_ER), as described in section 4.6.6. In Table 6.18, Panel A we divide the buyers into five quintiles according to the value of their borrowing ratio. The average CARs of buyers are positive and significant in all but the 4th quintile, where they are insignificantly different from zero. The proportions of buyers with positive CAR are higher than 50% in all quintiles but significantly only in quintiles 3 and 5. The wealth benefits to the buyers are not related to any increase in their expected profitability, as measured by their CAFR, since only the buyers in the highest BR quintile experience positive and significant CAFR of 0.7% (t=1.68). Therefore, at least part of the gains to the buyers with high borrowing ratio (those in the 5th quintile) is related to higher expected profitability. This offers limited support for the view that managers of the highly geared buyers agree to the purchase if it increases the expected profitability of the buyer.

Panel B of Table 6.18 presents the results of a similar analysis of the second measure of the buyer's gearing, i.e. the total loans to the equity and reserves (TL_ER). The results are broadly similar to those reported in Panel A, except that the CAFR are insignificantly different from zero in all quintiles. The buyers' CAR are positive and significant in all quintiles except in quintile 2 and the percentage of buyers with positive CAR is significantly different from 50% only in quintile 3 (64.1%, t=3.62). These significant value gains to the buyers do not correspond to an expected increase in their profitability, since the CAFRs are insignificant in all the quintiles.

The above findings do not offer significant support to the expected positive relationship between the buyer's value gains from the purchase and the level of debt in its capital structure.

Table 6.18 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the borrowing ratio of the buyer (BR) and the ratio of the total loans to equity and reserves of the buyer.

The borrowing ratio (BR) is the ratio of the buyer's total debt to its equity capital and reserves minus its intangibles. Total loans to equity and reserves (TL_ER) is the ratio of total loans of the buyer to its total equity and reserves. Cumulative abnormal forecast revisions of earnings (CAFRs) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CARs) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to the day +2. Abnormal returns are the excess returns to the buyers over the returns to the matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A: Borrowing ratio of buyer.

BR Quintile	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Quintile 1	0.0053**	54.7	0.0004	53.7	164
	(2.29)	(1.19)	(0.76)	(0.94)	
Quintile 2	0.0046**	50.9	-0.0001	47.0	164
	(2.00)	(0.24)	(-0.19)	(-0.78)	
Quintile 3	0.0047**	57.8**	-0.0002	47.9	165
	(2.30)	(1.99)	(-0.43)	(-0.55)	
Quintile 4	0.0021	51.9	0.0001	40.9**	164
	(1.15)	(0.47)	(0.10)	(-2.38)	
Quintile 5	0.0052**	57.9**	0.0007*	55.8	165
	(2.32)	(2.06)	(1.68)	(1.49)	
F-stat	0.36	3.19***	0.52	7.49***	

Panel B: Total loans to equity and reserves of buyer.

TL_ER Quintile	CAR (mean)	CAR (% positive)	CAFR (mean)	CAFR (% positive)	No of obs.
Quintile 1	0.0050**	53.6	0.0001	46.8	156
	(2.46)	(0.89)	(0.09)	(-0.80)	
Quintile 2	0.0019	48.1	0.0003	50.6	156
	(0.76)	(-0.48)	(0.58)	(0.16)	
Quintile 3	0.0074***	64.1***	0.0001	48.7	156
	(3.06)	(3.62)	(0.34)	(-0.32)	
Quintile 4	0.0038*	53.6	-0.0001	43.6	156
	(1.73)	(0.90)	(-0.06)	(-1.61)	
Quintile 5	0.0041**	55.1	0.0005	55.4	157
	(2.09)	(1.29)	(0.97)	(1.36)	
F-stat	0.81	10.72***	0.17	3.88***	

6.17 IMPACT OF PRE-ANNOUNCEMENT UNCERTAINTY

In section 4.6.10 we discuss how uncertainty during the pre-sell-off announcement period might affect positively the revisions of the analysts forecasts of earnings. A higher level of uncertainty might offer analysts the opportunity to provide a more positive perspective of the purchase's implications for the buyer's future profitability via positive revisions of their earnings forecasts. The analysts' special relationship with the management of the company for whom they provide forecasts is often very strong, particularly when they work for a financial institution which has the analysed company as a corporate client.

In this section we investigate the relationship between the analysts' forecast revisions of earnings following the purchase and information uncertainty before the announcement. This uncertainty is related to the expected earnings of the buyer and is measured by the standard deviation of the analysts' forecasts of earnings (STDEARN) and the standard deviation of the buyer's abnormal returns (STDAR), prior to the announcement, as these variables are defined in section 4.6.10. In Table 6.19 we present the results of this analysis.

In the top part of Table 6.19 we divide the sample of buyers into quintiles according to the standard deviation of their abnormal returns (STDAR) over the period from day -250 to day -10 relative to the sell-off announcement day 0. The CAFR for the buyers in the 1st and 2nd quintile are negative and insignificant (-0.02%, t=-0.49 and -0.06%, t=-1.53 respectively). Buyers with CAR of higher volatility, i.e.

Table 6.19 Cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned into quintiles by the standard deviation of the abnormal return to buyers (STDAR) and the standard deviation of the consensus analysts' forecast revisions of earnings (STDEARN).

STDAR is the average standard deviation of the abnormal returns to buyers over the period from day -250 to day -10 relative to sell-off announcement day 0. STDEARN is the average standard deviation of the consensus analysts' forecasts of earnings for the buyers over the period from month -18 to month -4 relative to sell-off announcement month 0. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the buyer's abnormal returns (AR) over the period from the announcement day 0 to day +2. Abnormal returns are the excess returns of the buyers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

STDAR				
STDAR quintile	STDAR	CAFR (mean)	CAFR (% positive)	No of obs
Quintile 1	0.0094	-0.0002 (-0.49)	45.7 (-1.14)	175
Quintile 2	0.0121	-0.0006 (-1.53)	44.6 (-1.44)	175
Quintile 3	0.0143	0.0006 (1.28)	54.9 (1.29)	175
Quintile 4	0.0175	0.0010** (1.97)	53.1 (0.83)	175
Quintile 5	0.0253	0.0007 (1.15)	53.7 (0.99)	175
F-stat		1.94*	6.92***	
STDEARN				
STDEARN quintile	STDEARN	CAFR (mean)	CAFR (% positive)	No of obs
Quintile 1	0.4916	0.0007 (1.62)	54.9 (1.22)	153
Quintile 2	1.1081	-0.0003 (-0.75)	49.0 (-0.24)	153
Quintile 3	1.7186	0.0001 (0.26)	48.4 (-0.40)	153
Quintile 4	2.8305	0.0001 (0.32)	49.7 (-0.08)	153
Quintile 5	6.3981	0.0009 (1.39)	52.9 (0.73)	153
		0.98	2.03**	

those in the quintiles 3, 4 and 5, have positive CAFRs but there are only significant in quintile 4 (0.06%, t=1.28 in quintile 3, 0.10%, t=1.97 in quintile 4 and 0.07%, t=1.15 in quintile 5). The proportion of buyers with positive CAFR is less than 50% in quintiles 1 and 2 (around 45%) but in quintiles 3, 4 and 5 it is higher than 50% (around 53-55%), which is significantly higher (F=6.92) than the proportion in quintiles 1 and 2.[72]

Table A6.5 in the Appendix provides a clearer picture by classifying the sample of buyers into those that experience high and low volatility of the abnormalreturns and abnormal forecast revisions of earnings (compared to the mean volatility). In the top part of Table A6.5, the group of buyers with higher than median pre-sell-off announcement volatility of abnormal returns experience positive and significant CAFR of 0.7% (t=1.88), in contrast to the group of buyers with lower than the median volatility of abnormal returns which experience negative but small and insignificant CAFR of -0.1% (t=-0.18). These findings provide some support for a positive relationship between information uncertainty, as measured by the standard deviation of the pre-announcement abnormal returns and the abnormal revisions of the analysts' forecasts of earnings.

In the bottom part of Table 6.19 we repeat the analysis for the second measure of information uncertainty, i.e. the standard deviation of analysts' forecasts of earnings during the period before the sell-off announcement. We divide our sample of buyers into five quintile-groups according to the value of the standard deviation of the analysts' forecasts of earnings (STDEARN). The average CAFR of buyers is insignificant in all quintiles and the percentage of buyers with positive CAFR is

[72] The F statistic is a measure of whether the means of the five quintile-groups are equal. However, the

insignificantly different from 50%. The results reported in the bottom part of Table A6.6 suggest a similar weak relationship between CAFR and standard deviation of pre-sell-off announcement analysts' forecast revisions of earnings. Overall, these findings suggest that when the analysts revise their earnings forecasts, following a sell-off announcement, they do not consider the level of pre-announcement uncertainty, as represented by the standard deviation of the earnings forecasts in the previous months, as an important factor which influences the level or direction of their forecast revisions.

6.18 BUYERS' CUMULATIVE ABNORMAL RETURNS (CAR): THE JOINT IMPACT OF ABNORMAL ANALYSTS' FORECAST REVISIONS OF EARNINGS (CAFR) AND OTHER FACTORS.

The purchase of divested assets is an important investment decision for buyers which may change significantly their size.[73] We have seen (Table 6.2a) that the overall effect of the sell-offs on the buyers' wealth is positive (CAR of 0.48%, t=5.03) and is associated more with a transfer of wealth from the seller than with an increase in the buyer's profitability (CAFR of 0.03%, t=1.53). In previous sections of this chapter, we investigated the impact of a number of factors on the wealth changes of buyers following the purchase. In this section we examine the joint impact of those factors on the buyers' wealth as measured by their cumulative abnormal returns over the period

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means of quintiles 1 and 2 are very similar to the means of quintiles 3, 4 and 5.

[73] In Table 6.6 we see that the average relative purchase size of buyers in the largest quintile is 32%, with a number of buyers purchasing divisions larger than their size.

from day 0 to day +2 (CAR). For this purpose we use multivariate regression analysis, by employing the conventional ordinary least squares (OLS) regression method. Table 6.20 gives descriptive statistics of all the variables involved in the analysis. We examine the values of the descriptive statistics in Table 6.20 and the visually inspect the distributions of the variables to decide whether their distribution is highly skewed. In such a case, following the conventional approach, we use the logarithmic transformation of these variables is our regression models.

Table 6.21 presents the results of our multiple regression analysis. Which investigates the joint impact of various explanatory variables on the buyers' wealth gains, as measured by their cumulative abnormal returns. The first model (Model 1) investigates the relationship between buyers' CAR and CAFR. The regression coefficient is not significantly different from zero, which implies that there is no strong relationship between the two variables. This is in accordance with the insignificance of their correlation coefficient reported in Table A6.6.

In the Model 2, we include, as explanatory variables, the CAFR and the other variables investigated in the previous sections of this chapter. We use the robust White estimator of variance which produces consistent standard errors even when the residuals are not identically distributed. In our analysis we use CAFR to investigate the possible sources of value gains to the buyers following the sell-off decisions and not to explain the changes in CAR. The coefficient of variable CAFR, in Model 2, is negative but not significant and in Model 3 we repeat the same analysis excluding this variable. The two models produce identical results in terms of significant explanatory variables and level of significance. The relative size of the purchase (RELVDB), the q-ratio of the buyer (QBUY) and the relative location of buyer and purchased

Table 6.20 Descriptive statistics for the variables used in the analysis

The variables defined in Chapter 4 or created in the analysis and defined in the relevant section of this chapter. The number of observations is different for each variable because complete data was not available for all variables.

Panel A: Continuous variables and log transformations when used in the analysis.

VARIABLE	DEFINITION	MEAN	MEDIAN	STD DEV	No OF OBS.
CAR	Cumulative abnormal returns to buyers over the period (0,+2)	0.0048	0.0028	0.0279	877
CAFR	Cumulative abnormal forecast revisions of earnings over the period (0,+3)	0.0003	0.0001	0.0063	877
AFR0	Analysts' abnormal forecast revisions of earnings in announcement month 0	0.0002	-0.0000	0.0030	877
AFR1	Analysts' abnormal forecast revisions of earnings in announcement month +1	0.0002	0.0000	0.0029	858
AFR2	Analysts' abnormal forecast revisions of earnings in announcement month +2	0.0002	0.0000	0.0031	843
AFR3	Analysts' abnormal forecast revisions of earnings in announcement month +3	-0.0002	-0.0000	0.0032	830
RELVDB	Relative size of the purchase	0.08	0.02	0.20	756
RELVDS	Relative size of the sale	0.14	0.02	0.37	555
RELVSB	Relative size seller and buyer	12.36	1.14	44.27	631
SPRICE	Transaction price	24.85	5.00	84.33	756
LnSPRICE	Log transaction price	1.73	1.61	1.65	756
MVSEL	Market capitalisation of the seller	1536.69	435.77	2983.51	631
LnMVSEL	Log of seller's market capitalisation	5.75	6.01	2.12	631
MVBUY	Market capitalisation of the buyer	1013.12	252.36	2142.22	877
LnMVBUY	Log of buyer's market capitalisation	5.58	5.53	1.74	877
STDAR	Standard Deviation of ARs to the buyer over the period: day -250 to day -10	0.02	0.01	0.01	875
LnSTDAR	Log standard deviation of buyer's ARs	-4.22	-4.25	0.35	875
STDEARN	Standard deviation of the buyer's AFRs over the period: month -18 to month -4	2.50	1.67	2.92	768
LnSTDEARN	Log standard deviation of buyer's AFRs	0.50	0.51	0.96	765
BR	Borrowing ratio	0.48	0.39	0.80	847
TL_ER	Total loans to equity and reserves	0.28	0.19	0.41	847

Table 6.21 continued

Panel B: Dummy variables

VARIABLE	DEFINITION	POSITIVE	NEGATIVE	TOTAL
BOOM	Condition of the economic environment	641 (73%)	236 (27%)	877
QBUY	Q-ratio of buyer as proxied by its market-to-book value	100 (12%)	749 (88%)	849
QSEL	Q-ratio of seller as proxied by its market-to-book value	504 (85%)	86 (15%)	590
FOCUS	Measure of increase in seller's focus	459 (57%)	351 (43%)	810
MS (6 months)	Sell-off decided within a divestment program, more than one divestment within 6 months	380 (57%)	291 (43%)	671
MS (1 month)	Sell-off decided within a divestment program, more than one divestment within 1 month	175 (26%)	496 (74%)	671
ZSIGNB	State of buyer's financial health as measured by its z-score	509 (90%)	55 (10%)	564
ZSIGNS	State of seller's financial health as measured by its z-score	330 (81%)	75 (19%)	405
BSLOCAL3	Relative location of buyer and purchased division. Value 1, if in the same country	811 (92%)	66 (8%)	877
SPRICE2	Dummy with value 1 when the transaction price is disclosed	121 (14%)	756 (86%)	877

division (BSLOCAL3) are found positively related to the value gains of the buyer. On the other hand, the relative size of divestment (lnRELVDS), the condition of the financial health of buyer (ZSIGNB) and the relative size of seller and buyers (lnRELVSB) are found negatively related to the value gains of the buyer. These findings are broadly in line with the findings of the univariate analysis in the preceding sections of this chapter, with exemption the negative relationship of the state of financial health of the buyer (ZSIGNB). In the multivariate regression the coefficient of the ZSIGNB variable is found negative and significant, whereas in the univariate analysis (section 6.11), we find a positive relation between the financial health of buyer and its wealth benefits from the sell-off.

Table 6.21 Regression of the cumulative abnormal returns (CAR) of buyer on its cumulative abnormal forecast revisions of earnings (CAFR) and other explanatory variables.

	MODEL 1	MODEL 2	MODEL 3	MODEL 4
Intercept	0.0035***	0.0068	0.0089	0.0019
	(4.09)	(0.59)	(0.78)	(0.22)
CAFR	0.0021	-0.3268		
	(0.02)	(-1.18)		
lnRELVDB		12.36***	11.89***	
		(2.85)	(2.75)	
lnRELVDS		-12.35***	-11.89***	
		(-2.84)	(-2.75)	
BOOM		-0.0043	-0.0043	-0.0050*
		(-1.29)	(-1.28)	(-1.67)
QSEL		0.0012	0.0010	
		(0.26)	(0.20)	
QBUY		0.0094*	0.0085*	0.0092**
		(1.95)	(1.77)	(2.09)
ZSIGNB		-0.0117**	-0.0119**	-0.0089*
		(-2.00)	(-2.05)	(-1.86)
FIT		-0.0027	-0.0029	-0.0011
		(-0.79)	(-0.87)	(-0.38)
lnRELVSB		-12.35***	-11.89***	
		(-2.84)	(-2.75)	
ZSIGNS		0.0022	0.0014	0.0034
		(0.52)	(0.35)	(0.97)
BSLOCAL3		0.0090*	0.0082*	0.0056
		(1.84)	(1.69)	(1.33)
lnSPRICE		0.0005	0.0006	
		(0.37)	(0.46)	
TL_ER		-0.0035	-0.0040	-0.0071
		(-0.59)	(-0.68)	(-1.46)
Adj. R^2				
F-stat.	0.00	2.19**	2.13**	1.97**
No of Obs.	861	222	222	254

CARs are the cumulative abnormal returns to the buyer over the period from the announcement day 0 to day +2. CAFRs are the cumulative analysts' abnormal forecast revisions of earnings. Definitions of the explanatory variables are given in Chapter 4, section 4.7. BOOM is a dummy variable, proxy for the condition of economic environment. LnRELVSB is the logarithm of the relative size of seller and buyer. LnRELVDB is the logarithm of the relative size purchase and LnRELVDS is the logarithm of the relative size of sale. QSEL and QBUY are the proxies for the q-ratios of seller and buyer respectively. ZSIGNS and ZSIGNB are the sign of the z-score of seller and buyer. FIT is the dummy which measures the fit of the purchased division to the operations of the buyer. BSLOCAL3 is the measure of the relative location of the buyer and purchased division. LnSPRICE is the logarithm of the transaction price and TL_ER is the ratio of total loans to the sum of equity and reserves of the buyer.

Table A6.6 reports the pairwise correlation coefficients between the various explanatory variables used in the analysis throughout this chapter. It is apparent that some variables are highly correlated. If two highly correlated explanatory variables are used simultaneously in a multiple regression, multicollinearity may be induced in the results of the analysis. To alleviate this potential multicollinearity problem in our multiple regression, we examine the correlation between pairs of explanatory variables. In the case where the high correlation is an intrinsic feature of two explanatory variables, the conventional approach is to use only one of them. This results in no real loss of explanatory power of the model. When two variables are highly collinear, the variable which is, statistically, the strongest predictor and has the highest theoretical relevance, is kept in the model, whereas the other is excluded.

In our set of explanatory variables, the dummy variable QSEL is highly correlated with the QBUY variable. The relative size of the sale (lnRELVDS) and the relative size of the purchase (lnRELVDB) are both highly correlated with the logarithm of the transaction price (lnSPRICE). The relative size of seller and buyer (lnRELVSB) is highly correlated with lnRELVDS, lnRELVDB, lnSPRICE, ZSIGNB, FIT and QSEL. Therefore in Model 4 we include the variables: BOOM, QBUY, ZSIGNB, FIT, ZSIGNS, BSLOCAL3 and TL_ER.

Only three of the seven explanatory variables in Model 4 are found significant in jointly explaining the wealth gains or losses of the buyer following the sell-off (CAR). The financial health of the buyer (ZSIGNB) and the condition of the economic environment (BOOM) are jointly negatively associated with the buyer's CAR, whereas the q-ratio of the buyer (QBUY) is positive and significantly related to CAR. The direction of the join relationships of these explanatory variables with the buyer's

CAR are the same as in the previous Model 3. However, comparing models 3 and 4 we find that the condition of the economic environment (BOOM) is insignificant in Model 3 but becomes significant in Model 4 and the variable BSLOCAL3 loses its significance.

In evaluating the results of the multiple regression analysis, above, it is important to recognise that they are based on a significantly reduced subsample of the overall initial sample of 877 buyers. Only 222 buyers have available data for the explanatory variables used in models 2 and 3, 254 in Model 4 and only in the first model (which is just a univariate regression) we have 861 cases. Therefore, the results of the above presented multiple regression analysis may have less general applicability compared to the results of the univariate analysis which are based on much larger samples. However, both approaches represent important tools of analysis and they are employed to investigate the same corporate decision from different perspectives.

6.19 CONCLUSION

In this chapter we investigate the effect of sell-off decisions on the wealth of the buyers' shareholders. We find that the buyers earn positive and significant cumulative abnormal returns around the sell-off announcement day. This apparent wealth gain of the buyers following a purchase could be related either to the subsequent improvement of their performance, or to the transfer of wealth from the seller to the buyer, or both. These possible sources of value creation have different implications for the future earnings of the buyer. The former implies that the

performance, and hence the expected earnings of the buyer, improve after the purchase, whereas the latter assumes no improvement on the future performance of the buyer. To identify the source of the wealth increase of the buyers following the sell-offs, we utilise the abnormal analysts' forecast revisions of earnings for the buyers at the time of sell-off announcements.

We find positive but small and not significant abnormal forecast revisions of the buyers' earnings. This suggests that the source of value gains of the buyers may be the transfer of wealth from the sellers and not an improvement in the buyer's performance following the sell-offs. These results are free of self-selection bias by the forecasting analysts in our sample. We find that the average abnormal forecast revisions of earnings for the group of buyers with an increasing number of forecasting analysts is not significantly different from that in the group of buyers with a decreasing number of forecasting analysts.

We also investigate the impact on a number of relevant factors on the wealth gains of the buyers, as they were introduced and justified in Chapter 3. In particular, we find that buyers experience higher value gains from relatively large sell-offs but that their expected earnings are insignificantly different from zero and do not change with the relative size of the purchase. This indicates that buyers only benefit from large purchases and these benefits are due to transfer of wealth from the sellers. The relative size of the sale to the seller is found to be insignificantly related to the buyer's wealth gains. We suggested that the relative size of the sale might be a proxy for the similarity of the sell-off to a takeover, given that in some cases the seller divests a significant part of his business. Our findings do not confirm that in relatively large

divestments, the buyer does not on average suffer wealth losses, unlike bidders in outright takeovers.

We also find some evidence of a more beneficial impact of economic recession on the wealth gains of the buyers than in boom period. The superior wealth benefits of the buyers during a recession result, at least partly, from the expected increase in their profitability. However, during a boom, the buyers benefit exclusively due to a transfer of wealth from the seller.

Both high and low q-ratio buyers experience positive and significant value changes following purchase decisions. These gains are similar for the two groups of buyers but a significantly higher percentage of high q buyers benefit from the purchase than the low q buyers. For both groups these benefits are wealth transfers from the sellers, since the expected earnings forecasts are not revised significantly following the purchase announcement. The low q buyers only benefit during a recession but the high q buyers benefit in both boom and recession periods. Again, in both boom and recession periods, these benefits are not related to any increase in the expected profitability of the buyers.

The q ratio of the seller is more clearly related to the buyer's benefits from the purchase. We find that only buyers from high q sellers benefit and this applies to both boom and recession periods. This, combined with previously mentioned findings and the results reported in Table 5.8 (confirming higher gains for the high q sellers) supports the suggestion that sell-offs by high q sellers generate more benefits for the buyers by transferring part of the increased seller's wealth to the buyers.[74]

[74] The source of wealth increase of the high q sellers is an increase in their expected profitability.

Our research documents that only financially healthy buyers benefit from the sell-offs. Additionally, we find that part of the value gains of financially healthy buyers are a result of an expected increase in their profitability. This finding also applies to sell-offs during booming economic conditions but, interestingly, not during a recession. In a recession, the buyers benefit significantly from the purchase of the divested assets. The market, during recession, appears to recognise the purchase as a positive decision on the part of the buyer's management to deal with the financial distress. However, this result should be interpreted cautiously in light of the small sample of low q buyers during a recession.

The wealth gains of the buyer are related to an increase in its expected profitability when the purchase division fits its existing operations. This finding is in line with theoretical predictions that buyers realise higher synergy gains when they purchase divisions in the same industry as their major business. This is reflected in higher future profits. The buyers benefit from the purchase only when they transact with relatively larger sellers and in particular, when the seller is larger than the buyer but the buyers' profitability is not related to the relative size of seller and buyer. Buyers realise positive and significant abnormal returns and earnings forecast revisions when they purchase UK divisions in both boom and recession periods but not when they purchase foreign divisions. This may be a result of information asymmetry costs or of the cost of entering a new market.

The non-disclosure of the transaction price is found to be marginally more beneficial for the buyers than disclosure. However, in both cases the positive and significant value gains are not related to an increase in the expected profitability of buyers. We also find no conclusive evidence of a positive relationship between the

size of the purchase and both the value gains to buyers and the improvement of their expected profitability. The level of debt in the capital structure of the buyer, as measured by the borrowing ratio and the ratio of total debt to equity and reserves, is not related to the wealth changes of buyers following the purchase. The same applies to the expected profitability of buyers.

Finally, the level of information uncertainty concerning the expected earnings of the buyer is positively related to the abnormal forecast revisions of earnings by financial analysts submitting forecasts for the buyer. We measure the information uncertainty with the standard deviation of the consensus earnings forecasts and find that for buyers with high volatile earning forecasts, the analysts revise their earning forecasts significantly upwards following the sell-off announcement, as compared with buyers with less volatile earning forecasts.

Sell-offs are an important investment decision taken in a complex corporate environment and their effect on the buyers' wealth may be influenced by the simultaneous impact of a number of different factors.

We investigate the joint impact of various important factors using multivariate regression analysis. In a multivariate ordinary least squares regression, we regress the buyers' cumulative abnormal returns (CAR) on the cumulative abnormal earnings forecast revisions (CAFR) and a number of other relevant explanatory variables. The effect on CAFR is insignificant and when we exclude it from the multivariate regression, the correlation coefficients of the remaining explanatory variables and the overall explanatory power of the model do not change. The jointly significant explanatory variables are: the relative value of the purchase (RELVDB), the q-ratio of the buyer (QBUY), the relative location of purchased division and buyer

(BSLOCAL3), the relative size of the sale (RELVDS), the relative size of seller and buyer (RELVSB) and the condition of the financial health of the buyer (ZSIGNB). The first three variables are jointly positively related to the buyer's value gains from the sell-off, whereas the last three negatively. This result is broadly in line with the findings of the univariate analysis, except the negative regression coefficient of the last variable (ZSIGNB). When we interpret the results of multivariate analysis we should be aware that, due to lack of data for all the variables introduced simultaneously into our multiple regression models, the sample is drastically reduced to only 222 cases in the models 2 and 3 and 254 cases in Model 4.

APPENDIX

Table A6.1 Cumulative Abnormal Returns *(CAR)* and t-statistics for various intervals around the sell-off announcement day 0, for the different models of estimating abnormal returns for the buyers.

	MARKET ADJUSTED RETURNS		*SIZE ADJUSTED RETURNS*	
Interval	*%CAR*	*% positive*	*%CAR*	*% positive*
-10 to +10	0.0150***	56.8***	0.0131***	56.1***
	(5.49)	(4.00)	(5.11)	(3.62)
-10 to 0	0.0080***	53.6**	0.0079***	54.4***
	(3.80)	(2.10)	(4.10)	(2.62)
0 to +10	0.0088***	54.6***	0.0072***	53.9**
	(4.89)	(2.70)	(4.08)	(2.33)
-5 to +5	0.0101***	53.3*	0.0103***	55.9***
	(4.65)	(1.94)	(5.10)	(3.43)
-5 to 0	0.0054***	51.4	0.0056***	52.1
	(3.21)	(0.83)	(3.55)	(1.23)
0 to +5	0.0072***	53.7**	0.0065***	54.3**
	(5.17)	(2.15)	(4.94)	(2.54)
-2 to +2	0.0047***	54.0	0.0057***	54.1**
	(3.17)	(2.33)	(3.99)	(2.41)
-2 to 0	0.0025*	50.7	0.0033***	54.1**
	(1.94)	(0.41)	(2.77)	(2.41)
0 to +2	0.0045***	52.0	0.0045***	54.1**
	(4.66)	(1.20)	(4.86)	(2.40)
-1 to +1	0.0031***	49.9	0.0035***	52.1
	(2.49)	(-0.07)	(2.93)	(1.25)
-1 to 0	0.0022**	50.2	0.0027***	52.9*
	(2.04)	(0.14)	(2.62)	(1.72)
0 to +1	0.0033***	50.2	0.0027***	52.3
	(3.77)	(0.10)	(3.37)	(1.39)

Table A6.2a Forecast revisions of earnings (FR), abnormal forecast revisions of earnings (AFRs) for buyers in the year of sell-off announcement (FY1), based on a third-order moving average model, and cumulative abnormal returns (CARs) for buyers.

Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the buyer's AFRs over the period from the sell-off announcement month 0, to month +3 thereafter. CAR is the cumulation of the buyer's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns of buyer over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in brackets. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A Earnings Forecast Revisions					
Month relative to event month	FR (mean)	FR (% positive)	AFR (mean)	AFR (% positive)	No of Obs
-3	-0.0004*** (-3.30)	34.1*** (-9.11)	0.0002 (1.37)	53.1* (1.78)	821
-2	-0.0005*** (-4.59)	33.8*** (-9.37)	0.0000 (0.04)	51.6 (0.93)	837
-1	-0.0005*** (-4.21)	34.3*** (-9.22)	0.0000 (0.41)	51.5 (0.89)	858
0	-0.0003*** (-3.35)	36.9*** (-7.73)	0.0002* (1.65)	48.6 (-0.81)	877
+1	-0.0003*** (-3.02)	34.6*** (-9.01)	0.0002** (2.16)	52.4 (1.40)	858
+2	-0.0003** (-2.35)	33.5*** (-9.61)	0.0002** (2.06)	51.0 (0.55)	843
+3	-0.0007*** (-5.74)	31.4*** (-10.69)	-0.0002** (-2.16)	48.0 (-1.15)	830
Cumulative (0 to +3)	-0.0015*** (-5.49)	41.5*** (-5.03)	0.0004* (1.82)	51.4 (0.81)	877
Panel B Buy-and-Hold Abnormal Returns					
Event Window	Buy-and-Hold Returns		Percentage Positive		
0 to +2	0.0048*** (5.03)		54.8*** (2.83)		877
0	0.0019*** (3.25)		52.0 (1.18)		877

Table A6.2b Forecast revisions of earnings (FR), abnormal forecast revisions of earnings (AFRs) for buyers in the second year after the sell-off announcement (FY2), based on a third-order moving average model, and cumulative abnormal returns (CARs) for buyers.

Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the buyer's AFRs over the period from the sell-off announcement month 0, to month +3 thereafter. CAR is the cumulation of the buyer's abnormal returns (AR) over the period from day -2 to the announcement day 0. Abnormal returns are the excess returns of buyer over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in brackets. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Panel A Earnings Forecast Revisions					
Month relative to event month	FR (mean)	FR (% positive)	AFR (mean)	AFR (% positive)	No of Obs
-3	-0.0005*** (-3.36)	32.9*** (-5.88)	-0.0001 (-0.38)	52.9 (0.99)	295
-2	-0.0003 (-1.42)	35.0*** (-5.60)	0.0002 (0.91)	55.3** (1.97)	351
-1	-0.0001 (-0.61)	36.3*** (-5.54)	0.0004** (1.97)	52.2 (0.89)	408
0	-0.0004** (-2.34)	37.0*** (-5.68)	0.0000 (0.03)	51.3 (0.55)	476
+1	-0.0003* (-1.73)	38.8*** (-4.85)	0.0001 (0.72)	48.8 (-0.51)	469
+2	-0.0006*** (-3.42)	34.1*** (-6.83)	-0.0001 (-0.82)	48.4 (-0.70)	463
+3	-0.0006*** (-3.79)	30.5*** (-8.30)	0.0001 (0.18)	50.1 (0.05)	455
Cumulative (0 to +3)	-0.0017*** (-4.23)	43.3*** (-2.93)	0.0000 (0.03)	51.1 (0.46)	476
Panel B Buy-and-Hold Abnormal Returns					
Event Window	Buy-and-Hold Returns		Percentage Positive		
0 to +2	0.0046*** (3.66)		55.1** (2.22)		476
0	0.0023*** (3.13)		51.5 (0.64)		476

Table A6.3 Cumulative abnormal returns (CAR) and cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the relative value of the q ratio of seller and buyer (QSEL and QBUY).

The q-ratio of a seller (buyer) is proxied by its market-to-book value one month before the sell-off announcement. High q ratio groups (H_s , H_b)comprise the sellers or buyers with q ratio higher than 1. Low q ratio groups (L_s , L_b)comprise the sellers or buyers with q ratio lower than 1. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of sellers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the buyer's abnormal returns (ARs) over the period from the announcement day 0 to day +2. Abnormal returns are the excess returns of the buyers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

Relative q-ratio Seller-Buyer	CAR (mean)	CAR (% positive)	No of obs.
H_s - H_b	0.0045***	54.4*	434
	(3.58)	(1.83)	
H_s - L_b	0.0095**	60.4	53
	(2.60)	(1.54)	
t-stat	1.32	2.11**	
L_s - H_b	0.0024	55.6	63
	(0.52)	(0.89)	
L_s - L_b	0.0084*	63.2	19
	(1.71)	(1.19)	
t-stat	0.89	1.02	

Table A6.4 Cumulative abnormal returns (CAR) for buyers partitioned by quintiles of the standard deviation of the abnormal return to buyers (STDAR) over the period from day -250 to day -10 prior to the sell-off announcement and by quintiles of the standard deviation of the consensus analysts' forecast revisions of earnings (STDEARN) for the buyers over the period from month -18 to month -4 prior to the sell-off announcement.

STDAR is the average standard deviation of the abnormal returns to buyers over the period from day -250 to day -10 relative to sell-off announcement day 0. STDEARN is the average standard deviation of the consensus analysts' forecasts of earnings for the buyers over the period from month -18 to month -4 relative to sell-off announcement month 0. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the buyer's abnormal returns (AR) over the period from the announcement day 0 to day +2. Abnormal returns are the excess returns of the buyers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

STDAR					STDEARN				
STDAR quintile	STDAR	CAR (mean)	CAR (% positive)	No of obs	STDEARN quintile	STDEARN	CAR (mean)	CAR (% positive)	No of obs
quintile 1	0.0094	0.0030* (1.65)	53.5 (0.92)	172	quintile 1	0.4916	0.0017 (0.76)	51.0 (0.25)	152
quintile 2	0.0121	0.0057*** (2.81)	57.6** (2.01)	172	quintile 2	1.1081	0.0012 (0.59)	50.7 (0.16)	152
quintile 3	0.0143	0.0042** (2.10)	57.3* (1.93)	172	quintile 3	1.7186	0.0066*** (2.71)	51.3 (0.32)	152
quintile 4	0.0175	0.0078*** (3.43)	55.6 (1.46)	172	quintile 4	2.8305	0.0065*** (3.20)	62.0*** (3.03)	152
quintile 5	0.0253	0.0036 (1.46)	50.3 (0.08)	172	quintile 5	6.3981	0.0045** (2.17)	58.4** (2.08)	152
F-stat		0.85	1.99**				1.46	6.32***	

Table A6.5 Cumulative abnormal forecast revisions of earnings (CAFR) for buyers partitioned by the level of the pre-announcement uncertainty as measured by the STDAR and STDEARN.

STDAR is the average standard deviation of the abnormal returns to buyers over the period from day -250 to day -10 relative to sell-off announcement day 0. STDEARN is the average standard deviation of the consensus analysts' forecasts of earnings for the buyers over the period from month -18 to month -4 relative to sell-off announcement month 0. Cumulative abnormal forecast revisions of earnings (CAFR) are the sum of the AFRs of buyers over the sell-off announcement month 0 to +3 months thereafter. Cumulative abnormal returns (CAR) are the cumulation of the buyer's abnormal returns (AR) over the period from the announcement day 0 to day +2. Abnormal returns are the excess returns of the buyers over the returns of a matching size and market-to-book quintile portfolio. Significance test statistics are given in parentheses. Percentage positive revisions are tested using the binomial test against the null hypothesis proportion of 50%. ***, **, * mean significance at 1%, 5% and 10% levels, two tails test.

STDAR			
STDAR	CAFR (mean)	CAFR (% positive)	No of obs.
STDAR > Median	0.0007*** (1.88)	53.1 (1.29)	437
STDAR < Median	-0.0001 (-0.18)	47.6 (-1.01)	438
t-stat	1.67*	2.25**	
STDEARN			
STDEARN	CAFR (mean)	CAFR (% positive)	No of obs.
STDEARN > Median	0.0006* (1.72)	50.8 (0.31)	382
STDEARN < Median	0.0001 (0.13)	51.3 (0.51)	383
t-stat	1.14	0.19	

Table A6.6 Pairwise Pearson correlation coefficients among the variables used in chapter 6.

Description of the variables is given Chapter 4, section 4.6.

	lnSPRICE	lnRELVDS	lnRELVDB	lnRELVSB	CAR	CAFR	QSEL
lnSPRICE	1.00						
lnRELVDS	0.3361 0.00	1.00					
lnRELVDB	0.4968 0.00	0.1497 0.00	1.00				
lnRELVSB	0.0824 0.05	-0.7140 0.00	0.5854 0.00	1.00			
CAR	0.0550 0.14	-0.0099 0.82	0.1026 0.01	0.0765 0.06	1.00		
CAFR	-0.0277 0.45	0.0061 0.89	-0.0235 0.52	-0.0456 0.25	0.0081 0.81	1.00	
QSEL	0.0395 0.37	-0.3303 0.00	0.0759 0.08	0.3115 0.00	0.0044 0.92	-0.0374 0.36	1.00
QBUY	-0.0474 0.20	-0.0204 0.63	-0.0969 0.01	-0.0411 0.31	-0.0195 0.57	0.0016 0.96	0.1314 0.00
BSLOCAL3	-0.1030 0.01	0.1069 0.0118	0.0416 0.25	-0.0716 0.07	0.0207 0.54	0.0321 0.34	-0.0518 0.21
FOCUS	0.0253 0.51	-0.0755 0.08	0.0266 0.48	0.0874 0.03	-0.0063 0.86	-0.0068 0.85	0.0871 0.04
BOOM	-0.0228 0.53	0.0029 0.95	-0.0195 0.59	0.0107 0.79	-0.0649 0.06	-0.0409 0.23	0.1444 0.00
ZSIGNB	0.1281 0.00	0.0662 0.21	-0.1066 0.02	-0.1284 0.01	-0.0268 0.53	-0.0167 0.69	0.0615 0.23
ZSIGNS	0.1761 0.00	-0.0295 0.58	0.0786 0.14	0.0847 0.09	0.0133 0.79	-0.0269 0.59	0.0886 0.08
FIT	0.0723 0.05	-0.0718 0.09	0.0681 0.06	0.0918 0.02	0.0047 0.89	0.0899 0.01	-0.0219 0.60
BR	0.0027 0.94	0.0242 0.58	-0.1285 0.00	-0.1517 0.00	-0.0335 0.33	0.0163 0.64	-0.0926 0.03
TL_ER	0.0793 0.03	0.0023 0.96	-0.1368 0.00	-0.1126 0.01	-0.0453 0.19	0.0140 0.69	-0.04 0.33

Table A6.6 continued

Pairwise Pearson correlation coefficients among the variables used in chapter 6.

	QBUY	BSLOCAL3	FOCUS	BOOM	ZSIGNB	ZSIGNS	BR	TL_ER
QBUY	1.00							
BSLOCAL3	-0.0885 0.01	1.00						
FOCUS	0.0587 0.10	0.0055 0.88	1.00					
BOOM	0.1189 0.00	-0.0269 0.43	0.1824 0.00	1.00				
ZSIGNB	0.0234 0.58	-0.0146 0.73	0.0499 0.26	0.0576 0.17	1.00			
ZSIGNS	-0.0425 0.40	-0.0694 0.16	0.0005 0.99	0.1437 0.00	0.0785 0.20	1.00		
FIT	-0.0347 0.31	0.0267 0.43	-0.1213 0.00	-0.0658 0.05	-0.0200 0.64	0.0477 0.34	1.00	
BR	0.0855 0.01	0.0408 0.24	0.0316 0.38	0.0699 0.04	-0.0152 0.72	-0.0148 0.77	-0.0412 0.23	1.00
TL_ER	0.0101 0.77	-0.0469 0.17	0.0084 0.81	0.0369 0.28	-0.0098 0.82	-0.0027 0.96	-0.0471 0.17	0.4388 0.00

CHAPTER 7

SUMMARY, CONCLUSIONS AND IMPLICATIONS

7.1 INTRODUCTION

The broad objectives of this thesis, as stated in Chapter 1, were to examine the wealth implications of the sell-off decisions on the shareholders of the sellers and buyers. Particular aims within this framework were to identify the sources of the value gains or losses of the sellers and buyers and to investigate the importance of the determining factors of these wealth changes. In the light of these objectives, as developed in Chapter 1, Section 1.9, we developed and tested two research questions:

1) What is the motivation of the sellers for the sell-off and what are the wealth implications of the sell-off announcements on sellers' shareholders? Additionally, which are the sources and the determining factors of these wealth changes ?

2) How are the shareholders of the buyers affected by the purchase decision and which factors determine their wealth experience ?

Significant financial resources and managerial time are involved in the sell-off activity. We saw that over the seven year period from 1987 to 1993 the total value of the 1,941 sell-offs was almost £70bn in the UK (if we project this to the total 3,210

sell-offs during that period, it will exceed £115bn). That level of corporate restructuring activity should be justified on sound economic rational, serving specific corporate needs and eventually creating shareholder value. Our study provided an investigation of the motivation of the sellers and buyers and the implications of the sell-offs for their shareholders' wealth.

We have studied the impact of a number of important factors that determine the wealth implications of sell-offs not previously investigated. We have used a large sample which facilitates more generally applicable conclusions and we extended our study horizon over a number of years covering both boom and recession periods.

In this chapter we summarise the results of our analyses, we discuss the implications of these results for the shareholders of the sellers and buyers, investors, managers and other market participants and finally we highlight the issues for further research.

7.2 WEALTH IMPLICATIONS OF THE SELL-OFF DECISIONS ON THE SELLERS' SHAREHOLDERS.

In Chapter 5 we examined the impact of the sell-off decisions on the sellers' shareholders. In line with existing empirical evidence in the area, we found that in general the sell-offs were value enhancing decisions for the sellers' shareholders. The source of these value gains of the sellers could be the increased profitability of the sellers or a transfer of wealth from the buyer. To differentiate between these sources we utilised the simultaneous reading of the cumulative abnormal returns and the

abnormal earnings forecast revisions. These two sources of value creation have different implications for the future earnings (CAFRs) of the sellers. In the cases of no increase of the seller's CAFRs following a sell-off, the value benefits are probably derived from the transfer of wealth from the buyer.

We have established that, on average, the value increase of the sellers is a result, at least partly, of their increased expected profitability following the sell-offs. However, we are not in a position to exclude the possibility of a partial transfer of wealth from the buyers as well. When the CAFRs are not significant or negative, the source of value gains of the sellers is more likely the transfer of wealth from the buyer. However, when the CAFRs are positive, indicating increase of the expected future profitability of the seller, this can be only part of the wealth benefits of the seller with another part transferred from the buyers.

The importance of having a sample which spans over a period of many years has been demonstrated by the disparity of the results between the years. It is interesting that the first five years of the study period exhibited no significant value effect of the sell-offs on the sellers, with the positive effect concentrated exclusively on the last two years. Almost the same applies for the CAFRs, which are positive and significant only in the last three years of our sample period. This demonstrates the limited applicability of findings by studies of a short time horizon.

The impact of the condition of the economic environment to the wealth changes of the sellers has been investigated for the first time. The wealth gains of the sellers are positive in both boom and recession with those in the latter significantly higher. During the recession, sellers earn positive wealth gains and their forecast profitability also improves following the sell-offs, in contrast to the sell-offs during

the boom periods. This suggests that the sell-offs are economically more justified and welcomed by the market during the recession than during the boom. The set of investment opportunities available to the seller is also found to be a significant factor determining the sellers' gains. High q sellers improve their performance and realise positive value gains, whereas low q sellers improve their performance but they do not earn value gains from the sell-offs. This is particularly evident in the recession. In boom, the high q sellers of our sample earn small and insignificant value and performance gains but the low q sellers experience a rather small profitability decline and insignificant value gains. The impact of the investment opportunities available to buyers and their joint impact with the investment opportunities of sellers has limited impact on the wealth changes of the seller. However, this reflects partly the change in the sample size being dramatically reduced to a third due to data non-availability.

An interesting aspect of our findings is the impact of the change in focus of the sellers. We find that, in line with the theoretical predictions, the sellers which increase their focus as a result of the sell-off, experience substantial increase in their profitability, but that they do not realise value increase benefits. In contrast, sellers which do not increase their focus, earn significant value gains, but they have their profitability unchanged. Another issue related to strategic considerations of the sellers is the existence of a broader strategic plan of the seller related to restructuring its operations through sell-offs. Our findings do not confirm our prior expectations of more beneficial impact of sell-off decisions taken within a framework of a programme of sales aiming at restructuring the seller's operations.

The investigation of the relative size of the seller and buyer on the wealth effects of the sellers is limited to the subsample for which we have data on the market

capitalisation of the buyers. This reduces the sample size drastically and neutralises the overall impact of the sell-offs. Therefore, the results of no significant impact of the relative size should be treated with caution. The relative location of buyer and purchased division influences the benefits to the sellers from the sell-offs. The higher gains of the sellers selling divisions which are in a different country from the buyer reflect information asymmetry costs, entry costs to that market or combination of the two for the buyers. Sellers do not experience wealth gains from sell-offs to buyers located in the same country as the sold division, in contrast sell-offs of divisions to buyers located in a different country.

Investigation of various characteristics of the transaction show that the size of the divested division and the relative size of the sale have an important impact on the wealth changes of the seller. Large sell-offs result in significant wealth gains of the sellers in contrast to small sell-offs. Additionally, in the majority of the transactions of our sample, the disclosure of the transaction price is released and is related to higher value gains of the sellers. On the other hand, when transaction price is not disclosed, the market does not have enough information to precisely evaluate the impact of the sale on the seller or, as the signalling hypothesis suggests, it treats the non-release of the price as bad news. In contrast to the significance of the price release and the size of the sale, the size of the seller is found to have no impact on the wealth changes of the seller.

The financial health of the seller as measured by its z-score is positively related to the wealth gains of the seller. In contrast to previous research, we find that financially healthy sellers benefit more from the sell-offs than financially distressed ones. This applies equally to sell-offs during boom and recession times. Finally, the

effect of lender's monitoring, as proxied by the level of debt in the capital structure of the seller, on its wealth gains from the transaction are mixed.

Our study provides important evidence on the wealth implications of the corporate sell-off decisions for the shareholders of the seller and the possible motivation of those decisions. Sellers increase their value consistent with the expectations of increase in their future profitability. However, this study, due to data availability problems, does not investigate the performance characteristics of the divested division. This would have provide additional insight of the profitability of the transaction for the seller. Another potential limitation is related to the use of FIT and FOCUS variables. Again, due to unavailability of data, possibly more precise measures, such as the Herfindal index are not used. The effect of a sell-off decision may take long time to realise due to the initial uncertainty about the level of the success of the seller to use the sale proceeds or to restructure its remaining operations. Therefore, investigation of the long-run effects of the sell-off decisions on the sellers is justified.

7.3 THE IMPACT OF SELL-OFFS ON THE BUYERS.

In Chapter 6 we have investigated the wealth implications of sell-offs on the buyers' shareholders. Our aim is to understand the motivation of the buyer and the sources of their benefit from purchasing the divested divisions.

Buyers commit significant corporate resources in sell-off transactions, not least their managerial time, to purchase divisions often larger than the buyers. For the

buyers, purchase of corporate divisions sold in a sell-off transaction is in some respects similar to takeovers for the bidders. There are also many differences between purchases and takeovers, as we discuss in chapter 6. The benefit for the buyers come mainly from the fact that the purchase of a division relates to more homogeneous assets compared to the takeover of a whole firm. This homogeneity of purchased assets results in higher synergy benefits and lower restructuring costs. Additionally, the sell-off process does not involve hostile negotiations, disclosure of significant amount of information and precludes multiple bids that potentially minimise the benefits of the bidder. This justifies our results, as reported in Chapter 6, of significant wealth gains for the buyers in our sample compared to insignificant gains or small losses reported for the bidders in takeovers.

To identify the source of value changes for buyers following the sell-off announcements, we utilise the combined effect of sell-offs on the abnormal returns and the abnormal revisions of analysts' forecast of earnings. When value gains of buyers are related to positive and significant abnormal earnings forecast revisions, the source of value increase of buyers is, at least partially, their increased profitability[75]. On the other hand, positive and significant CARs coupled with insignificant or negative CAFRs suggest that the source of the created value of the buyers is more likely transfer of wealth from seller to buyer.

Our results show that, overall, the purchase of a divested division is justified investment decision for the buyer. In general, the buyer significantly increases its value around the sell-off announcement, which is found to be unrelated to the expected changes in its profitability following the purchase. This offers support to the

wealth transfer hypothesis and contradicts the synergy hypothesis. The distribution of mean CARs and CAFRs of the buyers varies significantly between years, which, like in the case of sellers, shows the importance of the time period of a study.

The relative size of the purchase is found to be positively related to the wealth benefits of the buyers. Buyers benefit from relatively large purchases but not from small ones, whereas the expected profitability of buyers is unaffected by the relative size of the purchase. The effect of the relative size of the sale is mixed for both abnormal returns and earnings forecasts of buyers. We document similar mixed effects for the level of debt in the capital structure of the buyer and no systematic effect of the investment opportunities of the buyer. However, the buyers enjoy positive wealth gains when they purchase divisions of sellers with significant investment opportunities, i.e. sellers with a q-ratio higher than one. In contrast, the buyers from sellers with a q-ratio less than one, do not benefit from the transaction. The expected profitability of both groups of buyers is unaffected by the sell-off announcement. This suggests that the value gains of the buyers in the former group are due to wealth transferred from the seller.

The buyers, like the sellers, benefit more from purchases during the recession and this is, at least partly, due to their improved profitability. The financially healthy buyers experience positive wealth changes and positive expected profitability changes. This indicates that their benefits from the sell-offs are, at least partly, a result of their increased profitability. This applies for the transactions during booming economic conditions but not during recession. During the recession periods, the buyers benefit from the purchase through transfer of wealth from the seller.

[75] In this case it is possible that at least a part of the value created comes from the increased profitability

The buyers purchasing divisions that fit to their operations, experience positive and significant wealth changes and similar changes in their expected earnings. This suggests that the gains from the purchase are, at least partly, result of the expected increase in their profitability. However, the buyers of divisions which do not fit to their operations experience wealth gains which are likely to be transfers of wealth from the sellers, since their profitability does not change. This holds for the recession but not for the expansion economic periods. During the boom, buyers experience wealth gains which are likely to be wealth transfers from the sellers irrespective of purchase of divisions that fit to their main operations or not.

The buyer from a relatively smaller seller benefits less than the buyer from a relatively larger seller. This is contrary to our expectations about positive relationship between buyers' gains and their bargaining power as proxied by the relative size of seller and buyer. In contrast, our finding on the relationship between relative location of buyer and purchased division and wealth gains of buyers are in line with our expectations and our findings in Chapter 5. In particular, Buyers experience positive value changes when purchase UK divisions, i.e. companies with the same location and these gains are partly due to the increase of their expected profitability. However, buyers of divisions in another country do not benefit from the purchase. This offers support to the asymmetric information hypothesis and holds in both boom and recession.

One of the important empirical evidence presented in this study is the positive wealth effect of the sell-off decisions on the shareholders of the buyer company. Those wealth gains of the buyer appear to be related to wealth transfer from the seller

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of the buyer and that a part is transferred from the seller.

to the buyer. The overall nominal wealth effect of the sell-off decisions on both sellers and buyers in insignificantly different from zero. Sell-offs are in many respects similar to takeovers. The findings of this study, i.e. a buyer on average benefits form purchasing a division from a seller, in contrast to small losses or no benefits of a bidder in a takeover bid, suggest that it is interesting to investigate the possible differences of the motivation of buyers and bidders. This is an important issue for both shareholders and potential investors and it may be related to issues of managerial remuneration, motivation and control. Investigation of these issues is more insightful around 1992, when Cadbury committee recommendations started taking effect. Additionally, study of the long-term effect of the sell-offs on the buyers may improve our understanding of the overall effect of those decisions.

7.4 ISSUES FOR FURTHER RESEARCH.

In this study we have shown that sell-offs are in general beneficial decisions for the sellers' shareholders. However, it would be interesting to investigate how these decisions are justified, not only on the basis of their effect as measured in absolute terms of value changes of the sellers, but also on the basis of how their effects compare to the effects of possible alternatives. Sell-offs effectively change the structure of the assets basis of the sellers into a more liquid one. However, low profitability, negative synergy or change in company strategy could also be the motivation for a sell-off. In these cases there is no comparable alternative.

The focus of such a study will be the comparison of the effects of the liquidity motivated sell-offs to the alternative financing available. In this case divisional data from the reported financial statements will be required to decide on two issues, namely the profitability of the divested division and the profit or loss on the transaction. These data are not available for our sample period in the UK and it will be necessary to focus on periods after 1994.

The profitability and growth of a division can be compared to the company's profitability and growth, reflecting the managerial ability and relative expertise in the industry of the division. Profitability and growth of divested division, compared to the profitability and growth of its industry reflects the managerial competence in general[76]. Evidence concerning this issue will have significant implications for the management-shareholders relationship and the managerial compensation and contracting arrangements. It will be interesting to investigate the past-year levels and changes of profitability of the sold division compared to the other divisions of the seller. The relationship between the profitability, growth rate and market share of the divested division may be related to the sell-off decision and the profitability of the transaction for the seller.

Another interesting issue is to relate the sell-offs with the overall investment and financing decisions of the sellers. For this, sellers' decisions over a period of time should be examined. There is US evidence of sell-offs of previously acquired divisions and their differential wealth implications for the sellers conditional upon their classification as successful or failed acquisitions.

[76] Inefficient corporate structure or cost allocations issues may be also related to the reported performance of divested division.

Sell-offs have features of partial acquisitions for the buyers. There is, however, no evidence concerning the relative performance of sellers and bidders of successful takeovers. This similarity is closer for the recommended friendly bids than the tender offers. There are many issues of particular interest such as the impact of method of payment, the impact of the accounting method and the relative performance. Sell-offs mainly involve payment in cash which reveals to some extent the liquidity needs of the seller, whereas friendly bids often involve payment by bidders' shares. Buyers, on the other hand can potentially benefit more from a purchase of more homogenous assets than bidders. This combination offers higher gain potentials to the buyers than to the bidders.

As we discussed in Chapters 5 and 6, the behaviour of financial analysts under uncertainty is an interesting issue which merits further investigation. There are a number of factors related to the optimistic analysts' forecasts and recommendations. We can explore this process if we examine the analysts' behaviour in the sell-off framework. It appears that pre-sell-off uncertainty, as measured by the variance of sellers and buyers abnormal returns, is positively related to abnormal earnings forecast revisions of analysts for both sellers and buyers following the sell-off announcements. It could be argued that if analysts have motives to give optimistic forecasts and make favourable recommendations, they will do so more under information uncertainty when errors may be more tolerated or surprises offer an excuse.

The same positive relationship between information uncertainty in the pre-bid period and positive earnings forecast revisions of analysts for the takeover targets has been documented in the UK over the same observation period (Sudarsanam *et al*, 1999). This was reported, however, in a multivariate analysis not specifically focused

on the nature of the relationship between the pre-bid information and the CAFRs. Additionally, no evidence has been reported concerning this relationship for the bidders who are more comparable to buyers in sell-off transactions. The motivation of analysts may be different in takeover bids and sell-offs. The different nature of these transactions, the publicity and other factors can determine the level of analysts' behaviour. Their relationship with bidders and targets should be also determined and controlled for.

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