THE INCREMENTAL INFORMATION CONTENT OF THE ANNUAL REPORT AND ACCOUNTS

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By

Frederick Alfred Rippington

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Abstract

1. This study examines the value to financial analysts and investors generally in the UK of firms' accounting disclosures and other information contained in the annual report and accounts for share valuation purposes.

2. Using daily share price data and a large sample of actively traded UK firms the relative information content of four major information releases, the preliminary announcement, annual report and accounts, annual general meeting and the interim report, are examined. Three different models are employed, two of which involved the calculation of the market risk measure; the firm's beta. To increase comparability with previous studies, some of the tests were replicated using weekly data.

3. Previous studies have shown a bias when calculating abnormal returns due to the size composition of the sample. Re-estimating the parameters using Ordinary Least Squares but including a size variable, showed virtually no effect on the magnitude of the estimated parameters. Neither the constant 'alpha' nor the coefficient

of the size variable were statistically significant. The former is consistent with prior research.

4. Infrequency of trading is largely associated with small companies and gives rise to a downward bias when estimating betas. Although the sample comprised actively traded mainly large companies, the betas were re-estimated using a method which takes into account thin trading. The results indicated that parameter estimates have to take into consideration thin trading even when using predominantly large actively traded stocks. The degree of stability in the betas over successive periods was low though the difference in the average betas of the two periods was negligible. The pooled betas were therefore used.

5. The initial test was to ascertain the extent of the information content of the four events. The three different model formulations employed produced almost identical results suggesting a naive model with beta=1 may well be adequate in many such event study situations. Therefore, all further tests were conducted using only the market model with adjusted betas. Of the four events, the preliminary announcement and interim report, largely representing earnings and dividends announcements, had the highest information content, whilst little information in aggregate is conveyed to the market by the annual general meeting and the annual report and accounts. Similar results were produced using a different information measure and weekly data. No unusual share price activity was observed prior to

the event day or after event day plus one, which is consistent with the semi-strong form of the Efficient Market Hypothesis.

6. Evidence was found in tests of the market's reaction to 'good' and 'bad' news that, on average, they are given equal value except for the interim report where there is a sharper reaction to 'bad' news.

7. This study supports previous research showing an inverse relationship between company size and the abnormal return on an event day. When variance of returns is included in the regression, the size coefficient albeit statistically significant becomes negligible in magnitude which suggests, like prior work, that size is probable a surrogate for absent firm specific variables.

8. Using a control group of companies with low annual report and accounts abnormal returns but otherwise matching a sample of outlier companies with high annual report and accounts residuals, an analysis was made of both groups. Little difference was noted in the amount of statutory or voluntary information disclosed in the preliminary announcements of the groups. There was, however, significant evidence of greater price-sensitive information being provided in the annual reports and accounts of the outlier group.

9. There was little evidence to suggest that one group was more closely followed by analysts than the other. Capital gearing and income cover were, on average, little different. Apparently what was driving the returns of the outlier sample was

company specific information. The information seemed to be largely contained in two sections of the annual report , the balance sheet and the chairman's statement, which previous studies have shown to be valued by users.

10. Tests of association between information content of the events produced conflicting results but analysis of the press comments seemed to furnish some evidence of an informational relationship between the preliminary announcement and the annual report and accounts of the outlier group not observed in the control group. Press comments on the annual reports of the outlier group bear some relationship to the press comments on their preliminary announcements.

11. No previous study has directly examined the informational value of the annual report and accounts for individual firms and used analysis of press comments to identify those parts of the annual report which seem to have information content. The value of this study lies in the new evidence that it provides suggesting the annual report and accounts does have some information value for the stockmarket for particular firms and in identifying those parts of the annual report found useful by investors.

12. The implications of this study are that whilst, in aggregate, there seems to be an apparent lack of incremental information in the annual report and accouts, this is not a true reflection of its value to all market participants. Unless the stockmarket has access to this financial statement potential adverse valuation

consequences may be missed. This study suggests summary accounts are unsuitable for active stockmarket participants.

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Declaration

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Chapter 1

Introduction

The study of Ball and Brown (1968) established that earnings announcements have information content highly prized by investors to determine security prices. Since then researchers have shown preliminary announcements, interim and quarterly earnings reports all to convey information about the underlying value of a security (Beaver, 1968; Kiger, 1972; Morse, 1981; Firth, 1981). However, the evidence relating to the usefulness of the annual report and accounts to investors, measured in terms of its impact on share prices, is sparse and further investigation is required.

What limited research there has been to date (eg Foster,Jenkins and Vickrey, 1986), tends towards a lack of useful information in the annual report for share valuation purposes. However,herein lies an anomaly: why is the report read so avidly by investors? The results of shareholder and professional analyst surveys are

uniformly consistent in their findings,(e.g.,Chang and Most, 1980; Lee and Tweedie, 1981; Arnold and Moizer, 1984). They all reveal the perceived importance to the users of the Chairman's Statement,the Profit and Loss Account and the Balance Sheet for decision making. The main conclusion of Hines (1982) ,who attempted to resolve this anomaly, was that the annual report and accounts is useful to investors for long-term decision making. She gave two reasons. The annual report is the only audited information source available to investors and may be used by them to confirm or otherwise previously released information.Secondly, the additional information in the ARA could be used to assess the risk associated with a company and enable investors to adjust their portfolios to meet their desired risk and return preferences. Short-term market reactions would not, therefore, sufficiently capture the usefulness of the annual report to investors.

The annual general meeting, which follows the publication of the accounts, gives the shareholders probably their only opportunity for a face to face confrontation with the directors of the company. However,only Firth (1981) appears to have addressed similar issues with regard to this event and found little aggregate market reaction.

The amount of information about a company available to market participants is directly related to its size both in terms of the extent of information disclosure by the company itself (Singhvi and Desai, 1971; Atiase et al, 1988) and the degree to which

it is followed by information intermediaries such as stockbroking analysts (Arnold and Moizer, 1984). As such most empirical studies agree on an inverse relationship between firm size and share price reaction to formal financial disclosures (Zeghal, 1984 and Freeman, 1987).

This study seeks to provide evidence on the incremental information content of four events, preliminary announcement (PA),annual report and accounts (ARA) annual general meeting (AGM) and interim report (IR). Particular attention is paid to the relative value to investors of the annual report and accounts in aggregate, a key issue to accounting policy makers and standard setters. Unlike earlier research; daily share price data is used; a traditional event study paradigm is adopted.

Chapter Two discusses the Efficient Market Hypothesis as any work using share prices and abnormal returns is also a test of market "information efficiency". Chapter Three is a brief summary of informational studies germane to this study. Chapter Four describes the data set and methodology particular attention being paid to parameter estimation (see Dimson and Marsh 1983,1986). Chapter Five provides the statistical results using daily data and comparative results using weekly data.

Chapter Six is specifically concerned with the incremental information of the annual report and accounts. Tests in the previous chapter appear to confirm the annual report and accounts event as conveying little price-sensitive information, in aggregate, to the stockmarket. Nevertheless, there may well be specific price

relevant information disclosed by certain companies in their annual report and accounts, with impact swamped by the pooled firm sample, (see Standish and Ung, 1982; Craswell, 1985; Prodham, 1986). Chapter Six seeks to identify the price-sensitive information contained in the annual report which may explain the greater share price movement of some companies. As it is not possible to determine causality of share price movement directly, a procedure is adopted of analysing financial press comment on the annual report and accounts made at the time.

In Chapter Seven the companies reflecting the highest share price movement, the outlier group, are matched on a one to one basis with companies with low abnormal returns which form a control group. The control group is subjected to the same analysis as described in Chapter 6. The association between information content, capital gearing and income cover is also investigated.

In the final chapter the study results are summarised and discussed and the inplications for users of the annual report and accounts are examined.

Chapter 2

The Efficient Market Hypothesis

Capital markets exist to efficiently transfer funds between willing buyers and sellers. In a competitive market the equilibrium price of a security at a given point of time is such that the available supply of that security is equal to the aggregate demand. This price represents a consensus of all the participants in the market about the true value of that security based on all publicly available information. Or, to put it another way,"consensus beliefs are those beliefs which if held by everyone would produce the same set of prices", (Bernstein, 1975).

The true worth of a security has been defined (Graham,Dodd and Cottle, 1962) as its intrinsic value;"that value justified by the facts". As Beaver (1981) pointed out "the term intrinsic appears to connote an objective concept, independent of subjective influences".Intrinsic value is generally defined as the discounted value of

a security's future infinite stream of dividends

$$S_0 = \sum_{t=0}^{\infty} \frac{D_t}{(1+k)^t} \tag{1}$$

where S_0 is the present value of the security, D the dividend paid at time t and k the market determined rate of interest. Fundamental Analysis is the usual method used to determine the intrinsic value, on the basis of such fundamentals as earnings,dividends,growth,capital structure and even management (Foster 1986 ch.9). One of the means to evaluate these factors is the detailed analysis of accounting statements. This gave rise to models, such as 1 above using accounting information to estimate an intrinsic value.

Beaver stated "it is unclear what is meant by the term market efficiency". In defining "efficient" in the Efficient Market Hypothesis (EMH) sense, a distinction should be made between "efficient" as a description of the market in which share prices are set in a competitive environment and a broader definition which implies in a macroeconomic sense that share prices are established at "economically" correct levels which optimise capital allocation within the economy as a whole rather than simply within the quoted sector (Henfrey, Albrecht and Richards, 1977). It is the former with which the EMH is concerned.

A definition of an efficient market appeared in Fama (1970) - "A market in which prices always 'fully reflect' available information is called efficient". Beaver, however, found the words "fully reflect" and "available information" too vague.

He objected to the definition mainly on the ground that the term information was unclear as to whether it referred to every possible signal - the whole information system - or just to the signal under examination. He offered an alternative, more general definition "the securites market is said to be efficient with respect to some specific information if prices act as if everyone knows the information".

George Foster (1979) associated the definition with a particular information set (a) "those concerned with aggregate market variables such as security returns and (b) those concerned with aspects of individual investors decisions,such as revision of portfolios". He placed Fama's definition in the former category. Foster maintained that knowledge regarding the relationship between individual investor behaviour and security prices is limited and that by implication our understanding of the relationship between various definitions of market efficiency is also limited. It is quite possible, he argues, to infer efficiency based on definition (a) and also to infer inefficiency based on definition (b).

This study is concerned with individual investor decisions but in respect of the EMH, as an examination is made of the variable share returns, this study falls within Fama's market efficiency definition.

There are many uncertainties about the future prospects of individual companies. Because of these uncertainties the intrinsic values of shares will alter reflecting changes, in say ,the perceived earnings potential or in expected returns. Prices will

adjust as investors buy and sell securities based on their interpretation of new information affecting share values. Once information is publicly available investors will try to buy those shares which they expect to show strong growth and dispose of those lacking this promise. Prices of the former shares will rise and those of the latter fall until equilibrium prices, the consensus prices, are reached. The paradox is that what keeps the market efficient is the activities of competing "decision takers who believe the market to be inefficient" (Henfrey et al. 1977). The real importance of the EMH is whether it is sufficiently valid to provide a practical framework for studing the behaviour of share prices. The evidence in the US and in the UK suggests this to be the case.

The EMH states that "new information is widely,quickly, and cheaply available to investors, that this information includes what is knowable and relevant for judging securities, and that it is very rapidly reflected in security prices" (Fama, 1970). If the market is efficient it is not possible to consistently obtain a better return, an abnormal return, than the market as a whole. Some investors do beat the market but the EMH holds such superior performance cannot be consistently maintained. In an efficient market, as each new piece of information becomes publicly available and is analysed, there is the possiblity of quick changes in equilibrium prices as they reflect the new information. The equilibrium prices will then hold until the next bit of information becomes available. It is the speed with which new, relevant

information is reflected in share prices which makes a market information - efficient.

2.1 The Development of the Efficient Market Hypothesis

2.1.1 The Fair Game Model

The EMH postulates that for a market to be efficient prices must fully reflect information available at that time. Thus at the instant of market equilibrium share prices (or expected returns) will be conditional on the information available and on the risk associated with each security. This equilibrium condition can be expressed mathematically as:

$$E(\tilde{p}_{j,t+1}|\#_t) = [1 + E(\tilde{r}_{j,t+1}|\#_t)]p_{jt}, \tag{2}$$

where E $(\tilde{r}_{j,t+1}|\#_t)$ is the equilibrium return on security j in period t+1. A tilde over a variable denotes that the variable is randomly distributed at time t.

In conditions of market equilibrium based on the information set #, according to Fama (1970), it is not possible to make a profit or return in excess of the equilibrium expected profit or return. If

$$x_{j,t+1} = r_{j,t+1} - E(\tilde{r}_{j,t+1}|\#_t), \tag{3}$$

where $x_{j,t+1}$ is the excess market return of security j at time t+1 (it is the difference

between the actual return and the predicted return based on the information set # available at time t) and if the market is efficient and $\#_t$ fully reflects the information on which the excess return is based, the excess return:

$$E(x_{j,t+1}|\#_t) = 0 \tag{4}$$

Equation 3 is, therefore, a "fair game" model. One where on average, across a large number of samples, the expected return on an asset equals its actual return.

In addition to the "fair game" model, two other theories of the time series behaviour of prices are usually associated with the EMH. They are (1) the random walk and (2) the martingale or submartingale.

2.1.2 The Random Walk Model

The random walk model is not exactly the same as either the efficient market model or the fair game model. Fama regarded it as "an extension of the ...'fair game' efficient market model". The random walk model simply states that at a given point in time the size and direction of the next price change is random with respect to the total sum of knowledge available at that point of time. This does not mean that there is no reason or cause behind the changes. Frequently the information set concerning a particular security is updated and revised leading to changes in a share's price. An attempt has been made in this study to find the reasons or causes behind the changes in investors' decisions affecting individual share prices.

All the efficient market model implies is that the current price of a security is the best estimate of today's price given today's sum of knowledge.

The conditions for random walks go beyond those for either of the other two models. A random walk requires all the parameters of a distribution (for example, mean variance, skewness and kurtosis) to be the same with or without an information structure, that successive rates of return are independent of one another, there is no serial correlation, and that they are identically distributed. If returns follow a random walk a fair game will result. It is, however, possible to have a fair game if returns are taken randomly from, say two normal distributions with zero means and different variances but this violates the random walk process as the drawings would not be taken from the same distribution.

Notionally, the random walk model can be described as

$$f(r_{j,t+1}|\#_t) = f(r_{j,t+1}), \tag{5}$$

where $f(r_{j,t+1}|\#_t)$ represents the probability distributions of returns for security j at time $t+1$ or

$$p_{t+1} = p_t + \tilde{U}_{t+1}, \tag{6}$$

where $\tilde{U}$,the disturbance term, is an independently distributed random variable with $E(\tilde{U}_{t+1}) = 0$ and $Cov(\tilde{U}_t, \tilde{U}_{t+s}) = 0$, for states where $s \neq 0$.

The model implies that the best forecast of tomorrow's return or price is today's

return or price and that past share price or return data are of no value in predicting tomorrow's return or price.

2.1.3 The Martingale and Submartingale Models

Given the definition of a fair game in Eq.3 a submartingale is a fair game where tomorrow's share price is expected to be greater than today's price. Mathematically, a submartingale is

$$E(\tilde{p}_{j,t+1}|\#_t) > p_{jt}. \tag{7}$$

This means that expected returns are positive. The model fits the description of a market where share prices tend to rise.

A martingale is also a fair game with tomorrow's price expected to be the same as today's price. Mathematically, this is

$$E(p_{j,t+1}|\#_t) = p_{j,t} \tag{8}$$

2.2 The Forms of the Efficient Market Hypothesis

By defining "relevant" information in different ways, Fama (1970) suggests three levels of market efficiency: the weak, the semi-strong and the strong form.

(a) **Weak form efficiency.** The information subset is past prices or returns. This form states that the information contained in past-share-price data is fully reflected in current prices. Returns in excess of the market average cannot be earned from a study of historical price patterns or financial ratios.

(b) **Semi-strong form efficiency.** The information sub-set is publicly available information. Such information is speedily reflected in share prices. Current prices, therefore, fully reflect all public information about the company and excess returns cannot be made unless the investor has inside information.

(c) **Strong form efficiency.** The information sub-set is all information whether publicly available or not. The strong form states that share prices not only reflect what is publicly known but also what is known only to a few. This form implies that because of the activities of analysts and others involved in the stock market, even before investors with inside information can trade based on the information possessed, share prices will have adjusted so that no substantial profit can be made from this inside information. Excess returns cannot consistently be made by investors who have inside or monopolistic information.

2.3 Conditions for Market Efficiency

(a) There are no transaction costs in trading securities;

(b) all information is costlessly available to market participants, and

(c) all participants agree on the implications of current information for the current price and distributions of future prices of each security.

The above assumptions are sufficient for market efficiency. It is obvious, however, that the model is a simplification of real capital markets. Investors do incur transaction costs.

There has been a considerable volume of empirical work carried out both in the UK and US to test the extent to which violations of the assumptions cause stock markets to be inefficient. Below is given a selection of tests relating to the three forms of market efficiency.

2.4 Market Efficiency Tests

2.4.1 Weak Form Tests

Most of the research has concentrated on the weak forms of EMH with tests largely concerned with whether share prices follow a random walk. To do so all that is required is for today's price change to be completely independent of all prior prices in all respects. However, as pointed out by Dyckman,Downes and Magee(1975) the observation that large price changes tend to be followed by more large price changes, though not in a predictable direction, would violate the random walk, but

not the weak form of market efficiency.

Evidence, therefore, that supports the random walk behaviour of security prices also supports the EMH. But the results which contradict the random walk do not necessarily contradict the EMH.

In addition to the research findings of the UK a review of the tests carried out in the US are summarised below. Although the US studies, when using US data, cannot automatically be imputed to UK stockmarkets due to dis-similarities in the respective securities industries, there is sufficient similarity to enable the US tests to act as a guide for the UK research to follow and for comparative purposes. UK research has largely followed that of the US.

Tests of the weak form can be divided into two groups. One group tries to prove the hypothesis by testing the degree of statistical independence of share price indicies and less frequently of share prices, while the other group tries to find a mechanical trading rule which purports to be more profitable than a random selection of securities. Research in the UK largely falls into the first group with serial correlation of either price changes or differences in share price indicies as the standard series dependency test. Serial correlation is a measure of the association of a series of numbers separated by some constant period of time.

Both Roberts (1959) and Osborne (1959) found successive price changes were uncorrelated whilst Kendall (1953) and Alexander (1961), both using the same

British indicies and weekly changes, found little serial correlation.

A statistical weakness was noticed by Kendall and confirmed by Working (1960). When indicies are constructed, if the prices are not simultaneously collected spurious correlations may be present. There is a tendency for the movement in the index of one day to be repeated before actual trading starts the next day, causing a positive serial correlation in the index changes. Brealey (1970) using a "New Index" he constructed to overcome this problem, found no infringement of the random walk hypothesis.

An example of the second type of test using a mechanical trading rule or filter test was conducted in the UK using UK indicies by Dryden (1970). The mechanical trading rule or filter test works by triggering buy and sell decisions when changes in a share's price or index reaches 'x' per cent - the filter size. Dryden found some divergence from the random walk hypothesis. Therefore, his results obtained from the tests on indicies did not support the efficient market hypothesis whilst his other tests, based on individual shares did so.

Dryden in his study using filter tests acknowledged he was using index numbers of share prices and considered that further research was indicated to ascertain whether his results would extend to individual shares. Previously in the US Fama (1965) carried out tests which showed only small serial correlation. Using the same data, Fama and Blum (1966) made a filter analysis and produced results consistent

with prices following a random walk.

A study which endeavoured to refute the random walk hypothesis was carried out by Kemp and Reid (1971) on UK individual share price changes. They said their results,"Strongly support the view that the random walk hypothesis has been over generalised".

Their tests have not been accepted without reservations. Criticism has been made of their failure to take into account the effects of non-trading. In addition their sample seemed too small for the type of tests used and the share prices, being taken from the back pages of the Financial Times, are closing prices and these are not necessarily the ones at which one can actually deal. Nevertheless, they did reveal the significant effect of "no-change" data when included in tests of randomness.

Accepting that the New York Stock Exchange is an efficient market and the US share price behaviour is consistent with a random walk concept, Solnik (1973) set out to compare the US with eight national European stock markets. Solnik found that only in the British market did prices behave similarly to the US stock prices but in all the European markets there was some departure from a random walk. This was more marked in daily returns but became less significant the longer the time interval. Solnik attributed the violations to:

1. the thinness of the market (as compared with the US);

2. the discontinuity of trading and

3. the longer time taken for the prices to adjust to new information.

Brealey (1970) made the same observation regarding the delay in adjusting to new information in his study of UK price indices. Solnik's conclusions may have been different if he had used a more representative sample.

A serial correlation study by Cunningham (1973) on two UK stock market indices revealed one index with sufficient predictability to formulate an investment strategy but only a small departure from randomness in the other.

Evidence of non-randomness in share price behaviour was found by Girmes and Benjamin (1975). Similar to Solnik their results showed that the greater the time period between price readings the more random the price series. Generally the random walk shares prices tended to be those of large companies in which there would be heavy dealing. For lesser known companies, whose shares would not be so actively traded, non-random results were obtained. Their findings can be summarized as follows:

1. random share price movement was found more often in larger companies;

2. there was a strong association between the size of a company and behaviour of a share;

3. the amount of dealing in a stock affects its behaviour.

Although the tests were thorough doubts have been raised concerning the quality

of the data used. These criticisms were two of those levelled at the Kemp and Reid study - the use of closing prices and neglect of non-trading effect.

Spectral analysis is another technique used to find the relationship between share returns of different periods. It was used by Granger and Morgenstern (1963) whose results supported the random walk hypothesis. Ying(1966) also used the method to study the relationship between the direction of price movements and lagged volume figures. Although he found a significant relationship, Dyckman, Downes and Magee (1975) report that Downes replicated Ying's study but could not verify the results.

Periodogram analysis is a test related to spectral analysis. Larson (1964) computed a periodogram for corn futures prices. Two tests using the periodogram gave conflicting results. Girmes and Benjamin (1975) applied periodogram analysis to the same daily share price data used in their previous study and found at the five per cent significance level only four per cent of the sample were non-random.

A runs test sets out to examine whether the signs of successive changes in prices are independent. It examines the price changes to see if they exhibit a systematic pattern. A run is, therefore, a consecutive sequence of +'s and -'s where the symbols represent a positive and negative change respectively. There is also the no-change run. For stock prices there are three possible types of price changes and thus three different types of runs. The null hypothesis of this test is that the sequence of observations is random. The results of Fama (1965), Kemp and Reid (1971) and

Ball and Watts (1972) using run tests were mainly supportive of the random walk hypothesis.

Practically all tests of the random walk model seem to indicate that past, historic share prices and share trading volumes do not contain any information which would enable the investor to obtain above-average earnings or returns. Any mechanical strategy used seems unable to do better than a simple buy-and-hold policy, particularly if transaction costs are taken into account.

2.4.2 Semi-strong Form Tests

2.4.2.1 General Tests

Tests of the semi-strong form of the EMH have usually taken the form of analysing the reaction of share prices to a financial announcement. If the semi-strong form of the EMH holds, and the announcement contains new information, one would expect the market share prices to react immediately, - there would be no time lag - and in an unbiased manner. There should be no possibility of an investor making an abnormal return after the information became public.

This type of test was carried out by Fama, Fisher, Jensen and Roll (1969), an early test of the semi-strong form. The method they used set the standard for much of the empirical work that followed. Fama et al. analysed the behaviour of abnormal price changes both before and after the announcement of stock-splits.

They found that "most probably" the information is almost immediately impounded in the share price. As predicted by the EMH, no abnormal return could be made based on the knowledge of the split. The work of Sasson Bar-Yosef and Lawrence D.Brown (1977) confirmed the findings of Fama et al.

Scholes (1972) studied the price reaction to secondary stock sales. Although there was a different reaction in the share price depending on whether the seller was an individual or a corporation, he found little association between the size of the sale and the value of the information contained in that sale. The price changes associated with the secondary distributions were completed in six days. The results gave further support to the EMH contention that the stock market reacts quickly to new information and in an unbiased manner.

Another study whose results were consistent with the semi-strong form of the EMH was conducted by Kraus and Stoll (1972). They examined large block trades and their effect on share prices. To differentiate a purchase from a sale they looked at whether a transaction was made at above or below market price. The former being a purchase and the latter a sale. Where there was a fall or rise in price due to the block trade, it was only temporary and the share price soon recovered though not to its previous pre-block level.

Grier and Albin (1973) found that a strategy of buying securities when a block trade was announced did not yield a profit sufficient to cover transaction costs.

The impact of announcements of large stock holdings in the UK was researched by Firth (1975). Similar to Grier and Albin, no positive investment strategy could be found with which to earn excess profits from using the announcement for share selection. On the day of the announcement there was also an increase in the number of bargains marked but Firth added a caveat that "the recording of bargains is an imperfect measure of investor activity". Sections 64 and 65 of the Companies Act 1981 incorporated a recommendation made by Firth in his study. Any person acquiring an interest of any class of the voting share capital of a public company must notify that company within five days (previously ten days). Further research should reveal whether these amendments have made the market more information efficient.

An interesting study of the semi-strong form was made by Firth (1972). Firth investigated the share recommendations of three popular UK investment analysts, two employed by national newspapers and the other by an investment journal, and other share recommendations in the UK. He concluded that although analysts played their part in correctly pricing securities they could not on average beat the market index. The information which their recommendations contained was incorporated in the share prices almost immediately. Firth showed that recommended shares were highly correlated with the market index, mainly he suggested due to the number of recommended shares related to large companies and already well

researched. The efficient market hypothesis could not be rejected.

Rather tentative support of the semi-strong form was given by the study of Hopewell and Schwartz (1978) into price changes due to temporary trading suspensions. The event "day" or "day 0" was deemed to be "the period from the close on the day prior to the suspension to the close on the day trading reopens". Their sample of 948 suspensions included 146 which were multiday suspensions. In addition to the all suspensions group, they formed sub-groups on which tests were made. Although their results did not reject the semi-strong form, they suggested that if different criteria had been used for forming the sub-groups, other results may have been produced.

Rights issues have also come under scrutiny. A UK study is that of Marsh (1979). The study is of interest in that Marsh used three different models, and, by adopting the trade-to-trade method for beta estimation, was able to use data for small, infrequently traded companies.

Marsh also tested the Price Pressure Hypothesis (PPH) previously examined by Scholes (1972). The PPH asserts that if a company increases the number of its issued shares, there will be a fall in the share price. The assumption is that the demand for a company's shares is not elastic and therefore the demand curve would be downward sloping. To conform with the EMH, demand must be elastic so that an increase would have no effect on the share price.

The empirical results of the study showed that they were not wholly dependent on the methodology used. Marsh had difficulty in interpreting the results due to the pattern of the post-announcement abnormal returns but he conducted a number of tests to resolve the issue and concluded that the abnormal returns revealed after the announcement were the result of a failure to control for a factor strongly associated with company size and had nothing to do with the rights issue per se. Marsh found no evidence that the size of the issue affected share prices. A company making a rights issue did not have a downward sloping demand curve for its shares. He was unable to reject the hypothesis that in regard to rights announcements the UK market was efficient. Marsh thus confirmed a previous, similar UK test of the semi-strong form by Merrett, Howe and Newbould (1967) who used a smaller sample and did not identify the announcement dates. To test the PPH, the log of the size of the issue was regressed against the abnormal return over the week of the issue. The coefficients were not significantly different from zero. Marsh stressed the importance of having a large sample in his type of study, as he was able to test his results by using a subsample and a different methodology.

White and Lusztig (1980), also studied the price effects of rights issues. Their conclusions were similar to Marsh regarding the semi-strong form of the EMH.

A study by Hess and Frost (1982) into the effect on the market of new issues did examine the relationship between the size of the issue and the market reaction.

Again their results supported the EMH, for not only did they find no evidence of an inverse relationship or correlation between the size of the issue and the rate of return, but the post-issue excess returns evident for six days after the issue date would not cover any transaction costs.

The 'chain letter' hypothesis, associated with mergers, states that the main sources of information relied on by investors are financial and accounting numbers which may be manipulated by accountants to mislead investors. The hypothesis is based on the assumption that capital markets are inefficient (see G.Mandelker,1974).

Mergers have, therefore, been put under the spotlight by researchers to gain some insight into market information efficiency. Firth (1976a) examined 190 takeovers of publicly quoted companies in the UK which were first announced in 1973 and 1974. The market anticipated the mergers thirty days before the announcement with the largest average increase being on that day. Halpern (1973) found that in the US mergers were anticipated seven months before they were publicly announced. Firth's tests revealed the returns settling down to their normal relationship with the market six days after the announcement, thus giving strong support to the efficient market theory in the semi-strong form.

Although the main purpose of the study was to obtain evidence regarding gains or losses in the UK brewery and distillery mergers between 1955 and 1972, Franks, Broyles and Hecht (1977) also found evidence consistent with the semi-strong form

of the EMH.Their study is of particular interest in that they allowed for "non-trading effects" by using the trade-to-trade method for the estimation of the market model parameters. This allowed them to use a sample which included small companies. When estimating the betas using all the prices the betas averaged only .5 approximately. Screening out all prices from the data which were more than fourteen days old raised the average beta to .533 and a further rise to .724 was accomplished when prices more than three days old were excluded. This indicates the downward bias in the estimation of betas due to the thinness of trading.

According to their results, on average the market began to anticipate a merger at least three months before the announcement date. Over this period the gains averaged about 27% with the largest abnormal return being on the announcement date. After the announcement there was little opportunity for abnormal returns taking into account transaction costs. Almost all the gains from the mergers accrued to the shareholders of the company being acquired. They concluded that the movement of the share prices both before and after the announcement date showed that the market was fully reflecting in the share prices the benefits to be expected from the mergers. Related results were reported in the more general study of Firth (1980). He found a major transfer of wealth from the shareholders of the acquiror to the shareholders of the acquiree. However, the remuneration of the directors of the acquiror increased substantially. It should, however, be noted, that more

recent studies do not necessarily concur with losses to acquiror shareholders in an acquisition.

2.4.2.2 Accounting Number Based Tests

Ever since Ball and Brown (1968) studied the effect on share prices of annual earnings announcements, there have been a number of studies using financial accounting numbers. Investors are presumed to have already made assessments of what size the forthcoming accounting numbers will be and the risk attached to them. When the actual numbers are announced, should their assessments be affected share prices will change to reflect the change in expectations.

Benston (1979), in his review of the stock market studies, cites four problems associated with studies of this type. First is the difficulty of determining when the investors first became aware of the new financial statements. The EMH states that for a market to be efficient, new information must be impounded into the share price as soon as it is publicly known. So unless the event date is known with reasonable accuracy, and the correct date used in the study, incorrect conclusions will result.

This timing problem has not been taken seriously enough by some researchers. Most studies have concentrated on two dates; the announcement date and the date of publication. The inital date of announcement of the annual accounting numbers, or the Preliminary Announcement (PA) as it is called, usually only contains the information necessary to comply with the requirements of the Stock Exchange. Where

the study is researching into specific accounting numbers used by investors, the later published more detailed annual report and accounts (ARA) is more relevant.

In the US research has focused on the 10-K report filed with the Securities and Exchange Commission (SEC) about the same time as the annual report and accounts is published (see Foster Jr. and Vickrey, 1978 for an account of the differences between the two reports). While company directors largely control the data presented in the annual report and accounts to shareholders, the 10-K generally contains considerably more informatiomn that the annual report and accounts due to the SEC regulatory mandates.

Events which occur simultaneously or around the event date create noise or confounding information effects, and make it difficult for the researcher to determine the exact effect of the accounting numbers being studied. Then, when attempting to measure the change in investors' expectations, there is the added difficulty in measuring what the original expectations were. Finally, there is the possibility that accounting information released by one firm will have an impact on the share prices of similar type firms.

Ball and Brown assessed the relationship of a company's annual earnings announcement to the share price of that company when the announcement was made public by the Wall Street Journal. They found that of all information available about an individual firm, about one-half or more is captured in that year's reported

earnings figure; that of all the information contained by the income report only 10-15 per cent had not been anticipated by the time of the report; and that the reaction to good or bad news, measured by whether the actual earnings were in excess or not of the estimated earnings forecast, were as one would expect. It is important to note that investors are reacting to the announced annual earnings numbers, not the detailed annual report and accounts which are published at a later date. The study confirmed that the market reacted rapidly to earnings information in an unbiased manner consistent with the semi-strong form of the EMH.

Beaver (1968) examined the price and volume reactions to annual earnings announcements. Price changes, he observed, reflect changes in the market as a whole, whilst volume changes reflect changes in the expectations of individual investors. As Beaver was looking for price changes without regard to direction, he squared the residuals. This, unfortunately, does give a disproportionate weight to the few large residuals when price reactions are averaged across announcements (Oppong, 1980). Two of Beaver's sample selection criteria led to the selection of large firms, the effect of which was to induce a bias against earnings reports as large companies are generally better researched and associated with a greater flow of information than small companies. His results showed that both volume and price changes were significantly higher in the announcement week and that "investors response appears to be very rapid". Both volume and share price activity quickly returned to their

prior announcement level, which satisfied one requirement for market efficiency.

UK earnings announcements were also studied by Firth (1976). Firth investigated their impact on the share prices of firms similar to that making the announcement. Using sixty companies engaged in four activities his results showed that investors use the information contained in one company's results to evaluate similar, competing companies. Share prices in competing companies move in the same direction as that of the announcing company with between 50%-60% of the latter's share price change. Both higher dealing activity, measured by the number of bargains recorded for each share, and a greater price change resulted and both took place on the day of the announcement thus giving further support to the semi-strong form of the EMH.

A cosmetic change in the accounting procedure usually only comes to light on publication of the annual report and accounts (ARA). Although the preliminary announcement profit figure will reflect the change, rarely will any indication be given that an accounting procedure change has taken place. If the market is efficient in the semi-strong form, when the annual report is published there should be no significant reaction by the share price as investors will not have been taken in by what amounts to a cosmetic change and not a real change in the economic circumstances of the company.

The mechanistic argument posits that the market is mislead by some accounting

methods (for an example see Briloff,1972). Similarly the functional fixation view suggests individual investors are naive and unable to detect the true cash flow implications of accounting data (Watts and Zimmerman, 1986). The extended functional fixation hypothesis proposed by Hand (1990) asserts that sometimes a firm's share price is set by either a sophisticated marginal investor or by an unsophisticated one. These three views are at variance with the efficient market hypothesis. Hand's conclusions, however, are questioned by Tinic (1990) who highlights "conceptual and empirical problems" in the study which need to be answered.

Comiskey (1971) examined the impact of a change in depreciation accounting on the Price Earnings ratios of eleven steel companies. A switch from accelerated to the straight line method increases earnings, so, if the market is efficient, there should be a lowering in the P/E ratio of the changer. He found that investors were not fooled and there is a decline in the P/E ratios of those firms that made the change. The short-comings of his study, which Comiskey admitted, were that his sample came from one industry and the changers were the largest of the steel companies. Archibald (1972) looked at the same accounting change and came to the same conclusions. Again his work was criticised as he used a small sample of 65 firms.

If the accounting change is the only item of significance being observed, there may be other phenomena to which the market is reacting simultaneously with that

change, and the observed reaction cannot be ascribed solely to it. Unless in the method there are controls for the confounding events, it is usual to use a large sample on the assumption that the effects of the other information will be random with an expected value of zero (Zimmer, 1979). The assumption probably would not be valid for Archibald's study.

The relationship between the changes to and from LIFO valuation for inventory with a firm's management changes, its industry and the firm's auditors were the subject of the work of Eggleton, Penman and Twombly (1976). They found an industry and auditor effect in a LIFO decision but only in the case where LIFO was discarded were there abnormal management changes. The fact that their results found multiple, simultaneous events to which the market was reacting confirms that unless such events are taken into consideration when examining accounting changes, the value of any conclusions reached must be downgraded.

However, Ball (1972) used sample sizes varying between 267 to 430 accounting changes and in addition, to remove price movements not associated with the data source under study, he averaged the abnormal returns across the sample firms. His results were consistent with the semi-strong form of market efficiency.

Kaplan and Roll (1972) had earlier found that share prices temporarily increased around the date when a firm announces, through the Wall Street Journal, earnings inflated by an accounting change. Ball thought the results were due to using, in one

case, a small sample drawn mainly from two industries thus giving rise to industry effects. In the larger sample they used, the accounting changes were clustered in a very short period and the results may have been affected by communalities. Cassidy (1976) replicated the Kaplan and Roll study as well as using other models, but was unable to reach the same conclusions as they did. His results upheld the EMH.

A more recent UK study by Brayshaw (1985) also examined the market response to inflation-adjusted accounts. No effect was found and the market was judged to have already discounted any information the accounts contained.

The empirical studies of the behaviour of share prices on replacement cost disclosure by Beaver, Christe and Griffin (1980), Ro (1980), Gheyara and Boatsman (1980) and Watts and Zimmerman (1980) were virtually unanimous in their inability to detect any significant association between security prices and the disclosure. There was little reaction around the date when the requirement was proposed, on the date the requirement became effective and lastly on the date when the replacement cost data was filed with the S.E.C. Different methodologies were used by the researchers adding weight to their findings. Ro, however, drew attention to the "size effect" problem. When using a control sample it should be matched in all respects (e.g. size, industry, risk etc.) with the sample being tested.

Banz (1981) and Reiganum (1981) both reported a substantial "size effect" on the share returns. Dimson and Marsh (1985) deliberately set out to test the size

effect. Their results were sensitive to both the choice of index and methodology. The size effect, they concluded, may explain some of the differences between conflicting studies. Unless the size effect is taken into account in the methodology where the following four factors are present, the results will be distorted. These factors are (1) returns calculated over long interval periods (studies using daily data would only slightly be affected), (2) size mis-matching - where the event securities are larger or smaller than the typical constituents of the index used, (3) where the size effect is large and/or volatile - event studies covering short periods or carried out in countries where the market equity value is represented mainly by a few companies are most likely to be affected by bias, and (4) CAPM-type methodologies are used. Although they found that CAPM-type methodologies were more prone to the size effect than the market model, they urged all researchers to estimate abnormal returns using a methodology which explicitly controls for size.

Beaver et al.(1980) reported that their entire non-reporting (control) group contained "large" firms as defined by Banz and that the returns for the control firms were lower than the reporting group, although the differences between the returns of the two groups were statistically insignificant. The failure to control for the "size effect" does flaw the results of the three replacement cost studies mentioned above.

One of the problems associated with testing the information content of dividends

is that dividend announcements are often closely made with earnings announcements. Both dividends and earnings are assumed to have important information concerning the future prospects of the firm, so when such announcements are made the information conveyed should, in an efficient market, be quickly reflected in the share price changes.

Aharony and Swary (1980) using quarterly dividend and earnings announcements made in the same quarter but on different dates, found that quarterly dividend disclosures did provide useful information over and above that provided by quarterly earnings figures. Where prices reacted to the information, almost all of the adjustment occurred on the dividend announcement day and the day previous. Their findings added further support to the semi-strong form.

The intraday speed of adjustment of stock prices and dividend announcements was examined by Patell and Wolfson (1984). Patell and Wolfson pointed out two important differences in dividend and earnings announcements. Whereas dividend announcements may not be accompanied by the announcement of any other information, earnings announcements usually are. Second, the most likely expected dividend amount for the current year is last year's dividend amount, therefore, if it changes there is an additional element of surprise. Earnings very rarely are the same from year to year. The first difference did not allow the researchers to reach any conclusions about the relative information content of earnings and dividends

per se.

Their tests showed that within a few minutes of the earnings and dividends announcements there was a reaction but the opportunity for profitable trading disappeared in five to ten minutes. This train of events is consistent with the semi-strong form of the EMH. Whilst unchanged dividends had no effect on prices, where the dividend did change the price reaction was similar to the earnings announcement effect both in length of time and size.

2.4.3 Strong-form Tests

The strong-form of the EMH is the most controversial of the three forms. It asserts that not only is all public information reflected in share prices but all available information affecting the company is impounded in its share price, and that no investor can obtain a higher return than other investors based on his superior or private information. The strong-form is probably impossible to prove conclusively.

Testing this form of market efficiency is difficult as first it is necessary to establish who is likely to have private, price sensitive information which has not already been discounted. The obvious candidates are the managers of unit trusts, share tipsters and company directors. Managers of unit trusts and share tipsters claim that through their superior skills and knowledge they can obtain for their clients abnormal returns. Directors usually engage in share dealing for personal benefit.

Although the EMH in its strong-form may not be strictly true in practice, never-the-less tests have been carried out on the three types of investors mentioned earlier to see whether any of them have made larger than average profits from their transactions. The first authorative work was conducted by Jensen (1968) in the US on 115 mutual funds. Taking into account management fees and other charges, Jensen's work showed that an investor in a mutual fund would get a poorer return than by investing in a randomly selected portfolio of comparable risk, so providing "strong evidence in support of that (the strong-form) hypothesis".

Virtually the complete population (118) of authorised UK unit trusts as at 31 December 1965 was analysed by Moles (1982) over the period 1966 to 1975. The benefit to investors in unit trusts was found not to be abnormal returns as the trusts could not better the market on a risk-adjusted basis.

Davies and Canes (1978) examined the effect on share prices when analysts' recommendations are published in the Wall Street Journal, having previously been sent to their private clients. The policy of the journal's column writer was to seek out cases where analysts had recently revised their recommendations. No editorial comment was made on the recommendation although, according to Davies and Canes, "The opinions of the analysts often are published with comments solicited from the corporation involved". The researchers attached no weight to that opinion. If the market is strong-form efficient the publication of the analysts' tips should have

no effect on the prices of the shares recommended as the market prices have already impounded all the information when the recommendations were received by the private clients. The results of Davies and Canes showed that both purchase and sell recommendations affected the share price, the former by less than 1 per cent on publication date and the latter by -2.374 per cent. Although the percentagees are small, tests showed them to be significant.

Davies and Canes did concede that as on publication more than one analyst made a recommendation to buy or sell the same stock, the reader of the journal might only be aware of the opinion of the analyst to which he subscribed, and the other opinions were new information. A test confirmed this possibility. The price adjustment continued for a further two post-announcement days but the percentages involved were too small to allow any profitable trading.

On the basis of their results they argued that the market was efficient in the semi-strong form as on publication the information was quickly impounded into the share prices and, taking into account transaction costs, there was no possibility of an investor earning an abnormal profit. Their study did not support the strong form as the information revealed to the private clients was not fully incorporated in the share prices. Contrary to other studies, they said that investors were getting some value for their money.

Surprisingly, the researchers do not seem to have examined whether the opinion

expressed by management carried any weight with investors. Hoskin, Hughes and Ricks (1986) found strong market reaction to company officer comments on the prospects of their company. It is possible that the analysts' opinions were already known to the investors but not that of management to which the investors reacted. The small number of recommendations published without the management's opinions may have made such a test impracticable.

An interesting and comprehensive UK study was made by Dimson and Marsh (1985a) of the forecasting ability of stockbrokers and the internal analysts of an institution. It was in their words "a prospective study of forecasting ability". The stockbrokers accounted for 80% of those making recommendations which mainly had a one year horizon. The results did not support the strong-form of market efficiency as there was evidence that the recommendations were useful but what share price reaction there was, was rapid and over within one month.

Journalists will probably, in addition to public information, use private knowledge when making share recommendations. Dimson and Marsh (1986) analysed 862 UK press recommendations to check whether they provided useful information to investors. If account is taken of the selection date and the publication of the selection which is made some days later, the abnormal return at the end of the publication month was only 4 per cent, which would be absorbed by transaction costs. Although the researchers attributed the abnormal returns to the journalists'

selection skills, when published the recommendations were of no value to investors. Returns were also found to be very sensitive to the size factor mentioned earlier.

Rates of return earned by members of companies trading on their own account in their companies' shares were evaluated by both Pratt and De Vere (1968) and Finnerty (1976). Although excess returns were earned by both insider-buyers and insider-sellers, the former outperformed the latter in the study of Pratt and De Vere. Unfortunately this work has certain defects. Between 1960-66, the period over which transactions were extracted, no price per share for each transaction or precise date of the insider trading was reported to the US Securities and Exchange Commission until 1965. Finnerty also criticised the study for selection bias and failure to make explicit adjustment for risk. The time period for Finnerty's research ran from 1969 to 1972; he used practically the whole population of "insider" dealings in that period and he used a risk adjusted model. His results, like the earlier work, tended to refute the strong-form.

Keown and Pinkerton (1981) studied insider trading prior to takeover announcements. Using daily share prices and the market model, they examined the price movements of 194 shares of companies eventually taken over. They found that trading on insider information seemed to start 25 days prior to the announcement date with about half of the total increase in share prices occurring before that date. There was substantial trading in the five to eleven days immediately prior to the

announcement. Their study also revealed a substantial increase in trading volume of the shares of aquired firms. Although the strong-form of the EMH did not hold, their results did support the semi-strong form as most of the price reaction occurred on the announcement day with a smaller reaction the day after. Keown and Pinkerton attributed the one day longer price adjustment to some public announcements being made after the market was closed.

2.5 Evidence Which Questions the Efficient Market Hypothesis

It would be wrong to make a survey of the tests of the EMH in its various forms and leave the impression that it is only the strong-form where there are studies inconsistent with the EMH.

Basu (1977) used price-earnings ratios to establish whether excess returns could be earned using price-earnings as indicators of future performance. If this were possible it would violate the EMH. No excess profits should be earned on publicly available information. His methodology, which covered risk, found evidence of excess returns being earned by investors over the period April 1957 - March 1971, due to new information regarding P/E ratios not being quickly and fully reflected in share prices. Portfolios consisting of securities with low P/E ratios out-performed

securities with high P/Es. Traders and speculators, on the other hand, after taking into account costs, could not earn "abnormal" returns and for them the market was efficient.

Brown (1978) examined the market adjustment to companies annual earnings announcements in the years from 1963 to 1971. His results indicated that the market took 45 market days after the announcement to absorb the information contained therein. Excess returns, which exceeded transactions costs, could be earned by purchasing those individual securities which had not instantaneously adjusted to the new information.The market, he suggested, was inefficient.

Using quarterly earnings data, Watts (1978) observed market inefficiences in the 1962-1965 period but not in the later period from 1965-1968. The excess returns in the early period could only be earned by someone who was exempt from transaction costs. To explain the difference in the efficiency classifications of the two periods, he suggested that although the market was inefficient from 1962-1968 it learned over time. The inefficiency in the early period probably explained Brown's results as Brown's years (1963-1971) incorporated nearly all of Watt's early period (1962-1968).

To establish whether the market did become more efficient in the early sixties, Nichols and Brown (1981) using the same data as Brown, re-examined his study. They partitioned his period into an early period (1963-1967) and a late period

(1968-1971). The results for the two periods did not allow a definitive conclusion to be reached.

In two studies of stock splits, Charest (1978) and Nichols (1978) also found market inefficiencies. Charest applied five trading rules (A-E) on the announcement of the stock splits and observed that the highest excess returns could be earned by trading rule B. The trading rules were classified by the length of time the sampled security was held after the announcement month. The excess returns occurred largely in the period 1956 to 1960.

Nichols and Brown (1981) applied trading rules B and D (the rule with the longest period of holding) to the Nichols's data for the years 1960 -1975. Again they sub-divided the period into two - 1960 to 1967 and 1968 to 1975. Unlike the Charest study, market inefficiency was found only in the sub-period 1968-1975 using trading rule B and the supporting evidence was "not overwhelming".

The diversity of the results can probably be attributed to the methods of sample selection and the methodologies used.

Shiller (1981,1986) argued that if share price movements do forecast dividends as suggested by the efficient markets literature, then the volatility of prices and dividends over time should be similar. Shiller found share prices exhibited "excess volatility", which he attributed mainly to the market being "irrational and subject

to fads". The work of Kliedon (1986), however, calls into question Shiller's conclusions. Kliedon states that Shiller "confuses expectations with ex post outcomes". The difference in volatility is due to actual prices reflecting the value of expected dividends whilst Shiller's dividend series uses the present values of the ex post outcomes. Thus changes in share prices will occur as future dividend expectations change but no revision in the ex post dividend can take place as Shiller's series is based on ex post dividends. Shiller admits he does not know whether dividends follow a random walk (Marsh and Merton, 1986) and accepts "that if the dividend is a random walk, the simple variance inequalities that I derived would not be valid" (Shiller, 1986).

Examples of market inefficiency and excess returns are attributed to the writings of Abraham Briloff. Professor Briloff, using information which appeared to be already in the public domain, describes a number of cases where the market appeared to have been misled by accounting methods and disclosure policies in company reports with consequently firms' shares being incorrectly priced. Accounting for employee compensation, use of pooling accounting for acquisitions, consideration paid for acquisitions, understatement of costs etc. were criticised by Briloff. There was on average a permanent 8-11% drop in share price on the day such Briloff articles became publicly available (Foster,1985).

The stock market reaction to asset writedowns, per se, should be similar to other

bookkeeping adjustments. Investors will not be fooled and there will be no significant reaction. Strong and Meyer (1987) discovered that usually asset writedowns are associated with management changes and that the larger the writedown the greater the excess return. In the ten days following the announcement, contrary to expectations, they observed a 3.89 per cent statistically significant abnormal return indicating a failure of the semi-strong form of market efficiency.

A.V.Thaker(1987) in his discussion of the work drew a parallel with the findings on stock splits. He said he observed little evidence of market inefficiency. The abnormal returns were not due to asset writedowns themselves, but to the signals they were giving to investors of the restructuring to come. The stronger the signal, as evidenced by the larger writedowns, the greater the price reaction.

A failure of the semi-strong form was indicated by the results of Murdock (1986). Previously Beaver and Landsman (1983) had concluded that historical cost data had highly significant incremental information content compared with accounting data prepared on alternative bases e.g. current cost and constant dollar etc. They defined information content "as the ability to explain changes in share prices". Murdock employed this definition in his research. Using returns on equity rather than simple returns, he set out to establish whether returns on equity calculated from purchasing power and three other accounting methods, had incremental information beyond returns on equity calculated from historical cost data. If the semi-strong form of

the EMH held, then there should be no significant incremental information. Only purchasing power returns on equity possessed incremental information beyond that provided by historical cost returns on equity which was inconsistent with the market being information efficient.

A recent study by Pope,Morris and Peel(1990) analysed directors' share dealings in Great Britain. They reported results suggesting an investment strategy based on knowledge of directors' share sales could, in the absence of bid-ask spreads and transaction costs, be profitable. They suggested this indicated an informationally inefficient market.

2.6 Summary

The market efficiency studies cited above are only a few taken from a number which have raised doubts about the validity of the EMH. The Dychman and Morse (1986) and Lev and Ohlson (1982) reviews of the empirical evidence of informational market efficiency contain many more studies which question and support the EMH. Most major research has come down in support of the semi-strong form which implies acceptance of the weak-form though the evidence is not conclusive. But as Morris,Peel and Pope (1986) point out, the knowledge gained from informational market efficiency research can provide some evidence as to whether there is any real value to investors for the evaluation of securities in legislation which seems to be

more concerned with the extent and form of disclosure than with its substance.

Chapter 3

Informational Studies

The study of Ball and Brown (1968) established that earnings announcements have information content highly prized by investors to determine security prices. Since that paper researchers have not only looked at the information content of financial statements but at alternative public, price sensitive information to gauge its impact on share prices. The studies have revealed the type of information to which prices react and the strength of the reaction. The next step was to ask investors, financial analysts and others concerned with the security market, which of the many information signals becoming available did they use in their pricing of shares and the weight they attached to them. Some of the studies examined both for information content and to see whether the EMH is supported. There are examples of these in the previously quoted tests of the semi-strong form of the EMH. Given below is a

brief summary of research studies important to this work. The studies are grouped under headings related to their findings. Some studies constitute tests of several hypotheses so they may be listed under more than one heading.

3.1 Factors Affecting Information Content

Before looking at the event studies carried out by researchers to identify information useful for share revaluation purposes, it is helpful to set out the factors which Foster (1986, page 376) thought necessary to be present if releases are to contain information useful for this purpose. There are three in all.

Usually there will be uncertainty about the content or timing of a company release. In general, the more the uncertainty surrounding these two items "the greater the potential for a release to cause a revision in security prices". This uncertainty will be greater when there are few competing sources of information. There are many types of releases made by firms and, as he points out, one type of release, for example, relating to strikes, can effect market expectations of the content and timing of other releases, such as production-sales.

Unless a release has an impact on "future cash flows (or other attributes valued by the capital market)", they will have a minimal information content. In general, according to Foster, "...the larger the relative revision in expected cash flows, the larger the security price revaluation of the release". It is these "other attributes

valued by the capital market" which some researchers have endeavoured to find.

Lastly the more the market accepts the veracity of the information source the greater the revaluation potential of the release.

These three factors can be summarised in Foster's words as:

1. The capital market's expectations as to the content and timing of the release.
2. The implications of the release for the distribution of security returns.
3. The credibility of the information source.

This study is concerned with the information content of the annual report and accounts and not with its timing. However, as when those outlier companies with large residuals on annual report announcement are analysed there may be some reference in press comments to the timing of the release, event studies concerning the effect of the timeliness of the release on information content, will be briefly touched on.

3.2 Timeliness

Timeliness of financial information plays an important part in the decision-making process of investors. Beaver (1968) remarked that investors may delay their investment transactions until the earnings report is published. If this is true, then the timeliness of the earnings report is important as it affects the market in a security. Bad news is reported late and very bad news very late is popularly held as a truism.

It is not surprising then that researchers have endeavoured to find out whether there is a relationshiip between the timeliness of an event and share price movement.

Dyer and McHugh (1975) examined the timeliness of various stages leading up to the publication of the annual report and accounts for 120 Australian industrial and commercial companies and whether timeliness is related to company size. Their main conclusions were that although large firms take less time to report than small firms, probably due to greater resources and receiving closer scrutiny from interested parties, there was no difference in the timeliness of 'good' or 'bad' news. 'Good news' and 'bad news' was defined as the relative rate of return on equity capital. This latter result was confirmed by Garsombke (1977).

Share price reaction to the interim report and preliminary announcement was shown by Chambers and Penman (1984) not to be related to the lag time between expected and actual report date except for relatively small firms reporting timely interim good news. Despite the length of time taken to publish the earnings figures, when made public the reports contain information not anticipated through other sources. Contrary to Firth(1981), they observed that the interim report had a greater price reaction that the preliminary announcement.

Their results revealed that reports published earlier than expected generally contained good news and tend to have a greater price reaction relative to those published on time or later than expected. A report not published on its expected

day is interpreted as a signal of bad news and there is a price effect on the expected report day continuing nearly until the day of publication, when there is little price reaction.

As previously shown, on average small firms report later than large firms and there is usually a greater share price reaction to their reports. In addition, for technical reasons, in the US investors are more able to profit from 'good news' than from 'bad news', so probably more 'good news' information becomes available relative to 'bad news' prior to the publication of a report. Holding both size and nature of the news(good or bad) constant, Chambers and Penman found no relationship between lag and price effects except, as before, for small firms reporting timely, good news.

The conclusions of these studies are largely consistent with Foster's first factor. There is more uncertainty associated with the releases of small firms as they do not get the coverage of the larger companies, so in their releases there is the potential for greater share price movement particularly if they are not published on the expected date.

3.3 Firm Size

Singhvi and Desai (1971) concluded that small firms, measured by total assets or number of stockholders, did not provide adequate disclosure of information in their annual reports to shareholders. Generally these firms were the less profitable ones

measured either by net profit margin or rate of return. The adequacy of disclosure was also related to whether the company was listed on a stock exchange and who were its auditors.

Believing that the work of Singhvi and Desai had defects, Buzby (1975), using asset size, examined the degree of association between information disclosed by US manufacturing firms and their size. He found a "moderate" positive association which was not affected by whether the firm was listed or not. His results were not consistent with those of Singhvi and Desai. As Buzby's measure of disclosure was related to 39 items of data required by financial analysts to be shown in annual reports, different items and inclusion of other than manufacturing firms in the data base, and another surrogate for size, might have produced the different results.

The paper of Verrecchia (1979) drew researchers' attention to using the market value of a firm as a surrogate for size and market participation. Other measures of market participation suggested were trading volume, number of shareholders and number of shares. Using these participation measures Verrecchia suggested that the greater the number of traders in a security, the more efficiently it will be priced. It follows that the shares of large, closely followed firms will be more efficiently priced than small firms.

Firth (1979) found no association between the firm's auditors and the level of disclosure though his results supported the other conclusions of Singhvi and Desai

relating to the size of the company and whether the firm had a stockmarket listing.

Using a two-day report period, Chambers and Penman (1984) also found an inverse relationship between firm size and the information content of its report, measured by the change in share price.

Banz (1981), Reinganum (1981), and Dimson and Marsh (1986), all reported a relationship between the size of the firm and the excess return earned by its stock, and, similar to Chambers and Penman, Banz found that size and return were negatively correlated.

A further study was made by Firth (1981) using market capitalisation as suggested by Verrecchia. Firth found a negative association between size and returns generated by the preliminary announcement, interim report and annual report and accounts but not for the annual general meeting. The smaller the firm the larger the information content of the three releases which agrees with Verrecchia's findings. McNally,Eng and Hasseldine (1982) reported large firms making a higher level of disclosure than small firms and Zeghal(1984) also reported an inverse relationship between firm size and the informational content of financial statements.

Size, however, was considered by Haw and Ro (1990) not in itself to convey earnings information but to be a proxy for firm specific information variables. While they acknowledged a "number of limitations in the study", they concluded that

when consideration is taken of earnings releases reporting lags and industry membership, "the firm size effect is minimal".

Another aspect of the size effect emerges from studies of investor over-reaction to current, uncertain information. These studies appear to be related to the mean-reversion phenomenon. Share prices, including those of the UK, are said to have positive serial correlation over the short term and negative correlation over longer periods. That is, over the long term prices revert to their mean; prices are mean-reverting (Poterba and Summers, 1988).

Studies which appear to be related to mean-reversion behaviour are those of Howe (1986) and De Bondt and Thaler (1985,1987). All produced similar results. De Bondt and Thaler report that over a three year period a prior period's worst share return performers (losers) outperformed prior period winners. However, Zarowin (1990) re-examined De Bondt and Thaler's evidence and concluded that their results did not arise from investor over-reaction, except in the month of January due probably to tax loss selling, but from the size phenomenon. When losers are smaller than winners, losers outperform winners. When winners and losers are matched for size, there is little evidence of any return difference.

A UK study by Power, Lonie and Lonie (1991) produced results similar to those of De Bondt and Thaler but a note in the article indicates the paper was written before the Zarowin study was published. The Power et al. conclusions must,

therefore, be treated as tentative particularly as Brailsford (1992) found no evidence of the winner/loser effect in the Australian equity market. Moreover, Brailsford found no significant difference in average size of winners and losers consistent with the results of Zarowin.

Contrary to Chang (1988) who found only the winner portfolio experienced a price reversal, Bremer and Sweeney (1991) observed extreme negative rates of return followed by larger than average positive returns over the two days following the event which is inconsistent with the EMH.

The empirical evidence is generally strongly suggestive of a firm size effect. This needs to be taken into account explicitly in this study.

3.4 Earnings

Ball and Brown (1968), Beaver (1968) and Foster (1973) all found annual earnings announcements contained information.

The work of Oppong(1980) is of interest not only for its results but also for its methodology. Oppong investigated the methodological problems associated with the clustering of annual earnings announcements and firm size on studies examining the information content of earnings reports. Oppong used only firms which had a December 31 year end. A large number of firms have 31 December as their year end and they are sometimes excluded from studies of information content

(e.g.Beaver,1968 and May,1971).The reason is that their preliminary announcements are generally made in the first quarter of the following year. Such heavy clustering of announcements may lead to high correlation between the residuals of those firms in the same industry due to the first firm's announcement affecting the market return. Firth(1976) confirms the importance of the industry factor in generating such co-movements.

The clustering problem is not exclusive to the US. Barron(1984) reported 41% of UK companies in 1981 as having a December 31 year end.

Firms with a December 31 year end tend to be large so there is probably a bias against the earnings report containing information as large firms are followed more closely by financial analysts and others than are small firms.

As a measure of information content, Oppong used $V_{it} = \frac{|U_{it}|}{|\bar{U}_{it}|}$ where $|U_{it}|$ is the absolute value of the residual U_{it} in the report week t, and $|\bar{U}_i|$ is the mean of the residuals or abnormal returns $|U_{it}|$ for the non-report period. If the announcement contains information V_{it} will be greater than one. Oppong also used the measure adopted by Beaver, which was to square the report week residual and divide by the sample variance of the non-report period residuals. Oppong maintained that squaring the residuals gives greater weight to a few large residuals when price announcements are averaged across announcements. His results confirmed that the V_{it} measure was a more reliable indicator of information content than that used

by Beaver. Only the report week had a V_{it} value greater than one but it was not significant. A majority of the annual earnings announcements of the sampled firms had no information content. Although his tests showed clustering not to be a serious problem, it could not be ruled out entirely. Nor could the study be used as evidence to support the size effect as the issue was not directly examined. The results, however, did point in that direction.

A study similar to that of Beaver (1968) was conducted by Morse (1981). Using daily share price and volume data he examined the market reaction to the announcement of quarterly earnings in The Wall Street Journal. To circumvent the bias introduced by thin trading, his sample was limited to securities which were traded relatively frequently. No reaction was observed by Morse until day minus one. The reaction then continued for a few days after the announcement. The market adjusted quickly but not instantaneously.Morse attributed the reaction on day minus one to the earnings figures being released on that day through different medium.

Reported earnings were found by Lipe (1986) not to fully explain the variation in returns around the release date. Decomposition of earnings provided a small but significant amount of information which would be lost if only earnings were reported.

Stice (1991) studied the market reaction to 10-K filings when followed by Wall

Street Journal(WSJ) quarterly earnings announcements. Usually the WSJ announcement precedes the 10-K filing. His results suggest that contrary to the findings of Foster and Vickrey (1978), on average, there is no significant market reaction at the SEC filing date whereas there is at the WSJ date. The results, Stice indicated, were consistent with earnings announcements having information content and that information in the SEC disclosure is not fully reflected in prices until a subsequent disclosure in a different medium is made.

The conflicting results of Stice and Foster and Vickrey for the 10-K filing are probably attributable to the different sample selection criteria. Stice's sample comprised 211 mainly small firms experiencing financial difficulties which probably accounts for the untimely, significantly delayed WSJ announcement. Also the firms were not closely followed by analysts. The Foster and Vickrey sample comprised 96 mainly manufacturing firms, which, they suggested were widely followed by analysts, therefore, the firms were probably mainly large. The different results are consistent with investors in small companies being mainly unsophisticated while the converse is true for large companies.

3.5 Dividends

Dividend announcements provide information incremental to earnings announcements with significant market reaction occurring on the announcement day and the

day previous (Aharony and Swary, 1980).

Dividend announcements are said to be signals by management about future prospects of the firm. Dielman and Oppenheimer (1984) examined the excess returns of firms increasing or decreasing their dividends by at least 25%, or omitting or resuming dividend payments. With the exception of the 25% decrease, excess returns were found over the ten day period prior to the announcement particularly for resumptions and omissions. Unlike Aharony and Swary (1980), although on the announcement day there was a large reaction so was there on the day following, and apart from the omissions group, price adjustment, on a small scale, continued for about a month. Bad news contained in omissions and decreases resulted in the largest excess returns. The longer a firm had gone before previously omitting its dividend, the larger the impact. Like other researchers they admitted they could not determine the actual time of the announcement. The announcement may have been made on the assumed day after the market had closed hence the large excess returns on announcement day plus one for all four groups.

3.6 The Audit Function

A significant reduction in share prices for one day only after the release of the report was found for the following qualifications; asset value, going concern and general. There was no reaction to unqualified audit reports (Firth,1978).

Dyer and McHugh (1975), Firth (1978), Whittred (1980) and Garsombke (1981) have between them shown that the audit function can delay the publication of an annual report and accounts and where the audit report is a qualified one, the more severe the qualification the longer the delay before publication.

3.7 Specific Types of Accounting Numbers

The types of accounting numbers studied can be illustrated by the study of Hoskin, Hughes and Ricks (1986). They examined a number of disclosures made concurrently with annual earnings, i.e. US preliminary announcements, to assess whether the former had information content additional to that signalled by the announcement of earnings per se. The study is of interest not only for its findings but for the comments by L.D.Brown (1986) on the evidence supporting the conclusions and methodology, as his observations apply to other, similar works of this kind.

Hoskin et al. found that the market reacted specifically to earnings components e.g. accounting changes, LIFO adoptions, and firm segmental operating results, also particularly to dividend increases, company officer comments on the firm's future prospects and to prospective operating data, for example, orders,contracts,capital spending etc. As previous research had found, there was no incremental information in stock splits. Disclosures, they maintained, made in addition to the earnings announcement, per se., had statistical incremental information even after controlling

for the combined effects of dividend increases, stock splits and earnings.

Brown asked why if non-earnings information was of interest the study was restricted to disclosures made concurrently with earnings. The sample could have been larger and the focus, on the items under study, sharper, if disclosures on nonearnings dates had been analysed. Also why use a two-day holding period when Patell and Wolfson (1984) had shown that the market adjusts to earnings and dividend announcements within five to ten minutes, and they, Hoskin et al. had the time (hour and minute) of the announcements. There were other shortcomings mentioned which rather weakened the findings.

A different approach was made by Board and Walker (1990). They examined the relationship of two measures of accounting rates of return, return on capital employed and return on opening market value, with abnormal returns over 18 years. They found significant variation in the relationship which they attributed partly to inflation.

Non-earnings annual report numbers were also shown by Ou (1990) to contain information useful to investors.

3.7.1 Segmental Data

Assuming the most important single factor for the evaluation of a share price was the firm's stream of future earnings, then if the disclosure of segmental data assisted

investors in predicting future earnings, where diversified firms disclosed segmental data the fluctuations of their share prices should lessen due to the investor being better informed. Kochanek (1974) did a literature review to find those segmental items considered useful for investment purposes. The validity of his results rested on whether the firms were correctly classified as "good" or "poor" segmental reporters. The results did suggest that the disclosure of segmental data was useful in predicting future earnings and did help to lower the share price variability over time although there were more important factors in explaining price changes. It could be argued that larger firms are more diversified etc. and thus have more to disclose.

A later study by Salaman and Dhaliwal (1980) showed that large (defined by asset size) diversified firms voluntarily disclosed segmental sales and earnings data more often than their smaller counterparts. Those firms that did so were most likely to raise capital through the capital market.

Similar results are recorded by Swaminathan (1991) who in addition found that mandated segment data disclosure increased price variability around the release dates of the 10-K directly proportional to the number of segments.

3.7.2 Asset Revaluations

Noise from other signals, such as increased earnings,increased dividends and bonus issues plus a small sample makes the Australian study of Sharpe and Walker (1975)

less than satisfactory. They found that asset revaluations, an accounting change, had significant information content. A UK study by Standish and Ung(1982) suggested that revaluation alone did not produce a significant market reaction unless accompanied by other favourable signals. They also found that the abnormal return was not related to the size of the revaluation. More weight can be given to this piece of work as the sample was larger than that of Sharpe and Walker. Also 202 of the 232 companies used in the study reported their revaluations at the time of the annual report and accounts when dividends are not usually announced and the earnings figure has already been made public in the preliminary announcement.

3.7.3 Extraordinary Items

In the annual report and accounts certain items classified as "extraordinary" have to be separately disclosed. Gonedes(1975) showed that it was not the type of the disclosed special item which conveyed information but whether the item increased or decreased reported income.

3.8 Strength or Relative Strength of Event Signal

Firth (1981) researched the relative strength of four releases by 120 firms in the UK. The events were the preliminary announcement(PA), the publication of the annual report and accounts(ARA). the annual general meeting(AGM), and the half yearly

interim report(IR). To overcome the thin-trading problem, firms used in the sample had to have a market capitalisation of over £10m.

Using weekly data for three years,1976 to 1978, the information content of the events was measured in two ways. First using abnormal returns calculated by the Fama et al. (1969) method and second with volume of shares traded and deals transacted in the firm's shares.

Researchers in the US have shown a definite relationship between an increase in volume and movement in share price. But even in the US where volume data is more readily available than in the UK, Dyckman, Downes and Magee (1975) point out that there is still a serious accuracy problem. The published data does not include the substantial volume of transactions executed outside the regular markets. These transactions vary with different stocks. This makes the conclusions drawn from volume analysis open to doubt. How much more difficult is it then to draw valid conclusions from results using UK volume data? The situation in 1991 may have changed with electronic trading on the UK Stock Exchange.

Firth admitted "Because dealing information is not published by the United Stock Exchange, estimates had to be obtained from firms of jobbers". The fact that Firth was able to obtain estimates, however inaccurate, from jobbers may well have been because the firms in his sample were large companies about which jobbers would have more accurate and easily available information than for small firms.

An event in the study was deemed to have information content if the weekly residual (abnormal return) on the event day was greater than the average of the non-event days, the sign of the residual being ignored. To find the relative information content of the four events Firth ran three tests. The first used the weekly cross-sectional average abnormal returns which were ranked for each of the three years. For the second test an information statistic was calculated using the method previously mentioned in the study of Oppong (1980). Finally, the information statistic for each of the 52 weeks of the year was ranked to find how many times the statistics for the four events were placed in ranks 1 to 4 for each of the three years.

All the tests showed that the greatest information signal was imparted by the preliminary announcement release with the interim report and annual report and accounts releases containing statistically significant above-average information though at a much lower level. The annual general meeting release contained no greater information than the average of the non-event days. Surprisingly, there was little difference in the information content of the interim report and annual report and accounts.

Tests using volume of shares traded and deals transacted showed similar results, with the exception of the preliminary announcement where there was some higher share-dealing in the week before the announcement. Only on the event day was share-dealing above average.

Firth also found that the information statistics for the preliminary announcement, annual report and accounts and interim report for a given firm for a given year were significantly related. Where the release of the preliminary announcement of a firm had a high impact on its share price, so did the release of its annual report and interim report. This, Firth concluded, provided further evidence that the annual report and accounts contained incremental information to that contained in the preliminary announcement.

Firth's results concerning the annual report and accounts are interesting, for the generally accepted view is that when the annual report and accounts is published the market has already anticipated the information it contains from other more timely sources. This was certainly confirmed by Foster, Jenkins and Vickrey (1986). They conducted a series of tests, specifically controlling for extraneous news announcements. Foster et al. excluded any announcement which had previously been shown to contain price sensitive information e.g. earnings, dividends etc. Firms' 10-K reports had to be filed at least ten days after the publication of the annual report and accounts.

The weekly returns were generated using the market model the parameters of which were obtained using three different techniques. The ordinary least squares method produced alpha and beta with mean values of 0.0025 and 0.86 respectively and a mean R^2 of 0.16. To take into account possible bias due to thin trading

a modified version of Dimson's aggregated coefficients was also used. The results obtained using all three sets of parameters were not significantly different.

Although their results implied that the annual report and accounts contained no incremental information at the aggregate level, nevertheless they suggested individuals might still use the annual report for investment decisions.

Anderson (1979), based on a questionnnaire sent to shareholders, had previously found the annual report to be of only moderate importance to individual shareholders.

A less subjective series of tests were conducted by Cready and Mynatt (1991). They employed both price and trading measures. The trading measures included trading volume and number of transactions. Transactions can be stratified by size which is particularly useful when focusing on the individual investor. Cready (1988) identifies investor-type by transaction size; 100-200 shares he identified as a small individual trader, 300-900 as the wealthier investors and 2000 and over as institutional investors.

The above 300 class are more likely to be sophisticated and have the resources to acquire information prior to publication of the annual report. They would place less emphasis on the annual report and accounts as a source of information than the individual, unsophisticated investor with limited resources.

Parts of the Cready and Mynatt methodology are relevant to this study. As

their sample comprised mainly actively traded shares, they employed ordinary least squares to estimate the parameters of the market model used to estimate the daily unexpected returns.Their decision to use ordinary least squares was based on the study of Brown and Warner (1985).

When testing for price response to the annual report Cready and Mynatt, similar to this study, used the absolute value of the unexpected returns as Marais (1985) concluded that returns are not normally distributed and where normality is not present probably a more powerful test is obtained using absolute values rather than squared returns (Rohrbach and Chandra, 1989).

Cready and Mynatt found no significant price or volume response to the publication of the annual report and accounts. However, the transaction tests found significant trading response particularly for the individual investors.

They summarized their findings by concluding that while "wealthier and more sophisticated investors rely on alternative predisclosure information sources in making investment decisions", as the trading response period extended from day 0 to day +7, with the heaviest response occurring in days +5 and +6, this seems to indicate that individual investors do find annual reports informative but the majority delay their trading action. One can surmise that small investors await the financial press comment before making an investment decision.

3.9 The Disclosure Requirements of Users of Financial Statements

As this study examines the cause of the share price reaction on publication of the annual report and accounts for several firms, it is of interest to see what investors and other users of the annual report say they find valuable for share evaluation purposes.

Individual investors, institutional investors and financial analysts all rate the annual report and accounts as an important source of information for investment decisions. In the UK, however, individual investors were found to place a higher value on newspapers and magazines and stockholder's advice (Chang and Most, 1980 and Chang, Most and Brain, 1983). This may well reflect the lower degree of accounting knowledge of the UK individual investor compared with his US cousin.

For ten items in the annual report and accounts there were different rankings of importance by individual and institutional investors and financial analysts. In the UK all three gave the balance sheet and income statement high ranking of importance. The institutional investors and financial analysts ranked third the "Statement of changes in financial position", while the individual investors chose "Summary of operations: 5-10 years". The different rankings of sources of information and annual report items by UK financial information users probably reflects

the wealth and sophistication of the users.

Financial experts employed by insurance companies were found by Lee and Tweedie (1981) to read thoroughly the profit and loss account and the balance sheet. The overall finding of the study was that the annual report and accounts was regarded as of high value as a prime source of information. A low value was placed on the auditor's report. This is surprising in view of Firth's (1978) study which found share prices adjusted downward to "going concern" qualifications. This piece of information would seem of importance to all investors.

Although the chairman's statement was ranked highly by the experts as a source of information both Still (1972), a UK study, and Courtis (1986) found that, on average, a shareholder might have difficulty in fully understanding it. This may well explain the findings of Chang and Most that the UK shareholder places more reliance on other information sources.

Users answers to the question of the usefulness to them of the annual report seem to tie in well with the theory of investment. They are using the report to assess future earnings, the security of capital and prospective cash flows. Security analysts seem to give more emphasis to earnings than cash flow (Govindarajan,1980).

Arnold and Moizer (1984) used the questionnaire approach to examine the methods and information used by UK individual analysts for share investment decisions. The primary appraisal method adopted by analysts was found to be fundamental

analysis. Similar to the findings of Lee and Tweedie (1981) the most important sources of information are the balance sheet and profit and loss account contained in the annual report and accounts. The chairman's statement and source and application of funds statement are also highly rated. Analysts commented on the disparity of information disclosed by individual firms and gave a low rating to the use of other analysts' forecasts.

The lack of importance attributed to other analysts' forecasts is perhaps not surprising. In a US study, O'Brien (1990), the author attributed her findings, that on average there is no consistent difference in analysts forecasting ability, to analysts keeping in line with the forecasts of analysts they consider to be better informed. It is hardly likely in a written answer to a questionnaire an analyst will acknowledge he follows, in some cases, the forecasts of another better informed analyst.

Earnings forecasts by investment analysts are said to contain new information even when preceded by other analysts forecasts or firms' accounting disclosures. Yet, despite all the information available to them, analysts earnings forecasts only explain about two thirds of the information conveyed by share price movements prior to the forecast release date (Lys and Sohn, 1990). In addition analysts seem not to fully revise their forecasts for the current year for the effect on earnings of changes in accounting method (Elliott and Philbrick, 1990).

Using a case study approach Gniewosz (1990) describes an Australian institution's share investment decision process using fundamental analysis. Gniewosz observed the analysis of the annual report to dominate all other sources. "It is central to the whole information-use process in share investment decisions". The annual report is used not only to prepare forecasts but to evaluate the accuracy of prior forecasts and to ascertain how differences have arisen. The report also serves to identify those areas of the company's activities etc. which may require further investigation. Gniewosz classified the annual report information into four areas: growth prospects, significant financial market factors e.g. possible takover potential, investment parameters e.g. dividend and share price yield and investment strategy. The importance of the annual report was not confined to the time when it was initially received, its use extended throughout the year, sometimes as a proxy source of information and at other times in a confirmatory role.

Perhaps, as Gyan (1974) remarked, why users do not find the annual report so useful as they would like, lies in the disagreement, as to what is useful information, between the preparers of the report and its users. Accounts are prepared by accountants and the majority of users have no accountancy training. Whatever its shortcomings, as Firth (1978) concluded, a properly specified annual report should be able to meet the needs of its various readers.

Chapter 4

Data and Methodolgy

This study initially examines four firm financial report related events for their information content. The events are the preliminary announcement, the annual report and accounts, the annual general meeting and the interim report. The study then focuses on the results relating to the annual report and accounts to examine more closely its value to investors.

If the event contains new information the share price reaction should yield an abnormal return or residual, the sign being ignored, higher than the average for the non-event days.

Three return-generating models are used. Careful consideration is given to sample selection to obviate any problems previous studies have encountered. The sample is selected and examined for factors which may affect the return generating process

or the results,e.g. firm size, thin-trading and both industry and event clustering.

4.1 Sample and Share Price Data

4.1.1 Sample Selection Criteria

The sample consists of 337 companies which met the following selection criteria:

1. Firms had to be fully listed on the London Stock Exchange as at 30.6.1981, and have daily share price data available for 125 trading days prior to the five day trading period commencing with the preliminary announcement (PA) and 130 trading days thereafter. Daily return data was generously provided by Interactive Data Corporation to whom the author is considerably indebted, and covered the period from 1 May 1979 to 30 June 1981, both days included. For all but 15 cases the preliminary announcement event for each company occurred during calendar year 1980.

2. Companies selected were restricted to those with a share marketability rating of one or two according to the London Business School, Risk Measurement Service journal Vol.No 3(1) January 1981. The rating shows how many days are likely to have elapsed since the previous market transaction: one = under 0.1 day, two = 0.1 - 1 day. 398 companies met both the first and this additional criterion. The shares in the sample being actively traded should help overcome the problem of thin trading

associated with the use of daily data.(Scholes and Williams,1977;Dimson,1979;Dimson and Marsh,1986 but see Morse,1984 and Brown and Warner,1985).

3. A further requirement was that there had to be at least five trading days between each of the four events,the preliminary announcement,the annual report and accounts, the annual general meeting and the interim report, the event day being the first of the five trading day period. No company was permitted more than one event on each of the four main event days. Meeting these criteria reduced the sample size to its final 337 firms (see Appendix A). 28 of the 61 companies deleted had more than one event on an event day and the remaining 33 had insufficient data, largely due to share price suspension,the company being taken over or merged with another or going into receivership.

4.1.2 Industry Classification and Size Distribution

Industry	No. of Firms
Str.Mult	18
Inv.Trust	25
Mech.Eng	25
Oil	12
Food.Man	11
Ind.Hold	25
Various	221
	337

Table 1: Distribution of sample firms by UK Stock Exchange industry classification

The Stock Exchange industrial classification has 85 different categories. Table 1 shows that there were six industries with more than ten companies, accounting for 116 firms in total in the sample . The remaining 221 companies are spread over 76 categories, an average of approximately 3 firms per industry classification. As can be seen there is no preponderance of firms in the sample in any one industry; they are well diversified.

The sample firms have a mean capitalization of £169m with a standard deviation of £409m. The size distribution is negatively skewed with 262 firms smaller than the mean value. 75 companies have capitalizations above the mean figure of which 66 are within the two standard deviations band, £987m.

4.1.3 Year End Distribution

The distribution of the fiscal year end months for the sample companies shown in Table 2 is virtually identical to the population based results for 1981 reported by Barron (1984)(see Financial Statement Analysis,2nd Ed.1986. G.Foster page 183).

38.9% of the sample companies have a fiscal year end of December which could give rise to cross-sectional return correlation caused by the clustering of event dates. However, cross-section return correlation should not be a problem if the return metric investigated were calculated over a short time interval(Bernard,1987) or if the firms are randomly selected rather than clustered by industry and the market

Month Fiscal Year Ends	No of Cos	%	Barron %
January	21	6.2	4.4
February	11	3.3	2.4
March	89	26.4	20.4
April	9	2.7	4.3
May	1	0.3	1.5
June	14	4.1	6.4
July	2	0.6	2.8
August	8	2.4	1.7
September	33	9.8	8.8
October	12	3.5	3.5
November	6	1.8	2.8
December	131	38.9	41.0
	337	100.0	100.0

Table 2: Fiscal year ends of sample companies compared with UK %s reported by Barron (1984) for 1981

model is used (Chandra et al.,1990). All three conditions are met by this study.

Cready and Mynatt (1991), using a sample where only 30% of the firms did not have a December year end, considered event-date clustering as non-significant. This study uses a sample where 60% have a year end other than December.

The 260 trading day period is centred on the PA. Where the 260 trading days included more than one interim report the first was omitted and another five trading days of data added. Due to data restrictions 38 interims are before the PA. This small number does not impact on the letter of the results.

The order of events is parsed in Figure 1 below:

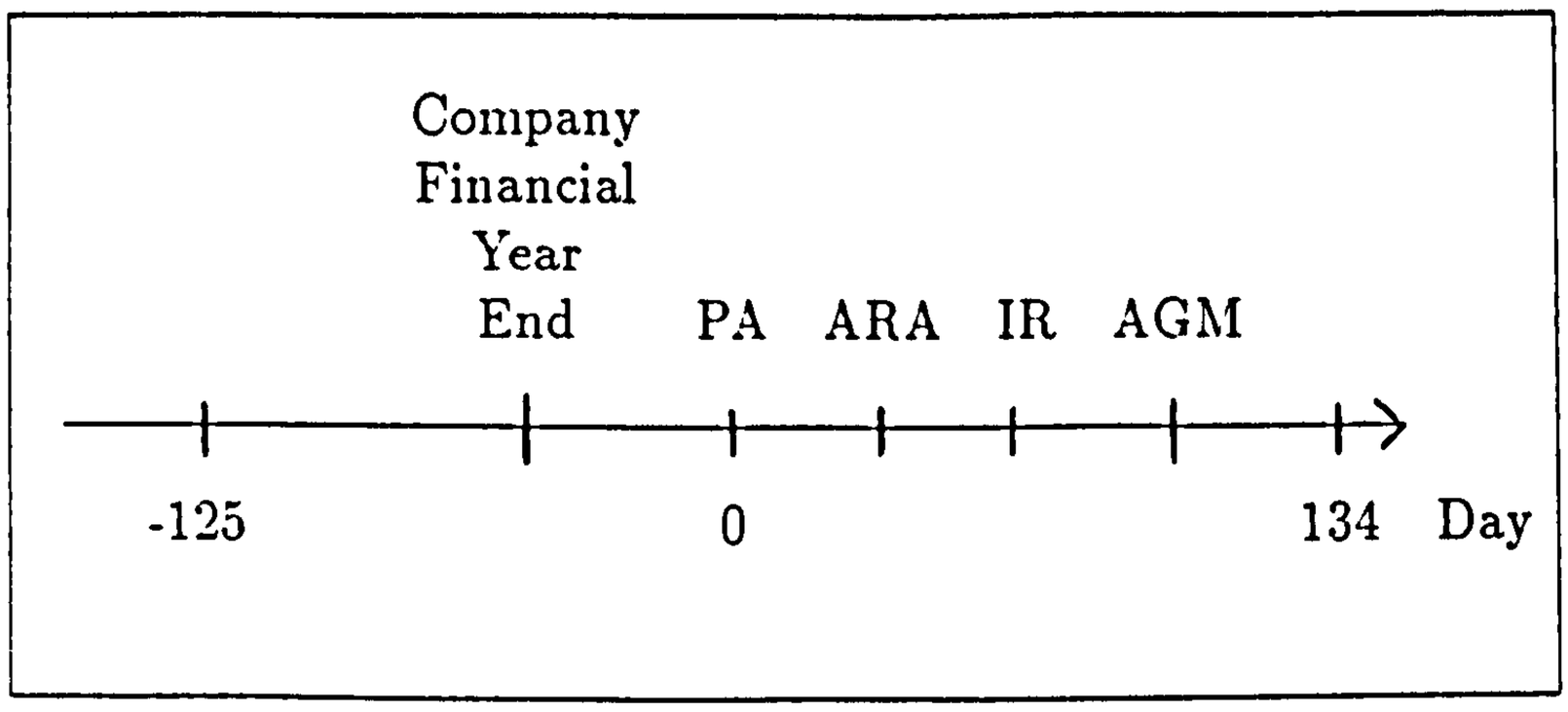

Figure 1: Event Study Period

4.2 Methodology

4.2.1 Abnormal Return Metric

If the preliminary announcement, annual report and accounts, annual general meeting or interim report contain new information useful to investors for share evaluation purposes, a significant impact on the share price generating a large abnormal return should result. The abnormal return metric ($U_{,t}$) employed in this study is defined as:

$$U_{jt} = AR_{jt} - ER_{jt}, \tag{9}$$

where (U_{jt}) = the abnormal return (residual) of firm j on day t,

AR_{jt} = the actual return of firm j on day t,

ER_{jt} = the expected return of firm j on day t.

4.2.2 Calculation of Abnormal Returns

Brown and Warner (1985), adopting a simulation approach, tested different event study methodologies using daily data. Their results were consistent with those of their 1980 monthly data study in that methodologies based on the ordinary least squares (OLS) market model and, in some special cases, even more simple methods were as powerful at detecting abnormal returns as more elaborate procedures.

To test the sensitivity of my results to the nature of the return generating process three models are employed; the market adjusted return model or simple, naive model, the market model and the capital asset pricing model (CAPM).

4.2.3 Model 1 - The Market Adjusted Return Model[1]

The market adjusted return model relates the performance of the sample companies to the market index. It sets coefficients a = 0 and b = 1, for the market model. Firth(1975) and other studies have found the 'a's to be virtually zero for all shares. There is the additional advantage in this formulation that potentially biased estimates of betas, calculated from returns related to thinly traded shares, are not used.

[1]Model 1 is thus $ER_{jt} = R_{mt}$, where R_{mt} = the market return.

4.2.4 Model 2 - The Market Model[2]

This is the form of return-generating function used by Fama et al.(1969):

4.2.5 Model 3 - The Simple CAPM[3]

4.2.6 Variable Derivation

For each of the sample securities daily rates of return were calculated as:

$$AR_{jt} = ln(P_{jt} + D_{jt}) - ln(P_{jt-1}), \tag{10}$$

the actual continuously compounded return on security j in time t where P_{jt} = the closing price for security j on day t and D_{jt} = net dividend on the ex dividend day t.

The market return is derived as:

$$R_{mt} = ln(FT_t * (1 + GY_t/260)) - ln(FT_{t-1}), \tag{11}$$

where FT_t = The Financial Times - All Share price index (a market-value weighted arithmetic index representing 750 of the largest UK companies) on day t and GY = The FT-All Share Index-Gross Dividend Yield which is converted to a daily yield basis for day t by dividing by 260 and

$$R_{ft} = ln(1 + (TB_t/260)), \tag{12}$$

---

[2]Model 2 is $ER_{jt} = a_j + b_j R_{mt}$, where a_j and b_j are the estimated parameters.

[3]Model 3 - the simple CAPM is $ER_{jt} = (1 - b_j)R_{ft} + b_j R_{mt}$ where R_{ft} is the risk free rate.

where TB_t = the 3 month Treasury Bill rate which is converted to a daily yield basis for day t.

4.2.7 Parameter Estimation

Model parameters a and b were estimated for firm j by regressing daily returns on the related market returns using conventional OLS regression. The coefficients were estimated for a pooled period of 200 daily returns, 100 on either side of the preliminary announcement 5 day trading period as well as for the pre and post periods relative to the PA using 100 returns in each case. Where other events occurred during the 100 day periods, such as rights and scrip issues and additional interim results etc., the associated 5 day trading periods were removed and an additional 5 returns added either to the beginning or to the end of the 260 day period, depending whether the other event occurred before or after the central preliminary announcement. Table 3 summarises the regression results, based on model number 2, using OLS, for the pre and post PA event periods as well as for the pooled period.

Estimation Period	a	b	r	't' stat
Pre	-.000228	.813	.459	9.4
Pooled	-.000289	.806	.411	8.3
Post	-.000303	.810	.379	7.5

Table 3: Averages of the Estimated Parameters in the Pre, Pooled, and Post Time Periods using Ordinary Least Squares. (337 companies)

Dimson and Marsh (1986) among others indicate a size effect[4] in addition to beta when calculating abnormal returns. To correct for this the pooled period data was recalculated using OLS including a (ln)size variable - the market capitalisation of the company. The results are shown in Table 4, where 'c' is the coefficient of log(size). Taking the size effect into account has virtually no effect on the magnitude of the

Estimation Period	a	b	c
Pooled	-.000248	.798	-.000006
Standard Dev	.0025	.320	.0006
Student 't' value	.0143	45.838	.0004

Table 4: Averages of the Estimated Parameters in the Pooled Time Period using OLS including a size(log) variable. (337 companies)

average estimated parameters. Neither the constant term 'a' (as found in other studies) nor the coefficient 'c' are statistically significant.

We may speculate the reasons why firm size has little effect on the parameters are that the measurement interval is small, the firms in the sample are frequently traded and widely followed and the sample has been randomly drawn from the population.

[4]The firms size effect here should be distinguished from the neglected firm effect e.g. argued by Arbel, Carvell and Strebel (1983). Arbel et al. considered firms whose shares are seldom held by institutions to be "neglected firms". They found a neglected firm effect in addition to a small firm size effect for both small and medium sized neglected firms.

4.2.8 Adjustment for Small Firm Bias

The study sample comprises actively traded companies but many are still small and in addition we may posit a potential for bias, despite using actively traded shares, due to firm closing prices occurring at different trading times (see Dimson and Marsh, 1983). To test for bias due to non-synchronous data the parameters were re-estimated using the Scholes - Williams method which takes into account thin trading. The estimators are:

$$\acute{b} = (b_{t-1} + b_t + b_{t-1})/(1 + 2\rho_m), \tag{13}$$

where b_{t-1},b_t and b_{t+1} are the parameters derived from regressions of observed returns on preceding,synchronous and subsequent market returns and ρ_m is the autocorrelation coefficient for the market index.

$$\acute{a} = \frac{1}{T-2}\sum_{t=2}^{T-1} AR_{jt} - \acute{b}\frac{1}{T-2}\sum_{t=2}^{T-1} R_{mt} \tag{14}$$

The parameters were estimated using the 337 companies and the results are shown in Table 5. The need to adjust parameter estimates to take account of thin trading even in such an active stockmarket as the London Stock Exchange and with a sample of predominately large actively traded stocks is highlighted.(See Dimson, 1979, and Dimson and Marsh, 1983, for detailed discussions on the Scholes and Williams method and thin trading bias using UK data respectively; also O'Hanlon, 1988, who found evidence of thin trading in the FTSE 100 shares, the largest UK

Estimation Period	a	b
Pre	-.00052	1.0321
	(.00182)	(0.437)
Pooled	.00119	1.0276
	(.00110)	(0.356)
Post	-.00059	1.0410
	(.00216)	(0.504)

Table 5: Averages of the Estimated Parameters and their Standard Deviations (in parenthesis) using the Scholes and Williams method with OLS. (337 companies)

shares by market value.[5])

4.2.9 Stability of Beta Estimates

The average pre and post betas using the Scholes and Williams method were 1.032 and 1.041 respectively. The pre betas were regressed on the post betas and the degree of association was low with an r^2 of 0.061, although statistically significant at better than the one per cent level. Nonetheless, this should not deter us from using the pooled betas as the difference in pre and post average betas is negligible.

Chandra et al(1990), however, using a simulation approach suggest researchers need not be overly concerned with non-stationarity in parameters using the market model (see also Brown,1978 and Altman and Brenner,1981).

[5]Using actively traded firms but still finding downwardly biased betas may not reflect thin trading, but the reverse of the neglected firm effect which shows the average beta increasing with neglect (Carvell and Strebel, 1987).

Chapter 5

Results

This study is concerned with the degree of information contained in the preliminary announcement,the annual report and accounts, the annual general meeting and the interim report. The primary concern is with the magnitude of the measure of information content, therefore, the direction of the residual return is largely ignored.

To determine the information content of the four events two methods are used, a cross-sectional analysis and a method adopted by Oppong (1980) using a transformed residual. The market behaviour around the event days is studied to ascertain the period over which any reaction takes place. A long period of adjustment after the event would not be consistent with the Efficient Market Hypothesis.

If the events do contain price sensitive information the extent to which the information content of one event is associated with the other events is examined.

In addition the test results are analysed to ascertain whether they reveal an inverse relationship between company size and information content.

The chapter concludes with a re-run of two tests, but using weekly data, to facilitate comparison with a prior UK study.

5.1 Test 1: Information Content of Event Disclosures - Analysis of Mean Cross-Sectional Return Data

The first test of the information content of the preliminary announcement, annual report and accounts, annual general meeting and interim report involved calculating the cross-sectional absolute average abnormal return for each of the 260 days and ranking these by size. Event information releases on a particular day, however, may, in some cases, take place after the stock exchange officially closes, so that any associated price reaction will be reflected in the closing price for the following day. The day following the event day is, therefore, treated as an event day itself i.e. PA+1,ARA+1, etc.

Each of the 337 companies contributed one daily abnormal return or residual U_{jt} for each of the 252 non-event days and one each for each of the eight event days. There were always 125 non-event days preceding the PA day. The daily

cross-sectional absolute average residual for day t is defined as

$$AU_{jt} = \frac{1}{337}\sum_{j=1}^{337}|U_{jt}|. \tag{15}$$

The results are set out in Table 6.

A number of studies have measured price response to information using squared residuals rather than the absolute values adopted in this study. The problems associated with testing both measures are discussed in Patell (1976), Marais (1984) and Cready and Mynatt (1991).

The validity of using the Patell test statistic $V_{jt} = U_{jt}/S_j\sqrt{C_{jt}}$, which standardizes the absolute residual, is dependent on the accuracy of the variance estimate. Patell used ordinary least squares (OLS) regression to obtain estimates a and b of the parameters α and β respectively. The regression also provided an estimate S_j^2 of the variance of a firm's *residuals*, σ_j^2 during the non-event period. The *residuals* are OLS residuals not the predictive errors U_{jt} using the market model.

One assumption of V_{jt} is that the variance of U_{jt} in the report period equals the variance of the non-event period times a lag correction factor, C_{jt}, which reflects the increase in variance due to prediction outside the non-event period. The size of the correction factor is dependent on the number of observations in the non-event period. In this study the number of days is the same for all firms. If the true variance of U_{jt} is underestimated by $C_{jt}\sigma^2$ then V_{jt} is biased towards rejection of the null hypothesis that $V_{jt} = 0$. Patell (1976) reports the addition of C_{jt} reducing the

test statistic by an average of less than one percent. It does seem that omitting the variance adjustment factor, particularly using a large sample, would not materially affect the results. Cready and Mynatt (1991) also confirm that the addition of the Patell correction factor is not important for our purposes.

Marais (1984), more importantly, suggests tests have shown Patell's V_{jt} to be sensitive to non-normality, "Skewness causes two-sided tests to reject too often on one side and too seldom on the other side". In addition Marais shows a test statistic based on squared residuals suffers the same but stronger flaws as V_{jt}. By way of correction he suggests a nonparametric bootstrap method (but see comments of Burgstahler,1984). However, it should be pointed out that data restrictions prevent the effective listing of the bootstrap method in this study.

Cready and Mynatt (1991) confirm the earlier findings of Rohrbach and Chandra (1989) "...that absolute value returns outperform squared return metrics in detecting excess returns". In addition they reported the rejection frequencies using their method although higher than expected are "not so much higher as to raise major concerns regarding over-rejection".

As Table 6 shows the three models in this study produced practically the same results, so only for the risk adjusted market model (model two) is the null hypothesis, that the information released on the event day is no different to that released on a non-event day, tested. A two-tailed z test where $z = (AU_{jt} - \bar{Y})/(S/\sqrt{n})$ is employed

	Model					
	1		2		3	
Rank	Day	AR	Day	AR	Day	AR
1	PA	.0405	PA	.0407	PA	.0407
2	IR	.0397	IR	.0399	IR	.0400
3	IR+1	.0236	IR+1	.0236	IR+1	.0236
4	PA+1	.0234	PA+1	.0234	PA+1	.0234
5	AGM+1	.0182	AGM+1	.0180	AGM+1	.0181
6	AGM	.0175	AGM	.0175	AGM	.0175
7	24	.0171	24	.0169	24	.0170
8	187	.0160	187	.0160	187	.0159
9	ARA	.0159	ARA	.0159	ARA	.0159
.						
32			ARA+1	.0136	ARA+1	.0136
.						
38	ARA+1	.0136				
Mean				.0127		
Median				.0124		

Table 6: Rankings of Absolute Average Daily Abnormal Returns (AU_{jt}) and Model 2 260 day period mean and median values

where $S/\sqrt{n}$ is the standard error of AU_{jt} and $\bar{Y}$ is the mean of all the non-event days ($\bar{Y} = \sum_1^{337} |\bar{U}_j|/337$ with $|\bar{U}_j|$ being the mean of the 252 non-event days for each company). At the .05 level only the ARA+1 is not statistically significant.

The almost identical results for the three models in the test will be noted. This is probably because when using daily data the magnitude of beta is largely irrelevant as the impact of the event itself will swamp any possible systematic reaction to very small market movements. (Because of this all further results are reported only for the market model (model two) which is risk adjusted and a more powerful model than the other two (Chandra et al.,1990). However, such similar results are unlikely with weekly or monthly data. Table 6 shows that the PA had the highest abnormal return averaged across all firms at 4.1 per cent with the IR average abnormal return almost identical at 4.0 per cent. The IR+1 and PA+1 event days had average abnormal returns of 2.4 per cent and 2.3 per cent. There is only a small price reaction to the AGM and an even smaller one to the ARA with the annual report and accounts way down the table in 9th position (and ARA+1 variously in position 32 and 38 depending on the model).

We may postulate that these average returns reflect some spill-over of information effect into the following day from the event day, or alternatively that the high average values reflect the arrival of information to the market, as some firms practice, on event day+1, i.e. after the market closes for the day. To investigate this,

	Event day	
	t	t+(t+1)
PA	.0407	.0457
ARA	.0159	.0221
AGM	.0175	.0263
IR	.0399	.0489

Table 7: Absolute Average Abnormal Returns for the Two Day Period (Event Day t and event day t + event day $t+1$)

absolute average abnormal returns for the two day period (event day t + event day $t+1$) are derived. Table 7 provides the results for the market model.

All events provide increased absolute residuals providing some support for these arguments. This issue needs to be explored further.

It would appear, prima facie, on a comparative basis little information in aggregate is conveyed to the market by the AGM and ARA information releases, an issue of fundamental concern to accounting policy makers.

5.2 Market Behaviour Around Event Days

Analysis, using the market model, was conducted to explore in more detail share price reaction around event days. Tables 8-11 provide average absolute abnormal return information for the four event periods studied and these results are plotted in Figures 2-5.

Examination of the four graphs show no apparent unusual activity preceding or

Day	Average Absolute Abnormal Return (%)	Standard Deviation	Cready-Mynatt t-value
-9	1.192	1.396	-1.011
-8	1.172	1.558	-0.800
-7	1.200	1.321	-0.280
-6	1.209	1.282	-0.073
-5	1.195	1.258	0.001
-4	1.226	1.399	0.067
-3	1.458	2.175	2.461
-2	1.435	1.762	2.587
-1	1.378	1.976	1.098
0	4.078	4.607	11.227
1	2.317	2.763	8.548
2	1.495	1.792	2.423
3	1.424	1.585	0.353
4	1.529	2.069	1.549

Table 8: Analysis of Abnormal Returns in the Thirteen Day Period Surrounding the Preliminary Announcement (N = 337)

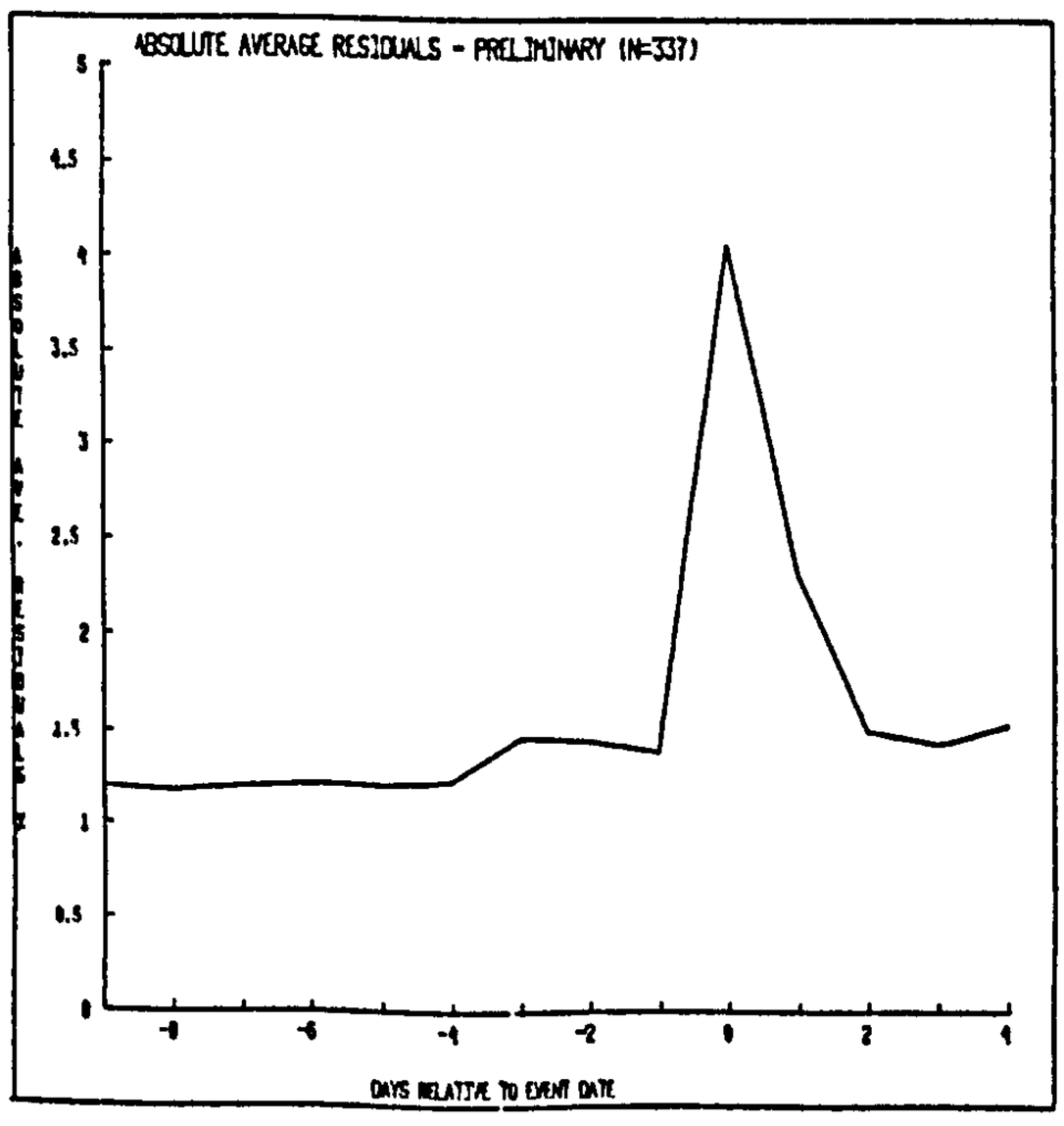

Figure 2: Preliminary Announcement - Average Absolute Abnormal Returns relating to Table 8

Day	Average Absolute Abnormal Return (%)	Standard Deviation	Cready-Mynatt t-value
-4	1.441	1.587	1.03
-3	1.438	1.745	1.18
-2	1.461	1.632	1.37
-1	1.325	1.466	0.89
0	1.591	2.188	3.56
1	1.473	1.763	1.57
2	1.550	2.311	2.43
3	1.500	1.960	1.95
4	1.489	1.960	2.18
5	1.336	1.546	-0.26

Table 9: Annual Report and Accounts - Analysis of Abnormal Returns in the Nine Day Period Surrounding Publication (N=337)

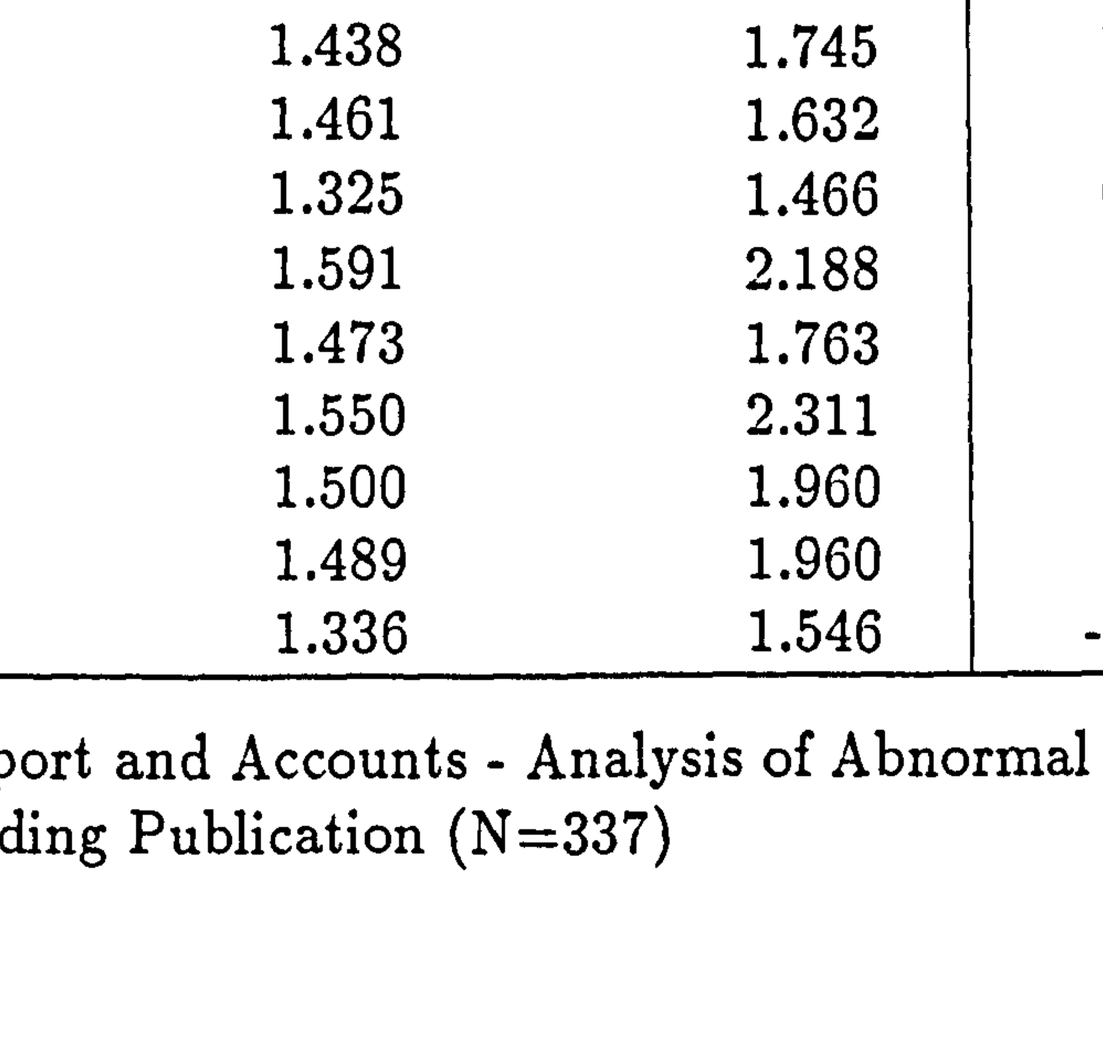

Figure 3: Annual Report and Accounts - Average Absolute Abnormal Returns relating to Table 9

Day	Average Absolute Abnormal Return (%)	Standard Deviation	Cready-Mynatt t-value
-9	1.441	2.170	1.75
-8	1.348	1.515	1.52
-7	1.337	2.445	-0.95
-6	1.306	1.673	0.64
-5	1.276	2.456	-0.04
-4	1.369	1.859	1.35
-3	1.304	1.383	1.06
-2	1.263	1.652	-0.14
-1	1.320	1.593	0.68
0	1.763	2.303	5.03
1	1.801	2.435	5.17
2	1.429	1.924	2.00
3	1.299	1.463	1.47
4	1.329	1.509	1.41
5	1.170	1.267	-0.21

Table 10: Annual General Meeting-Analysis of Abnormal Returns in the Fourteen Day Period Surrounding the Event (N=337)

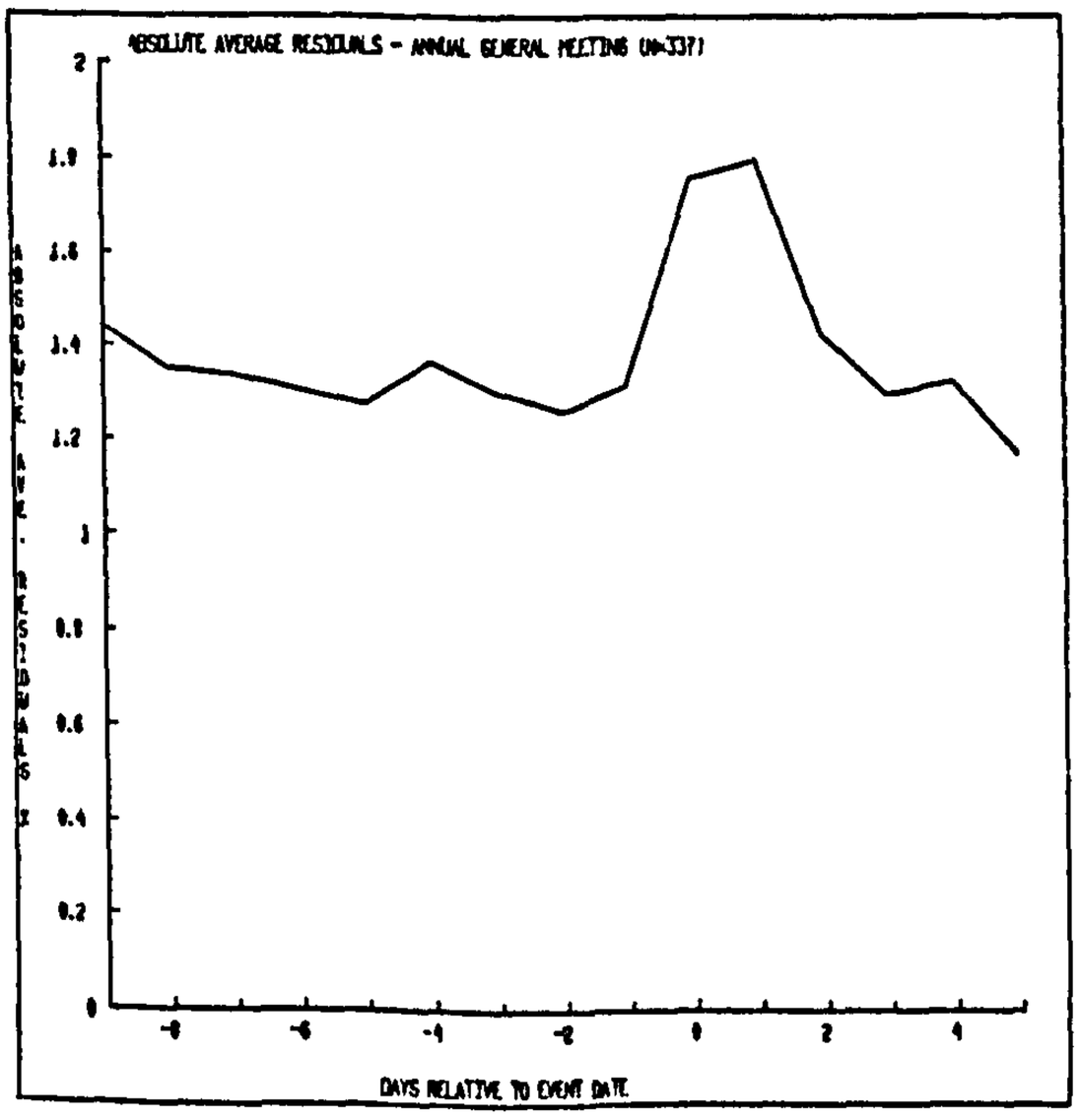

Figure 4: Annual General Meeting - Average Absolute Abnormal Returns relating to Table 10

Day	Average Absolute Abnormal Return (%)	Standard Deviation	Cready-Mynatt t-value
-9	1.304	1.650	1.313
-8	1.246	1.782	-0.076
-7	1.288	1.384	-0.275
-6	1.219	1.461	-0.084
-5	1.179	1.304	-0.382
-4	1.115	1.255	-1.839
-3	1.435	1.452	3.360
-2	1.485	1.905	2.351
-1	1.391	1.673	2.049
0	4.072	4.907	10.567
1	2.359	3.181	6.909
2	1.579	1.994	3.225
3	1.595	1.980	1.867
4	1.303	1.382	-1.205
5	1.455	2.164	-0.227

Table 11: Interim Report-Analysis of Abnormal Returns in the Fourteen Day Period Surrounding Publication (N=337)

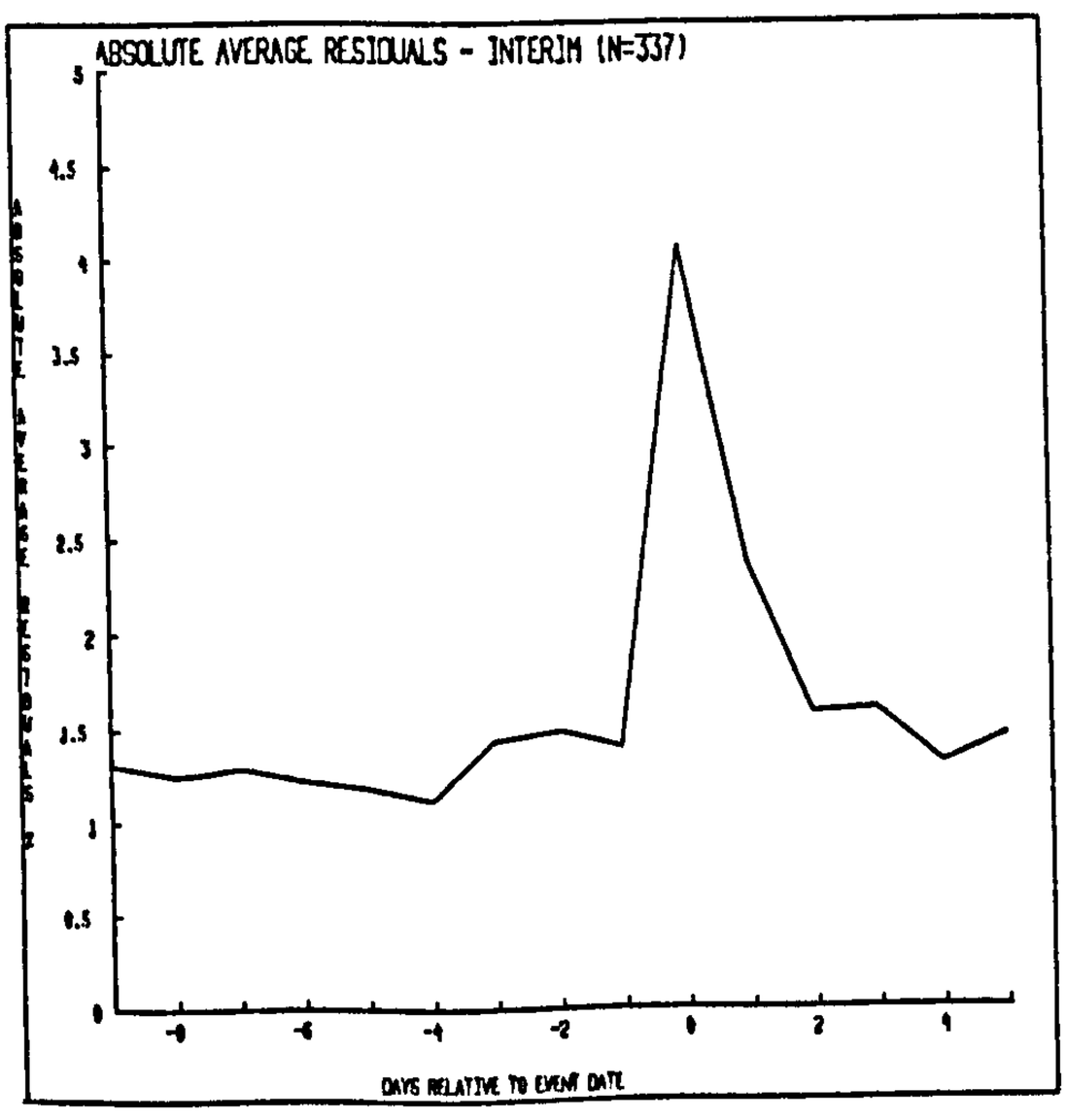

Figure 5: Interim Report - Average Absolute Abnormal Returns relating to Table 11

following the event day (day 0) in any case. The absolute average abnormal return for the PA day rises to 4.1% from 1.4% and drops to 2.3% for PA+1. Similarly for the IR, the rise is from 1.4% to 4.1% dropping to 2.4% the day after. In both cases, thereafter the share prices resume their normal relationship with the market.

The ARA and AGM events show different responses. The abnormal return for the ARA blips up from 1.3% at $t-1$ to 1.6% on publication and is 1.5% at $t+1$. The AGM rises from 1.3% at $t-1$ to 1.8% at both t and $t+1$ and falls to 1.4% at $t+2$. In both cases the negligible apparent increases are immediately followed by stability. Most of the information released by the two events appears to have been anticipated by the market before the events took place.

To test the significance of the average absolute abnormal returns shown in Tables 8-11, Student's t-statistics were calculated using the method of Cready and Mynatt (1991)[6]. The full results are given in Appendix B. The problems associated with the use of the standard deviation of the residuals as the denominator i.e. variance shift, and non-normality of residuals biasing test towards rejection of null hypothsis, are discussed in section 5.1.

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[6]The Cready and Mynatt (1991) method to test for price invariance adopts the absolute value of the abnormal return (ABUR) estimated on a daily basis as: $ABUR_{jt} = \left(\frac{|AU_{jt}| - \overline{ABUR_j}}{SABR_j}\right)$ where $\overline{ABUR_j}$ is the mean absolute value of the residuals for firm j from the non-event period of 252 days; and $SABR_j$, the standard deviation of the absolute values of the residuals for firm j from same non-event period. The 252 non-event days are the 260 day period less day 0, the event day, and day +1 for each of the four events. The absolute value standardised abnormal returns are calculated to have an expected value of zero where there is no price response. The t-statistic is calculated using the conventional t-test with $\mu = 0$ and n = 337.

For the PA, ARA and AGM the results reveal day -1 as non-significant although PA day -2 and day -3 are significant at the 5% level (two tailed test). After the event day the first non-significant day for the PA is day +3 and for the other three events day +5. The results seem to suggest the new information is not fully impounded in the share price on the release day.

There is only a small difference in the size of the mean residuals from day 0 to day +4 for the annual report and accounts, but the calculated t-statistics for these days suggest the differences are unlikely to have arisen by chance. We may speculate the activities of smaller investors may be reflected in these significant abnormal returns after the event day, as they may be more dependent on the information contained in the annual report for their investment decisions and take longer to react to the new information (Cready and Mynatt, 1991). Alternatively we may have evidence of information diffusion generally not being instantaneous.

5.3 The Effect of "Good" and "Bad" News

Whilst the absolute average abnormal returns indicate the value of new information in aggregate, these represent a composite measure reflecting both "good" and "bad" news. "Bad" news would be followed by share prices moving downward giving a lower return than expected, hence a negative residual, whilst "good" news would have the reverse effect. To assess how investors react to "good" and "bad" news

the event day abnormal returns were divided into two groups comprising companies with negative abnormal returns and those with positive abnormal returns. Runs were then made for both the negative and positive groups similar to the runs made for the absolute average abnormal returns. The results are shown in Tables 12-15 and cumulative abnormal returns are graphed in Figures 6-13. It should be noted that splitting residuals on any day into +ve and -ve groups will result in figures of a related shape to those plotted.

The t-statistic for testing the null hypothesis that the event day average abnormal return for "good" and "bad" news are equal can be found by using the formula of Daniel and Terrell (1983) (see Liu et al., 1990, footnote 6,page 406). The t-statistics are preliminary announcement 0.05, annual report and accounts 0.02, annual general meeting 0.12, and interim report 0.22. Thus the respective null hypotheses cannot be rejected in any case.

This method of splitting the event day residuals into positive and negative residuals was used effectively by Liu,Smith and Syed (1990) to examine the impact of the 'Heard-on-the-Street' column of The Wall Street Journal. They analysed the column's buy and sell recommendations, the former resulting in a positive residual and the latter a negative residual - "good" and "bad" news. They found little difference in reaction to a buy or sell recommendation. Their result is similar to the findings of this study.

	Positive (N=207)		Negative (N=130)	
Day	Ave.Abn.Return (%)	St.Dev	Ave.Abn.Return(%)	St.Dev
-19	.136	2.025	.203	1.878
-18	-.138	2.055	.144	1.556
-17	.173	1.882	.162	1.500
-16	-.011	1.731	-.047	1.096
-15	.086	1.958	-.219	1.805
-14	.055	1.565	.047	1.909
-13	.153	1.811	.054	2.031
-12	-.135	2.035	-.098	1.567
-11	-.021	1.886	.240	1.587
-10	.067	1.802	.346	2.189
-9	-.188	1.616	.047	2.126
-8	.047	1.770	.334	2.178
-7	.159	1.805	-.199	1.728
-6	.041	1.847	-.289	1.591
-5	-.152	1.464	-.030	2.086
-4	-.085	1.924	-.142	1.744
-3	-.023	2.613	.220	2.616
-2	.076	2.472	.161	1.902
-1	-.342	2.635	.030	1.949
0	4.067	3.894	-4.095	5.558
1	-.108	2.774	.475	4.606
2	.266	2.268	-.146	2.407
3	-.214	2.058	.166	2.218
4	-.197	2.443	-.529	2.704

Table 12: Preliminary Announcement-Cross-sectional Average Abnormal Returns for the Twenty Three Days Surrounding the Announcement

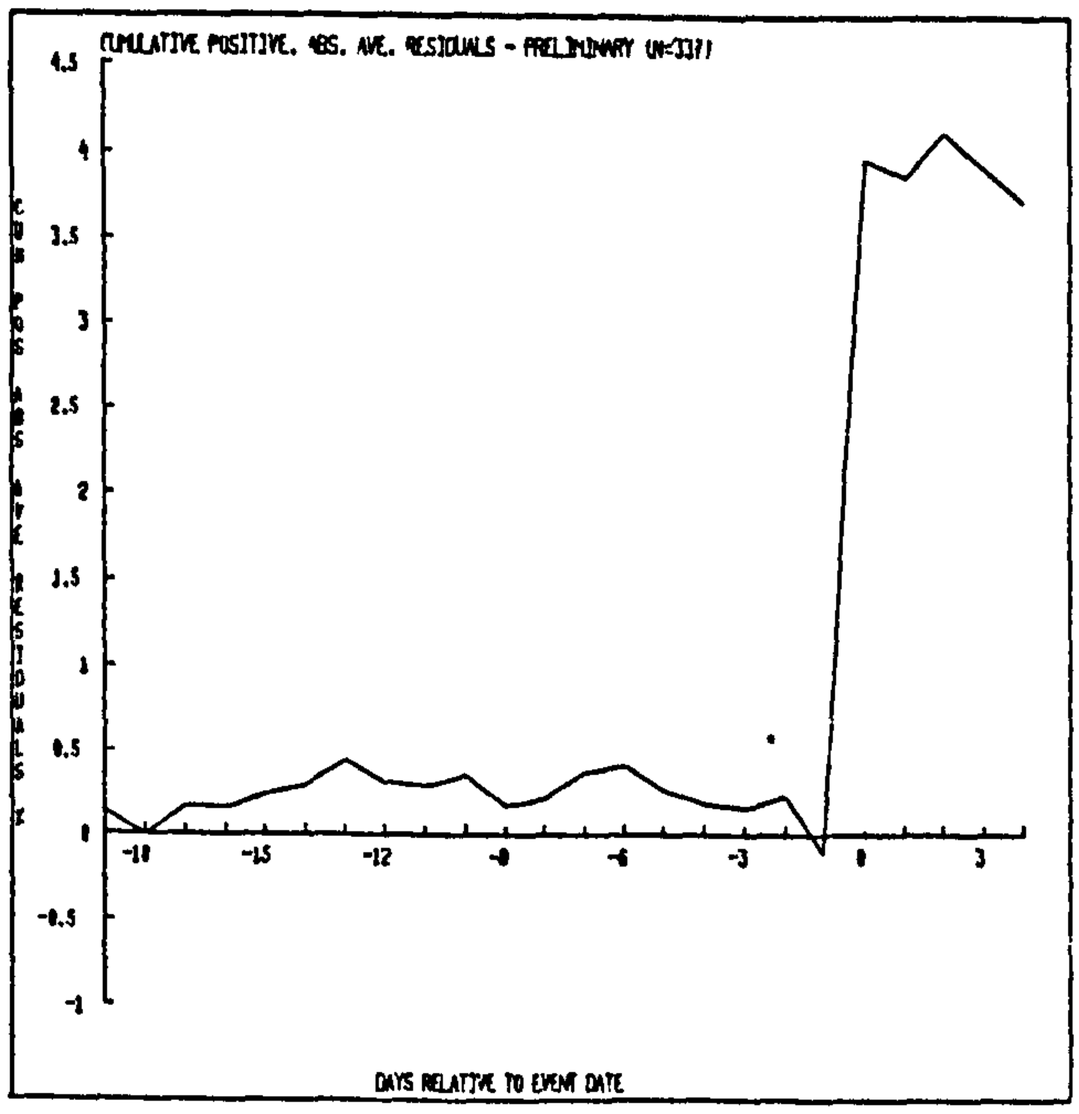

Figure 6: Preliminary Announcement - Cumulative Positive Average Abnormal Returns. Graphical Description of Table 12 (a)

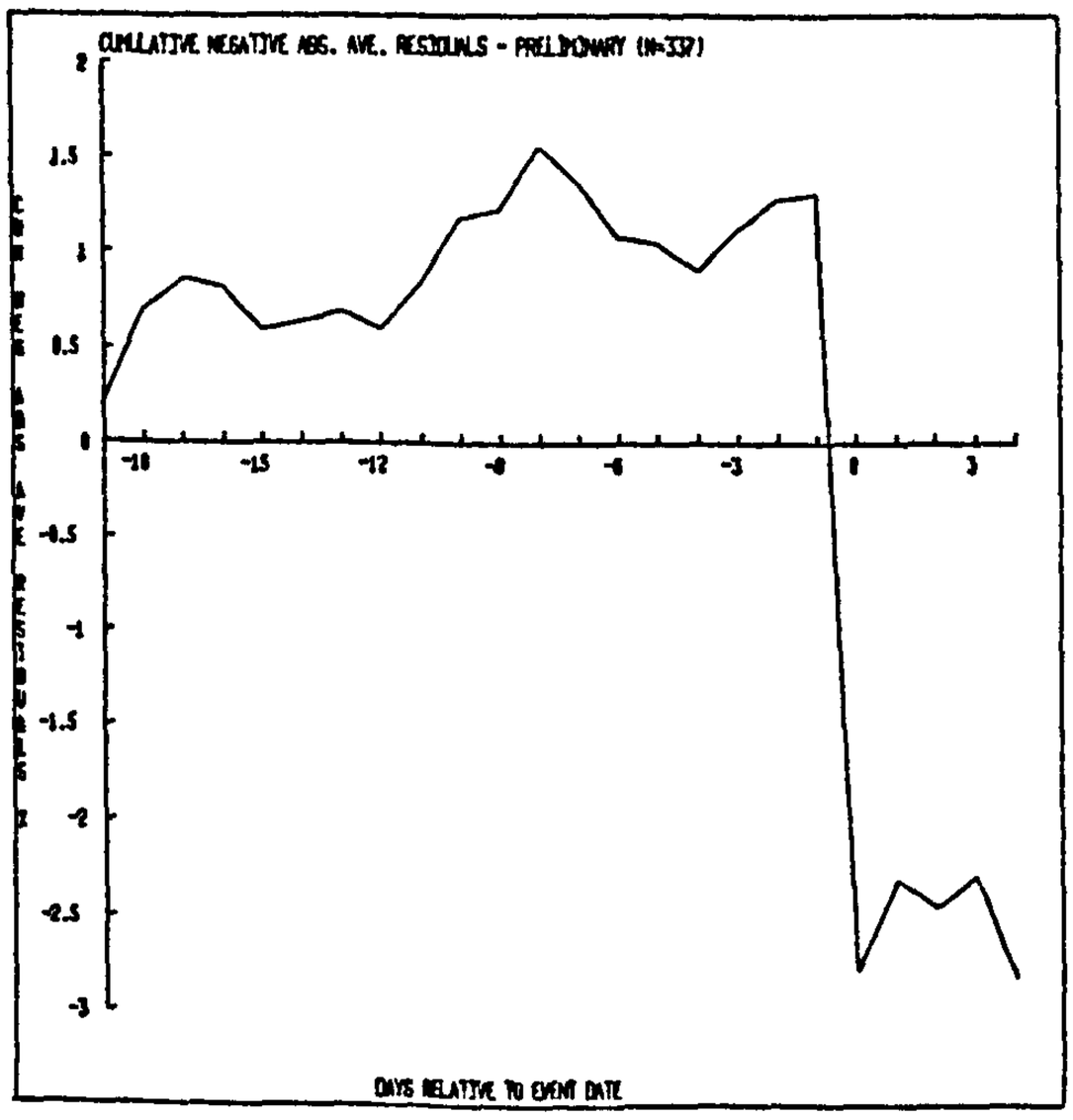

Figure 7: Preliminary Announcement - Cumulative Negative Average Abnormal Returns. Graphical Description of Table 12 (b)

	Positive (N=176)	(a)	Negative (N=161)	(b)
Day	Ave.Abn.Return(%)	St.Dev	Ave.Abn.Return(%)	St.Dev
-4	-.289	1.233	.279	1.873
-3	.071	2.204	-.253	2.307
-2	-.052	2.247	-.121	2.124
-1	-.032	1.953	.435	1.952
0	1.607	1.843	-1.573	2.512
1	-.149	2.298	.055	2.292
2	.302	2.333	-.195	3.181
3	.183	2.015	.203	2.869
4	.292	2.473	.418	2.394
5	-.081	2.022	.197	2.056

Table 13: Annual Report and Accounts-Cross-sectional Average Abnormal Returns for the Nine Days Surrounding Publication

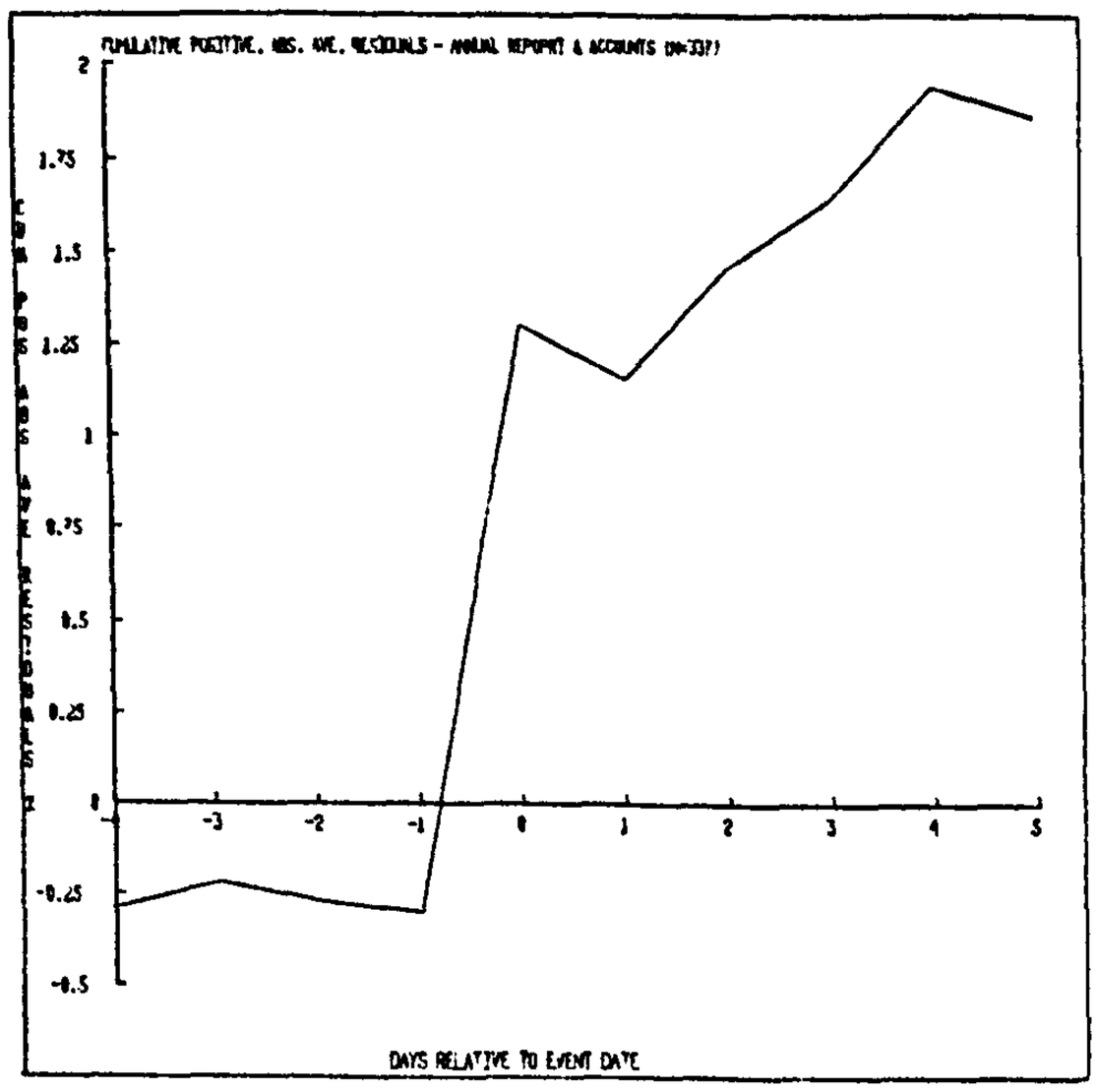

Figure 8: Annual Report and Accounts - Cumulative Positive Average Abnormal Returns. Graphical Description of Table 13 (a)

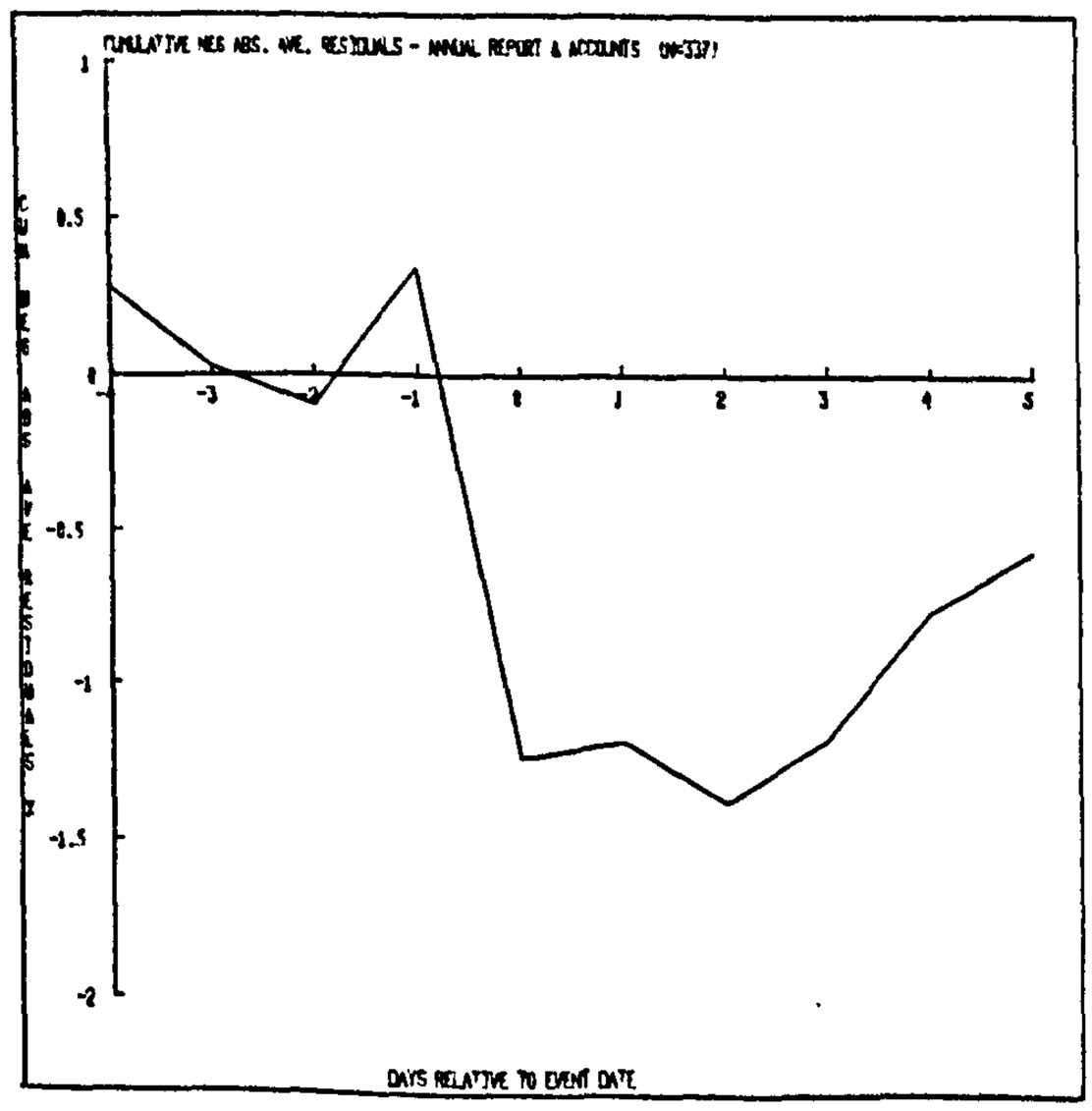

Figure 9: Annual Report and Accounts - Cumulative Negative Average Abnormal Returns. Graphical Description of Table 13 (b)

	Positive (N=169)	(a)	Negative (N=168)	(b)
Day	Ave.Abn.Return(%)	St.Dev	Ave.Abn.Return(%)	St.Dev
-9	.127	3.067	-.121	1.987
-8	-.344	2.019	.224	1.995
-7	-.169	3.569	.111	1.649
-6	-.220	2.451	-.203	1.704
-5	.382	3.493	.098	1.715
-4	-.168	2.373	.257	2.222
-3	.031	1.966	-.274	1.811
-2	-.388	2.184	-.220	1.918
-1	-.137	2.103	-.040	2.030
0	1.490	1.892	-2.038	2.625
1	.034	2.245	-.149	3.647
2	.010	2.836	-.128	1.849
3	-.127	1.884	-.004	2.022
4	.183	2.186	.277	1.787
5	-.061	1.762	-.045	1.685

Table 14: Annual General Meeting - Cross-sectional Average Abnormal Returns for the Fourteen Days Surrounding the Event

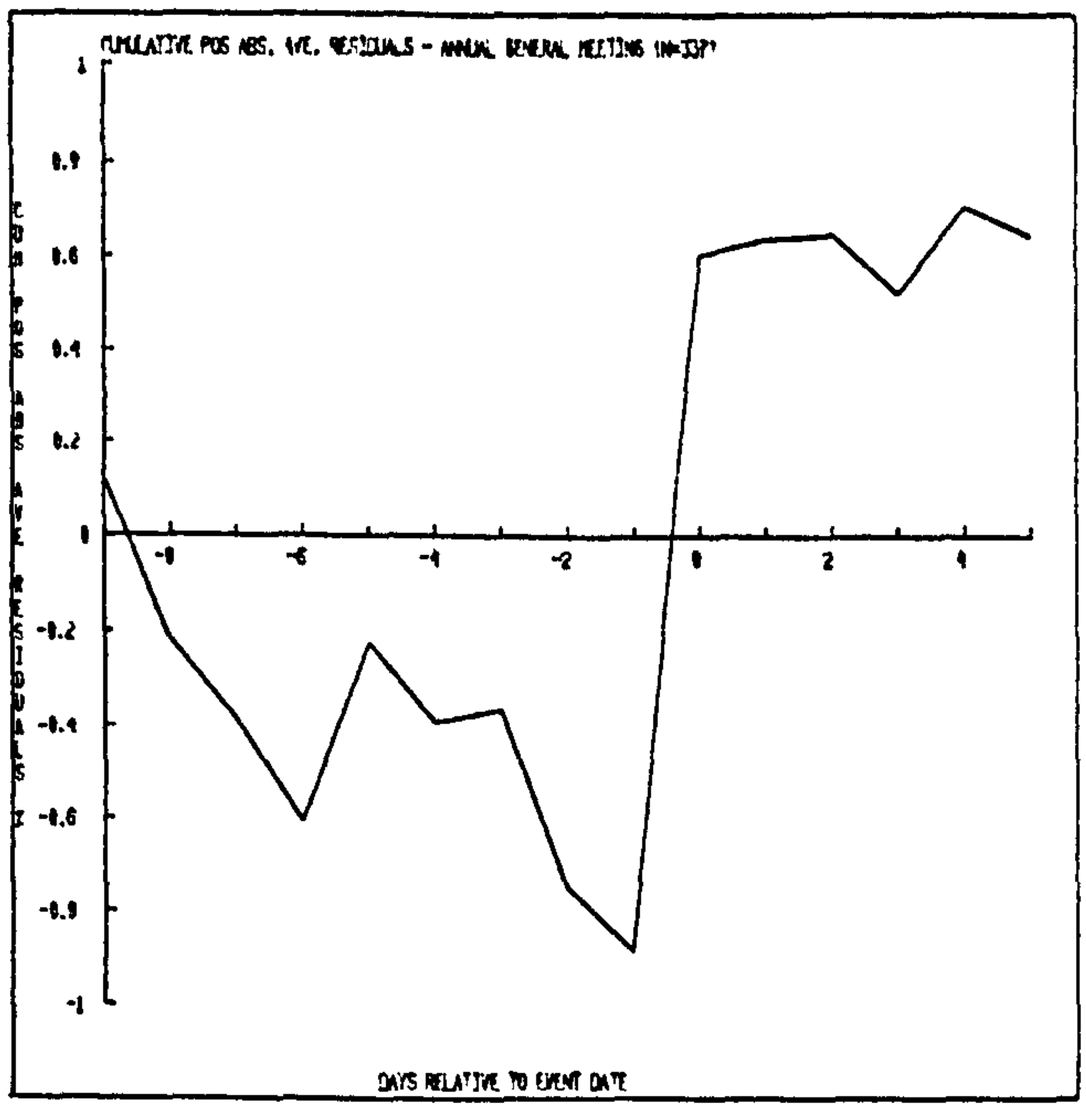

Figure 10: Annual General Meeting - Cumulative Positive Average Abnormal Returns. Graphical Description of Table 14 (a)

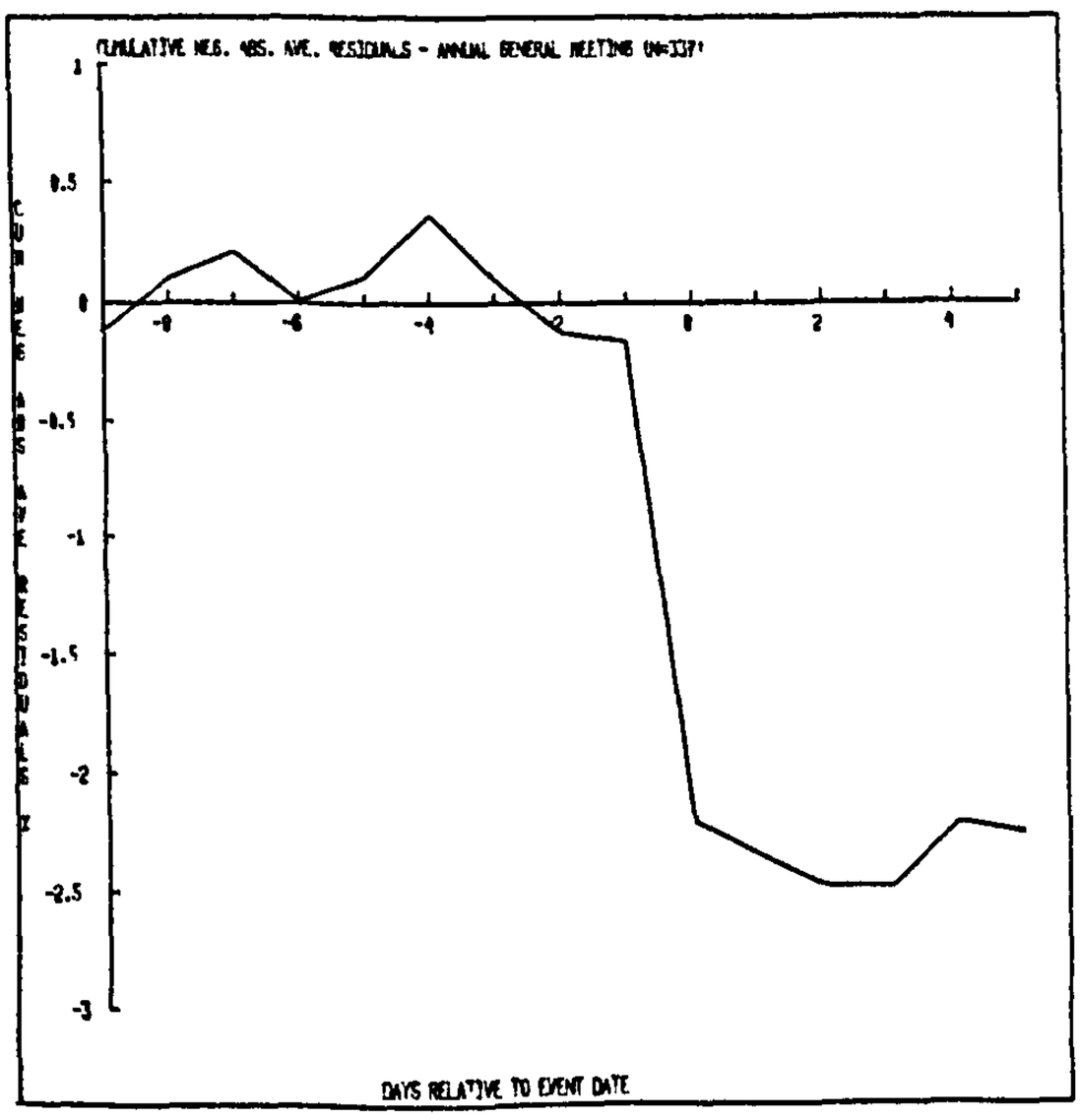

Figure 11: Annual General Meeting - Cumulative Negative Average Abnormal Returns. Graphical Description of Table 14 (b)

Day	Positive (N=159) Ave.Abn.Return(%)	(a) St.Dev	Negative (N=178) Ave.Abn.Return (%)	(b) St.Dev
-9	-.078	2.372	-.132	1.823
-8	.191	2.295	.001	2.052
-7	.047	1.604	.125	2.111
-6	-.125	1.696	.092	2.065
-5	-.048	1.599	-.065	1.887
-4	-.231	1.594	-.131	1.732
-3	-.105	1.855	-.039	2.193
-2	-.039	2.367	.109	2.455
-1	-.001	1.896	.062	2.398
0	3.288	3.614	-4.772	5.734
1	-.149	4.144	-.201	3.781
2	.189	2.378	.471	2.636
3	-.026	2.449	.007	2.622
4	-.005	1.768	-.057	2.009
5	-.075	2.056	.088	3.014

Table 15: Interim Report–Cross-sectional Average Abnormal Returns for the Fourteen Days Surrounding Publication

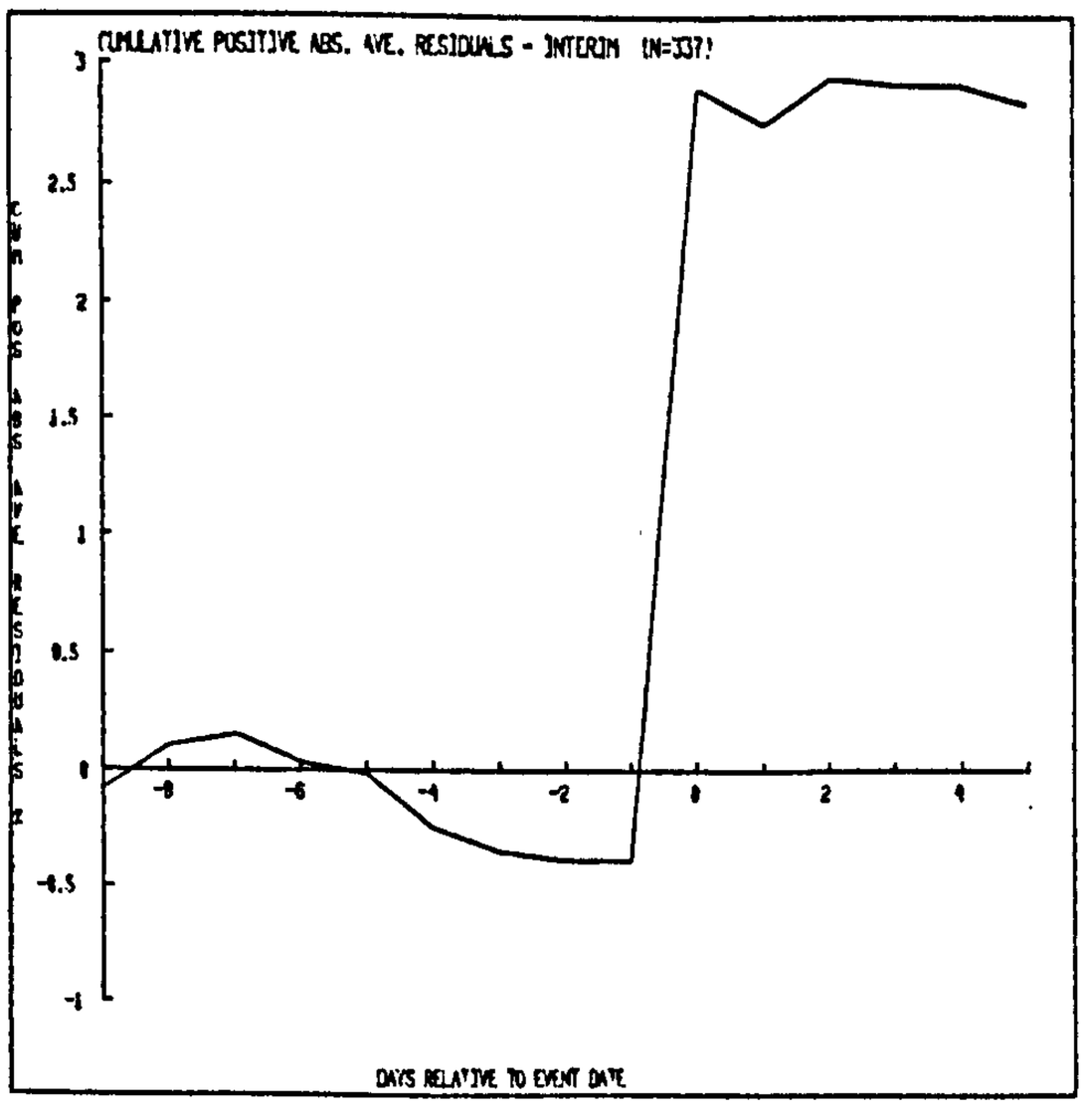

Figure 12: Interim Report - Cumulative Positive Average Abnormal Returns. Graphical Description of Table 15 (a)

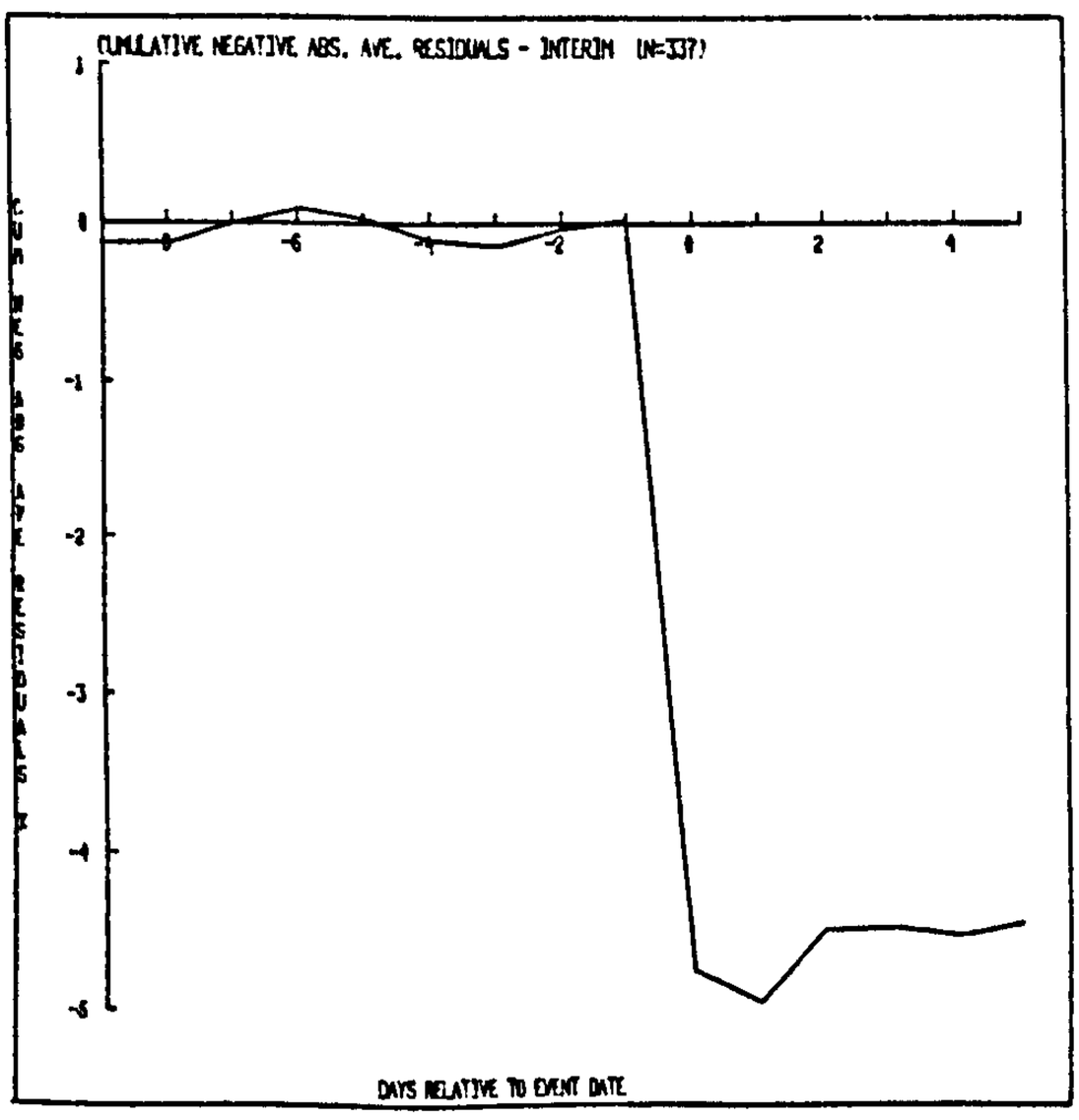

Figure 13: Interim Report - Cumulative Negative Average Abnormal Returns. Graphical Description of Table 15 (b)

5.4 Test 2:Test of Information Content Using Ratio of Event Day Residual to Mean of Non-event Day Residuals

Again in this test we are looking at the size of the event abnormal returns as a measure of information content not their direction. The information measure used in this test is that of Oppong (1980). Unlike squaring the residuals, the measure does not give undue weight to a few large abnormal returns when they are averaged across firms.

The measure is:

$$V_{jt} = \frac{|U_{jt}|}{|\overline{U_j}|} \tag{16}$$

where $|U_{jt}|$ = the absolute value of the abnormal return for the event day, and

$|\overline{U_j}|$ = the mean of $|U_{jt}|$ for the 252 non-event days.

If the event has significant information content the ratio will be greater than 1.0. Values of V_{jt} were computed for each event for all companies. Table 16 reveals the number of times the event days exceeded 1.0.

A Wilcoxon matched pairs signed ranks test showed that the computed $|U_{jt}|$ for the PA,PA+1,AGM+1,IR and IR+1 was significantly greater ($p < 0.05 one tail test$) than $|\overline{U_j}|$.

Event	Model 2	Z (calc)
PA	258	12.41
PA+1	210	7.55
ARA	155	1.47
ARA+1	133	-1.82
AGM	162	1.56
AGM+1	175	3.07
IR	238	11.57
IR+1	182	5.31

Table 16: Number of Times $V_{jt} > 1.0$ (N = 337) ($Z_{0.05} = 1.64$)

Table 16 shows that the PA and IR had a high information content for around 77 per cent and 70 per cent of the the firms respectively with the following day in each case also producing a reaction. Investors appeared to obtain insignificant new information from the ARA and AGM in approximately 50 per cent of the companies. These results reinforce the conclusions of Test 1. Again we have evidence supporting the hypothesis of lack of utility of the ARA for investment purposes.

May (1971), Oppong (1980) and Beghin (1982) have all used the statistic $z = (\bar{X} - 1.0)/(S/\sqrt{n})$, where $S/\sqrt{n}$ is the standard error and $\bar{X}$ is the mean value of V_{jt}, for where the sample size is large the distribution of the statistic is approximately Normal. Consequently the parametric z–test was employed to test the null hypothesis, that the mean of the ratio V_{jt} is equal to or less than 1.0. If the mean of the V_{jt} is greater than 1, the mean residual for that day or event reflects the impact of significant information. The standard deviation of V_j may or may not suffer from the same problems of non-normality of residuals although this needs to be explored

empirically.

Table 17 shows the statistical significance of the mean of the $V_{jt}s$ not only for the four event days but also for the day following the each event day and the other 252 non-event days. The table shows 29 of the 252 non-event days containing statistically significant information at the levels indicated.

	$Z \geq$	1.64	2.054	2.326	(One-tail test)
Day		5%	2%	1%	
PA				12.979	
PA+1				10.255	
ARA				3.794	
AGM				5.237	
AGM+1				5.672	
IR				12.592	
IR+1				6.372	
Non-event		16	6	7	

Table 17: Z-score Statistics for 8 Event Days and 252 Non-event Days (N=337)

The other 231 non-event days, including ARA+1, were not statistically significant.

The results are similar to those of the Wilcoxon matched pairs signed ranks test shown in Table 16 and to the Model 2 rankings in Table 6. One interpretation of the results is that all four main event days have information content. Inspection of Table 16 reveals that only about half of the V_{jt}'s for the ARA,ARA+1 and AGM were greater than 1.0. Therefore, the high statistical significance of these three event days may be due to the extreme price reaction of a few firms.

All the days from PA-3 through to and including PA+2 were significant at the 5% level or below with the greatest reaction on days PA and PA+1. This is consistent with the size of the average absolute abnormal returns for these days shown in Table 8.

5.5 Test 3:Degree of Association Between Information Content of Different Events

The tests so far demonstrate the considerable new information conveyed by the preliminary announcement and the interim report as far as the stockmarket is concerned. If investors are mainly concerned with actual and prospective earnings and dividend numbers for equity valuation purposes then once the preliminary statement is released any incremental information conveyed by the annual report and the annual general meeting may be deemed by the investors to be relatively unimportant.

To test the incremental information content of the different events relative to each other a Spearman's rank correlation test was used to examine whether the V_{jt}'s for the PA,ARA,AGM and IR were related. Table 18 summarizes the results.

Table 18 shows there is a statistically significant positive relationship between the PA and IR, and AGM and IR but between no other pairs of events which results

Model	PA-ARA	PA-AGM	PA-IR	ARA-AGM	ARA-IR	AGM-IR
2	.011	-.032	.121 *	.050	.026	.116 *
t :	(.20)	(.58)	(2.25)	(.92)	(.47)	(2.16)

* These are significant at $p < 0.05$ two tail test using Student's t test (t)

Table 18: Association Between Information Content of Events (Spearman's Rank Correlation Coefficients) (N=337)

differ to Firth (1981).

Firth, using weekly data, found a significant positive relationship between a firm's PA, ARA and IR. A firm having a high information content in the PA week also has a high information content in the ARA and IR weeks. This study reveals a similar relationship between the PA,AGM and IR. It is suggested that using weekly data Firth may have captured more of the impact of the information content of the ARA which was not accomplished by this study using daily data. The greater ARA abnormal returns generated by Firth would probably account for its positive relationship with the PA and IR. The inclusion of the AGM in this study's results may possibly be attributed to the sample used in this study containing more small companies than that used by Firth. The magnitude of the AGM abnormal returns would be greater accounting for the positive association.

The results may seem to confirm the high value investors place on earnings and dividend figures.

5.6 Test 4:The Relationship Between Firm Size and Information Content of Different Events

Ball and Brown (1968), Beaver (1968), Grant (1980), Firth (1981), Banz (1981), Reinganum (1981) and Dimson and Marsh (1986) have all reported an inverse relationship between the size of the company and the information content of the announcement of its results, though Oppong (1976) found no such association. It is hypothesised that as there is less information available about small firms, investors require a premium to compensate them for the higher risk associated with less researched small firms. The corollary to this is that as large firms are more actively researched by stockbroking analysts more information is available, and as the firm decreases in size so does the level of stockbroker attention and consequently the information about it to market participants (see Zegal, 1984).

Company size, for the purpose of this study, is measured by market capitalisation as taken from the LBS Risk Measurement Service journal for March 1979.

The abnormal returns ($|U_j|$) for each event were regressed on company (ln)size. The results shown in Table 19 are consistent with prior studies as for all three models all event residuals had an inverse association with company size with only the AGM not statistically significant. The larger the firm the more information there is available on it so when its obligatory financial events occur there is less

Model	PA	PA+1	ARA	ARA+1	AGM	AGM+1	IR	IR+1
2	-.257	-.244	-.158	-.138	-.065	-.095	-.198	-.225

* Note: All events are significant at $p < 0.05$, one tail test using Student's t, save AGM.

Table 19: Comparison of Firm Size with Event Information Content - Correlation Between $|U_j|$ and Firm Size (Market Capitalisation)

share price reaction to the information released. In addition as firms become larger they become more stable so there is less "surprise" factor in their announcements.

Size, however, may only be a surrogate for risk which is better measured by the variance of the returns. Variance is the correct measure of the total riskiness of an individual share. The abnormal returns ($|U_j|$) for the four main events, were regressed on the variance of the company's returns and its (ln)size. Table 20 confirms the inverse relationship between company size and the absolute abnormal return on its stock. Whereas a change in the size of the company, when the variance is held constant, will have only a marginal effect on the return, a one per cent increase in the variability of the return, with constant company size , will in the case of the PA lead to an increase in the excess return of 8 per cent. This is in accordance with all previous research, as the variance of a share is largely related to the company's beta; that portion of the total variance which is correlated to the market (Copeland and Weston,1988 page 199). Again only the AGM is not statistically significant.

The results also seem to show that it is not only in earnings releases (Haw and

Ro,1990) where size is a proxy for other firm-specific information variables.

Event	Coefficient Variance	Coefficient (ln)Size	'R'	't'
PA	8.38	-.008	.311	5.98
ARA	3.26	-.002	.216	4.04
AGM	0.87	-.001	.075	1.37
IR	6.18	-.006	.232	4.36

Table 20: Association Between Information Content,Return Variance and Firm Size ('R'=Pearson's Correlation Coefficient with Student's 't' Value. N=337)

To examine further the relationship of the three variables and the explanatory power of the two independent variables analyses of variance were made of the regressions. The analysis of variance technique tests for the significance of the regression coefficients. The analysis examines the significance of the association between the three variables, information content, return variance and firm size, and whether including the two variables return variance and firm size in the regression increases its explanatory power. Table 21 shows the calculated F values and the degrees of freedom.

For the PA, ARA, and IR events there is a significant association between the three variables; information content, return variance and firm size. The coefficient of firm size is significant and the inclusion of that variable significantly increases the explained variation. Similarly the variance variable and its coefficient are significant. Including the variance variable has a significant additional effect in increasing the

Event	Association Between the 3 Variables	Independent Variable Residuals	Variance Coefficient	Firm Size Coefficient
	Calculated F Values			
PA	17.84	15.78	11.30	19.05
ARA	8.14	9.53	7.20	6.59
AGM	.94	.70	.44	1.17
IR	9.49	5.18	7.71	11.03
Degrees of Freedom	2,334	1,335	2,334	1,334

Note:All Calculated F Values are Significant at $F_{0.05}$ level except those for the AGM.

Table 21: Analyses of Variance of Association Between Information Content,Return Variance and Firm Size.(N=337)

correlation. None of the calculated F values for the AGM event is significant at the 5% level. The analysis confirms the results shown in Tables 19 and 20.

The evidence further indicates that in the case of the AGM if virtually no new information is being conveyed then little relationship with firm size may be expected and for the annual report and accounts investors may regard the information it contains as of value only for equity investment purposes in small companies.

Firth (1981) suggests that a small company is one with a market capitalisation under £10m. In this sample of 337 companies 32 (9.5%) fall into this classification. Table 22 provides the breakdown for the 36 firms with PA residuals (absolute returns) one standard deviation or more from the mean of the PA sample residuals and 29 firms whose ARA residuals were similarly positioned from the ARA sample

mean.

PA No of Cos.	ARA No of Cos.	Standard Deviations from PA and and ARA means (absolute residuals)
2	2	> 5
2	-	4 - 5
5	1	3 - 4
5	5	2 - 3
22	21	1 - 2
36	29	

Table 22: Companies with PA and ARA residuals more than one Standard Deviation from the Sample PA and ARA mean

The 36 PA and 29 ARA companies each contained 8 small firms of which two were the same companies. Thus 22% of the PA companies and 27.6% of the ARA companies are small according to this definition. These figures respectively represent 2 and 3 times the proportion of small companies in the whole sample (9.5%). Z tests, using the weighted mean of the sample proportions, were conducted between the sample proportion of small firms 9.5% and the PA and ARA proportions and between the PA and ARA proportions. The Z_{calc} are 2.49, 2.99 and 0.52 respectively. The PA and ARA proportions at the $Z_{0.05}$ level are significantly different to the sample proportion but the difference between the PA and ARA proportions (Z_{calc}= 0.52) may be due to chance.

The frequency of small companies with large abnormal returns provides further evidence of the inverse relationship between the size of the company and the excess return earned by its stock.

5.7 Weekly Data

A comparable study by Firth(1981) used weekly data and this may have affected the results reported. If the impact of the information event does not occur on a single day but spreads over several days, using daily abnormal returns will not capture the full effect of the information. The daily mean abnormal return will be biased downward because of this failure.

To test for any potential bias introduced by using weekly data certain of the above tests were re-run using weekly data. This was derived by adding together the logarithmic residuals for five consecutive trading days and, where indicated, taking the absolute value. Because of data restrictions the number of companies dropped from 337 to 325.

	This study		Firth
	Daily	Weekly	Weekly
PA	.0407	.0554	.0641
IR	.0399	.0549	.0562
AGM	.0175	.0383	.0378
ARA	.0159	.0357	.0501

Table 23: Absolute Average Abnormal Returns Daily and Weekly Data for this Study and Weekly for Firth(1981)

Evidence of the downward bias for daily average residuals is shown in Table 23. It can be seen that the ARA average weekly residual (.0501) of Firth's results is 3 times greater than the daily mean residual (.0159) of this study and the AGM daily average residual (.0175) is half the size of Firth's weekly average abnormal return

Model 2		
Rank	Week	WAR
1	PA	.0554
2	IR	.0549
3	AGM	.0383
4	36	.0367
5	ARA	.0357
6	25	.0341

Table 24: Rankings of Absolute Average Weekly Abnormal Returns (N=325)

(.0378).

5.7.1 Test 1: Information Content of Event Disclosures - Analysis of Mean Weekly Cross-Sectional Return Data

Table 24 provides the cross-sectional ranking of absolute average weekly abnormal returns. There are no event days plus one as shown in Table 6 for daily data as the residuals for these days are absorbed in the event week residual. The rankings of the event week are similar to Table 6 with the PA and IR ranking first and second respectively followed by the AGM. The ARA is pushed down one rank by a non-event week with a larger residual, but the ARA's rank of five does indicate that the annual report has information content.

5.7.2 Test 2: Degree of Association Between Information Content of Different Events

Model	PA-ARA	PA-AGM	PA-IR	ARA-AGM	ARA-IR	AGM-IR
2	.195	.055	.116	.116	.215	.152
	(3.565)	(.966)	(2.107)	(2.092)	(3.962)	(2.763)

Table 25: Association Between Information Content of Events Using Absolute Values of Weekly Residuals (Pearson's Correlation Coefficients with Student's 't' Values in Parenthesis)(N=325)

To examine whether the weekly residuals for the PA, ARA, AGM and IR for a given firm are related, the firms' residuals for one event were regressed on their residuals for the other events. The correlation coefficients in Table 25 show the degree of association between the information content of the four events.

Unlike Table 18, Table 25 shows small, statistically significant positive relationships between all events except the PA and AGM. These results differ with those for daily data revealed in section 5.5 and with the results of Firth (1981). Firth found no evidence of a significant relationship between the AGM week and the PA, ARA and IR weeks.

One would not expect an association of information content between the preliminary announcement and the annual general meeting as another event, the annual report and accounts, intervenes. The significant associations seem to suggest a firm experiencing a high information content on its preliminary announcement will also experience a high information content for all its other three events. This differs from

the daily data results where the correlation coefficients between the annual report and accounts and the other events were all non-significant. We may argue that the inclusion of the annual report and accounts in these results is due to the weekly data capturing a greater amount of information impact as explained in section 5.5. and the inclusion of the annual general meeting is caused by the sample firm size factor as suggested in that section.

Generally if the association between all events is positive, as it is in this analysis, the results are suggestive of some companies being well followed and some not.

Dowen (1989),Bhushan (1989) and O'Brien and Bhushan (1990) suggest such factors as institutional demand for information, analyst forecast error, firm industry, size and declining return volatility are among the determinants of analyst following. Arbel, Carvell and Strebel (1983) posit a neglected firm effect leading to inefficient pricing for a period. Thus, we may speculate the differences in reaction with respect to daily (section 5.5) and weekly data (section 5.7) might be a function of lags of information dissemination reflecting this neglected firm effect. This hypothesis requires further investigation.

If the regression is conducted using actual, signed weekly residuals there is a significant inverse association between events PA and ARA, and a significant positive association between the AGM and IR as shown in Table 26. We can only speculate on the causes of the inverse and positive correlations between the PA and ARA

and the AGM and IR respectively. The inverse association may be due to investors correcting any over-reaction to the preliminary announcement. The positive association between the AGM and the IR may possibly be attributable to the firm size effect i.e. the larger firms in the sample releasing more information at both events.

While all three tests in this study are consistent in revealing, perhaps not unexpectedly, no relationship between the PA and AGM, the two tests using weekly data show a significant association between the PA and ARA not evidenced when using the daily information statistic (V_{jt}) possibly for the reason given above i.e. the failure of the daily data to capture most of the impact of the event.

Model	PA-ARA	PA-AGM	PA-IR	ARA-AGM	ARA-IR	AGM-IR
2	-.139	.005	.016	-.037	-.015	.130
	(2.517)	(.087)	(.292)	(.662)	(.275)	(2.347)

Table 26: Association Between Information Content of Events Using Actual Values of Weekly Residuals (Pearson's Correlation Coefficients with Student's 't' Values in Parenthesis)(N=325)

5.8 Summary

The analyses reported in this chapter indicate the preliminary announcement and the interim report using daily data have the highest information content, while there seems to be only a small price reaction to the annual general meeting and an even smaller one to the annual report and accounts.The results support the hypothesis of lack of utility of the annual report and accounts, in aggregate, for investment

purposes.

There is little price reaction prior to an event but there appears to be some spill-over of information into the day following the event day which may be due to events occurring after the Stock Exchange closes, therefore part of the impact of the event information is reflected in the following day's share price. As normality resumes in day+2 the results are consistent with the Efficient Market Hypothesis as the information is "rapidly reflected in security prices" (Fama, 1970).

The results seem to show investors reacting in the same manner to "good" and "bad" news. Although similar to other studies an inverse relationship is found between information content and firm size, there is some evidence that size may only be a proxy for some other firm-specific information variable.

Finally, firms with a high information content preliminary announcement seem to have an annual report and accounts with a similar information content. The results seem to indicate investors in the main using the annual report and accounts to adjust their previous investment decisions.

Chapter 6

The Incremental Information of the Annual Report and Accounts

This study appears,on a face value basis,to confirm the lack of apparent value of the annual report and accounts to market participants as an information source compared with what are in effect the straight dividends and earnings announcements conveyed in the preliminary and interim statements. However, such an interpretation may be an oversimplification. Such research methodologies as those employed in this study so far have limited goals focusing on whether the event in question appears in aggregate to convey price sensitive information to the market. But how does the information event impact on individual firm returns?

In considering the incremental information content of the annual report we

should note the evidence may still be consistent with certain firms experiencing large abnormal returns associated with the information release but not others. There may well be specific price relevant information in particular annual accounts such as asset revaluation data (e.g.Sharpe and Walker,1975 and Standish and Ung, 1982) or perhaps audit qualifications (e.g.see the survey of extant research in Craswell, 1985).

This study may perhaps be viewed as essentially focusing implicitly on outliers rather than mean returns or information anticipated by the market in aggregate. The latter is more to do with investor rational expectations than the content of the annual report and accounts. Focusing on those firms with high absolute residuals i.e. the outliers, may reveal a pattern present in the release of information in the annual report and accounts incremental to that provided in the preliminary statement.

In support of the hypothesis that for certain companies the annual report and accounts does contain price sensitive information it is unlikely that the information which triggered the abnormal returns can be identified with certainty as being contained in the annual report. Ideally, to determine causality of the share price movement, one would have to identify at the time the investors made their decisions, the reasons they used for making them. This is clearly impossible after the event. In an ex-post event situation, from comments made around the time of the event can probably be assembled a number of pointers to the information found useful by investors. If it can be seen that this information was most likely to be found in

the annual report and accounts it is reasonable to infer that the annual report and accounts for that company may contain price sensitive information which was useful for decision making. It has to be emphasised, however, that by an analysis of the comments, it can only be surmised that certain identified factors may be consistent with the magnitude of the outlier residuals and their signs but not possible to prove causality. It is recognised that working backwards and looking, as it were, at the 'entrails' is not very scientific but in the circumstances it is the best that can be done.

The first objective then is to identify price sensitive information contained in the annual report and accounts which may explain the greater share price movement of the outlier companies. This information is then compared with the information found by previous studies , reported in Chapter 3, of the usefulness of the annual report and accounts to investors for share evaluation purposes, to see whether the findings of this study are similar to those of previous researchers.

As stated it is not possible to directly observe which parts of the preliminary announcement and annual report and accounts are used by investors so an alternative method has to be used. Ho and Michaely(1988), an American study, found newspaper commentaries highly read by investors particularly those who had not acquired quality information and who traded largely in small shares. It should be

noted that journalists report stockbrokers' circulars. Chang and Most (1980) reported UK shareholders placing great reliance on newspapers and magazines, so it is reasonable to infer that where a writer in a financial newspaper or journal at the preliminary announcement stage refers to information he will be looking for in the annual report and accounts, that section of the annual report and accounts where the information is found will be read by investors. This applies also to comment made after the publication of the annual report and accounts. Provided the commentators are consistent, their comments after publication of the annual report and accounts, should contain some references to their previous remarks and indicate the relevant weight they attach to those parts of the annual report and accounts where the information they were awaiting is contained.

The articles of the financial journalists used for the above purpose were taken from the influencial Financial Times (FT) newspaper, the Investors Chronicle (IC) journal and from press cuttings from McCarthy Information Ltd. The FT is a daily financial newspaper and mainly comments on the preliminary announcement with occasional comment in its highly regarded "Lex" column. The IC is published every Friday and comments on both the preliminary announcement and annual report and accounts events. Unfortunately, between 19 April and 22 May 1980, both days inclusive, there was a national printing dispute. The IC was not published in this period and neither was the FT on the 5th and 14th of May. Some company events

occurred during the dispute, so the comment on the events, particularly on the annual report and accounts, was either sparse or non-existent.

Although the Dimson and Marsh (1986) study concerned UK press recommendations and mainly focused on the distorting impact of company size on event studies, it started with the premise that "many investors follow press advice closely". 49 per cent of the press recommendations they used came from the Investors Chronicle which emphasises the importance of this journal as a source of information for investors.

To investigate directly whether information conveyed at the annual report and accounts stage is driving the extreme share price reaction in the outlier sample, a comparision with a matched control group of firms with low residuals is made. This second objective is accomplished by selecting a control company with a low abnormal return and matching the outlier by industry, size and LBS rating. The control company can then be investigated to see if similar information is disclosed or not at the annual report and accounts stage. If a similar information set is disclosed in the annual report and accounts of the control group as in the outlier sample, then we may be forced to conclude that the annual report and accounts may not be driving the outlier group residuals, or at least we cannot find evidence supportive of this hypothesis in the data. However, if the information sets differ materially in the hypothesised direction we may well be on firmer ground in arguing

	All industries covered	Manufacturing	Construction
Weight	1000	697	182
1978	110.3	104.0	104.9
1979	113.0	104.3	101.3
1980	105.8	95.4	95.9

Source: Central Statistical Office, Economic Trends, December 1982, p.26

Table 27: Index of Industrial Production. 1975=100 seasonally adjusted

the information content of the annual report and accounts for certain firms.

No investigation into the use investors make of the annual report and accounts would be complete without taking into account the economic climate in which British companies were operating in the late 1970s. It was a traumatic period particularly for manufacturing companies.

As can be seen from Table 27,Economic Trends,December 1982, manufacturing and construction accounted for 88 per cent of all industrial production. At the end of 1980 manufacturing was still shrinking having already fallen 8.5 per cent in that year.

The Bank of England Minimum Lending Rate was reported in that same issue of Economic Trends (p.66) to have been 17 per cent at the end of 1979, the highest rate for over a decade. The rate started to fall in July 1980 and was down to 14 per cent at the end of the year.

Further evidence of the abnormal situation prevailing during this period is contained in the Investors Chronicle "Annual Review of 1979", 4th January 1980 issue. "It was a bad year for the economy. Industrial strife sharply curtailed growth in

the first quarter, and higher oil prices meant that the recovery has been weak. Over the year, output is likely to have shown only a small increase". The review also showed the Financial Times All Share Index having reached an all time high of 283 in May 1979 and had then fallen to 219 by November 1979; that the bank clearing rate was 18 per cent and of the main industrialised countries the UK inflation rate was only exceeded by that of Italy.

The issue dated 2 January 1981 contained a "Review of the economy" for 1980 which included the following comment,"After marking time in the first quarter, the economy plunged into what looks like being the deepest recession since the Thirties...Manufacturing output is likely to have fallen by 10 per cent in 1980".

Many companies, both large and small, were slowly recovering from the 1974 oil crisis only to face another in 1980. Some were fighting just to survive. High inflation coupled with a strong pound found most firms engaged in cost cutting and improving liquidity. The monthly average of unemployment had risen from 1.3m in 1979 to 2.6m in 1981.(Central Statistical Office, Monthly Digest of Statistics 1982, page 28). Share prices had collapsed and the market capitalisation of even large companies was well below the net asset value. It is against this background that the actions of investors have to be judged.

6.1 Comparison of the Annual Report and Accounts with the Preliminary Announcement

Standard Deviations	Frequency
-.75–-.50	94
-.50–-.25	76
-.25–M	44
M–0.25	44
.25–0.50	27
.50–0.75	14
.75–1.00	9
1.00–1.25	10
1.25–1.50	3
1.50–1.75	6
1.75–2.00	2
2.00–3.00	5
≥ 3–	3
	337
Mean (M) = .0160049	
Standard Deviation	=.0219404

Table 28: Frequency, in Standard Deviations, of the 337 Company ARA Residuals (absolute values) from the Mean of the ARA Residuals

Table 28 lists the frequency distribution of the 337 company annual report and accounts residuals (absolute values). The ranges are measured in standard deviations (SDs) from the mean.

Figure 14, is a histogram of the frequency distribution. As can be observed from the distribution, 91 per cent of the annual report and accounts residuals lie between

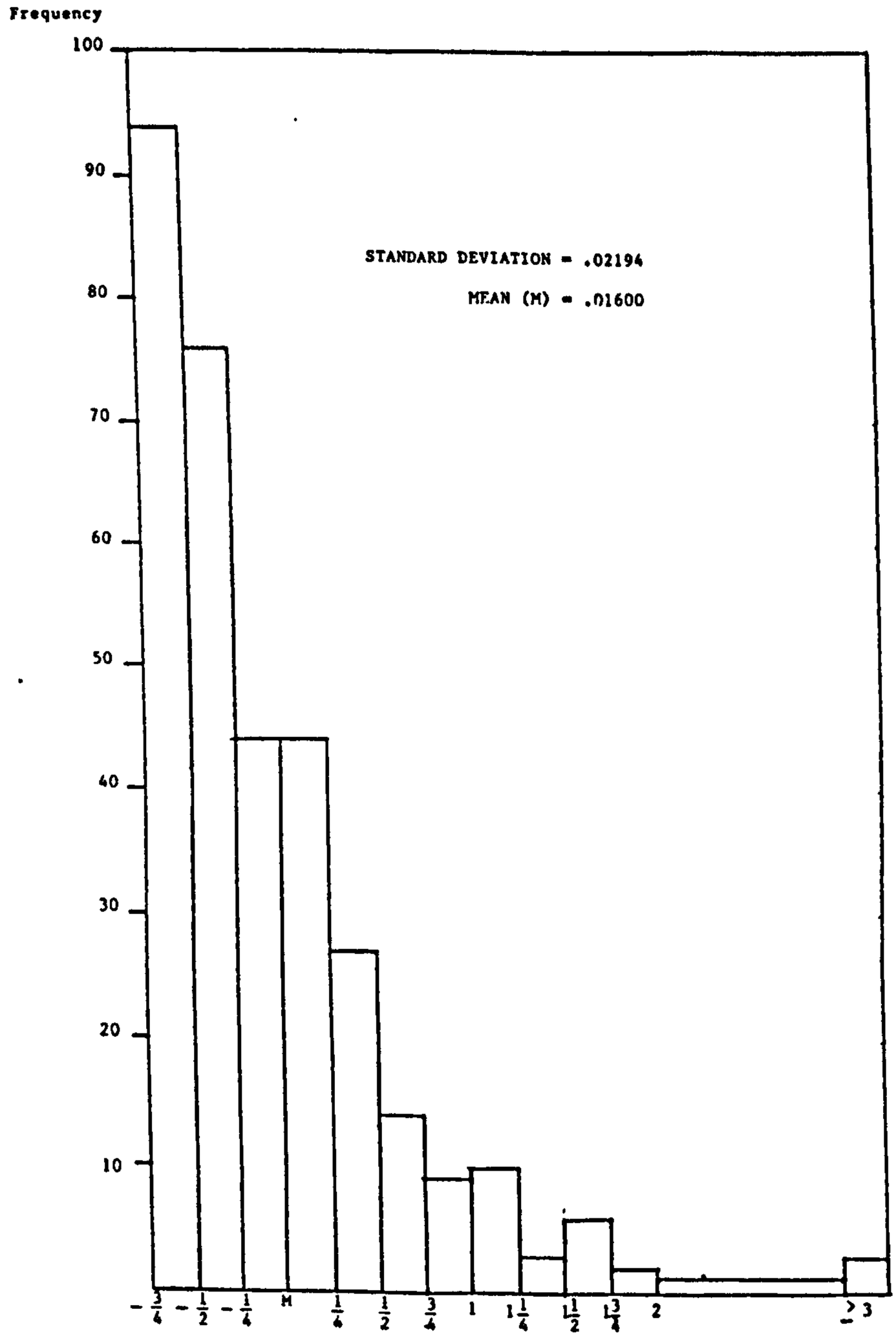

Figure 14: Frequency, in Standard Deviations, of the 337 Company ARA Residuals (absolute values) from the Mean of the ARA Residuals. Graphical Presentation of Table 28

-0.75 SD and +1 SD . A total of 29 residuals lie more than one SD from the mean. Although the histogram shows the number of companies in the class intervals after 1.25 SDs dropping sharply, the size of the residual at one SD is 0.0378 which is relatively large when compared with the mean 0.016. It was, therefore,decided to make the cut-off point for the outlier group one SD. This allows a larger sample to be analysed and the probability of missing any company annual report and accounts which contains price sensitive information will be reduced.

Table 29 lists the names of the 29 outlier companies. Also listed is the market sector in which the company operated, its LBS share marketability rating and market capitalisation - the market value of the company's ordinary shares. The market capitalisation and share marketability rating are taken from the London Business School, Risk Measurement Service journals Vol.1.No.2.April 1979 and Vol.3.No.1.January 1981 respectively.

Table 30 lists the same companies and tables the dates of their financial year ends, the dates of the PAs and publication of the ARAs together with the signed residuals for the two events. Table 30 shows that for 13 companies the sign of the residual, either positive or negative, is the same at the PA as at the ARA. The remaining 16 have a reversal of sign; 6 change from negative at the PA to positive at the ARA and 10 do the reverse. The reversal of signs is consistent with the findings in Chapter 5.

	Company	Sector	LBS Rating	Market Cap.
1	Audiotronic Hldgs	Str Mult	2	2
2	Hambros Ltd	Mrch Bank	2	42
3	Carrington Viyella	Cotn & Syn	2	65
4	Hawtin Ltd	Clothing	2	6
5	Beecham Group Ltd	Phm Prod	1	1161
6	First National Finance Corp	Hire Purch	2	9
7	Bellhaven Brewery	Brewery	2	5
8	European Ferries	Shipping	1	165
9	Bassett (G) Hldgs	Food Man	2	14
10	Vickers	Mech Eng	1	83
11	Attock Petroleum	Oil	2	3
12	Assocd.Leisure	Leisure	2	25
13	Borthwick(T) & Sons	Ovse.Tdr	2	40
14	British Petroleum	Oil	1	4538
15	Raybeck Ltd	Str Mult	2	44
16	Barker & Dobson	Food Man	2	9
17	London Scottish Marine O	Oil	1	87
18	Berec Group	Lgt.Elec	2	91
19	Acrow Ltd	Mch.Hand	1	17
20	Comfort Hotels Int Ltd	Hotl & Cat	2	14
21	Inveresk Group	Pack & Pap	2	9
22	Hill,Samuel Group	Mrch Bank	2	64
23	Birmid Qualcast	Mech.Eng	2	37
24	Brocks Group Ltd	Lgt.Elect	2	8
25	Assocd.Biscuit Manfrs	Mill & Flour	2	59
26	Automated Security	Unclass	2	11
27	Dunlop Hldg Ltd	Mtr Comp	1	99
28	Hepworth J & Son	Str Mult	2	36
29	Scottish & Newcastle Brewery	Brewery	1	179

Table 29: Industry Sector, LBS Rating and Market Capitalisation of 29 Companies with an ARA Residual $\geq$ *one* Standard Deviation from the Mean of the 337 ARA Residuals (absolute values)

	Company	Year end	PA dates	ARA dates	PA residuals	ARA residuals
1	Audiotronic Hldgs	1 03 80	17 10 80	1 12 80	-.3344	-.2826
2	Hambros Ltd	31 03 80	16 06 80	30 06 80	-.0306	.1592
3	Carrington Viyella	31 12 79	20 02 80	10 03 80	-.0746	.0923
4	Hawtin Ltd	31 01 80	8 05 80	5 06 80	-.0711	.0767
5	Beecham Group Ltd	31 03 80	29 05 80	8 07 80	.0509	-.0702
6	First National Finance Corp	31 10 79	10 01 80	1 02 80	.0997	-.0696
7	Bellhaven Brewery	30 03 80	30 07 80	26 08 80	-.0422	.0656
8	European Ferries	31 12 79	15 05 80	2 06 80	.0316	.0617
9	Bassett (G) Hldgs	31 03 80	1 07 80	4 08 80	-.2130	-.0565
10	Vickers	31 12 79	24 04 80	4 06 80	.0582	.0550
11	Attock Petroleum	30 06 80	20 10 80	26 10 80	.0230	-.0537
12	Assocd.Leisure	16 03 80	7 07 80	19 08 80	-.0080	.0519
13	Borthwick(T) & Sons	30 09 79	11 12 79	7 01 80	.0113	.0513
14	British Petroleum	31 12 79	13 03 80	10 04 80	.0344	-.0499
15	Raybeck Ltd	26 04 80	5 09 90	19 09 80	.0360	.0497
16	Barker & Dobson	29 03 80	29 08 80	3 11 80	.0537	-.0490
17	London Scottish Marine O	31 12 79	25 03 80	30 04 80	-.0156	-.0485
18	Berec Group	1 03 80	16 05 80	16 06 80	.0266	-.0478
19	Acrow Ltd	31 03 80	29 07 80	10 09 80	.0801	.0445
20	Comfort Hotels Int Ltd	30 12 79	30 04 80	30 06 80	.0604	.0433
21	Inveresk Group	31 12 79	18 03 80	8 04 80	.0769	.0424
22	Hill,Samuel Group	31 03 80	12 06 80	19 06 80	.0359	.0407
23	Birmid Qualcast	3 11 79	13 02 80	28 02 80	.0569	.0395
24	Brocks Group Ltd	31 12 79	17 04 80	11 06 80	.0491	-.0386
25	Assocd.Biscuit Manfrs	31 12 79	10 04 80	22 04 80	-.0334	.0382
26	Automated Security	30 11 79	14 04 80	19 04 80	.0332	-.0380
27	Dunlop Hldg Ltd	31 12 79	24 04 80	15 05 80	.0573	-.0379
28	Hepworth J & Son	31 08 80	30 10 80	27 11 80	.0459	-.0379
29	Scottish & Newcastle Brewery	27 04 80	3 07 80	30 07 80	.1070	.0378

Table 30: Dates of Year End,PA and ARA together with PA and ARA residuals of the 29 Companies with an ARA Residual $\geq$ *one* Standard Deviation from the Mean of the 337 ARA Residuals (absolute values)

Whatever the ARA contained, for those companies with similar signed residuals, the effect of the ARA may be to act as a reinforcement of investors expectations formed at the PA. If this is true, we should recall the opinion of Dyckman,Downes and Magee(1975), "Information contained in accounting reports may at times reinforce the prior expectations of investors, and hence lead to a decrease in the variability of investors expectations. If so, accounting reports provide information which existing tests have no hope of finding".

As the Stock Exchange requires the publication of the PA as soon as possible after the draft accounts have been agreed with the auditors, the PA is usually not audited. The high information content of the PA may, therefore, be dependent on the knowledge that the data contained therein will be confirmed via the audited ARA, i.e. PA and ARA may be inextricably linked. For some investors, decisions taken at the PA are rather like a marksmans's sighting shot. If the shot hits the bullseye no adjustment to the rifle's sights is made. Similarly, if the ARA confirms the investors prior expectations, no action may be taken.

Table 31 lists the minimum information which has to be included in the PA under Stock Exchange regulations.

Table 32 tabulates three sections normally found in the ARA but voluntarily disclosed by some companies at the PA. Usually the Boards' report or Chairman's statement is brief and the balance sheet summarised. These sections were found

(a)	Turnover
(b)	Profit before taxation and extraordinary items
(c)	Taxation on profits (UK and if material, overseas and share of associated companies)
(d)	Minority interests
(e)	Profit attributable to shareholders, before extraordinary items
(f)	Extraordinary items (net of taxation)
(g)	Profit attributable to shareholders
(h)	Rates of dividend(s) paid and proposed and amount absorbed thereby
(i)	Earnings per share expressed as pence per share (computed on the figures shown for profits after taxation as defined in SSAP3)
(j)	Comparative figures of (a) to (i) inclusive for the corresponding previous period
(k)	Any supplementary information which in the opinion of the directors is necessary for a reasonable appreciation of the results of the period.

Table 31: Historic Cost Information required to be included in the Preliminary Announcement by the UK Stock Exchange

	Company	Activity analysis	Balance sheet	Board/Ch.Man's statement
1	Audiotronic Hldgs	No	No	Yes
2	Hambros Ltd	No	No	Yes
3	Carrington Viyella	No	Yes	Yes
4	Hawtin Ltd	No	No	No
5	Beecham Group Ltd	No	No	No
6	First National Finance Corp	No	Yes	Yes
7	Bellhaven Brewery	No	No	Yes
8	European Ferries	No	No	No
9	Bassett (G) Hldgs	T/O P	No	Yes
10	Vickers	T/O P	No	Yes
11	Attock Petroleum	No	No	Yes
12	Assocd.Leisure	T/O P	No	Yes
13	Borthwick(T) & Sons	No	No	Yes
14	British Petroleum	T/O	No	Yes
15	Raybeck Ltd	No	No	Yes
16	Barker & Dobson	T/O P	No	Yes
17	London Scottish Marine O	No	No	Yes
18	Berec Group	No	No	No
19	Acrow Ltd	No	No	Yes
20	Comfort Hotels Int Ltd	No	No	Yes
21	Inveresk Group	No	No	Yes
22	Hill,Samuel Group	P	Yes	No
23	Birmid Qualcast	Yes	No	Yes
24	Brocks Group Ltd	No	No	Yes
25	Assocd.Biscuit Manfrs	No	No	Yes
26	Automated Security	No	No	Yes
27	Dunlop Hldg Ltd	No	Yes	Yes
28	Hepworth J & Son	No	No	Yes
29	Scottish & Newcastle Brewery	P	No	Yes

Table 32: Items Voluntarily Included in the Preliminary Announcement

by Lee and Tweedie(1981) to be highly regarded as a source of information by UK investors.

Table 33 presents a summary of the following detailed analysis of each of the 29 outlier companies. It sets out those parts of the ARA which, based on evidence which is only suggestive and obtained from an ex-post study, could contain potentially price sensitive information that may explain the magnitude and sign of the residual.

Take for example company number 18, the Berec Group Ltd. At the PA there is an abnormal return of 2.66 per cent but on publication of the ARA this was reversed to a negative 4.78 per cent. Some new information seems to have changed investors' expectations since the PA. The Lex column of the FT(17.5.80), reporting on the PA, mentioned that the dividend might not be covered by current cost earnings. Following publication of the ARA this point was taken up by the IC(20.6.80). The IC said "CC profits are depressing...especially as it is the group's long term policy to pay dividends out of c.c.earnings...The crunch is c.c.profits. Unless there is an improvement the dividend must be vunerable". No current cost profit statement was included in the PA. When the ARA was published, page 34 contained a Group Current Cost Profit Statement. Investors must have noted with dismay the fall in c.c.earnings before tax from £12m to £2.8m. After tax and other deductions there was a current cost loss attributable to shareholders of £3.8m before the £3.7m

Company	A	B	C	D	E	F	G	H
1	*	*						
2								*
3			*		*		*	
4				*				
5				*	*			
6				*				
7	*							
8				*				
9		*		*				
10				*				
11				*				
12								*
13						*		
14				*				
15		*						
16	*							
17				*				
18							*	
19		*		*				
20								*
21		*	*					
22								*
23		*						
24		*		*				
25				*				
26		*						
27				*	*			
28				*		*		
29		*						

Key
A = Auditors' report
B = Balance sheet
C = Funds statement
D = Chairman's statement
E = Geographical analysis
F = Activity analysis
G = Current cost profit statement
H = Notes to accounts

Table 33: Sectors of Annual Report and Accounts containing Information used by Investors etc

of dividend payments. The Lex and IC comments are strongly suggestive of the reason for the size and direction of the sign of the company's residual. An asterisk, is therefore, placed in column 'G' (current cost profit statement) indicating where the information would be found.

Where the information is disclosed in more than one section of the ARA, the sections are all indicated in the table but the analysis here is discussed only under the first heading. This avoids repetition of analysis, as where there are more that one information source even although situated in different parts of the ARA, they are generally inter-related. In the analyses that follow, in addition to the company name and number, the PA and ARA residuals and their directions are shown in brackets.

6.1.1 Auditors' Report

The auditors' report may have contained price sensitive information in the case of three companies, Audiotronic Hldgs.(No 1), Bellhaven Brewery (No 7) and Barker & Dobson (No 16). None of the three PAs was audited.

Audiotronic Hldgs.No 1.(-.3344 -.2826)

As in 1979, the 1980 accounts again carried an auditors' going-concern qualification. After the chairman's statement earlier in the year that the company was "in better shape than it had been for some time"(FT 18.10.80), the qualification to some

observers may have come as a surprise, but to most it would have confirmed their worst suspicions.

There is also a direct reference in the IC(24.10.80) comment to the annual report and accounts probably containing price sensitive information. "Before publication of the balance sheet next month, it is impossible to estimate the asset/debt ratio". The annual report and accounts showed the capital gearing ratio rising from 70.9 per cent to 102.4 per cent. The higher the gearing ratio the greater the possibility of bankruptcy (Ross,1977).

The combination of the going-concern qualification and the higher capital gearing depicting the company's financial deterioration, are strongly suggestive as the main causes of the high, negative ARA residual.

Barker & Dobson.No 16.(.0537 -.0490)

The company's results for 1980 were overdue and its share price had come down in the year from 32p to 14p (Financial Weekly 30.5.80). Investors may have anticipated the reported loss but the auditors' going-concern qualification, for the first time, may have come as a surprise. Certainly the Times(4.11.80),FT(5.11.80) and the IC(21.11.80) all drew their readers attention to it in their comments. Investors may have felt with Firth(1979) that "There may be a self-fulfilling prophecy about going-concern qualifications". It is fair to deduce, particularly as the preliminary announcement was not audited, that the qualification largely contributed to the

negative ARA residual.

Bellhaven Brewery.No 7.(-.0422 .0656)

The 1978 accounts for the company carried a going-concern qualification but those for 1979 were unqualified. The FT(30.7.80) commenting on the PA wrote, "Beleaguered shareholders will be pleased to hear that the forthcoming accounts should be unqualified". This proved to be correct. Investors must have been relieved to learn that the risk of losing their investment had lessened. It is reasonable to infer that this is a contributory factor for the positive ARA residual.

6.1.2 Balance Sheet

Table 33 shows the balance sheet potentially as an important information source for investors in the companies indicated. This is consistent with the findings of Lee and Tweedie(1981). In some cases other sectors of the accounts supplement the balance sheet information. There are nine companies tabulated under the balance sheet column of Table 33 where there may have been price relevant information being disclosed. One company,Audiotronic Hldgs, has already been analysed under Auditors' Report.

Bassett (G) Hldgs. Ltd.No 9.(-.2130 -.0565)

At the time of the preliminary announcement the company had a market capitalisation of only £5.5m (IC 4.7.80). The preliminary announcement residual shows a fall

of 21.3 per cent when the company revealed its disasterous results - a pre-tax loss of £1.24m(£1.33m profit). No comment on current trading was made in the preliminary announcement by the chairman but in the annual report and accounts he said, "UK business climate continues to be unfavourable and Sugar Confectionary and Biscuit industries are still struggling for increased profitable volume". Gearing was featured directly and indirectly in the preliminary announcement comments. The FT(2.7.80) reported "...yesterday's figures will have done nothing to help the borrowing position", and the IC(4.7.80) spoke of "interest charges (having) almost doubled". The annual report and accounts showed gearing to have risen from 31.3 per cent to 35.8 per cent. More worrying, £2m of long-term debt had been replaced by short-term loans and overdrafts and shareholders' funds were reduced by £1.5m. It is arguable that the additional 5.7 per cent fall at the annual report was helped by the accounts showing gearing having risen thus increasing investors' risk, and the gloomy outlook of the chairman's statement.

Raybeck Ltd.No 15.(.0360 .0497)

A contributory factor behind the small positive abnormal return at the preliminary announcement of 3.64 per cent could have been the 10 per cent final dividend increase despite a fall in earnings from £7.8m to £5.6m. Another was revealed in the IC(12.9.80) article concerning the company's " ...strong balance sheet with net cash of £6m". Publication of the ARA saw a further rise. Commenting on

the annual report and accounts the IC(3.10.80) referred to a sale and leaseback agreement which netted £16.5m. It said "Such wizardry had transformed Raybeck's balance sheet and been a major prop behind the share price as profits tumble". No balance sheet was published at the preliminary announcement.

Acrow Ltd.No 19.(.0801 .0445)

At the preliminary announcement both the IC(1.8.80) and the FT(30.7.80) were concerned over the company's profit collapse to £2.02m(£13.78m). No balance sheet details were given though a revaluation surplus of £13.2m was disclosed. The PA included a confident prediction by the chairman that after "a poor first half ...the company will begin to return to a growth pattern in the second term". When the balance sheet was published it showed shareholders' funds rising by £10.4m and gearing up only to 57.1(55.7) per cent. Commenting on the annual report Lex of the FT(13.9.80) wrote,"All the same, this group looks like a survivor. Acrow is strong enough to try to sell its way out of its problems". It is fair to assume that the factors which led to the positive ARA residual included the information contained in the balance sheet which reinforced the chairman's optimistic statement.

Inveresk Group.No 21.(.0769 .0424)

Both the preliminary announcement and the annual report and accounts fell within the period of the printing dispute. At the preliminary announcement the chairman stated that the company's prospects would benefit by a decrease in indebtedness but

the reduction was not quantified. Net interest payable had risen to £1.5m(£.5m). No balance sheet details were released. The balance sheet in the annual report and accounts showed no change in long-term debt but overdrafts had fallen by 59 per cent to £3.2m(£7.9m). At a time of high interest rates this reduction would certainly enhance the profits. In addition the funds statement revealed a positive cash flow when previously it had been negative. It is probably fair to suggest that the balance sheet and funds statement may have contained information used by investors in their decision making leading to the further positive residual.

Birmid Qualcast Ltd.No 23.(.0569 .0395)

Although no balance sheet details were published at the preliminary announcement the Lex column of the FT(14.2.80) reports "Birmid's balance sheet looks strong enough". This point was taken up by the IC(7.3.80) when the annual report and accounts was released "The impact of this (purchase of fixed assets) has been remarkably slight.... With a strong balance sheet...the shares are a very good recovery prospect". The "strong balance sheet", inter alia, may have been noticed by investors, (net debt/shareholders' funds was still only 18 per cent), hence the further positive residual.

Brocks Group Ltd.No 24.(.0491 -.0386)

The sharp fall in profits of this small company from £1m to £0.3m led the commentators to focus on the company's borrowings. The commentaries on this company

were mixed, some favourable,some unfavourable. The FT(18.4.80) writing on the preliminary announcement seemed optimistic. "The accounts will show borrowings of £2.4m against net shareholders' funds of £5.5m...but it (the company) does seem to be over the worst". When the ARA was published the IC(27.6.80) was positively bullish "The reverses of last year have left a legacy of sharply increased debt. However, the level is far from intolerable...looks an interesting punt on swift recovery in fortunes". Onlooker of the FT(19.4.80) was probably more nearer the truth when he wrote "Apart from the new companies ...Brocks has very little left". The new companies made a profit of £0.1m. No overall profit forecast was made at the preliminary announcement stage but the board said that trading conditions in the main marine division were going to be difficult. The new companies were on target to achieve greatly increased trading results for 1980. The chairman in the annual report gave as the primary objective the reduction of borrowings whilst forecasting "further trading losses (in the marine division) during the year". It is reasonable to infer that the combination of the higher gearing disclosed in the balance sheet and the chairman's statement is the key to the negative residual.

Automated Security(Holdings)Ltd.No 26 (.0332 -.0380)

The PA 3.3 per cent residual can largely be explained by the 53 per cent increase in pre-tax profits plus the dividend increase of 48 per cent. The short directors' report in the preliminary announcement saw sustained growth for all divisions for

the foreseeable future and they,the directors, looked forward to the future with confidence. No balance sheet details were given. The IC(18.4.80) reported that "the (company's) record and prospects are outstanding, but everything has its price.The shares may have moved ahead of events". In other words the shares may have been over-valued. A comment in the same vein was contained in the FT report of 15.4.80,"Anything less than 53 per cent jump in pre-tax profits could have taken its toll on the 237p share price". The printing dispute limited comment on the annual report and accounts, but at a time when highly geared companies carried an unusual degree of risk due to the prevailing economic conditions, when the balance sheet was published showing gearing still 78%(97%), we may speculate certain investors may have taken their profits contributing to the negative ARA residual.

Scottish & Newcastle Brewery.No 29.(.1070 .0378)

It was the interest charge which worried the commentator Onlooker of the FT(5.7.80). He wrote "Much higher interest charge in the second half. The interest charge will again be high as borrowings rose £21m last year and will be up again in 1980/81". The positive residual may have reflected the relief of the investors who, when the balance sheet was published, saw that gearing had only risen to 35.4 per cent compared with 28.5 per cent the previous year.

6.1.3 Funds Statement

The Funds Statement may have influenced investors in two companies of which the Inveresk Group has already been analysed.

Carrington Viyella.No 3.(-.0746 .0923)

All the financial writers concentrated upon the company's poor results and the drastic rationalisation measures being taken. Lex of the FT(21.2.80), commenting on the preliminary announcement, summed up the company's results and intentions with "...the group is battening down the hatches and is concentrating on survival....The target is to cut the cash outflow to zero". The profit fall and the more than halved total dividend were factors behind the preliminary announcement negative residual.

Press comment clearly indicated that the annual report and accounts had information content for Lex(10.3.80) wrote "The annual report makes it clear just why the group has been forced into a series of plant closures and a dividend cut even though trading profits ...were only about a tenth lower for 1979".

Over the years the company had been heavily dependent on the UK for both turnover and profits. In 1979 the UK accounted for 92 per cent of turnover and 90 per cent of profit. Lex continued with "In the UK alone, the trading profits fall was nearer 20 per cent at £14.9m.(Note:the preliminary announcement contained no

geographical analysis) ...Just as important, a heavy chunk of stock appreciation has swollen the trading profit...The underlying picture shows up clearly in the flow of funds. Net cash flow from trading was around £13m in the last year. The final cash outflow was £9m". To obtain a picture of the problems which had to be overcome by the management of the company, Lex had drawn on the annual report and accounts for the geographical analysis, the funds flow statement and the current cost profit statement. Clearly for Lex the annual report and accounts had incremental information above that contained in the preliminary announcement.

On publication of the annual report and accounts the company's share price rose 7.5 per cent from 13 1/2 pence to 14 1/2 pence. The Times(17.3.80) in its "Brokers View" column wrote, "Fielding (Fielding Newson-Smith stockbrokers) suggests that if the fundamental rationalisation measures by companies like Carrington Viyella and Tootal produce the expected benefits, the sector's decline may be reversed". Probably a combination of factors plus the stockbrokers' comments fueled the share price rise.

6.1.4 Chairman's Statement

Although Abbas and Pendlebury (1985) suggested that investors place little reliance on the chairman's report, the analyses of 14 companies out of 29 do seem to suggest that the statements contain information useful to investors for share evaluation

purposes. Three companies, Bassett (G) Hldgs (No 9), Acrow Ltd (No 19) and Brocks Group Ltd (No 24) have already been analysed.

Hawtin Ltd.No 4.(-.0711 .0767)

Hawtin Ltd. was a small company not closely followed by analysts. It did not appear in the December 1979,Earnings Guide. Being small and not closely followed, there would be little information released during the year thus one would expect a greater relative information disclosure on the preliminary announcement and annual report event days, particularly on the latter with its more detailed analysis of the company. Unfortunately both event days fell in the period of the printing dispute. The preliminary announcement, which met only the minimum stock exchange requirements, and contained no chairman's report, was published by the FT without comment. No newspaper comment appears to have been made on the annual report and accounts. The factors behind the residuals can, therefore, only be surmised.

Hawtin obtained a listing in 1977 and the profits for 1978 and 1979 increased each year by 23 per cent and 39 per cent respectively. 1980 showed only a 16 per cent increase on weakened margins. This probably did not meet with investors' expectations hence the negative residual. Management were well aware of the need to diversify as strikes and the shrinking engineering industry were affecting demand for the company's main product - industrial protective clothing. The chairman in his statement mentioned that "Group earnings...have been substantially

augmented...(by) the element of diversification introduced in accordance with the policy I then outlined". The activity analysis revealed that the new companies seemed to have got off to a reasonable start as "Other Activities" now accounted for turnover of £3.6m(£1.1) and pre-tax profit of £0.26m(£0.09m), i.e. 29% of turnover and 22% of profit against 17% and 9% respectively in 1979. The chairman ended his statement on a high note with "the potential for growth through development is high and will be exploited to the fullest extent of available resources". It is conceivable that despite higher gearing,lower interest cover (see Table 38) and weaker margins, investors took into account the company's profit record and bolstered by the chairman's statement revised their expectations of the company's prospects. These factors are possibly reflected in the positive residual.

Beecham Group Ltd.No 5.(.0509 -.0702)

Beecham incurred its first profit fall for seventeen years. It was not unexpected as the first half saw a profit decline . Reporting on the preliminary announcement, Lex of the FT(30.5.80) wrote "...that pre-tax profits had fallen only to £136.8m from £144.0m were greeted with relief". This and the lifting of the net total dividend to 6.13p(5.31p) were probably the factors driving the positive preliminary announcement residual.

Lex went to say "The group's pharmaceutical business is still under very heavy pressure, with costs rising fast and price increases almost unobtainable outside the

UK....Unless sterling and interest rates fall far and soon Beecham looks set for another year of stagnant profits. Similar comments were made by the IC(6.6.80) concerning the pharmaceutical side.

When the annual report and accounts was released it contained a geographical analysis showing Beecham obtained 65 per cent of sales and 66 per cent of profit from overseas. It also showed that the pharmaceutical profit margin had fallen from 28 per cent to 22 per cent. The chairman's statement said "There is no doubt, however, that the industry's greatest problems are the effect of inflation on its costs, and the reluctance of Governments to make proper allowance for this factor in the many countries where they determine or influence prices....Governments are unlikely to allow cost-inflation to be fully reflected in prices when they can prevent it." Reporting on the annual report and accounts the IC(18.7.80) remarked, "The short term outlook for the pharmaceuticals side is not good. Price increases are subject to government controls in most markets; pharmaceuticals have only shown improved results in the UK where price rises were permitted". We may speculate the geographical segmental margin report and the tone of the chairman's statement emphasising the difficulties of the profitable pharmaceutical side may have been associated with the large negative annual report and accounts residual.

First National Finance Corp.No 6.(.0997 -.0696)

No dividend had been paid by this company since 1974 and from 1975 it owed its

existence to a Support Group of banks to which it owed £226m, repayable at seven days notice. As in the previous year the auditors said, "the withdrawal of such facilities would make a going-concern basis inapplicable and further substantial unprovided losses may be suffered". The preliminary announcement statement that the "results are much better than anticipated in the interim announcement", probably accounted for the 9.97 per cent preliminary announcement rise. The IC(18.1.80), however, sounded a word of caution, "...£10m came from activities not likely to be profitable in 1980". This was confirmed in the chairman's statement on publication of the annual report and accounts, "...profits attributable to the Lending and Property Division (£10.7m) are, to a large extent, more in the nature of surpluses on the realisations of loans and properties and the release of provisions thereon rather than profits earned from normal recurring lending transactions". He also said, "..it is not possible at this stage to make any reliable forecast as to the eventual outcome for the current year". There was no comment on the annual report and accounts but we might arguably be able to surmise that these warnings against too high an expectation for the company in the coming year may have contributed to the negative annual report and accounts residual.

European Ferries.No 8.(.0316 .0617)

The preliminary announcement contained no board statement. Profits were up by

four per cent on 1978 which probably accounted for the positive preliminary announcement residual. Commenting on the annual report and accounts the IC(13.6.80) said "Chairman Mr Keith Wickenden has confirmed that the Denver project has the potential to generate profits near to 'the present market capitalisation' of the whole group - £161m ...it is the prospect of a burgeoning cash flow that is exciting the city". The article went on to recount other parts of the statement forecasting possible new ventures using the higher cash flow. The FT(3.6.80) under the heading "Euroferries sees 'useful' rise for the current year" said "Mr Wickenden states that during the next few years profitable use has to be found for the significant cash flow the group's business produces". The company's shares had risen 45 per cent in the six weeks prior to 13th June. The annual report and accounts was published on 2 June and from that date to the 13th June the share price rose 12.4 per cent. This might arguably reflect the reading of the chairman's statement by investors who liked what they read and acted on it.

Vickers.No 10.(.0582 .0550)

Despite the preliminary announcement showing the company experiencing a 38 per cent profit fall, Vickers still had its "highly successful lithographic side", Daily Telegraph(25.4.80), and its profitable UK engineering division. The first quarter of 1980 was reported by the board to be "encouraging and (we) expect trading profits to show an improvement over 1979". This and the maintenance of the final dividend

may have been sufficient to explain the positive preliminary announcement residual. The FT(25.4.80) writing on the preliminary announcement drew attention to the company's long drawn-out dispute with the government over compensation for its nationalised assets. The newspaper said, "The compensation when it comes will probably barely wipe out net debt (58.8 per cent of net worth), reducing the scope for further acquisitions". Lex of the FT(4.6.80) said "Vickers' accounts show that terms for the nationalisation of its shipbuilding and aerospace assets and the disposal of its business machines division have both become a matter of some urgency ....However, the group is confident that the disposal will be completed in a matter of weeks and is hopeful that compensation will be agreed within the next few months. In that case, the picture will be transformed". Similarly the IC(6.6.80) reported "Vickers' problem of rising debt and the long delay in settling nationalisation compensation looks like being lifted very shortly .... Thus Vickers will shortly be comfortably placed for the first time for years". Both of these two articles were based on the chairman's statement in the annual report and accounts. These optimistic articles most likely reflected the investors favourable expectations of the company's prospects.

Attock Petroleum.No 11.(.0230 -.0537)

There was little comment on this company's results. The positive preliminary announcement residual was possibly due to the conversion of the previous year's loss

of £0.034m into a small profit of £0.022m. No reason for the non-payment of a dividend was mentioned in the preliminary announcement board report. This was disclosed in the chairman's statement in the annual report and accounts. According to the chairman, the pre-tax profit was due to interest earned on the proceeds from the sale of some shares. The company received a total of £0.326m in interest on investments. According to the chairman it was company policy to pay dividends from oil and gas profits not from short term interest receipts. The IC(14.11.80) said," Last year Attock did a bit better than break even, investment income being enough to cover outgoings but this year's spending is due to rise and a cut in interest rates will affect income". The chairman foretold "further progress ahead" but no firm forecast was made. One can only surmise that the possibility of a fall in interest rates and the new information provided by the chairman regarding the company's dividend policy may have changed investors' expectations and resulted in the negative annual report and accounts residual.

British Petroleum.No 14.(.0344 -.0499)

Reported net income rose from £444.4m to £1.62bn in 1979, a figure higher than the brokers' expectations and the dividend was lifted to 17.5p(6.4p). This alone could have been sufficient to account for the small positive preliminary announcement residual. Lex of the FT(14.3.80) reporting on the preliminary announcement drew attention to the company's "loss of former crude sources like Iran and Nigeria

and the corresponding need to buy in expensive spot crude were biting into margins". Whilst the IC(21.3.80) said "The group has its problems in 1980...oil trading margins started to suffer in the second half of 1979 when margins on chemicals were hit also by rising costs and by imports". The company revealed in the preliminary announcement that it had been "forced to reduce sales to nearly all third party customers". The chairman in his statement elaborated on the previous preliminary announcement report. He said,"The company has changed in a single year from being a major seller of crude oil to other refiners, to being one which must buy in the market a large part of the crude oil which it requires to supply products to its customers". On 11.4.80 the IC, after reporting the chairman's statement, said "...life will be more uncertain for BP in future, and it points to its disadvantage compared with other groups that have access to cheaper Saudi oil...The swings of 1979 emphasize how hard it is to predict BP's performance". It is reasonable to infer that it was the new information and element of uncertainty induced by the chairman's statement which may have contributed towards the negative annual report and accounts residual.

London Scottish Marine Oil.No 17.(-.0156 -.0485)

There was newspaper comment on the preliminary announcement but little on the annual report and accounts due to the printing dispute. Although profits topped £23m no dividend was paid. Lex of the FT(26.380) after forecasting earnings for

1980 "in the region of £30m", went on to suggest "This would be enough to clear the accumulated deficit and allow the payment of a maiden dividend". The IC(28.3.80) was more circumspect. "There is a wide margin for error on forecasting LASMO's 1980 earnings". No dividend forecast was made in the preliminary announcement but the chairman in the annual report and accounts cautiously predicted paying a dividend in 1981. It is reasonable to deduce that the chairman's statement postponing payment of a dividend until 1981 is a contributory factor towards the negative annual report and accounts residual.

Assoc.Biscuit Manfrs.No 25.(-.0334 .0383)

Although Table 32 shows the majority of companies including either a board report or a chairman's statement in the preliminary announcement, it must be remembered that such reports are only abridged versions of the reports which subsequently appear in the annual report and accounts. Such was the case in this company. In 1979 the company had raised pre-tax profits by 28.9 per cent. Commenting on the preliminary announcement the FT(11.4.80) said "ABM's full-year results look disappointing" for they were below all the brokers' forecasts contained in the Earnings Guide. This was probably the cause of the negative preliminary announcement residual. Comment on the annual report and accounts was restricted due to the printing dispute. When the full chairman's statement was published in the annual report and accounts promising fulfilment of ambitious targets set for the current year, it

is reasonable to infer that investors could have regained a degree of confidence in the company's prospects, hence the positive residual.

Dunlop Hldg Ltd.No 27.(.0573 -.0379)

Press reports on this company's results were restricted by the printing dispute previously mentioned as both the preliminary announcement and annual report and accounts fell in that period. Despite a heavy drop in pre-tax profit to £29m(£46m) the total dividend was held. This was the most likely factor behind the positive preliminary announcement residual. Lex of the FT(25.4.80), however, was not impressed by the company's results. After commenting on various aspects of the company he wrote "but in the process the group gently continues to shrink". The company's main problem was the European tyre division. In his annual report and accounts statement the chairman said,"At this time last year I said that the major task ...was to restore the European tyre business to good health". He went on to mention the "over-capacity in tyres in Europe" and that "1979 saw only a little respite from severe price competition". The division was still making a loss. The geographical analysis revealed UK operating profits down to £2m(£18m) and also that Europe(including the UK) accounted for 67% of turnover but the already meagre margins had fallen from 2.2% to 1.2%. Employees had been reduced by 4.000 and there was a net £31m outflow of funds.

The picture shown by the annual report and accounts was of a company not

yet at grips with the recession and the chairman's statement offered no hope of a quick solution to the company's problems. It is reasonable to infer that the factors mentioned above and the chairman's statement played some part in the cause of the negative annual report and accounts residual.

Hepworth J & Son. No 28.(.0459 -.0379)

Pre-tax profits were 13 per cent down on 1978 and below the Earnings Guide consensus brokers' forecast but as the IC(7.11.80) reported, seemingly with some relief, "The dividend has been held". The IC(5.12.80) commenting on the activity analysis, drew attention to the manufacturing division having turned in a pre-interest loss and been "drastically pruned". Four of the company's five factories were closed near the end of the financial year. The division accounted for 19% of turnover. The figures revealed in the analysis confirmed the Chairman's words that "Clearly it is going to be a very hard year ... The immediate economic prospect is indeed forbidding". The Chairman's forecast statement coupled with the closure of the factories may have been contributory factors to the negative residual.

6.1.5 Geographical Analysis

Gray (1981) argues that geographical segregation is different to segregation on the basis of business activity as foreign exchange, inflation and interest differentials give foreign countries different risk and return profiles. Gray maintains that whilst

geographical segregation is widely used, it is not well developed. The words of Collins and Simmonds (1979) "geographical breakdowns have different market con-

sequences" are relevant for companies Carrington Viyella (No 3) ,Beecham Group (No 5) and Dunlop Hldg.(No 27). Prodham (1986) found that geographical segment data was likely to have information content. Firms that adopted geographical segment disclosure were associated with lower post adoption betas and therefore were likely to have lower overall risk.

The ability of analysts to forecast annual income and sales figures is found to be enhanced by the provision of geographically segmented data though its usefulness is diminished by company failure to disclose detailed geographic segments and the inaccuracy of forecast annual country growth of gross domestic product and exchange rates (Balakrishnan, Harris and Sen, 1990).

All three companies shown under this heading in Table 33 have been analysed under previous headings.

6.1.6 Activity Analysis

In addition to Lee and Tweedie (1981) other questionnaire studies, Backer and McFarland (1968), Mautz (1968) and Stallman (1969), have all found segmental or line-of-business data perceived to be useful by investors and analysts. Buzby (1974) showed that segment reporting of income and sales were important items

of information in investment making decisions. Emmanuel and Pick (1980), a UK study, replicated a previous US study carried out by Collins (1976) and similarly concluded that segmental sales had additional information content over consolidated sales for predicting consolidated profits. The activity analysis seems to have had information content used by investors in companies, Borthwick(T) & Sons (No 13) and Hepworth J & Son (No 28). See section 6.1.4 above for the analysis of Hepworth J & Son (No 28).

Borthwick (T) & Sons.No 13.(.0113 .0513)

The company's pre-tax profits were £7.34m in 1979 against £6.22m in the previous year. The IC(14.12.79) drew attention to the cyclical earnings pattern of this meat trader then commented "The one bright spot is the retailing side in the UK and France, which could have made as much as £3m, around 50 per cent higher". This was an area into which the company was continuing to expand. On 11.1.80 the IC in its article published the activity analysis shown only in the ARA. In its comment on the analysis it restated its previous remark about the "...brighter side (is) meat retailing in the UK and France...both (have) made further progress". The article went on to say that the company was negotiating to buy two UK butchers chains. It is arguable that the year's results may not have moved the investors much when they were announced, as they were slightly below the brokers' consensus forecast in the December 1979 Earnings Guide, but the brighter prospects indicated by the activity

analysis and commented on by the IC could have reinforced investors' expectations and resulted in the higher positive residual.

6.1.7 Current Cost Profit Statement

Peasnell, Skerratt and Ward (1987) suggest that investors use current cost accounting (CCA) disclosures in their investment decisions but the CCA disclosures may be correlated with other disclosures made at the same time. Investors seemed to have taken heed of the CCA profit statement of the Berec Group (No 18) and Carrington Viyella (No 3). The latter company has already been analysed under the heading " Funds Statement".

Berec Group.No 18.(.0266 -.0478)

No policy statement concerning dividends was contained in the PA or ARA and the PA did not include a CCA statement. The influential Lex column in the FT(17.5.80) reporting on the PA mentioned that the "dividend may not be covered by CC earnings". The IC(20.6.80) reporting on the ARA said "CCA profits are depressing ... it is the group's long term policy to pay dividends out of CCA earnings. The crunch is CC profits. Unless there is an improvement the dividend must be vunerable". Investors must have been worried when the Current Cost Statement showed profit attributable to shareholders as £-3.8m. Hence the share price fall and the negative residual. This eventuality was noted by Peasnell et al.

6.1.8 Notes to the Accounts

Between 67 to 80 per cent of financial experts canvassed by Lee and Tweedie (1981) read thoroughly the notes to the accounts. This is not surprising as to completely understand some sections of the ARA the notes have to be read as these contain supplementary explanatory information. This is true of companies Hambros Ltd (No 2), Assocd.Leisure (No 12), Comfort Hotels (No 20) and Hill,Samuel Group (No 22).

Hambros Ltd.No 2.(-.0306 .1592)

The two events produced no comments from the financial writers, so what caused investors to change their expectations between the two events can only be surmized. The PA revealed that earnings had risen to £12.1m but they were below the brokers' forecasts which probably accounts for the negative PA residual of -.03. The fall was reversed on release of the ARA. The PA showed that the profit from associated companies, including Hambo Life Assurance (HLA), had risen by £1.6m to £4.8m. The Notes to the Accounts in the ARA disclosed that the profits of HLA had risen by 50 per cent to £3.2m, accounting for 67 per cent of the associates profits. Such excellent results could have led to investors believing the fall in price had been overdone and that the company had reasonable prospects, resulting in the high positive residual.

Assocd.Leisure. No 12.(-.0080 .0519)

There was a small negative residual after the PA was released. 76 per cent of the company's profits came from the manufacture, distribution and rental of amusement machines. For four years the company had seemed immune to the recession but in 1979 that division had seen no real increase in profit. New and more complicated video games made it necessary to replace the company's video machines if earnings were to improve. The IC(2.9.80) said "In practice the two factors that will determine profitability this year and next will be (a) the rate of growth and replacement of video machines and (b) whether the Gaming Board will allow an increase in the maximum stake and payment on fruit machines". Under Capital Commitments in the Notes to the Accounts it was revealed that capital expenditure in the current year was rising nearly 50 per cent to £13.3m. This was noted in the article. One factor seemed satisfied. The Gaming Board was making its decision in six months time. With little downside risk the inference is that investors were favourably impressed which resulted in the positive ARA residual.

Comfort Hotels.No 20.(.0604 .0433)

Ten months prior to the year end the company had purchased City Hotels Group Ltd. At the PA the FT(1.5.80) said "Without any indication of the City's contribution, it is difficult to be precise about Comfort's underlying performance". The Notes to the Accounts in the ARA showed City Hotels had contributed a substantial £1.2m to the group's profit before tax of £2.5m. There had been a slight

improvement in the company's "underlying performance". Taking into account the current economic situation the fact could have pleased investors leading to the positive residual.

Hill,Samuel Group.No 22.(.0359 .0407)

At the PA the share price had risen strongly and the residual was a positive 3.59 per cent. Although pre-tax profits of this merchant banker were static due to losses on its insurance broking, banking profits were up 51 per cent. Lex of the FT(13.6.80) noted this when, at the PA, he wrote "Still there is encouragement in the 51 per cent jump in banking profits. If all goes well Hill Samuel will achieve a substantial improvement for 1980/81". Although there was no comment on the ARA, due probably to the closeness of the two events, it is reasonable to assume that when in the Notes to the Accounts it said "The disclosed banking profit reflects the trend of the underlying profit", investors felt this strongly reinforced their prior expectations. The positive residual reflected the rise in the share price from 94p at the PA to 106p after the ARA.

6.1.9 Summary of Analyses

Although previous studies have found little evidence that on average the ARA contains new information useful to investors for pricing firms' shares, the above analyses of the 29 companies with the highest absolute residuals has identified either

through inference, in the absence of press comment, or through ex ante and ex post press comment surrounding the ARA, certain information disclosed in the ARA which may have been used by investors in their decision making process.

Chapter 7

Comparison with Control Group of Companies

The analyses in the previous chapter are supportive of the hypothesis that the ARA may contain certain information useful to investors in certain cases. The only true test, however, is to ascertain whether the information identified as being consistent with the magnitude of the outlier residuals and their signs is also present in the information set of the control group. If it is we should expect to see a replicated Table 33 for the control group of companies.

Investors are constantly receiving and appraising new announcements and forming forecasts of future earnings. But as Beaver(1968) was quick to point out, the majority are not very good at it, for if they were there would be no volume or price

reaction when the earnings reports, the PAs, are released. This observation was challenged by a discussant Bates, when commenting on Beaver's paper. Bates felt that in the sample used by Beaver there was a predominance of retailers who earned nearly all their profit between November and January, so, therefore, at the year end of 31 December did not have a clear idea themselves of what their earnings were until the January sales were completed. Also other firms released little information during the year and what was released is largely unreliable.

This study, like others, reveals the PA to have the largest effect on share prices. Ball and Brown (1968) showed that the PA effect in their study was despite the fact that 11 months prior to the earnings announcement there is a drift in the share price in the same direction as the earnings revealed by the PA. Positive earnings had a positive drift and the converse is true for negative earnings.

Firth (1976) addressed his work to four main industries, breweries, food retailers (supermarkets), shipping and banks. He investigated whether announcements of accounting and financial results by a firm give some indication of how well similar type companies are doing. He measured the impact of one firm's announcement on other members of the industry. Investors, he found, used the financial results of one company to appraise the share price not only of the issuing company but also of others in the same industry. The amount of fresh information diminishes as each new financial result is published. Similar results were found by Foster (1981) and

Clinch and Sinclair (1984).

We need to examine whether the information, we identified in the outlier group as likely to be driving the residual, is firm specific. The only true test is to match the outlier group with a control group and test whether the control group provides related information disclosures in the ARA's. For each of the 29 outlier companies a control company was selected which matched it by industry, size and LBS rating. Size was measured by market capitalisation. All the control companies had to have as low an abnormal return as possible, preferably less than the mean (0.016) of the annual report and accounts residuals. The difficulty of meeting the industry etc. matching requirements prevented the residual size criteria being fully met. Two firms had residuals well above the ARA mean but the size of each firm's residual is nearly half that of their outlier company. Each control company was then analysed in a manner similar to that of its sister company, by looking at the press comments surrounding the PA and ARA to search for an information set resembling that suggested to have impacted on the share price of the outlier company.

Table 34 lists the 29 control companies with low abnormal returns on publication of their ARAs. Also shown is the market sector in which the company operated, its LBS share marketability rating and market capitalisation. This information was taken from the same sources as for the outlier companies. Black & Edgington (No 12), Comet Radiovision (No 15), Tricentol (No 17) and Foster Bros.Clothing

(No 26), are the only companies with residuals greater than the mean of the ARA residuals (0.016).

It was not always possible to select a control company in exactly the same sector as its outlier counterpart. Company No 3, Carrington Viyella is in sector 'cotn & syn'. The nearest matching company is Dawson Intl. in sector 'wool'. In addition outlier companies No 10 Dobson Park Industries,No 19 GEI International, No 25 Tate & Lyle and No 27 Assod.Engineering could not be matched using their LBS rating so four matching companies with low residuals were selected but with different ratings. The difference in ratings is not material. All four control companies are considered close enough to their outlier companies not to make comparisons invalid.

	Company	Sector	LBS Rating	Market Cap.
1	Ratners (Jewellers)	Str Mult	2	17
2	Guinness Peat Group	Mrch Bank	2	69
3	Dawson Intl	Wool	2	63
4	Boardman (K.O.)Intl	Clothing	2	6
5	Glaxo Holdinggs Ltd	Phm Prod	1	501
6	Provident Fin Gp	Hire Purch	2	42
7	Boddington Brewery	Brewery	2	24
8	P & O Steam Nav Co	Shipping	1	117
9	Avana Group	Food Man	2	20
10	Dobson Park Inds	Mech Eng	* 2	75
11	NCC Energy	Oil	2	5
12	Black & Edgington	Leisure	2	19
13	Finlay James	Ovse.Tdr	2	41
14	Shell Transpt & Trdy	Oil	1	4029
15	Comet Radiovision	Str Mult	2	37
16	Assocd.Fisheries	Food Man	2	6
17	Tricentol Ltd	Oil	1	55
18	Electrocomponents Ltd	Lgt.Elec	2	86
19	GEI International	Mch.Hand	* 2	26
20	Mount Charlotte	Hotl & Cat	2	9
21	Bunzl Pulp & Paper	Pack & Pap	2	25
22	Mercury Securities	Mrch Bank	2	65
23	Adwest Group	Mech.Eng	2	28
24	Kode International	Lgt.Elect	2	13
25	Tate & Lyle	Mill & Flour	* 1	83
26	Crest Nicholson	Unclass	2	15
27	Assocd.Engineering	Mtr Comp	* 2	90
28	Foster Bros Clothing	Str Mult	2	49
29	Guinness(A)Son & Co	Brewery	1	164

Note. * Unable to match LBS rating of non-control company so this company with a different rating selected

Table 34: Industry Sector, LBS Rating and Market Capitalisation of 29 Control Companies with Low ARA Abnormal Returns

Table 35 lists the same control companies and tabulates the dates of their financial year ends, the dates of the PAs and publication of the ARAs together with the signed residuals for the two events.

The outlier group has 16 companies with ARA residuals larger than their PA residuals whilst there are only four in the control group. It would seem that, with the exception of these four companies, investors in the shares of the control group had their information requirements largely satisfied by the PA, and the ARA contained little useful information. This seems to be confirmed by the size of the ARA residuals of the control group; one company has a residual of 3 per cent and the remainder are all under 1.7 per cent with 21 under 1 per cent.

Using the absolute residuals, t tests[7] for the difference between means was conducted for the PA and ARA residuals for the two groups. For the PAs of the two groups, using a two tailed test and a 5% significance level the critical value of t is 2.04 (56 degrees of freedom) and the calculated value is 1.459. The null hypothesis, that there is no difference between the average PA residuals of the groups, is not disproved at the 5% level of significance. There is, however, a highly significant difference between the average ARAs of the groups. The calculated value of t is 8.3 and the critical value is 2.04 (56 degrees of freedom). The tests seem to indicate that on average the information contained in the PAs is the same for both groups

[7]see Applied Statistics: Statistics for the social scientist: Vol 2. K.A.Yeomans.Penguin Books Ltd. London. pages 103 and 105 relating to the t test and formula to calculate the degrees of freedom when the sample variances are not homoscedastic.

but, unlike those for the control group, the ARAs for the outlier companies held significant price-sensitive information.

To test whether one group was more actively followed by investment analysts than the other, the Earnings Guide of December 1979 was consulted. The Earnings Guide lists a number of brokers' earnings estimates and the statistics for various companies. 23 companies in the control sample were listed compared with 24 of the outlier group, so the progress of the majority of companies in both groups was being closely followed and periodically information would be published about them by brokers.

It could be suggested that the PAs of the control group were more informative than those of the outlier group. Table 36 compares the items voluntarily included in the PAs by both groups. The number of companies disclosing an activity analysis, a balance sheet and a board or chairman's statement for the outlier and control groups were 7 and 6, 4 and 5, and 23 and 23 respectively. The analysis shows there to be little difference between the groups in this respect. Apart from the information which has to be published to meet the requirements of the Stock Exchange, the amount of other information released by the companies of both groups at the PA was negligible. Following this test, an identical analysis for the control group of companies was carried out as for the outlier sample.

	Company	Year end	PA dates	ARA dates	PA residuals	ARA residuals
1	Ratners (Jewellers)	6 04 80	10 7 80	26 08 80	-.0119	.0030
2	Guinness Peat Group	30 04 80	11 09 80	8 10 80	-.0107	.0143
3	Dawson Intl.	29 03 80	16 06 80	23 06 80	.0404	.0003
4	Boardman (K.O.) Intl	31 03 80	28 08 80	12 09 80	.2637	-.0090
5	Glaxo Holdings Ltd	30 06 80	13 10 80	31 10 80	.0591	.0159
6	Provident Fin Gp	31 12 79	4 03 80	18 03 80	.0135	.0069
7	Boddington Brewery	31 12 79	20 02 80	18 04 80	.0063	.0156
8	P & O Steam Nav Co.	31 12 79	7 05 80	21 06 80	-.0109	-.0097
9	Avana Group	29 03 80	21 08 80	12 09 80	.0367	-.0070
10	Dobson Park Industries	29 09 79	11 12 79	28 01 80	.0632	.0008
11	NCC Energy	31 03 80	16 06 80	2 07 80	.0092	.0119
12	Black & Edgington	31 12 79	2 04 80	13 05 80	.0413	-.0300
13	Finlay James	31 12 79	12 06 80	10 07 80	-.0088	.0028
14	Shell Transpt & Trdy	31 12 79	6 03 80	18 04 80	-.0131	.0129
15	Comet Radiovision	30 08 80	26 11 80	18 12 80	-.0068	.0251
16	Assocd. Fisheries	30 09 79	5 02 80	25 02 80	.0739	-.0023
17	Tricentol Ltd	31 12 79	20 03 80	17 04 80	.0221	.0170
18	Electrocomponents Ltd	31 03 80	26 06 80	15 08 80	.0473	-.0050
19	GEI International	31 03 80	17 06 80	30 06 80	.0501	.0076
20	Mount Charlotte	30 12 79	26 02 80	3 04 80	.0814	.0000
21	Bunzl Pulp & Paper	31 12 79	29 04 80	12 05 80	-.0321	.0068
22	Mercury Securities	31 03 80	3 07 80	31 07 80	-.0170	.0000
23	Adwest Group	30 06 80	29 09 80	13 10 80	.0271	-.0035
24	Kode International	31 12 79	5 04 80	12 03 80	-.1102	.0027
25	Tate & Lyle	30 09 79	16 01 80	1 02 80	.0148	-.0096
26	Crest Nicholson	31 10 79	12 02 80	26 02 80	.0114	-.0003
27	Assocd.Engineering	30 09 80	11 12 80	30 12 80	.0153	-.0012
28	Foster Bros.Clothing	29 02 80	15 05 80	16 06 80	-.0485	-.0168
29	Guiness(A)Son & Co	29 09 79	14 12 79	17 01 80	.0551	-.0006

Table 35: Dates of Year End,PA and ARA together with PA and ARA residuals of the 29 Control Companies with Low Abnormal Returns

	Activity analysis		Balance sheet		Board/Ch.Man's statement	
Company	Group A	Group B	Group A	Group B	Group A	Group B
1	No	No	No	No	Yes	Yes
2	No	P	No	No	Yes	Yes
3	No	No	Yes	No	Yes	Yes
4	No	No	No	No	No	Yes
5	No	No	No	No	No	Yes
6	No	No	Yes	No	Yes	No
7	No	P	No	No	Yes	Yes
8	No	P	No	No	No	Yes
9	T/O P	No	No	No	Yes	Yes
10	T/O P	T/O P	No	No	Yes	Yes
11	No	No	No	No	Yes	Yes
12	T/O P	No	No	No	Yes	Yes
13	No	No	No	No	Yes	No
14	T/O	No	No	Yes	Yes	Yes
15	No	No	No	Yes	Yes	Yes
16	T/O P	No	No	No	Yes	Yes
17	No	T/O P	No	No	Yes	Yes
18	No	No	No	No	No	No
19	No	No	No	No	Yes	Yes
20	No	No	No	No	Yes	Yes
21	No	No	No	No	Yes	No
22	P	No	Yes	No	No	No
23	Yes	No	No	No	Yes	No
24	No	No	No	No	Yes	Yes
25	No	T/O P	No	Yes	Yes	Yes
26	No	No	No	No	No	Yes
27	No	No	Yes	Yes	Yes	Yes
28	No	No	No	No	Yes	Yes
29	P	No	No	Yes	Yes	Yes

Table 36: Items Voluntarily Included in the Preliminary Announcement by the Outlier Group (group A) and the Control Group (group B)

7.1 Analysis of Control Companies

It is not always possible to make a direct comparison between an outlier company and its control company. An example is British Petroleum Ltd and Shell Transport and Trading Ltd. British Petroleum is a typical, large company mainly trading in oil and oil products. Shell Transport is a holding company deriving all its income from its 40 per cent holding in the Royal Dutch/Shell Group of companies. Shell Transport will only be affected indirectly by trading problems and its financial structure is different to that of British Petroleum. Unfortunately, it is the only company in that industry comparable to British Petroleum.

The detailed analyses of the 29 control companies revealed that in general their annual report and accounts contained no new information useful to investors. Thus there is no table equivalent to Table 33.

The following fourteen control companies had positive PA residuals. All fourteen increased their pre-tax profits and some their dividends.

Dawson International	Provident Financial Group
Boddington Brewery	Avana Group
Dobson Park Industries	Assoc.Fisheries
Tricentol	Electrocomponents
GEI International	Mount Charlotte

NCC Energy	Tate & Lyle
Crest Nicholson	Guinness(A)Son & Co

The PA and ARA press comments on these companies ranged from Associated Fisheries, IC(8.2.80) "Returned to profits" and IC(29.2.80) "AF has finally turned the corner" to Guinness(A)Son & Co., IC(21.12.79) "Shares strengthened on the figures" and IC(25.1.80) "Company steamed ahead faster than inflation". On Mount Charlotte's PA the IC(29.2.80) wrote "...revaluation of hotel properties should more than double book asset values". When the annual reports and accounts were published the reaction of the companies' share prices to any new information contained therein did not exceed 1.7 per cent.Of these 14 companies, only the residual of Tricentol (0.017) is marginally greater than the ARA mean.

The comments on the PAs focused, in practically all the fourteen companies, on how well they were trading. There was no evidence, in the subsequent comments on the annual report and accounts, of new information which would have come as a surprise to investors and others. Unlike the outlier companies, there was no comment which suggested that the annual report and accounts contained new information which either strongly strengthened or altered the positions investors had taken on release of the PA.

Despite increasing their pre-tax profit the share prices of three companies fell

resulting in negative PA residuals. The companies are Ratners(Jewellers) Ltd.(No 1), Guinness Peat Group Ltd.(No 2), and Foster Bros.Clothing Ltd.(No 28). The ARA residual of Foster Bros.(.0168) was the only one to marginally exceed the mean (0.016).

Ratners (Jewellers) increased its pre-tax profit by 34.5 per cent and its dividend by a quarter. The PA residual is only -1.2 per cent and the ARA abnormal return 0.3 per cent. This is in direct contrast with its outlier company Audiotronic Hldgs. which had a going concern qualification. It is arguable that this is not a good match as Ratners is a retail jeweller and Audiotronic Hldgs. a wholesaler and retailer of consumer electronic products. But both companies were trading in the same economic environment, selling semi-luxury goods to similar customers,so macro trading information should affect both of them. Only company specific information is likely to affect one and not the other.

Guinness Peat Group had 'record' profits and increased its dividend by 12 per cent. Unlike its outlier company, Hambros Ltd, it beat the highest broker's forecast by £5m but the PA residual recorded a small 1 per cent fall which was recovered when the annual report and accounts was published. At the time of the PA there was an adverse comment in the IC(19.9.80) which reported a "40 per cent increase in interest charges". This was not referred to in the annual report comments.

Foster Bros.Clothing Ltd. increased its pre-tax profit by 9.5 per cent to £10.7m.

but disappointed the brokers who were looking for a minimum of £11.7m. This short-fall plus the unsupportive annual report and accounts comment in the IC(4.7.80) "As recession hits harder should be relatively secure", could have accounted for the PA and smaller ARA negative residual. This is in striking contrast with the outlier Hepworth J & Son whose profits were well below the brokers' forecasts and the annual report and accounts revealed worse to come.

Two companies whose pre-tax profits fell but have positive PA residuals are Glaxo Holdings(No 5) and the Adwest Group(No 23). Glaxo for the third year running announced lower profits though its dividend was increased by 19 per cent. Its shares went up from 212p to 230p on the announcement largely, one surmises, on the back of the increased dividend. The IC annual report comment of 7.11.80 probably summed up the position with "Profits for 1980/1 will only be marginally up. Share price looking further ahead". 1979/80 saw a profit fall for the outlier company, Beecham Group, which had enjoyed increased profitability for a number of years (see 6.1.4). Beecham, like Glaxo, had increased its dividend. Both companies were encountering similar trading problems but whilst Beecham had a negative ARA residual of -7.02%, Glaxo had a positive 1.59%. The difference in the investors' reactions to the annual report and accounts may possibly be accounted for by the differences in the companies' short-term prospective earnings. Glaxo, from the press comment, seemed to have stemmed its profit fall while Beecham's had just begun

and Beecham's chairman did not hold out the prospect of an immediate recovery (see 6.1.4). It was possibly the chairman's statement in the annual report and accounts which caused Beecham's shareholders to react so strongly.

The recession in the UK motor industry and strikes had hit both Adwest and its outlier company Birmid Qualcast. Of the two Adwest was the more vunerable as it was mainly a "supplier of steering gear to (the) motor industry ... an obvious candidate for trouble" IC(3.10.80). Birmid showed the more likely promise of a swift recovery as it was strong in heating products and home and gardening equipment. The recovery was dependent on whether the rationalisation measures it had undertaken had weakened its balance sheet. The annual report and accounts confirmed that its balance sheet was strong (see 6.1.2).

Both Raybeck and its control company Comet Radiovision saw profits slump by 28 and 30 per cent respectively but both raised their dividends. Liquidity of both companies was sound. The difference between the two lay in the respective strengths of their balance sheets- the difference in their gearing. Whereas Comet Radiovision was largely creditor financed IC(2.1.81) "Business is largely financed by creditors", in the case of Raybeck, investors were probably surprised and impressed by the manner in which the company had strengthened its balance sheet (see 6.1.2). Whereas Comet Radiovision's residual is 2.5 per cent that of Raybeck moved up to 5.0 per cent.

Similar to the two companies just analysed, Dunlop Hldg.Ltd. and Associated Engineering both announced reduced profits at the PA. Unexpectedly Dunlop held its dividend whilst the latter's was cut. When Dunlop published its annual report and accounts there was little to soften the poor trading position it revealed whereas the balance sheet of Associated Engineering had been strengthened by a property revaluation. Both companies had negative residuals but Dunlop's -3.8 per cent to Associated Engineering's -0.12 per cent may have reflected this difference.

Hawtin and Boardman (K.O.) Intl. were small companies not closely followed by analysts. Investors must have been disappointed when, despite making record profits, Hawtin's profit growth had fallen by 59 per cent. The control company Boardman, through lower profitability, had taken severe rationalisation measures as revealed by the IC PA comment of 29.8.80, "By next month ... the group will have axed all manufacturing activities". The same article emphasized that the remaining subsidiaries "all made profits and will continue to do so". Whereas Boardman's PA residual is a positive 26 per cent with a small ARA correction of -0.9 per cent that of Hawtin fell by 7 per cent but rose by the same amount when the annual report and accounts revealed that the diversification policy appeared to be working.

The annual report and accounts for investors in Borthwick(T)& Sons certainly contained price-sensitive information (see 6.1.6) but a great deal seems to have already been made public before the control company Finlay(James) announced its

results. This is confirmed by the IC(20.6.80),"J.F.'s nine per cent drop in pre-tax profits for 1979 was predicted in its half-time statement". So there were only minor share price adjustments at the PA and ARA. The annual report and accounts for Finlay(James) appeared to contain little material that was not already known.

The event residuals of European Ferries and P & O Steam Nav.Co. contrast sharply with each other. European Ferries had high residuals at both the PA and ARA, the latter arguably largely due to the chairman's statement (see 6.1.4). The results of the control company were in the middle of the brokers' forecasts so a small negative 1 per cent residual, at both events, is not out of place in the absence of any other information of interest to investors.

The plight of the outlier company, the Brocks Group, was well known before the results were announced as its share price had been falling before the PA. It is ironical that what reversed the slide was connected with its control company Kode International. IC (27.6.80) "Hopes soared when former Kode International boss Colin Banks moved into Brocks with two fledgling electronic companies early last year". It was on these two companies that investors pinned their hopes until the annual report and accounts showed just how weak was the company's balance sheet, then selling of the company's shares recommenced. An increased dividend could not stop Kode International's share price falling when it announced lower profits. IC(7.3.80) "Shares fell to 205p (previously 226p) on the results". Judging by the

press comment we might surmise little relevant information disclosed in the annual report and accounts that was not already known at the preliminary announcement, so there was negligible abnormal share price movement.

The high positive residuals of the Inveresk Group reflect the strengthening of the balance sheet and improved liquidity (see 6.1.2) at a time when the company's share price had fallen by half over the past twelve months. The control company Bunzl Pulp & Paper produced results in line with brokers' forecasts but did not impress. The press comments promised little for investors and the residuals (PA -3.21%, ARA .69%) indicate this.

It was the expectation of high earnings that lifted the share price of the Hill, Samuel Group (see 6.1.7). The results of its control company, Mercury Securities, were up 8.5 per cent on the previous year to £11.6m but they fell below the brokers' expectations by £1m. This may account for the small negative PA residual of -1.7. The press comments on both events indicated that the company had a "record of strong growth",IC(11.7.80) and that the future held "reasonable prospects" IC(8.8.80). There appeared to be nothing to surprise or excite investors in the annual report and accounts which seems to suggest the reason for no abnormal return.

Black & Edgington has the highest ARA residual of the 29 control companies. Its -3 per cent is ranked 47th in size, and the company is almost an outlier in its

own right but it is the only one which matched the outlier, Associated Leisure, by size and rating. Associated Leisure was in the busines of amusement machines (see 6.1.7) whereas Black and Edgington manufactured caravans and camping equipment. Unlike Assoc.Leisure, Black and Edgington had seen pre-tax profits fall by 47 per cent over two years as interest charges rose 240 per cent. But an unchanged dividend and an optimistic chairman's forecast for the second half of 1980 seems, initially, to have impressed investors. Publication of the annual report and accounts showing the precarious financial position of the company with gearing 89 per cent, brought forth the IC comment of 20.6.80 "The yield looks vunerable, and the shares are only for the optimistic". The negative ARA residual indicates that investors felt likewise. The main problems of the two companies were not related.

The news in the annual report and accounts which affected British Petroleum (see 6.1.5) was not mentioned when the results of the control company Shell Transport and Trading were released. The latter's results evoked little comment.

A company's share price is determined by the stock market's expectations about that company. Unanticipated price-sensitive news can have a much more damaging effect on the share price than a drop in profits about which management have already issued a profits warning or a chairman's statement regarding current trading.

Where there is little comment on a company's results, comparing the actual with the consensus brokers' earnings forecast will give some indication whether the

results are in line with expectations. There is, however, the possibility that between the time of the latest forecast and the PA more news has become available and been reflected in the share price, while no further brokers' forecasts have been issued.

7.1.1 Interpretation of the results

A number of causes may account for the higher ARA residuals of the outlier companies. Some, suggested by researchers, may be eliminated by looking at areas of similarity between the groups.

Consider the following:

1. Researchers have shown that companies which are not closely followed have higher abnormal returns than those that are (see Atiase, Bamber and Freeman, 1988). It has been demonstrated here that both outlier and control groups are equally followed by interested parties so the higher outlier residuals cannot be attributed to this factor.

2. The factor most consistently reported as being related to a firm's disclosure policy is its size. The larger the company the greater the disclosure. As the companies in the two groups were, as far as possible, matched by market capitalisation , a surrogate for size, there should be no difference in the amount of information released. This certainly seems the case with the preliminary announcement where there is little difference in the amount of voluntary information disclosed by the

groups and no significant difference between their average residuals.

3. The higher residual of the outlier companies cannot be attributed to the sectors in which they operate being different to that of the respective control companies. The control companies, as far as possible, matched their outlier counterparts.

All the evidence in the chapter points in a different direction. Although the movement of dividends and earnings played a major role in the pricing of shares, the evidence is supportive of the hypothesis that the annual report and accounts residuals of the outlier companies are largely driven by company specific disclosures, which have significant information content. There is no evidence of the same information sets being present in the releases of the control companies. Even where the outlier and control company e.g. Birmid Qualcast and Adwest, were facing twin problems of lower profits and difficult trading conditions, the price-sensitive information contained in the annual report and accounts of Birmid related only to Birmid. There is not one instance where the same piece of information was carried in the annual report and accounts of both companies and affected the share price of one company more than the other.

Table 37 summarises the analysis of new information provided in the annual report and accounts that might have impacted on market valuation by category. The almost complete absence of evidence of new information conveyed in the annual report and accounts for the low abnormal return group, i.e. that may have come as

a surprise to investors, will be observed.

In fact the only apparent case of potentially price sensitive information related comment at the annual report stage for the control group is Black and Edgington, which has a negative residual of 3.0% which is close to the standard deviation cut-off point for the outlier group.

Although the information is contained largely in the chairman's statement and the balance sheet, both of which are highly rated by UK financial experts as sources of information, no pattern of information appears to be present which could be used by investors to obtain abnormal returns.

The incremental information contained in an outlier company's annual report and accounts could not be used to forecast the results of another company in the same industry. Nor does there appear to be an overall pattern to the incremental information which, if it appeared in another company's annual report, may enable an investor to make a decision based on prior knowledge of the result of that information. Generally what comments there were at the annual report and accounts stage for the control group did not appear to add to the information released at the preliminary announcement.

				Information Items				
Group	Audit Report	Balance Sheet	Funds Statement	Chairman's Statement	Geographical Analysis	Activity Analysis	CCA Accounts	Notes to Accounts
Outlier	3	9	2	14	3	2	2	4
Control		1						

		Numbers of Items Per Company			
		0	1	2	3
Outlier	Group	0	20	8	1
Control	Group	28	1	-	-

Table 37: Potentially Relevant Information Items Identified From Press Comment in the Annual Report and Accounts

7.2 Association between the abnormal return, capital gearing and interest cover

This research study has sought to identify and establish an association between information contained in the annual report and accounts and the high abnormal returns of some firms. The information identified appears to be firm specific but it could be argued that there are other firm specific factors which may confound the analyses. A change in a firm's financial characteristics is one such factor.

Two ratios which feature prominently when assessing a firm's financial structure are capital gearing and interest cover. Changes in these two ratios effect the cash flow of a firm and the larger the impact on the cash flow, the larger the security price revaluation (Foster, 1986, page 376). Tests are therefore constructed to ascertain

any difference in the average gearing level and interest cover of the two groups and whether the control group's higher residuals can be partly attributed to a change in a firm's ratios over the event year.

The market, according to Ross (1977), *perceives* rather than *knows* the stream of earnings (or dividends) for a firm and values the firm on the basis of the market's value of this earnings (or dividends) stream. When a firm changes its financial structure (or dividend payment) the firm alters its perceived risk class even if the actual risk class has not changed. Management use an increase in financial leverage to signal an optimistic future for the firm. But as the proportion of debt in a firm's capital structure is increased, the probability of bankruptcy also increases.

The objective of gearing is to maximise the total value of equity plus debt so that the optimal ratio increases shareholders' wealth and divides the firm's total income between them to the advantage of the shareholders. If debt is increased beyond what is conventionally considered normal for the industry, the shareholders may feel that the firm will be forced into bankruptcy by being unable to meet these heavy prior charges.

There are two ratios which generally evaluate the credit worthiness of a firm. The first is interest cover and the second is debt to net worth. If the ratio of debt to net worth is too high, the firm will have difficulty in raising further capital as the costs attached to it will be higher. The possibility of bankruptcy is increased the

higher the interest rates. The more profitable firms tend not to be highly geared. A firm can be profitable but still be insolvent as insolvency is defined by Section 222(e) of the Companies Act, 1948 as 'unable to pay its debts'. This definition implies a lack of liquidity rather than a shortage of profit. Interest cover is a liquidity measure.

Although there are other factors which add to a firm's risk class e.g. quality of management, profit history, size of firm etc. one would expect to find outlier companies having a higher debt to net worth ratio and a lower interest cover than the control companies. Table 38 tabulates the gearing and interest cover ratios for both groups. In addition to the current year the previous year is also shown. Only 26 of the 29 companies in both groups are listed because two companies, Hambros Ltd and the Hill, Samuel Group, their ratios could not be calculated due to their banking activities and the First National Finance Corporation is omitted as it had a shareholders' deficiency of £38m.

The capital gearing ratio is net debt/shareholders' funds. Net debt is borrowings, including all debentures and loans plus bank overdrafts (less liquid assets) as a percentage of shareholders' funds less intangibles. Interest cover is loan interest (net of interest received) divided into earnings before interest and tax.

To check whether capital gearing and interest cover had altered over the year before the ARA was published, for both groups difference between means, two

tailed tests, were conducted using the means of the previous year(PY) ratios for capital gearing and interest cover and the means of the same ratios for the current year(CY). The null hypothesis is that there is no difference between the means of the PY and CY ratios. The calulated t statistics and degrees of freedom(D of F) are shown, together with the related 5% critical value, in Table 39.

For both groups the results do not indicate any significant change in the level of gearing and interest cover between the two years.

Similar tests were carried out to uncover the difference,if any, of the capital gearing and interest cover of the outlier and control groups of companies, for the previous and current year. Table 40 tables the results.

The t tests show no significant difference between the level of capital gearing and interest cover of the two groups for the previous and current year.

Taking the two tests together, that is the first to establish whether the ARA under review showed any movement in gearing and interest cover from that shown in the prior year's ARA, and the second to ascertain any difference between the two groups' gearing and interest cover, it would seem that the average gearing level of both groups is similar and that liquidity, as measured by interest cover, is no more of a problem for the outlier group of companies than it is for the control group.

The results of the tests outlined in this chapter suggest that capital gearing and interest cover, at the time the ARA is published, may not explain the higher ARA

residuals of the outlier group as compared with those of their control counterparts. This is not to say that capital gearing and interest cover are not among the "attributes valued by capital markets" (Foster, 1986, page 376) only that the tests are unable to capture the alterations the price-sensitive information, suggested as perceived by investors, had on these two ratios.

Company	Capital Gearing				Interest Cover			
	Outlier		Control		Outlier		Control	
	P	C	P	C	P	C	P	C
1	70.9	102.4	4.9	14.1	NIL	NIL	16.1	21.3
2	Not calculated							
3	44.7	50.3	NIL	NIL	3.1	1.7	22.9	13.5
4	52.5	76.4	79.6	116.6	21.1	5.4	1.2	1.3
5	NIL	15.0	10.9	8.3	11.4	9.9	10.0	8.0
6	Not calculated							
7	70.6	69.2	1.6	4.6	0.7	1.3	39.2	29.8
8	38.8	39.6	50.6	61.1	6.5	7.3	1.3	1.6
9	31.1	35.8	NIL	NIL	2.2	0.2	19.6	23.9
10	50.6	55.8	NIL	NIL	1.8	1.4	NIL	57.2
11	NIL	NIL	13.1	NIL	NIL	NIL	0.3	0.9
12	43.4	37.1	68.4	78.8	14.1	15.2	3.3	1.7
13	232.0	313.2	16.9	20.9	1.6	0.2	6.7	3.6
14	66.7	36.7	NIL	NIL	5.7	11.7	NIL	NIL
15	36.9	NIL	NIL	NIL	15.3	8.8	32.1	5.4
16	203.0	159.0	33.1	34.9	3.5	NIL	NIL	4.5
17	9009.8	1196.7	75.5	19.4	0.1	2.3	18.0	31.1
18	2.2	21.4	NIL	NIL	12.1	6.9	NIL	NIL
19	55.7	57.1	NIL	NIL	5.5	1.5	13.1	9.6
20	122.4	116.2	29.0	18.1	3.3	2.9	4.4	4.6
21	48.9	26.8	22.1	22.0	3.2	1.3	4.7	5.1
22	Not calculated							
23	11.9	18.0	3.1	0.6	5.9	5.4	22.7	24.3
24	11.1	39.4	NIL	NIL	26.9	2.8	548.8	462.2
25	30.9	56.4	53.7	43.4	4.4	3.3	2.3	1.9
26	97.2	78.4	11.5	24.4	4.2	4.1	14.2	7.5
27	71.4	64.2	37.0	58.6	1.8	2.3	3.5	2.1
28	19.3	15.8	0.4	0.7	6.2	4.6	98.9	39.1
29	28.5	35.4	42.1	42.9	6.9	4.8	5.4	4.2
Mean	401.9	104.5	21.3	21.9	6.4	4.1	34.2	29.4
S.Dev.	1756.5	231.4	25.8	29.6	6.7	3.9	106.9	89.4

C=Current year P=Previous year
Interest cover - NIL - either the company paid no interest or it had no profit

Table 38: Gearing and Interest Cover Ratios for the Outlier and Control Groups of Companies

	Outlier	Control
Capital Gearing		
t calc.	0.856	0.079
D of F	26	26
$t_{0.05}$	2.056	2.056
	Outlier	Control
Interest Cover		
t calc.	1.572	0.175
D of F	42	26
$t_{0.05}$	2.018	2.056

Table 39: Student's t Statistics for Tests of Difference Between Means of Previous and Current Year Ratios for Capital Gearing and Interest Cover of the Two Groups

	Previous Year	Current Year
Capital Gearing		
t calc.	1.105	1.805
Interest Cover		
t calc.	1.320	1.443
Degrees of Freedom 26		
$t_{0.05}$	2.056	

Table 40: Student's t Statistics for Tests of Difference Between Means of Outlier and Control Group for Capital Gearing and Interest Cover

Chapter 8

Summary and Conclusions

This study evaluates the informational content of the annual report and accounts. Similar to previous studies the preliminary announcement and interim report, which contain earnings and dividend announcements, are found to contain highly valued information while little information, in aggregate, appears to be conveyed to the financial market by the annual report and accounts and the annual general meeting.

There appears to be no unusual activity preceding any event and only a small reaction the following day. On stockmarket day two the share price resumes its normal relationship with the market. This share price behaviour is consistent with the semi-strong form of the Efficient Market Hypothesis.

Tests of the information content of event disclosures and the degree of association between the information content of different events using daily and weekly data were

broadly similar. The PA and IR were found in both tests to contain considerable new information. There were positive relationships between more events using weekly data than there were using daily data. The difference between the results is possibly attributable to weekly data capturing more of the information impact of the ARA which was not accomplished using daily data. We may also speculate on the presence of a neglected firm effect, but such hypothesis requires further investigation.

On the whole the market seems to treat "good" and "bad" news as of equal informational value, although there is a sharper reaction to "bad" news on release of the interim report. Significance tests were unable to reject the null hypothesis that the average abnormal returns for "good" and "bad" news are equal.

In all the tests using combinations of size, information content and risk, the annual general meeting was not statistically significant. This is consistent with previous findings for if only marginal information is being conveyed then little relationship with size can be expected. The following findings, using the three variables, relate only to the other three events, the preliminary announcement, the annual report and accounts and the interim report.

An inverse relationship between size and information content was found in this study. As 9.5% of the 337 companies used in this work are considered to be small, it is necessary to determine if it is size which is driving the residuals or whether size is only a surrogate for risk.

For all three events there is a significant association between the three variables, firm size, abnormal return, and variance of returns, but whereas a change in company size leads only to a marginal effect on the return, a small alteration in risk, measured by variance of return, produces a substantial change. Variance is largely related to beta, which has a systematic relationship with the market movement. The evidence suggests that size is probably a surrogate for absent firm specific variables.

Further support for the inverse relationship is the finding that of the 36 PA and 26 ARA company residuals more than one standard deviation from the sample mean of the PA and ARA residuals, small companies were two and three times over represented compared with their proportion in the whole sample.

The evidence so far appears to confirm the lack of apparent value of the annual report to market participants as an information source in aggregate. However,such results may still be consistent with price sensitive information being conveyed in the case of certain individual firms by the ARA. This is confirmed by the analysis of the 29 outlier companies with residuals greater than one standard deviation from the ARA mean.

Identical analyses were conducted on the outlier group and a matched control group with low abnormal returns. The outliers' high abnormal returns cannot be attributed to lack of market coverage as both groups appeared to be closely followed

by financial analysts. The matching by size and sector rules out these two factors as probable causes. There is little difference in the amount of voluntary information disclosure by the groups in their PAs and no significant difference in their average PA residuals. There is, however, a highly significant difference in the groups' average ARA residuals which lends support to the hypothesis that for some companies, e.g. the outlier group, their ARAs contain price sensitive information.

Tests of the association between information content of the events produced conflicting results but the press comments at the PAs looking to the ARA to confirm for example, in the case of the Berec Group, the size of the current cost profit, and for Vickers, the date of settlement of the nationalisation compensation seems to furnish evidence of an informational relationship between the PA information and the ARA information for the outlier group not observed in the analysis of the control group. Market participants seem to use the annual report and accounts partly in a confirmatory role. This finding suggests that at least for the outlier companies, the annual report and accounts may contain incremental information.

One section of the annual report found to contain price-sensitive information is the balance sheet. Gearing is calculated using balance sheet numbers. Although in aggregate tests showed no significant differences in the two groups gearing and interest cover, all nine of the balance sheet related comments either directly or implicitly referred to a firm's gearing. We can only speculate that investors viewed

the information as affecting future cash flows and the tests were unable to capture these future effects.

Using comments made by the financial press surrounding the PA and ARA events and detailed analyses of the ARAs, all the evidence suggests that the ARAs of the outlier group contain information used for share evaluation purposes. The information is apparently company specific as a similar information set is not evident in the control company group.

Two sections of the annual report apparently used by investors in their decision making are the balance sheet and the chairman's statement, both of which are known to be highly rated as information sources by expert users. Information found in other sections, such as the auditors' report,the activity analysis and the geographical analysis etc. which may to be contributing to the causes driving the outlier residuals, has been noted by previous researchers to contain price sensitive information.

The focus of this study is on the usefulness of the annual report and accounts as a source of information for share evaluation purposes. The annual report and accounts is one of the major information sources as it provides a 'snapshot' of the company, issued by the company. It is comprehensive and detailed.

Previous studies of the information content and usefulness of the annual report can be classified into three groups. The first group examines the annual report

and accounts as a whole for incremental information and the second analyses specific parts of the annual report for information content. Neither group is looking at individual companies to ascertain whether a firm's annual report and accounts contains incremental information. The groups' results confirm or otherwise whether the annual report and accounts,*in aggregate*, contains information useful for share evaluation purposes.

The third group by interview and questionnaire or questionnaire alone, determine respondents use of the annual report and accounts in their decision making process and which parts of the report they find most useful. Respondents are usually divided into sophisticated users e.g.financial analysts and institutions and unsophisticated users i.e. the general public. The limitations of the methods adopted are well documented e.g. lack of response to questionnaire, difficulty of designing questionnaire and respondents supplying answers they feel are generally regarded as correct rather than relating to their actual behaviour.

The value of this study is in having found the annual report and accounts,*in aggregate*, may not contain material incremental information, it provides evidence consistent with some individual firms' annual reports containing price-sensitive information and goes on to identify those parts of the report containing the price-sensitive information which may be driving the abnormal return. No previous study has directly examined individual firm's annual report and accounts for information

Perhaps it is the element of surprise surrounding the information which gives it its importance. If this is true, then the annual report and accounts is compulsory reading for all active participants in the financial market. Unless the stockmarket has access to this financial statement potential adverse valuation consequences may be missed. On this basis this study would suggest summary accounts are unsuitable for active stockmarket participants.

One final point that should be noted is that chapters 6 and 7 of this thesis use ex post tests i.e. examination of press comments, the preliminary announcement and the annual report and accounts to explain the large abnormal returns experienced by some firms on publication of their annual report and accounts. This method can serve as a foundation for further research.

It is probably impossible to predict ex ante both the magnitude and the direction of a firm's share price change on publication of its annual report. Nonetheless a less ambitious but useful extension of this study may be possible.

Following on from the research reported in this thesis we may identify a coherent set of factors associated with both the firm per se (size, industry, analyst coverage etc) and the new price sensitive information potentially reported in the annual report and accounts (e.g. account items, asset revaluations, audit report etc). We may speculate that a cross-sectional multiple regression approach with abnormal

return on ARA publication regressed on the above factors may serve as an appropriate methodological approach to identify those specific parts of the annual report and accounts of potential value to the analyst in a more formal manner.

Blackwood Hodge	Mch.Hand.
Boardman(K.O.)Intl	Clothing
BOC International	Gen.Chem
Boddington Brews	Brewery
Booker McConnell	Ind.Hold
Boots Co.Ltd	Str.Mult
Border & Southern 'Stk'	Inv Trst
Borthwick(T) & Son	Ovse. Trd
Boulton(W)(Hldgs)	Ind.Plnt
Bowater Corpn.	Pack & Pap
BPB Industries Ltd	Build Mat
BPC	Pub & Prnt
Bridon Ltd	Wre & Rope
Britannic Assce.Co.	Ins.Life
British Assets Trust	Inv.Trst
British Car Auction	Mtr Dist
British Elect Tr 'Dfd'	Ind Hold
British Home Stores	Str.Mult
British Petroleum	Oil
British Sugar Corp	Food Man
Brittania Arrow Hdgs	Fin.Trst
Brocks Group Ltd	Lgt.Elec
Brook Bond Leibig	Food Man
Brown(John) & Co	Mech.Eng
B.S.G.Intl.Ltd	Mtr.Comp
BSR Ltd	Lgt.Elec
BTR Ltd	Plas & Rub
Bunzl Pulp & Paper	Pack & Pap
Burmah Oil Co.Ltd	Oil
Burton Group	Str.Mult
Cadbury-Schweppes	Food Man
Capital & Counties Prop.	Property
Capper-Neill Ltd	Stl & Chem
Carpets International	Flr.Cover
Carrington Viyella	Cotn & Syn
Cement Roadstone	Cement
Central & Sherwood Ltd	Ind Hold
Century Oils	Oil
Charter Consolidated(Reg)	Mine Fin
Charterhall Fin	Oil

Charterhouse Group	Mrch.Bnk
Chloride Group Ltd	Electrcl
Christies Intl	Unclass
Chubb & Sons Ltd	Mech Eng
Coalite Group	Transport
Coats Patons Ltd	Msc.Text
Combined English Stores	Str.Mult
Comet Radiovision	Str.Mult
Comfort Hotels Int.Ltd	Hotl & Cat
Commercial Union Assce	Ins.Comp
Cope Allman Intl	Ind Hold
Coral Leisure Grp	Leisure
Costain Group	Constrct
Courtaulds Limited	Cotn & Syn
Cress Nicholson	Unclass
Croda International	Gen.Chem
Curry's Limited	Str.Mult
Dalgetty Limited	Food Man
Davy Corporation	Stl & Chem
Dawson Intl	Wool
Debenhams Limited	Str.Dept
De La Rue Co.Ltd	Ind.Hold
Dickinson Robinson	Pack & Pap
Distillers Co.Ltd	Wine & Spr
Dixons Photo	Str.Mult
Dobson Park Inds	Mech. Eng
Dowty Group Ltd	Mech. Eng
Drake & Scull Hldgs	Constrct
Dubilier Limited	Electrical
Dunlop Hldgs Ltd	Mtr.Comp
Duport Ltd	Mech.Eng
Eagle Star Hldgs Ltd	Ins. Comp
Edinburgh American Asset	Inv.Trst
Edinburgh Inv.Tr.	Inv.Trst
Electrocomponents Ltd	Lgt.Elec
Electronic Rentals	T.V.Rent
Elswick-Hopper	Mech.Eng
English China Clay	Unclass.
Equity & Law Life	Ins.Life

European Ferries	Shipping
Fine Art Developments	Str.Mail
Finlay (James)	Ovse.Trd
First Nat.Fin.Corp Ltd	Hire Pch
Fisons Ltd	Gen.Chem
Fitch Lovell Ltd	Food Ret
Foreign & Colonial	Inv.Trst
Fostr.Bros Clothing	Str.Mult
French Kier Hldgs	Constrct
GEI International	Mech.Eng
General Accident	Ins.Comp
General Electric	Electrcl
Gestetner Hldgs 'A'	Offc.Eqp.
Gill & Duffus Grp Ltd	Ovse.Trd
Glaxo Holdings Ltd	Phm.Prod
Globe Inv Trust	Inv.Trst
Glynwed Limited	Metl.Frm
Granada Grp Ltd 'A' Ord	T.V. Rent
Grand Metropolitan	Hotl & Cat
Grattan Warehouses	Str.Mail
Great Nthn Inv Trst	Inv Trst
Great Portland Estates	Property
Great Univ.Stores 'A'	Str.Mult
Greenall Whitley	Brewery
Grindlay's Hldgs	For.Bank
Guardian Ryl Exchange	Ins Comp
Guest Keen & Ntlfld	Metl.Frm
Guiness(A) Son & Co	Brewery
Guiness Peat Group	Mrch.Bank
Guthrie Corpn.Ltd	Rubber
Hambro Life Assurance	Ins.Life
Hambros Ltd 25p	Mrch.Bank
Harrison Crosfield	Ovse.Trd
Harris Queensway Group	Str.Furn
Haslemere Estates	Property
Hawker Siddeley Grp	Mech.Eng
Hawley Leisure Ltd	Leisure
Hawtin Ltd	Clothing
Heath(C.E.) & Co	Ins.Brkr
Henlys Ltd	Mtr.Dist

Hepworth Ceramic	Buildmat
Hepworth J & Son 'A' Ord	Str.Mult
Hestair Limited	Ind.Hold
Hewden-Stuart	Constrct
Higgs and Hill Ltd	Constrct
Highland Distilleries Co	Wine & Spr
Hill (P) Inv.Tr.Ltd	Inv Trst
Hill,Samuel Group	Mrch. Bnk
Hoover Ltd 'A' NV	Hse.Appl
House of Frazer	Str.Dept
Howard Machinery	Mech.Eng
Howard Tenens Services	Transport
Howden(A.)Group	Ins.Brkr
ICL Ltd	Electrcl
IMI Ltd	Metallgy
Imperial Chemical Indust	Gen.Chem
Imperial Group	Tobacco
Inchape & Co.Ltd	Ovse.Trd
Industrial & Gen Tr Ltd	Inv.Trst
Inveresk Group	Pack & Pap
Johnson & Firth Brown	Spec.Stl
Kalamazoo Ltd	Offc.Eqp.
KCA International	Oil
Kleinwort,Benson	Mrch Bnk
Kode International	Lgt.Elec
Kwik Fit Hldgs	Mtr.Comp
Kwik Save Discount	Food Ret
Ladbroke Group	Leisure
Laird Group	Mech.Eng
Land Securities	Property
Laporte Inds (Hds)	Gen.Chem
Law land Co Ltd	Property
L.C.P.Holdings	Ind.Hold
Lee Cooper Ltd	Clothing
Legal & Gen Group	Ins.Life
Lennons Group	Food Ret
Letraset Ltd	Offc.Eqp
Lex Service Group	Mtr.Dist
Lloyds Bank Ltd	Bank

London Brick Co.Ltd	Brick
London Freighters	Shipping
London & Merchant Securities	Ind.Hold
London & Midland Inds	Ind.Hold
London & Northern Grp	Constrct
London Scottishb Marine O	Oil
London Trust Co	Inv.Trst
L.R.C.International	Phm.Prod
Lucas Industries	Mtr.Comp
Mallinson Denny	Timber
Marks & Spencer	Str.Mult
Merchants Trust	Inv.Trst
Mercury Securities	Mrch Bnk
Metal Box Ltd	Pack & Pap
Meyer(M.L.) Ltd	Timber
MFI Furniture Group	Str.Furn
Midland Bank Ltd	Bank
Minet Holdings Ltd	Ins.Brkr
Minster Assets Ltd	Fin.Trst
Mitchell Cotts	Mech.Eng
Moben Group	Furn & Bed
Morgan Crucible	Ind.Hold
Morrison(W) Supermkts	Food.Ret
Mothercare Limited	Str.Mult
Mount Charlotte	Hotl & Cat
Muirhead Ltd	Electrcl
Myson Group	Heat & Vnt
Natl.Westminster	Bank
NCC Energy	Oil
Newman Inds.Ltd	Ind.Hold
Norcross Limited	Ind.Hold
Northern Engineering Ind	Eng.Cont
Northern Foods	Food Man
Northn.American Tr	Inv.Trst
Nottingham Manufg	Clothing
Ocean Transport & Trd	Shipping
Pearl Assurance Co	Ins.Life
Pearson(s) & Son	Ind.Hold
Pegler-Hattersley	Pump & Val
Pentos Ltd	Ind.Hold

Phoenix Assurance	Ins.Comp
Pilkington Bros	Buildmat
Platignum Ltd	Offc.Eqp
Pleasurama Limited	Leisure
Plessey Co.Limited	Electrcl
P & O Steam Vav Co 'Dfd'	Shipping
Powell Duffryn Ltd	Ind.Hold
Premier Consolidated	Oil
Provident Financial Grp	Hire Pch
Prudential Corporation	Ins Life
Rank Organisation	Offc.Eqp
Ranks Hovis MacDougall	Mill & Flr
Ransome Hoffman	Mech.Eng
Ratners (Jewellers)	Str.Mult
Raybeck Ltd	Str.Mult
Ready Mixed Concrete	Cement
Reckitt & Colman	Phm.Prod
Redland	Brick
Reed International	Pack & Pap
Renold Limited	Mech.Eng
RIT Ltd	Inv.Trst
Rothmans Int Ltd 'B'	Tobacco
Rowntree-Mackintosh	Food Man
Royal Bank Scotland	Bank
Royal Insurance Co	Ins Comp
Savoy Hotel Ltd 'A' Ord	Hotl & Cat
Scottish Amer Inv Co	Inv.Trst
Scottish Inv.Trst Co	Inv Trst
Scottish Mortg & Trust	Inv Trst
Scottish & N'csle Brews	Brewery
Scottish Utd Investors	Inv.Trst
Sears Holdings Ltd	Str.Mult
Selincourt Ltd	Clothing
Serck Limited	Mech.Eng
Shell Trnspt & Trdg 'Regd'	Oil
Silvermines Ltd $IR	Msc.Mine
Simon Engineering	Eng.Cont
Six Hundred(600)Grp	Mech.Eng
Sketchley Limited	Laundrey

Slough Estates Ltd	Property
Smith & Nephew Assd	Phm.Prod
Smiths Industries	Mech.Eng
Smith W H & Son 'A'	Str.Mult
Sotheby Parke	Unclass
Spring Grove Services Ltd	Laundry
Stakis (Reo) Orgn	Hotl & Cat
Standard Chartered Bank	For.Bank
Staveley Inds.Ltd	Ind.Hold
Steetley Co.Ltd	Ind.Hold
Stock Conversion & Inv.	Property
Stone-Platt Inds.	Ind.Plnt
Sumner(F.) (Hldgs.)	Ind.Hold
Sun Alliance & Lon Ins	Ins.Comp
Sun Life Assce Society	Ins.Life
Supra Group Ltd	Mtr.Comp
Tarmac	Buildmat
Tate & Lyle Ltd	Food Man
Taylor Woodrow Ltd	Constrct
Telephone Rentals	Offc.Eqp
Temple Bar Inv.Tr	Inv.Trst
Tesco Stores (Hldgs)	Food Ret
Thorn EMI	Lgt.Elec
Tilling (T) Limited	Ind.Hold
Tootal	Msc.Text
Town & City Props	Property
Tozr,Kemsly & Milbrn	Ovse.Trd
Trafalgar House Ltd	Ind.Hold
Transport Dev.Grp	Transport
Tricentrol Ltd	Oil
Trident TV Ltd 'A' NV	Leisure
Trusthouse Forte	Hotl & Cat
Tube Investments	Mech.Eng
Tunnel Holdings 'B'	Cement
Turner & Newall	Ind.Hold
UBM Group	Buildmer
UDS Group	Str.Mult
Ultramar Co Ltd	Oil
Unigate Limited	Food Man
Unilever Limited	Food Man

Unitech Ltd	Lgt Elec
United Biscuits	Mill & Flr
United City Merchants	Ovse Trad
United Scientific	Instrmnt
United State Debentr CP	Inv.Trst
Valor Company Ltd	Hse.Appl
Vickers Limited	Mech.Eng
Viking Resources	Inv Trst
Vinten Grp	Instrmnt
Ward (T.W.) Limited	Metl.Frm
Ward White Group	Footwear
Wedgwood Limited	Ktchn & Tb
Weir Group Ltd	Mech.Eng
Westland Aircraft	Mech.Eng
Whitbread & Co 'A' Ord	Brewery
Willis Faber Ltd	Ins.Bkr
Wimpey (George) Ltd	Constrct
Witan Inv Co	Inv.Trst
Wolverhampton & Dud Brew	Brewery
Wood Hall Trust	Ind.Hold
Woolworth (F.W.) Ltd	Str.Mult

This appendix contains the method used for calculating the Student's t-statistics for the average absolute abnormal returns shown in Tables 8–11 and the results of the significance tests for Tables 8–11.

Adopting the Cready and Mynatt (1991) method to test for price invariance the absolute value of the abnormal return (ABUR) is estimated on a daily basis as:

$$ABUR_{jt} = \left(\frac{|U_{jt}| - \overline{ABUR_j}}{SABR_j} \right) \tag{1}$$

where:

$\overline{ABUR_j}$: the mean absolute value of the residuals for firm j from the non-event period of 252 days; and

$SABR_j$: the standard deviation of the absolute values of the residuals for firm j from same non-event period.

The 252 non-event days are the 260 day period less day 0, the event day, and day +1 for each of the four events.

The absolute value standardised abnormal returns are calculated to have an expected value of zero where there is no price response. The t-statistic is calculated using the conventional t-test with $\mu = 0$ and n = 337.

Absolute Value Abnormal Returns			
	Mean	Standard Deviation	t-value
-9	-0.049	0.89	-1.011
-8	-0.042	0.95	-0.800
-7	-0.015	0.98	-0.280
-6	-0.004	0.95	-0.073
-5	0.000	0.95	0.001
-4	0.004	0.96	0.067
-3	0.172	1.28	2.461
-2	0.177	1.26	2.587
-1	0.064	1.08	1.098
0	2.189	3.58	11.227
1	0.798	1.71	8.548
2	0.147	1.11	2.423
3	0.019	0.97	0.353
4	0.093	1.10	1.549

Table 41: Preliminary Announcement Mean Absolute Value Standardised Abnormal returns

Absolute Value Abnormal Returns			
	Mean	Standard Deviation	t-value
-4	0.056	1.00	1.03
-3	0.071	1.11	1.18
-2	0.081	1.09	1.37
-1	0.053	1.09	0.89
0	0.266	1.37	3.56
1	0.093	1.09	1.57
2	0.163	1.23	2.43
3	0.125	1.18	1.95
4	0.144	1.22	2.18
5	-0.013	0.95	-0.26

Table 42: Annual Report and Accounts Mean Absolute Value Standardised Abnormal Returns

Absolute Value Abnormal Returns			
	Mean	Standard Deviation	t-value
-9	0.110	1.16	1.75
-8	0.094	1.14	1.52
-7	-0.048	0.92	-0.95
-6	0.033	0.96	0.64
-5	-0.002	1.04	-0.04
-4	0.090	1.22	1.35
-3	0.061	1.06	1.06
-2	-0.008	1.07	-0.14
-1	0.039	1.06	0.68
0	0.438	1.60	5.03
1	0.438	1.55	5.17
2	0.126	1.15	2.00
3	0.089	1.11	1.47
4	0.086	1.12	1.41
5	-0.011	0.98	-0.21

Table 43: Annual General Meeting Mean Absolute Value Standardised Abnormal Returns

Absolute Value Abnormal Returns			
	Mean	Standard Deviation	t-value
-9	0.077	1.07	1.313
-8	-0.005	1.10	-0.076
-7	-0.014	0.95	-0.275
-6	-0.004	0.97	-0.084
-5	-0.020	0.95	-0.382
-4	-0.087	0.87	-1.839
-3	0.202	1.11	3.360
-2	0.157	1.22	2.351
-1	0.134	1.20	2.049
0	2.105	3.66	10.567
1	0.758	2.01	6.909
2	0.239	1.36	3.225
3	0.102	1.00	1.867
4	-0.062	0.94	-1.205
5	-0.013	1.08	-0.227

Table 44: Interim Report Mean Absolute Value Standardised Abnormal Returns

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