

**On the Willingness of UK Companies to Issue Profit Warnings:
Regulatory, Earnings Surprise Permanence, and Agency Cost Effects.**

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Abstract

This paper presents an empirical study of profit warnings issued by UK companies. The study adds value to the existing literature on warnings because it models the warning decision in a stock market economy that is significantly less litigious than the US. This in turn allows factors, other than the threat of litigation, to influence the decision to warn. In addition we produce evidence on the effect of a change in the London Stock Exchange rules relating to the release of price sensitive information on the frequency and timing of profit warnings.

The paper describes the profit warning experience of the London Stock Market for periods surrounding a change in the stock exchange rules governing the issuance of warnings in 1994. Given this background the paper then moves on to model a range of factors that potentially have influenced the decision to warn. Special attention is paid to the influence of ownership structure and bondholder/stockholder conflicts of interest on the decision to warn.

1 Introduction

This paper studies the motives for issuing profit warnings in the UK. Skinner (1994) studied the motives for warning in the US stock markets. He argued, that legal considerations i.e. a fear of being sued, played a major part in explaining the pre-disposition of US firms to warn.

It is well known that the US financial system is heavily influenced by fear of litigation. The US is a highly litigious financial and accounting regime. The purpose of this paper is to examine the experience of a different regime where there is a high frequency of profit warnings but where the fear of litigation is significantly lower. A study of such a regime is potentially interesting because it presents a disclosure environment that is less dominated by litigation issues, and therefore one in which other motives may be able to exert a significant influence.

In addition to the difference in litigation risk between the US and the UK, there are two other institutional features of the UK financial reporting environment that may affect the demand and supply of warnings. First most UK firms report earnings on a semi-annual basis. All other things being equal, one might expect a greater demand for warnings in a semi-annual reporting regime. In particular investors may be willing to accept less frequent earnings reporting for the majority of firm years provided they are confident of receiving warnings when major negative events occur. Second, institutional investors dominate the ownership structures of UK quoted companies. The power and influence of institutional investors is significantly higher in the UK than in the US. A number of researchers have argued that the quality of financial communication may be related to ownership structure and governance variables. It is therefore of some interest to examine the warning choices of firms in a context where large external shareholders are a feature of many firm's ownership structures.

Finally a study of UK warnings is particularly interesting because there has been change in the regulatory stance of the London Stock Exchange towards warnings. Specifically in 1994 the London Stock Exchange introduced new guidance notes (LSE, 1996:5) on the dissemination of price sensitive information and, in a related development, an amended insider law was passed. Under the listing rules (paragraph 9.1 a), *“a company must notify the Company Announcement Office (CAO) without any delay of any major new development in its sphere of activity which are not public knowledge which may”...“lead to substantial movements in the price of its listed securities”...“or significantly affect its ability to meet its commitments”*. In

essence, the new rules limit private communication with financial institutions and analysts that previously (pre-1994) may have obtained price sensitive information through informal private meetings.

This paper begins by describing the UK experience with profit warnings over the period 1992 to 1993 and 1995 to 1998. This sample period surrounds the introduction of the Guidance Notes on the Dissemination of Price-Sensitive-Information (PSI) in 1994 by the London Stock Exchange. We examine the frequency of profit warnings before and after the introduction of the new rules and analyse the market information efficiency with respect to profit warning events by examining the aggregate pattern of stock returns and bid ask spreads surrounding profit warnings.

Having described the UK profit warning experience, we then move on to consider a range of factors that potentially influence a UK's firm's disposition to issue profit warnings. We construct a logit model of warning choice that indicates that both ownership factors and third party effects exert a significant influence over the willingness to warn. Finally we briefly consider the potential influence of the market for corporate control over the warning decision. We present some preliminary evidence that the threat of being taken over may, at the margin, reduce the willingness of company managers to warn.

2 Related Literature and UK Institutional Background

Skinner (1994:43) develops an argument based on the expectations adjustment hypothesis of Ajinkya and Gift (1984), which states that the probability that an earnings announcement will be pre-empted by voluntary disclosures depends on the absolute size of the earnings surprise. Skinner (1994:40) argues that due to legal incentives to voluntarily disclose bad news, the likelihood of bad news disclosure is higher. The evidence appears to support his argument. He finds that the stock price response to bad news disclosure is larger than the response to good news disclosure. Secondly material bad news is much more likely to be pre-empted by voluntary disclosure than material good news.

However, the empirical evidence regarding the legal incentives as a motive for disclosure even of firms regulated even under US law has been disputed. Francis, Philbrick and Schipper (1994:140) find no evidence that pre-emptive disclosure can deter litigation completely or that non-disclosure inevitably invites litigation. They document that voluntary disclosure reduces price declines on earnings announcement days, which they argue, may reduce the severity of litigation.

This study was inspired, in part, by Kasznik and Lev (1995). These authors studied the disclosures of US firms experiencing a large 4th quarter earnings surprise in 1988, 1989 and 1990. They examined the frequency and content of profit warnings and related disclosures. For present purposes we focus on their specific findings for firms experiencing bad news, as these are the kind of firms on which we focus below. For firms experiencing bad news Kasznik and Lev (1995:113f) found:-

- (i) Only 21% of such firms provided a “hard” forecasts relating to their expected 4th quarter earnings, whilst 60.6% made less explicit disclosures, and 18.4% made no disclosure whatsoever.
- (ii) A firm was more likely to issue a “hard” warning if the gap between the actual fourth quarter earnings and analysts’ expectations was large.
- (iii) The likelihood of a warning being made was also related to firm type; high tech (regulated) firms were more (less) likely to issue a warning. Also larger firms were more likely to issue a warning.
- (iv) The overall share price response to a negative earnings surprise was more negative for firms issuing a warning than firms not issuing a warning.

Puzzled by the previous finding, the authors hypothesised that this could be due to the possibility that firms would be more likely to issue a warning about an earnings surprise that was likely to persist, rather than one that was purely transitory. Consistent with this explanation, they found that analysts’ forecast revisions for the next fiscal year were significantly more negative for the warning firms than the non-warning firms.

This study draws on the ideas of Kasznik and Lev (1995), but also makes a number of original contributions. First we study the share price response to profit warnings in a different regulatory regime that has undergone a significant change in the rules. Second, we examine movements in bid ask spreads around profit warnings and compare these to analogous movements around final earnings announcements. Third, and most significantly, we model the motives for issuing profit warnings in a regime that is significantly less litigious than the US. In particular we examine the influence of ownership and agency cost considerations on warning decisions in the less litigious UK environment.

For UK firms, the influence of the regulatory environment on general disclosure practice has been investigated mainly by Holland and his co-authors in a series of case study based papers. Prior to 1994, relationships and private meetings were the key element in UK corporate communication. UK regulation prior to

1994 allowed the private disclosure of non-mandatory information which allowed firms to directly interact and seek to influence analysts and financial institutions. The strong informal information flows between firms and key institutions and analysts, which firms consider to be a vital part of the market, was further strengthened by the concentration of share ownership in the UK where a small number of UK financial institutions controls a large part of UK equity capital.¹

For the period after 1994, Holland and Stoner (1996) provide evidence that UK disclosure policy changed due to the release of the new regulation. Figure 1 shows the structure of the communication channels and the changes to these as companies prior to and post 1994 perceived them.

[Insert Figure 1 here]

In their papers, Holland (1997a, 1997b), Holland and Stoner (1996) focus on three communication channels, i.e. financial reports, public announcements and private communication, and their usefulness to management, financial analysts and fund managers. The evidence they produced was based on interviews with senior executives in 33 companies and a smaller number of case studies. Among other things they found:

- (i) According to senior executives, (Holland 1997b:5), financial reports serve as a template for the form and content of the formal part of public announcements and private communication. From the interviews Holland (1997b:17) concludes that most of the information released in interim earnings announcements and financial reports is predicted by analysts, who together with financial institutions pressure firms not to surprise markets. As a result, the content of financial statements are generally well known to analysts and financial institutions well before publication and private meetings.
- (ii) Holland distinguishes between necessary public voluntary disclosure (i.e. disclosure of PSI, profit warning) and purely voluntary disclosures. From the interviews, Holland (1997a, 1997b) argues that the voluntary disclosure of a profit warning satisfies the legal need for disclosure which allows the company to discuss the qualitative effects and long term implications of bad news in private with core financial institutions and analysts in a much richer form than in a public “profit warnings”. The pure voluntary

¹ In 1996, 75% of UK share capital was held by institutions, with UK institutions holding 60% (Holland 1997b), the top 50 institutions control over 50% of capital with 20 institutions holding over a third of equity (Gaved, 1997).

disclosure can be disclosed publicly or privately (see point iii). It is the disclosure of non-price sensitive information. According to Holland (1997b:12), the management decision on whether to disclose pure voluntary disclosure publicly or privately depends on where managerial benefits are greatest.

- (iii) Private communication has advantages for both financial institutions and analysts on one side and companies on the other side. It allows financial institutions and analysts to better understand and interpret the impact of events before less informed investors, giving them an advantage in stock selection and de-selection. The benefits of private disclosure lie in creating a common understanding of the company among core equity holders (financial institutions) and analysts, conveying management confidence, improvement of corporate financing capability and providing defence against a takeover. Private disclosure is perceived to have a positive effect on market efficiency; financial institutions and analysts (the most informed market segment) should react speedily and in a well informed way to news and lead the markets' reaction. Private disclosure can enhance a fair market in the firm's shares, minimising the firm's penalties for poor communication and reducing the overall cost of communication to the financial markets. This in fact enhances market efficiency as price sensitive information would be immediately and rapidly and correctly reflected in an unbiased way in share prices without large over-and/or under-reaction.

Overall, Holland (1997a, 1997b) Holland and Stoner (1996) argue that UK firms have adapted their disclosure practices to reflect the changes brought about by the Guidance Notes on the Dissemination of price sensitive information in 1994. The sample firms have set out an internal process in which price sensitive information is defined and its release is managed actively. Their case companies appeared well aware of the implications of the new rules and according to Holland and Stoner (1996:300) recognised the regulatory requirement to announce price sensitive information to the market in a timely fashion. They provide evidence that the case companies recognise that the illegal dissemination of price-sensitive information poses a threat to more desirable forms of private communication with fund managers and financial analysts. If those outsiders are given price-sensitive information, they cannot use their knowledge to their advantage, they are restricted in their investment decisions. This is due to the risk of potential discovery and legal action in the case of insider trading.

3 The Effects of UK Profit Warnings on Stock Returns and Bid Ask Spreads Pre - and Post-Regulatory Change

3.1 Hypothesis development

Frequency of voluntary bad news disclosure

The new LSE rules on the dissemination of PSI were formulated to prevent managers from releasing PSI privately. Part 7, explanatory documentation on dissemination of PSI (LSE, 1996:6) states that ‘*companies should make arrangements to keep price sensitive information confidential until the moment of announcement. They must not allow this information to seep into the public domain*’. The case studies of Holland (1997a:7), suggest that companies have responded to the new rules by devising an internal process by which price sensitive information is managed and released actively. We therefore expect disclosure frequency to increase after the new regulation and propose the following hypothesis.

Hypothesis 1 (null): The change in regulation had no impact on the frequency of voluntary disclosure in the event of material bad news.

The alternative to this null, is that one would expect to observe an increase in disclosure frequency if the migration argument advanced above holds. **Hypothesis 1** directly tests the effectiveness of the new regulation which aims it is to bring profit warnings into the public domain. If the regulation had the desired impact, we expect the frequency of disclosures to be significantly higher after 1994 relative to the pre-1994 period.

Share price anticipation

According to the regulations, profit warning events should be unanticipated and contain detailed information, such that, the market can respond to the new information in an appropriate fashion. Any anticipation of the disclosure is a sign of leakage of information to the market. It could even indicate the presence of insider trading. Under the assumption of market efficiency, no anticipation of or overreaction to events is expected.

Hypothesis 2 (null): Voluntary disclosures are unanticipated events and fully recognised when issued.

However, prior to 1994, firms had the choice of genuinely disclosing PSI publicly or disclosing PSI first in private and later in public, thus breaching the later regulation. The occurrence of anticipation is documented by cases reported by Holland (1997a:9). The regulation itself recognises this specific problem: specifically in part 7, explanatory documentation on dissemination of PSI (LSE, 1996) it is stated “...*companies sometimes attempt to justify this practice [that price-sensitive information seeps into the public domain] ’as a means of allowing a share price to adjust gradually to unexpected information. However, this is unfair to shareholders and potential investors and is unlikely to change the long term impact of the information.’*”

As a result, we argue that although neither anticipation nor overreaction should exist after 1994, the anticipation and/or overreaction prior to 1994 existed and exceeded that of the post-1994 period. We therefore test to see if the extent of share-price anticipation decreased after 1994.

Hypothesis 3 (null): The change in regulation had no impact on the share-price anticipation of voluntary disclosure in the face of material bad news.

Alternatively, if the regulation achieved the desired effect, a decrease in anticipation and less overreaction is predicted for disclosures after 1994.

Impact of regulatory change on information asymmetry and bid-ask spread

Anticipation and overreaction to voluntary disclosures are not desired as uninformed investors are at a disadvantage relative to investors, who benefit from quasi “insider” information. When price-sensitive information leaks to selected key market participants (analysts’ or financial institutions), information asymmetry is high. Information asymmetry is the adverse selection cost that faces the dealer, which together with order-processing costs and inventory holding costs determines the bid-ask spread (Callahan, Lee and Yohn, 1997:51). The dealer, knowing that the an informed investor will only trade when it is beneficial to do so, sets the bid-ask spread so that the expected gains from uninformed traders cover the expected losses from trading with informed investors. A sudden change in the bid-ask spread thus constitutes a measure of information asymmetry. Market Makers will widen the spread when (i) they believe that selected investors enjoy an information advantage relative to them, and (ii) before important announcements where the timing but not the content of the announcement is known. See Callahan, Lee and Yohn (1997:51f), for a review of the empirical evidence.

Assume now two events A and B which both contain the same amount of new information. Assume

further that the timing of event type A is known, whereas the occurrence and the timing of event type B is unknown. Under these circumstances, market makers will widen the bid-ask spread in anticipation of event type A to cover themselves for the possibility that event type A contains new information and that some traders have privileged access to the information. In the case of an event of type B, the bid-ask spread will be stable before the unanticipated event. It is argued here that if voluntary disclosures are unanticipated events of type B, the bid-ask spread prior to the “unanticipated disclosure” is expected to be lower than the spread prior to a comparable but anticipated event, i.e. the subsequent “anticipated earnings announcement”, which is an event of type A. Thus it is argued here that the bid-ask spread, as a proxy for information asymmetry, can be used to detect stock market anticipation of a supposedly unexpected event, in the case of this study the voluntary disclosure of material bad news. The following null hypothesis is proposed:

Hypothesis 4 (null): Given no anticipation, the bid-ask spread prior to voluntary disclosures is lower than the bid-ask spread around the following earnings announcement.

Alternatively, if anticipation is present, the bid-ask spread prior to voluntary disclosures is expected to equal or exceed the bid-ask spread around the following earnings announcement. This hypothesis also allows for an investigation of the effectiveness of the regulatory change.

3.2 Data sources and sample selection

The aim of the sample selection was to select firms with material bad news. Following Kasznik and Lev (1995:117), material bad news was defined as a shortfall of earnings relative to market expectations of at least one percent of share price at the beginning of the period. Analysts’ earnings forecasts were collected from the 1998 International IBES database. Earnings announcement dates were also collected from IBES International and checked against the EXTEL Financial database. Share price data was collected from Datastream.

The minimum data required for each firm-year observation were: current and prior year earnings (X_t, X_{t-1}) recorded in IBES; Share-price for the 365 days before through to 180 days after the EXTEL full year earnings announcement date; and at least one IBES analyst forecast available in the 6th months before the period t IBES full year earnings announcement date.

The sample was selected by first ranking all FTSE traded shares by their unexpected earnings surprise, relative to analysts’ forecasts, in the second half of the financial years 1992, 1993 and 1995, through the first half

of 1998. The unexpected earnings surprise, also referred to as analysts' forecast error, is calculated using IBES earnings, the average IBES analysts forecasts in the 6th months and the share price at the beginning of the 6th months before the IBES earnings announcement are used.

The earnings surprise, also referred to as the forecast error, is measured as the difference between the mean analyst forecast for period t issued in the sixth calendar month before the IBES period t earnings announcement date and IBES period t reported earnings X_{it} . It measures the unexpected news for each firm as the difference between the market expectations and realised earnings. It is defined as follows:

$$FE_{it} = \frac{F_{it-6m}^t - X_{it}}{p_{it-6m}} \quad (1)$$

where F_{it-6m}^t denotes the mean analysts' forecast for period t earnings in the 6th month before the period t full-year earnings announcement. p_{it-6m} denotes firm i 's share price at the beginning of the 6th month before period t earnings are reported.

The analysts' forecasts are chosen relative to the IBES earnings announcement date. This is due to the fact that Interim earnings announcement dates are not available on IBES. Preliminary tests indicated that IBES earnings announcement dates can be delayed which would result in a late analyst forecasts chosen for the sample selection.² (In some cases IBES earnings announcement dates are found to be issued 12 month after the financial year end.) As a result, firm-year observations where reported earnings were entered into IBES more than 5 months later than the financial year-end are excluded in order to ensure that the analysts forecasts are genuinely issued in the second half of the financial year. Firm year observations which are not covered by the EXTEL database and firm years where quarterly results are announced are excluded. Thus all firms with negative surprises larger than one percent of their stock price were included in the sample. This yielded 455 firm years observations.

Firm year observations where important events on or in the 21 trading day period around the earnings-announcement date occur (mergers, control changes) were further eliminated from the sample. 62 observations were excluded for these reasons.

² A small difference between the databases is expected, as IBE/ enters the data when it receives them (through mail or electronically) whereas the EXTEL dates correspond to the date a company makes a public disclosure.

A check of the data was performed with respect to the accuracy of the IBES earnings per share numbers, which were compared with the EXTEL earnings per share numbers (obtained from EXTEL news cards) and I/B/ES analysts' forecasts in the 6th month prior to the IBES earnings announcement date. This visual check was aimed at detecting observations with errors in the data entry on part of the IBES or EXTEL databases. A total of 24 observations were excluded for such reasons. The data problems encountered can be described by reference to the example of Refuge Group. The following data is reported in the databases: IBES EPS 9.37p. (20.4.93), EXTEL EPS 38.13p, IBES analyst forecast in the 6th month preceding IBES earnings announcement 30p. Following the observation of the difference between I/BE/S and EXTEL earnings, IBES has been contacted. According to telephone conversations and email correspondence with IBES officials, the difference is due to data error. IBES officials claimed that mainly the historical CD-ROM is affected, and agreed to correct updated versions of the database.³

[Insert Table 1 here]

The final sample consists of 369 observations of which 148 are the pre 1994 period and 221 are in the post 1994 period.

3.1 Impact of regulatory change on frequency and market response to UK profit warnings

Impact of regulatory change on frequency, type and nature of voluntary disclosures

Table 2 Panel A reports the number of non-disclosing and voluntary-disclosing firms for the period before and after 1994 when the regulatory environment regarding the dissemination of price-sensitive information changed. After 1994, approximately half the sample observations issued a profit warning whereas only 20% of firms issued a voluntary earnings disclosure ("profit warning") in the pre-1994 period when facing a large negative earnings surprise. The difference is statistically significant at the one percent significance level using a standard chi-square test. The null of hypothesis 1 is therefore rejected. The change in regulation had a significant impact on the frequency of voluntary disclosure in the event of material bad news.

The observed change in disclosure frequency is consistent with the intentions of the regulatory change to

³ Further details of the problems we encountered are available on request. We understand that these problems have been corrected by IBES subsequent to our correspondence.

bring voluntary disclosures into the public domain. The findings indicate that one of the aims of the regulations has been achieved.

Table 2 Panel B and Table 2 Panel C report descriptive statistics on the nature and type of the voluntary disclosure prior and after the release of the Guidance Notes. Table 2 Panel B reports a shift in the content of voluntary disclosures from being of a predominantly qualitative nature to disclosures of a more quantitative nature. The shift towards more quantitative disclosure is statistically significant at the one percent significance level using a chi-square test. Thus the change in regulation appears to be present in the information content of voluntary disclosures. The information content of voluntary disclosure increased.

At the same time, as reported in Panel C, the wording of voluntary disclosure changed. Post-regulation, more voluntary disclosure statements give reference to “expectations not being met” as cause for the issue of disclosure. At the same time, fewer firms issued statements motivating disclosure due to a change in underlying profitability relative to prior years earnings. It seems fairly clear that, in the UK, it is the gap between insider management and outsider analysts’ expectations that is the main driver of warnings.

Table 2 Panel D reports the timing of voluntary earnings disclosure relative to financial year-end in calendar days. Since the change in regulation, voluntary disclosures are issued earlier in the financial year. Specifically, whereas voluntary disclosures are issued on average 2 weeks before the financial year-end before 1994, voluntary disclosures are issued 5 weeks before the financial-year end after 1994. However, with respect to the median number of days a voluntary disclosure is issued relative to the financial year-end, no material difference is found. Thus the evidence indicates that the change in regulation had a small impact on the timing of the disclosure relative to the financial year-end. Voluntary disclosures are issued around 3 weeks before the financial year-end. The timing of the voluntary disclosure appears consistent with the time when one would expect management to become informed about unexpected bad news.

[Insert Table 2 here]

Overall, there is evidence that the reported changes in the nature and type of the voluntary disclosures are consistent with the intentions of the regulatory change. There is evidence that the regulatory change resulted in a change in the nature and type of the voluntary disclosure, increasing both the quality and precision of voluntary disclosures.

Market reaction to voluntary disclosure

The size of the share price reaction to the voluntary disclosure event in the two time periods is exhibited graphically in Figure 1.

[insert Figure 1 here]

The average abnormal return on the day of the profit warning is very large (of the order -20%) both pre- and post 1994. The figure also suggests a higher level of leakage prior to 1994, and a higher level of post announcement volatility pre-1994. These issues are now examined in more detail.

Impact of regulatory change on anticipation of and overreaction to voluntary disclosures

Table 3 reports market-model abnormal returns on and around the voluntary earnings disclosure event for the pre-1994 and post-1994 sub-samples. Abnormal returns for nine trading days, four before, four after the event, and the event day abnormal return, are displayed in Table 6. They are representative for the abnormal performance over the whole test period that spans three calendar weeks around the disclosure event.

With respect to anticipation of the disclosure event, significant negative abnormal returns of on average -2.07% and -0.51% are reported on days 1 ($t-1$) and 2 ($t-1$) before the disclosure event in the pre-1994 period. This indicates that the share price effect of the bad news surprise was partially anticipated in the market, rejecting the null of hypothesis 2. The evidence indicates that voluntary disclosures prior to 1994 are partially anticipated events. Looking at individual observations, an abnormal return in excess of -10% is reported in 12% of observations, whereas no abnormal return in excess of $+10\%$ is found. In a further 10% of cases, an abnormal return exceeding -3% is reported. A data check reveals that all sample observations exhibit an abnormal return of similar or higher (more negative) magnitude on the event disclosure date. The evidence for anticipation is not due to data problems relating to the timing of data entry. The individual abnormal returns confirm the rejection of the null in favour of widespread anticipation of voluntary disclosures in the period prior to 1994. This detailed analysis confirms the above rejection of the null of hypothesis 2 and suggests the existence of “widespread” anticipation of voluntary disclosure by the market prior to 1994. The evidence confirms the existence of

anticipation. It also gives a magnitude to the degree to which the disclosure of sensitive information to selected market participants influenced market prices. It can be argued that insider trading occurred in the cases where substantial anticipation is reported.

After the implementation of the new regulation (i.e. in the post-1994 period), the average abnormal return on the day before the disclosure event is negative at -0.86% but insignificantly different from zero. On all other days prior to the disclosure the abnormal return is closer to zero. On the basis of individual observations' abnormal returns, an abnormal return in excess of -10% is reported in one case whereas no abnormal return in excess of +10% is found. An abnormal return exceeding -3% (+3%) is reported for 10% (5%) of observations. This indicates that anticipation of the voluntary disclosure event can still exist in individual cases, it is however not a widespread phenomenon. The anticipation is on average insignificant. The change in regulation thus resulted in a material reduction in the severance and the occurrence of anticipation of voluntary earnings disclosures.

With respect to over/under reaction to the voluntary earnings disclosures, the average abnormal returns are insignificantly different from zero following the disclosure event for both daily and cumulated abnormal return measures. Neither prior to nor following the release of the PSI regulation were any signs of overreaction found. The null of hypothesis 2 is not rejected. Looking at individual observations, large positive and negative abnormal returns are reported in a number of cases before and after the change in regulation. Thus in selected cases, the information from the voluntary statement was not fully reflected in market prices on the day of the disclosure. However no asymmetric reaction, giving evidence for over/under reaction is found. Looking at the standard deviation of the abnormal returns, a reduction in the standard deviation from 11.02% to 6.06% is reported in the post regulation period relative to the earlier period. Under the assumption that the share price reaction will be quicker with quantitative information relative to qualitative information, the prior evidence that voluntary statements have become more quantitative in nature can account for the reported decrease in returns variance.

[insert Table 3 here]

The bid-ask spread to voluntary disclosures and earnings announcements

Table 4 reports the end of trading day bid-ask spread as a percentage of the asking price for the five trading days before the voluntary disclosure event and the following full year earnings announcement for the pre- and post-regulation sample. Looking first at the pre-1994 bid-ask spread prior to the voluntary disclosure, an average bid-ask spread of 4.68% is reported. This compares to the average spread of 4.02% over the five trading days before the earnings announcement that followed the voluntary earnings disclosure. Thus the average spread prior to the supposedly “unanticipated” voluntary announcement exceeds the average spread prior to the earnings announcement where the timing of the disclosure is anticipated. The opposite is the case for the post-1994 spread prior to the event. The bid-ask spread in the week before the voluntary disclosure is lower (3.85%) than the spread before the subsequent earnings announcement (5.27%). Taking the size of the spread as an indication of the extent of information asymmetry in the market (measuring the market makers expectation of losses to informed investors), the degree of information asymmetry prior to the voluntary disclosure exceeds the information asymmetry prior to the earnings announcement in the pre-1994 period. The opposite is the case in the post-1994 period. The evidence thus suggests that the voluntary statements in the pre-1994 period were events that were partially anticipated. Hypothesis 4 is rejected for the pre-1994 sample.

The evidence is consistent with the cases of insider trading and selective information flow reported by Holland and Stoner (1996:297) where firms first released price-sensitive information to selected market participants before issuing a voluntary public statement.

[insert Table 4 here]

Summarising, the evidence suggests that the change in regulation in 1994 had the desired impact on the frequency of and market reaction to voluntary disclosure events. Investors benefited from both an increase in disclosure frequency and an improvement in market efficiency due to the decrease in anticipation of the voluntary disclosure event. In other words, firms are both more likely to release information when facing a large negative earnings surprise, and to release this information publicly to all investors. A much larger number of voluntary disclosures are now issued in the public domain. Anticipation, which was a widespread phenomenon before the introduction of the new rules, decreased sharply in both its severity and likelihood of occurrence.

Voluntary earnings disclosures after 1994 can be characterised as genuinely unexpected and unanticipated events. The analysis of the bid-ask spread reveals a decrease in information asymmetry before the disclosure event since the change in regulation and confirms the above findings.

However, the question why only 50% of firms issue a voluntary statement about earnings when facing a large negative earnings surprise remains unanswered. It is consistent with US evidence (Kasznik and Lev, 1995:128) which finds that only 21% of firms issue earnings or sales forecasts when facing bad news in the fourth quarter of the financial year and 48% of firm disclose non-operating information only or no-disclosure (see Table 3, Kasznik and Lev, 1995:128). The existence of no-disclosure can therefore not be simply attributed to institutional differences between the UK and US.

4 The Relation Between Earnings Surprise Permanence and the Decision to Warn

A firm's management has two disclosure options when facing material bad news - disclosure and non-disclosure. In an efficient and perfect capital market, the investor reaction to the two disclosure policies should be the same. Thus the share price reaction to voluntarily disclosed news is hypothesised to be identical to the share price reaction of news where disclosure occurs with the mandatory disclosure, i.e. the earnings announcement. In other words, the share price reaction is independent of the timing when the news becomes public. The following null hypothesis is proposed:

Hypothesis 5 (null): In an efficient and perfect capital market, investors' reaction is independent of disclosure choice.

Kasznik and Lev (1995:128) test the above hypothesis with the following regression model.

$$MAR_{it} = a_1 + a_2 D_{it} + b_1 FE_{it} + b_2 FE_{it} D_{it} + b_3 MV_{it} + u_{it} \quad (2)$$

Where, D_{it} is the disclosure dummy, 1 for disclosing firms and 0 for non-disclosing firms, FE_{it} measures the beginning-of-period price deflated unexpected earnings surprise as defined in equation (1) and MV_{it} is defined as the log of the market value at the beginning of the period. MAR_{it} represents the market adjusted return. Three different runs of the model were reported corresponding to three different returns windows. The "long window" starts 31 days after the 3rd quarter earnings announcement and ends two trading days after the fourth quarter earnings announcement. All of the warnings issued by firms fell inside this window. The

“combined window” consists of the five days around the warning (i.e. -2 , to $+2$) plus the five days around the fourth quarter earnings announcement, and the “short window” is just the five days around the fourth quarter earnings announcement. The first three independent variables in this model reflect the voluntary disclosure, whereas the market value variable is included to mitigate any potential missing variables problem (e.g., the warning variable may be statistically significant because it proxies for firm size).

For the “combined window”, the earnings surprise coefficient is positive and significant and the disclosure dummy is negative and statistically significant. Thus the act of warning is associated with a lower (negative) return. The pre-emption effect (the warning pre-empts the bad news surprise) is confirmed on the “short window” analysis. For the “combined window”, the average (median) market adjusted return for warning firms is statistically significantly different from no-warning firms at -6% (-7%) and -2.0% (-2.4%) respectively. Both the regression and the matched sample analysis suggest a more negative market reaction for warning firms than for non-warning firms.

Kasznik and Lev (1995:130) find this result counterintuitive. If a warning provides partial information about the subsequent earning surprise, the disclosure of a warning should be rewarded by investors. This argument arises from the regulatory environment. If the rules advocate the issuance of a voluntary warning statement, investors are expected to reward the firm for compliance with the rules, i.e. a lower full period return is expected. The prediction is similar if the act of disclosure conveys management quality, or as argued in the US if it can deter litigation (Skinner, 1995:40).

Kasznik and Lev (1995:132) advance the following argument to account for their unexpected finding. Management issues a warning when they perceive the forthcoming earnings disappointment to be permanent, while transitory disappointments go largely without warning. As a result, unexpected bad news is more likely to be disclosed if the earnings change is permanent, whereas transitory earnings changes go without warning. Under this scenario, the economic impact of disclosed earnings surprises (measured by the share price reaction) exceeds the impact of earnings surprises, which are not disclosed via voluntary announcements. Under this scenario, the investor reaction to voluntarily disclosed bad news is expected to be more negative relative to non-disclosed bad news. Empirically, Kasznik and Lev (1995:132) perform a test where they match warning and no-warning firms by two variables, the extent of the earnings surprise FE_{it} and firm size. As reported in Table 5

below, for the matched sample an average (median) abnormal return of -5.3% (-8.6%) and -3.3% (-5.9%) is reported for warning firms and non-warning firms respectively. The difference in the mean between warning and non-warning firms is not statistically significant using a two sample t-test and Wilcoxon Rank-Sum test for identical populations. Kasznik and Lev (1995:132) subsequently collect data on the permanence in the change in earnings. They use the analyst's revision of one-year-ahead analysts' forecasts as a measure for the permanence of the earnings change. Specifically, the revision of one-period ahead forecasts is measured as the end-of-period price deflated difference between the beginning of period forecast minus the first forecast after the fully earned announcement. For warning firms, they report a mean (median) one-period-ahead forecast revision of -6.7% (-3.3%) for warning firms and -2.7% (-1.2%) for non-warning firms. The difference in the mean is significant at the 7% level using a standard t-test and at the 3% level using a Wilcoxon test. The authors conclude that the difference in the market reaction to warning and no-warnings is due to the market's perception that the earnings change of warning firms is permanent. The empirical evidence suggests that voluntary disclosures tend to be issued when the earnings change is perceived to be permanent. In other words, the likelihood of disclosure is greater when the material bad news surprise is perceived to be permanent whereas transitory earnings changes remain without voluntary disclosure.

Summarising, Kasznik and Lev (1995:132) demonstrate that when controlling for firm size and the size of the current period forecast error, the permanence measure differs for disclosing and non-disclosing firms. Their evidence suggests that bad news tend to be accompanied by a voluntary disclosure when the earnings change is perceived to be permanent. The empirical evidence raises the question whether disclosure depends solely on permanence of earnings change. This question is evaluated below.

[insert Table 5 here]

4.1 Does disclosure depend only on the permanence of the earnings change?

Returning to Table 5, the empirical evidence (Kasznik and Lev, 1995:131f.) shows that when controlling for the size of the earnings surprise, the market reaction to disclosure exceeds the market reaction to non-disclosure by a factor of two whereas the permanence of disclosing firms exceeds the permanence measure of non-disclosure by a factor of three. Two critical points can be raised about the Kasznik and Lev (1995:132) research design.

The first point is of formal nature and regards the difference in the sample size. The permanence measure is available for 54 observations, whereas the other variables (earnings surprise and market reaction) are available for the full matched sample. The second point relates to the matching criteria used to match disclosing and non-disclosing firms. We propose to change the matching process so that warning and no-warning firms are matched on the basis of the market reaction to the bad news. By holding the investor reaction to bad news constant, we are able to investigate whether the disclosure decision depends solely on the permanence of the earnings change. In other words, if the disclosure decision depends solely on the permanence of the earnings change, news of similar impact should have a similar earnings surprise measure but diverging degree of permanence.

This alteration allows for an investigation of whether the disclosure choice depends solely on the size (and economic impact) of the bad news or not. We thus address the issue of whether some of the non-disclosing firms should have disclosed their material news publicly. Under the 1994 regulation on the dissemination of price-sensitive information, material price-sensitive information must be released publicly. It is argued that news with similar economic effect (measured by price) should be disclosed. This is an investigation of the regulations' effectiveness in bringing the disclosure of price sensitive information into the public domain.

4.2 Research design and variable definitions

This section reports the results of two tests. First we investigate investors' reaction to disclosure focusing specifically on hypothesis 5. Then we investigate whether the disclosure choice depends only on the size (and economic impact) of the bad news. This test is performed using a sample of disclosing and non-disclosing firms matched by the investor's reaction to the news.

The first test, the investigation of the investor reaction to disclosure, is performed using the regression model of Kasznik and Lev (1995:129) where market-adjusted returns from three return windows are regressed on four independent variables:

$$MAR_{it} = a_1 + a_2 D_{it} + b_1 FE_{it} + b_2 FE_{it} D_{it} + b_3 MV_{it} + u_{it} \quad (3)$$

Where, D_{it} is the disclosure dummy, 1 for disclosing firms and 0 for non-disclosing firms, FE_{it} measures the beginning-of-period price deflated unexpected earnings surprise as defined in equation (1) and

MV_{it} is defined as the log of the market value at the beginning of the period. MAR_{it} is the market adjusted return from three windows. The first three variables reflect the voluntary disclosure. The market value variable is included to mitigate the missing variable problem (e.g., the warning variable may be statistically significant because it is a proxy for firm size). The three return windows are defined as follows:

- (i) The “long window” spans from the end of the 6th month before the full-year earnings announcement date until the first trading day after the earnings announcement. This window encompasses both voluntary disclosures made by the firm and the full-year earnings announcement.
- (ii) The “combined” or “earnings + warning window” includes the trading day before and after the full-year earnings plus the voluntary disclosure event. For non-warning firms, the average three trading day return over the “long window” excluding the earnings announcement return was added. The combined window for each sample firm is of six trading-days length.
- (iii) The “short window” or earning announcement window includes the trading day around the full-year earnings announcement.

For this test, a measure of the economic impact of the unexpected bad news earnings surprise is needed. Cumulating abnormal returns over the “long window” leads to CAR’s, which can exceed -100%. For example a share price decline from 100 to 50 to 25 results in a cumulated return of -100% whereas a decline from 100 to 20 to 25 results in a cumulated return of -55%. At the same time the value of the company decreased by 75%. As a result, the “long window” return is defined as the buy and hold return. Specifically the market-adjusted buy and hold return is employed as an abnormal performance measure for the economic impact of unexpected earnings surprises.

Firm size (MV_{it}) is measured as the Datastream market capitalisation (referred to also as market value) at the beginning of the 6th month prior to the period t full-year earnings announcement. The variable $Size_{it}$ denotes the log of MV_{it} . It is used in regressions and logit model estimations.

The effect of the bad news on current period earnings FE_{it} is measured as the beginning-of-period price deflated unexpected earnings surprise (the difference between the mean analyst forecast in the 6th month

preceding the full-year earnings announcement) as defined in equation (1).⁴ This variable represents a measure of the size of the earnings surprise and is used for the sample selection.

In order to explain differences in the economic impact of disclosed and undisclosed earnings surprises, one further variable is needed, which measures the effect of the bad news on future periods' earnings i.e. the permanence of the earnings surprise. As argued by Kasznik and Lev (1995:132) the revisions of analysts' earnings forecasts of future period's earnings represent a good proxy for the investors' perception of the permanence of the unexpected earnings change. Analysts' forecasts for one-period ahead earnings are available on the IBES database. Analysts' forecasts for future periods' are available in the form of growth forecasts, however this data is limited to a small number of firms. Following, the analysts' forecasts for the one-period ahead reported earnings are used to construct a measure of the permanence of the earnings change.

$$PERM_{it} = \frac{F_{t,int}^{t+1} - F_{t,res}^{t+1}}{P_{t-6m}} \quad (4)$$

Where, $F_{t,int}^{t+1}$ is the first one-period-ahead analysts' forecast available after period t the EXTEL interim earnings announcement date and $F_{t,res}^{t+1}$ as the first one-period-ahead analysts' forecast after the EXTEL period t full-year earnings announcement. P_{t-6m} is the share price in the beginning of the 6th month before the IBES full-year earnings announcement date.

The second test of this section is based on a matched sample of disclosing and non-disclosing firms. Specifically, disclosing and non-disclosing firms are matched by the impact of the bad news, measured by the "long window" buy-and-hold abnormal return. The matching procedure has been performed using the market value and the "long window" abnormal returns measure. It follows a two-step process:

1. For each of the disclosing firms, all non-disclosing firms are searched which fulfil two criteria, (i) similar size and (ii) similar abnormal return. Specifically each non-disclosing firm's market value must lie within $\pm 30\%$ of the disclosing firm's market value and its "long window" abnormal return must lie within $\pm 15\%$ of the disclosing firms' "long window" abnormal return. Thus some disclosing firms have

⁴ In the investigation of the nature of analysts' forecasts, this measure is also referred to as the analysts' forecast error.

zero, others multiple “potentially” matching non-disclosing observations.

2. For each disclosing observation, a non-disclosing observation with the smallest absolute return difference was chosen from the “potentially” matching observations. No non-disclosing firms were selected twice.

4.3 Sample definition, descriptive statistics

For 15 observations, the $PERM_{it}$ variable is not available, furthermore nine observations in the pre-1994 sample where the FE_{it} or $PERM_{it}$ variable exceeds -100% of share price have been excluded. The sample thus consists of 345 observations of which 137 (208) are in the pre (post) 1994 period.

In Table 6, the descriptive statistics for the pre-1994 and post 1994 samples of disclosing and non-disclosing firms are exhibited. The variables given are the current-period earnings surprise (FE_{it}), the revision of one-period ahead analysts’ forecasts ($PERM_{it}$), the market value (MV_{it}) and “short window”, “combined window” and “long window” buy-and-hold market adjusted returns (MAR_{it}).

Looking at the pre-1994 period, Table 6 Panel A, bad news that is announced publicly has a more negative economic impact with -32.30% (pre-1994) than undisclosed bad news surprises to which on average a positive impact of a market-adjusted abnormal return of 1.29% is reported. Taking the size of the bad news and the permanence measure into account, the lower impact of bad news to non-disclosure is associated with an on average similar current- forecast error -6.35% vs. -6.67%. A difference is reported on the revisions of one-period ahead analysts’ forecast at -1.47% for non-disclosing firms vs. 3.02% for disclosing firms respectively.

Table 6 Panel B, reports the results of the post 1994 sample. News that is announced publicly has a more negative economic impact with -32.30% than undisclosed bad news surprises where a -12.60% abnormal return is reported. Taking the size of the bad news and the permanence measure into account, the lower impact of bad news to non-disclosure is associated with lower current- forecast error -3.96% vs. -6.08% and lower revisions of one-period ahead analysts forecast at -2.15% vs. 4.74% respectively. This preliminary analysis suggests that the management decision of disclosure is dependent on the size of the bad news earnings surprise and how the market perceives its impact on next periods’ earnings.

[Table 6 here]

Table 7 presents pooled cross-sectional regression results for three return windows on a disclosure dummy, the deflated unexpected earnings surprise, a dummy thereof and firm size. The findings are consistent with the descriptive statistics from Table 6. For the pre-1994 period, the intercept is insignificant for all return windows. Thus undisclosed bad news had no impact on the full period or the earnings announcement abnormal return. The disclosure dummy is negative and significant for the “long window” and the “combined window” regressions at -0.34 and -0.24 respectively and insignificant for the “short window”. The significant disclosure dummy from the “long window” regression indicates that the impact of bad news is higher when an additional voluntary disclosure is made. The “combined window” disclosure dummy indicates that the voluntary disclosure event is associated with a large significant negative abnormal return. The comparison between the disclosure dummy of the “combined window” and the “short window” indicates that the earnings announcement is not associated with a significant abnormal return.

For the post-1994 period regression, the intercept is significant and negative at -0.21 for the “long window”. Thus in the post-1994 period, bad news with and without voluntary disclosure have a material impact on firm value. The intercept indicates an average abnormal buy and hold return of -21%, which corresponds to a decrease in the market adjusted value of a firm of one fifth. Both disclosed and undisclosed bad news (i.e. unexpected earnings surprises) constitute price-sensitive information. For the “combined” and the “short window”, the intercept is insignificant. Together with the evidence from the prior period, this suggests that investors’ reaction to undisclosed bad news largely occurs before the full-year earnings announcement. Looking at the disclosure dummy, the impact of disclosed news on abnormal returns significantly exceeds the impact of undisclosed bad news. The bad news coefficient is -0.40 (the sum of the coefficients -0.21 and -0.19). Thus as in the pre-1994 period, disclosed bad news results in a more negative buy-and-hold abnormal return than undisclosed bad news. Hypothesis 5 is rejected for both the pre- and the post 1994 periods.

[insert Table 7 here]

Table 8 reports descriptive statistics for observations from the post-1994 disclosure and non-disclosure samples with matching impact of bad news and firm size. The matched firms experience an average (median) unexpected earnings surprise of -2.77% (-1.91%) for disclosing firms and -4.70% (-2.39%) for non-disclosing firms and an permanence measure of -3.36% (-2.56%) and -3.15% (-2.69%) respectively. The differences are not

statistically significant at the median; the size of the current period earnings surprise is statistically different at the mean. The evidence indicates that a firms' disclosure decision is not solely dependent on the size of the bad news impact on current period and one-period-ahead earnings. For a large proportion of the sample, the disclosed and undisclosed bad news of similar impact are equal in their effect on current period earnings and permanence.

Looking at the non-disclosing firms' abnormal return on the earnings announcement date, an average abnormal return of -2.63% is noted, whereas for disclosing firms, a positive abnormal return of on average 2.25% is found. This indicates that on average, the bad news is disseminated gradually over the second half of the financial year.

[insert Table 8 here]

The evidence that some managers warn and some do not warn, when faced with bad news of similar economic impact, unexpected earnings surprise and permanent effect, suggests that other factors may influence the disclosure decision. The regulation advocates the timely release of all price-sensitive information. It appears however that a large proportion of non-disclosures are due to factors not addressed by the regulation.

The evidence of this analysis thus suggests that the regulation on the release of price sensitive information, although increasing the likelihood of disclosure, fails to bring timely disclosure of *all* material bad news in the public domain. A large number of firms, which should have issued a statement voluntarily, abstain from the recommended best practice. Factors other than the size of the earnings surprise, the permanence of the earnings change or the economic impact of news must influence the disclosure decision. This is investigated in the next section.

5 On the influence of agency costs on management's disclosure decision

The purpose of this section is to investigate the influence of other factors that influence the probability of profit warning disclosures in the presence of a negative earnings surprise. Specifically we test for the influence of agency cost variables on the warning decision, paying special attention to the potential for conflicts of interest between shareholders and creditors, and between corporate insiders and external shareholders. There is a large established literature that documents the influence of agency cost variables on accounting choices (Watts and Zimmerman (1986,1990) review the literature up to 1990 and Fields et al (2001) reviews the more recent

literature). In this section we consider how the presence of agency costs might affect the motivation of manager's to issue profit warnings.

In the absence of agency costs managers would simply maximise the combined wealth of shareholders and bondholders (Fama, 1978). In practice agency costs are optimised through a variety of costly control mechanisms i.e. monitoring by shareholders, monitoring through the board of directors, monitoring via the market for corporate control (merger, takeover, etc.), and costly incentive mechanisms such as executive stock options. In the presence of agency costs management opportunism will not be completely eliminated. Rather monitoring and control costs will be incurred up to the point at which the marginal return on the marginal unit of monitoring and control costs is equal to the marginal benefit to investors.

Similarly debtholder-shareholder conflict is optimised through a variety of control and monitoring mechanisms. In addition to the mechanism already outlined, debt covenants of various kinds may be used to give further protection to debtholders (see Smith and Warner, 1986). However, all such control mechanisms are incomplete, as not all possible outcomes can be considered and anticipated at the time of the contract. In the presence of incomplete contracts, management may be able to gain an ex-post advantage by deviating from the contract in order to improve its own payoff (or possibly the payoff of shareholders at the expense of bondholders⁵). Control mechanisms and contracts constitute a middle way between over-restricting management actions and the cost of monitoring. Optimally, the marginal benefit of control and monitoring mechanisms should equal the marginal costs.

The decision to issue a profit warning has the potential to influence the distribution of company value between its various stakeholders, because it alters the timing of the release of bad news. In thinking about conflicts of interest in relation to profit warnings one needs to consider who gains, and who loses from a delay in the recognition of bad news.

5.1 Bondholder-Shareholder Conflict

When a firm faces financial distress, the likelihood of shareholder-bondholder conflict increases. Smith and Warner (1979) describe several examples of bondholder-stockholder conflict. Five capital structure games,

⁵ Rational bondholders will take such opportunism into account at the time the contract is agreed.

the “cash in and run” game, the “bait and switch” game, the “asset substitution” or “risk shifting” game and the “refusing to contribute capital” game are reviewed below.

- (i) When a firm pays out a dividend, its market value decreases by less than the total amount of dividend paid. Dividend payments reduce the funds potentially available to bondholders, and therefore increase bondholder risk. This strategy is also known as “cash in and run” (Brealey and Myers, 2000).
- (ii) If bondholders buy a bond under the assumption of no further increase in debt, a further issuance in debt of the same or higher priority increases their risk and decreases the value of their claim. Generally, an increase in a firms’ gearing increases the risk of all debt, however the holders of old bonds suffer a loss of wealth as the increase of their bond’s risk was not priced in when the original bond was issued. Their wealth loss is the stockholders’ gain. Brealey and Myers (2000) refer to this strategy as the “bait and switch” game.
- (iii) Risk shifting arises when a firm unexpectedly increases risk by committing free cash flows to higher risk projects. In this scenario, the equity value of the firm increases and the value of risky debt decreases. This game can reduce overall wealth if a firm takes on negative NPV projects. This game is most probable in times of financial distress where a highly risky project with a low probability of success might save the firm from bankruptcy.
- (iv) “Refusing to contribute equity capital” game is similar to the “cash in and run” described above. Imagine a firm in financial distress that comes across a good and safe investment opportunity (positive NPV), which does not directly save the firm but is a step in the right direction (Brealey and Myers, 2000). Assume further that the project requires a capital injection. Additional equity would reduce the likelihood of default and thus increase the value of the debt. The debt’s risk is reduced. Under this game, shareholders refuse to contribute new equity if too much or all of the benefits from the new capital would go to existing debtholders. This game theoretically affects all levered firms, it is most likely in times of financial distress when the bondholders would gain most from investments that increase a firms’ value.

The “playing for time” game applies particularly to times of financial distress. Then, debtholders would prefer to liquidate the firm, whereas shareholders would want to delay the liquidation as long as possible. This

capital structure game is closely related to the previous games, as during the delay other games would be played. (e.g. dividend payout). Generally stockholders of levered firms gain on behalf of bondholders when business risk (i.e. bankruptcy likelihood, financial distress) increases.

Reflecting on these five strategies, it is clear that all of them are more likely to arise in financial years characterised by high levels of bad news. Moreover, with the possible exception of strategy (iv) it is clear that these strategies will be more effective if the seriousness of the news can be hidden from bondholders long enough for the wealth transfer to take place e.g. time to pay the interim dividend, time to commit funds to a risky new venture, time to secure more borrowed funds, time to avoid liquidation calls. We therefore hypothesise that the state of financial distress can influence the disclosure decision.

In addition to reflecting the prior academic literature on the agency cost of debt, this hypothesis reflects concerns raised by UK practitioners who have suggested that a link between the disclosure decision and debt exists. Murdoch (1998) states “a profit warning could affect credit terms from suppliers, which in turn could have a huge impact on cash flows.” For example, the timing of the bad news disclosure can influence the credit terms of ongoing credit negotiations.

The London Stock Exchange regulations relating to profit warnings give management a certain leeway on the timing of the disclosure. Specifically the rules allow for a delay in disclosure as a result of ongoing negotiations and important developments. The LSE rules however do not specifically address how management decides when the bad news is certain so that a warning is necessary. Moreover the rules are designed to protect traders in the equity market, not third parties, such as bondholders. There is nothing in the LSE rules that could prevent a manager from withholding a profit warning if he/she felt that this was in the interest of the company’s shareholders.

Evidence from studies that investigate the *ex-ante* link between disclosure and debt suggests that firms benefit from high disclosure (and active disclosure stance) when issuing debt. Similarly firms with high disclosure ratings enjoy a lower cost of capital (i.e. cost of debt). The management disclosure stance is generally positive when issuing debt or increasing the firms’ gearing. Ex ante high disclosure leads to lower cost of debt.

In this study, the question of how management behaves when the firm experiences bad news is investigated. Specifically we are interested in how a firms’ debt position (financial position) influences the

management's disclosure stance when bad news arises. It is argued here that in a situation of financial distress (identified by a high level of *ex ante* debt interest payments relative to earnings), a delay of disclosure would open management a window, in which capital structure games could be played, i.e. wealth is transferred from bondholders to shareholders.

We test whether the existing potential financial difficulties influences the disclosure decision. It is hypothesised that capital structure constitutes an important factor in the management decision to delay the disclosure of material bad news. This provides evidence on the existence of capital structure games in a situation where theoretically, the existence of a bondholder-stockholder conflict should be greatest. Thus we propose the following null hypothesis regarding the link between the management disclosure decision and its financial position.

Hypothesis 6 (null): The decision to voluntarily disclose a warning is independent of a firms' financial position.

Alternatively, the likelihood of disclosure is expected to be negatively related to the firm's financial position, i.e. its interest cover. In other words if capital structure games are more likely to exist when firms face financial distress, then financial distress will have an adverse effect on disclosure likelihood.

5.2 Ownership structure and disclosure

In this section, the influence of ownership structure on disclosure is discussed. We ask how and to what extent ownership structure might influence the occurrence of voluntary disclosure.

Conflicts of interest can arise between three different types of ownership. The first is inside/managerial ownership. The second and third types refer to outside ownership, which takes two main forms, large institutional shareholdings or dispersed ownership.

If contracts between investors and managers were perfect and complete the timing of a profit warning would be largely a matter of indifference to either the managers or the shareholders (Dybvig and Zender, 1991). In reality contracts are neither perfect nor complete and a potential conflict of interest arises between existing shareholders and potential new shareholders when the management has value-relevant news. One possible approach to these matters is for managers to somehow pre-commit to immediately revealing any value relevant information (subject to commercial sensitivity issues). This approach ensures a fair game between existing shareholders and potential shareholders, and it is also one that will maximise the liquidity of the company's

stock. However evidence from research in corporate finance suggests that there is a tendency for corporate managers to deviate from a policy of complete neutrality with regard to the weightings they place on existing and potential shareholders interests. A number of empirical papers support the Myers and Majluf (1984) theory, which posits that managers tend to favour maximisation of existing shareholders wealth. If managers own share in the company then the tendency to favour existing shareholders over potential new shareholders is likely to be more pronounced.

This leads to the following null hypothesis:

Hypothesis 7 (null): Managerial ownership does not influence the disclosure decision.

The alternative hypothesis is that increased managerial ownership reduces the probability of a profit warning.

Institutional shareholders such as pension funds, insurance funds, and unit trusts dominate the ownership structures of UK quoted companies, and investment trusts. Frequently the largest shareholders of a UK company will be one or more of these institutional investors who act as financial intermediaries between households (the ultimate investors) and companies. There is a long standing, and on-going, debate, about the desirability or otherwise of the dominant position of institutional investors in UK company ownership structures. Some believe that institutional investors fulfil a vital governance role in the oversight of company strategy and the scrutiny of company management performance. Others have raised a number of concerns or fears about the UK system: cronyism arising from the fact that many of the fund managers share the same social circle as company managers (the “Oxbridge” effect), fears that institutional investors are given too easy access inside potentially value-relevant information, fears of herding behaviour due to the close knit nature of the institutional investment social and professional “elite”, and fears of short-termism (i.e. excessive focus on measures of current financial performance, such as earnings per share, as opposed to indicators of long term business strength, such as investment in intangible assets) arising from the aggressive index based performance targets faced by fund managers.

Large institutional shareholdings might increase the likelihood of voluntary disclosure by providing management with incentives to act in the interest of all shareholders. Since such shareholders are involved with many types of companies, and investing all the time, they may well be motivated to ensure a fair game in the

market as a whole. Institutional investors may also feel that they benefit from prompt disclosure because, after the public disclosure, management is legally allowed to discuss the price-sensitive information with investors. Thus they may be better able to influence the managerial response to the bad news in an open atmosphere.

On the other hand, if large shareholders believe they can gain from private early access to bad news, perhaps by trading on the information, they might prefer public warnings to be delayed. In the UK context, one aim of the regulatory change on profit warnings was to bring the disclosure of bad news into the public domain. Anecdotal evidence suggests (Holland and Stoner, 1996:297) that numerous cases of insider trading existed.

In general the attitude of institutional investors towards profit warnings will depend on the relative importance they attach to the long-term advantages of a liquid stock market and timely influence over the managerial response to bad news compared to the short term effects on their own performance measures and rewards.

From a theoretical perspective, no unidirectional prediction about the influence of institutional ownership on disclosure can be made as both advantages and disadvantages exist for such shareholders. This leads to the following null hypothesis:

Hypothesis 8 (null): Institutional ownership does not affect the probability of disclosure.

The alternative hypothesis is that institutional ownership affects the probability of disclosure.

Modelling the management's disclosure decision

The following factors are hypothesised to influence the disclosure decision:

Disclosure = F(magnitude of the bad news, permanence of the bad news, financial position, ownership structure, firm size, analyst following)

The magnitude of bad news is included to capture the idea that firms are more likely to disclose material items than less material items. The firms' financial position prior to current period bad news and ownership relate to Hypothesis 6, 7 and 8.

Firm size is included in the model as a control variable. Positive accounting theory has shown that large firms, for various political and regulatory reasons, have incentives to persuade the public and politicians that they are not making excessive profits (Watts and Zimmerman, 1986). Such firms might be expected to favour the

issuing of profit warnings. Issuing a profit warning extends the period of time during which political capital can be made from the relatively weak financial position.

It is well known that disclosure generally tends to be positively associated with analysts following, although the direction of causation between these two variables is far from clear, indeed they may be simultaneously determined. Analysts following is included here as a control variable. We would expect the probability of disclosure to be positively related to following. For reasons given below we also include market to book as an additional control variable.

5.3 Variable choice and measurement

In order to explain differences in the economic impact of disclosed and undisclosed earnings surprises, variables on permanence of the earnings change, ownership and financial performance (distress) are introduced. They are defined as follows:

Permanence of the earnings surprise:

As argued by Kasznik and Lev (1995:132) the revisions of analysts' earnings forecasts of future period's earnings represent a good proxy for the investors' perception of the permanence of the unexpected earnings change. Analysts' forecasts for one-period ahead earnings are available on the IBES database. Analysts' forecasts for future periods' are available in the form of growth forecasts, however this data is limited to a small number of firms. Following, the analysts' forecasts for the one-period ahead reported earnings are used to construct a measure of the permanence of the earnings change.

$$PERM_{it} = \frac{F_{t,int}^{t+1} - F_{t,res}^{t+1}}{P_{t-6m}} \quad (5)$$

Where $F_{t,int}^{t+1}$ is the first one-period-ahead analysts' forecast available after period t the EXTEL interim earnings announcement date and $F_{t,res}^{t+1}$ as the first one-period-ahead analysts' forecast after the EXTEL period t full-year earnings announcement. p_{t-6m} is the share price in the beginning of the 6th month before the IBES full-year earnings announcement date.

Financial Position and Ownership variables:

It is argued here that the interest cover represents the best available variable to capture the status of a firms' financial position. In particular we believe it provides a useful proxy for a state of financial distress prior to the current periods' unexpected earnings surprise and the likelihood of the existence of capital structure games. It measures the extent to which a firm is able to finance interest payments from current earnings and is closely related to other measures of a firms' financial position such as gearing and liquidity.

Two variables, the interest cover and the gearing variable were collected from the EXTEL database for the financial year of the unexpected earnings surprise and the prior financial year. These pre-disclosure variables capture the firms' financial position prior to the current periods' unexpected bad news.

The interest cover variable is defined by EXTEL as the total interest payable over the reported earnings before interest and tax. This variable takes a negative value when losses are reported, it can take extremely large values when the EBIT are close to zero.⁶ The extreme values have a distorting effect the mean value. In order to obtain a more representative measure of a firm's financial situation, the interest cover is defined as follows for the purpose of this study.

$$ICBT = 1 - \frac{EBIT - \text{Interest payment}}{EBIT} \quad (6)$$

The ICBT variable thus indicates the percentage of EBIT, which is used for interest payments. In the case of negative earnings, the variable is set at a value of one, indicating that all current periods' earnings are necessary to cover interest payments. A value of zero indicates a debt free firm.⁷

The gearing ratio (GEAR) is defined as the total borrowings plus preference capital divided by reserves plus ordinary capital plus other share capital plus minorities minus intangibles multiplied by 100. Similarly to the

⁶ This procedure also allows for the automatic correction of data errors. For example in the case of one observation an interest cover of -4540 (-4442) is reported in EXTEL. A crosscheck with the EXTEL balance sheet and result news-statement reveals that the comma in the interest number has been misplaced; the correct interest cover is -4.54.

⁷ Alternative measures have been considered. The empirical findings are stronger when allowing the interest cover variable to be negative. The statistics are presented in the Appendix. Furthermore the interest cover variable as obtained from the EXTEL database was considered; the results are similar, however the extreme observations add noise so that winsorising is required.

original interest cover variable, the gearing variable can take large positive values. In order to limit the effect of extreme observations, the gearing variable used is winsorised at +300%. For one observation, a negative value is reported which is due to a negative share capital.

The ICBT variable is available for all 219 observations from the post 1994 sample, the GEAR variable is available for 190 observations of which 102 observations are firms with voluntary disclosure and the remainder 88 observations are non-disclosing firms.

The data on ownership is published in the notes to the annual reports, which are included in the EXTEL database. In the annual report, a company publishes information on both inside (director) ownership and outside ownership. For inside ownership, the number of shares held by directors with an indication of whether directors hold the shares beneficially or non-beneficially (e.g. as a trustee) and number of options held by directors are available. For outside shareholders, the shareholdings exceeding 3% of share capital is given. Shareholdings of non-voting shares are available but are not considered in the analysis.

From this data, the following variables are constructed. The first two variables are a measure of inside ownership; the later three variables are a measure of outside ownership. NOSH is used as an abbreviation for “number of shares”.

The director’s shareholding is defined as the directors’ beneficial holding of shares as percentage of total shares in issue. Shares that directors hold as trustees or non-beneficial holdings are excluded.

$$DIR = \frac{\text{Beneficial NOSH}}{\text{NOSH in issue}} \quad (7)$$

The directors’ shareholding of options on ordinary shares is calculated as the number of options held by all directors over the number of ordinary shares in issue.

$$OPT = \frac{\text{No. of options}}{\text{NOSH in issue}} \quad (8)$$

The following variable is used as a measure of concentration of outside ownership. It is defined as the percentage shareholding of the three major outside shareholders. Again, shareholdings in preferential shares are not considered.

$$SH = \frac{\text{NOSH of three biggest (non - director) shareholders}}{\text{NOSH in issue}} \quad (9)$$

The data on ownership was available for all observations in the post-1994 sample. Pre-1994 data is not available on the EXTEL database.

Control variables:

Firm size is defined as in the prior chapter as $\log MV_{it}$ ($Size_{it}$) which is the log of the market value at the beginning of the 6th month before period t IBES full year earnings announcement respectively. The number of analysts' following a firm is defined as the number of analysts in IBES that published forecasts over the 12 month prior to period t full year earnings announcement. Market to Book is defined as the market value of equity divided by the book value of equity at the start/end of the financial year.

Kasznik and Lev (1995:124) included a dummy variable for regulated firms and a dummy variable for "high tech." firms. In the spirit of their approach we use Market to Book as a proxy for firms with substantial intangible assets. We do not separately identify utilities or regulated firms. We expect to find a positive relation between willingness to warn and market to book.

5.4 Sample definition and descriptive statistics

All variables except one-period-ahead analysts' forecast and gearing are available for the whole post-1994 sample of 219 observations. The one-period-ahead analysts' forecast is not available for 11 observations in the post-1994 period. Information on gearing is only available for 190 observations. The chose to use a sample of 208 observations, the gearing variable is included in the descriptive statistics for information only.

Table 9 reports the descriptive statistics of disclosing and non-disclosing firms in the post-1994 period for firm ownership, financial position, market value and analyst following. Statistics on the interest cover and gearing are presented for period t, the "bad news" period, and the prior period.

A firm's financial position at the end of the period preceding the unexpected bad news is described by two variables. Looking first at the interest cover, an interest cover of 78.32% and 62.82% is reported for disclosing and non-disclosing firms.⁸ The interest cover variable measures the earnings after interest payments as a percentage of EBIT. In other words, firms where management voluntarily disclose the bad news spend on

⁸ See equation (5).

average 22% (median 14%) of their EBIT on interest payments, whereas firms that subsequently abstain from voluntary disclosure spend 38% (median 22%) of their available EBIT on interest payment.⁹ The difference in the interest cover is statistically significant at the 1% level. The gearing ratio of disclosing firms stands 11% below their non-disclosing counterparts at 55% on average (median 39%). Both variables indicate that firms, which subsequently issue a voluntary disclosure, were in a financially better position at the beginning of the bad news period relative to firms where management abstains from the voluntary disclosure of current period bad news.

The analysis of the firms' ownership structure reveals that both disclosing and non-disclosing firms have a similar structure of outside ownership. Outside ownership falls between one quarter and one third depending on the measure used. With respect to managerial or inside beneficial ownership, management owns on average 12.21% of non-disclosing firms and 6.33% of disclosing firms. The difference is statistically significant at the 1% level. Looking at the median values the difference is reversed with 2.03% for disclosing and 1.57% for non-disclosing firms respectively. This suggests that a sub-group of non-disclosing firms with very large director shareholding exists. The mean (median) management holding of options on ordinary shares is 1.30% (0.91%) of share capital for non-disclosing firms and 1.03% (0.70%) of share capital for disclosing firms. These statistics are consistent with the view that the disclosure decision is influenced by management shareholding. The large difference between average and median values however suggests that the effect is most evident in firms where management holds a large part of a firm's equity capital.

Disclosing firms have an average following of 10 analysts compared to 9 analysts for non-disclosing firms. With respect to firm size, disclosing firms are smaller on average (£266 m.) relative to non-disclosing firms (£339 m.). However, the median disclosing firm is larger at £104 m. than the median non-disclosing firm at £52 m. The average size and analyst following of disclosing and non-disclosing firms are not statistically different.

With respect to differences in average values of the warning and non-warning subsamples, the difference in the year-ahead forecast error, the number of analysts' following and in the average interest cover are

⁹ The interest cover variable has been set to zero when EBIT is negative. This indicates that earnings covered zero percent of the interest payment.

statistically different at the 10% level, the long window abnormal return is statistically different at the 1% level. The difference in the mean value of the market to book variable for disclosing and non-disclosing firms is significant only for the matched sample.

[insert Table 9 here]

5.5 Results

Table 10 reports the results of the tests of hypotheses 6, 7 and 8 using the logit model. The interest cover variable is highly significant at the 1% level. The coefficient sign on the interest cover variable is positive, as expected, indicating a higher likelihood of voluntary disclosure when the financial situation is better. The variable on director shareholding is statistically significant at the 5% level ($p\text{-value} = 0.02$). The coefficient sign on the managerial ownership variable is negative, as expected, indicating a higher likelihood of voluntary disclosure when the managerial self interest is lower. The variable on institutional shareholding is insignificant. The coefficient sign is positive indicating a higher likelihood of disclosure when institutional shareholding is high.

The nulls of Hypothesis 6 and Hypothesis 8 are thus rejected given that the empirical findings show that the voluntary disclosure decision is a function of a firms' financial position prior to the current period and of director self interest. Hypothesis 7 is not rejected. The evidence specifically points to the existence of debtholder-shareholder conflicts in non-disclosing firms. Thus management appears to favour shareholders by delaying the disclosure of the bad news until the mandatory earnings announcement. The evidence further suggests that firms with high managerial shareholding abstain from public disclosure. This suggests a failure of the regulation to bring about widespread public disclosure of material bad news.

[insert Table 10 here]

6 The survivorship properties of disclosing and non-disclosing firms

In the previous section, evidence was presented that a firm's ex-ante financial position influences its disclosure decision. At the same time, firms that are in financial distress are expected to have a higher likelihood of failure. Hence one might expect the disclosure decision to be influenced by managerial perceptions about the

prospects for firm survival. The purpose of this section is to present some preliminary evidence relating to this possibility. Specifically we test the following null hypothesis.

Hypothesis 9 (null): Non-disclosing firms and disclosing firms are equally likely to survive.

Alternatively, if disclosure depends on a firms' financial position (i.e. if firms in financial distress are less likely to issue a voluntary disclosure), the survivorship of non-disclosing firms is expected to be lower than the survivorship of disclosing firms.

Data on survivorship is available from Datastream. This data source also reports the reason why a firm's shares stopped trading, distinguishing between de-listing (e.g. firm is taken private, managerial takeover), a takeover by another firm, merger with another firm as junior partner, and death (bankruptcy). All the cases except de-listings, are essentially defensive moves by the management whereby the firm, including its name and identity, usually ceases to exist.

It is important to note that the survivorship data include only transfers of control, which took place between the 7th and 24th month after the current periods' full year earnings announcement.¹⁰

Table 11 reports descriptive statistics, for the post-1994 sample, relating to firm survivorship beyond two years after the bad news periods' full year earnings announcement. A large difference in survivorship between firms issuing voluntary disclosures and non-disclosing firms is reported. Specifically, 25% of non-disclosing firms experience a change of control compared to 15% of disclosing firms. Looking at the reasons for the change of control, non-disclosing firms are twice as likely to be taken over and exhibit a one third higher probability of dying between the 7th and 24th month following the bad news period's earnings announcement. This finding stands in contrast to the documented higher severity of bad news in the case of disclosing firms.

The null of hypothesis 9 is thus rejected. This evidence strengthens our belief that the disclosure decision is influenced by the firm's financial position (financial distress). The evidence also suggests that the fear of being taken over in the medium term might influence the management's decision. The lower probability of survivorship of non-disclosing firms also suggests that the act of disclosure (positively) signals management

¹⁰ The sample consists of observations where a Datastream share-price for the 365 days before through to 180 calendar days after the EXTEL full year earnings announcement date is available. Thus we can only observe the survivorship for the period after the 7th month following the earnings announcement.

quality.

[insert Table 11 here]

7 Conclusions

In the UK profit warnings are highly value relevant events. On average we find a (negative) share price decline of around -20% in response to a warning. The sheer size of these value changes suggests that it is important for such announcements to be managed with extreme care in order to preserve investor confidence in general, and the confidence of the ordinary investor in particular.

Aware of the potential for abuse, the LSE introduced new regulations in 1994 designed to change the frequency and visibility of profit warnings. Our evidence indicates that these regulations appear to have had material effects. The change in regulation had a significantly positive impact on the frequency and (to a lesser extent) timeliness of voluntary disclosures in the event of material bad news. There was also a shift in the content of voluntary disclosures from being of a predominantly qualitative nature to disclosures of a more quantitative nature. Finally there was a greater tendency for disclosures to be motivated by a gap between insider managements' expectations and outsider analysts' expectations as opposed to a change in underlying profitability relative to prior years.

Our study of share price anticipation of warnings revealed a significant level of anticipation pre-1994, and no significant anticipation post 1994. This also suggests that the new regulations had a material impact.

This is the first ever study of the behaviour of bid-ask spreads around profit warnings. We compared bid asked spreads around warning events with bid ask spreads around earnings announcements. We found that in the pre-1994 period bid ask spreads around warnings were greater than those around earnings announcements. After 1994 this finding had reversed. This is further evidence that the new regulation had a material, and arguably beneficial, effect.

We have studied the determinants of the willingness to warn. Consistent with the pioneering US study of Kasznik and Lev (1995:132) we found that the permanence of the news was a significant determinant of the willingness to warn.

With regard to the other determinants of the willingness to warn, we believe this is the first study to have identified a significant third party effect i.e. the need to keep debtholders in the dark. In addition we have

identified a significant (negative) link between managerial share ownership and willingness to warn. Both of these effects seem consistent with the view that some managers, when faced with significant bad news, behave opportunistically by deliberately delaying the release of the news to bondholders and external investors. In this respect it is possible that the LSE rules either are not tough enough, or they are not being fully enforced. In part this could be because of the ambiguity of the circumstances in which no warning is accepted as defensible on grounds of commercial privacy.

We found no evidence of the presence of large institutional shareholders influencing the decision to warn. Further work is needed on this issue. There may be some circumstances under which institutional investors have a positive influence on the willingness to warn, and other circumstances under which institutional investors discourage warnings. Given the significant findings on the negative influence of managerial shareholdings, we believe it would be unsafe to conclude from our initial failure to reject the null of hypothesis 8 that institutional investors do not influence the willingness of managers to warn.

Finally, so far as we are aware, this is the first study that has identified a significantly positive link between the survivorship of firms with negative earnings surprises and the probability of warnings. This also is an interesting area for further research.

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Table 1 **Sample selection process**

	Initial sample ^a	Important events on earnings-day ^b	Problems with IBES EPS data ^c	Final sample
Pre-1994	176	19	9	148
Post-1994	279	43	15	221
Total Obs.	445	62	24	369

^a All FTSE traded firms on IBES and EXTEL with fiscal year-ends 1992 to 1993 (pre-1994) and year-ends 1995 to mid 1998 (post-1994), a minimum of one Analyst Earnings Forecast in the 12th month before the IBES Earnings Announcement Date and Datastream Returns and Daily Prices, no change in financial year-end, less than 5 months between financial year-end and earnings announcement available and FE_{it} greater -1% . FE_{it} is the Datastream price deflated difference between the IBES mean analysts' forecast for period t earnings in the 6th month before the period t full-year earnings and IBES period t earnings.

^b defined as mergers, control changes etc. in the 21 trading day period around the earnings-announcement date occur.

^c observations with errors in the data entry on part of the IBES or EXTEL database.

Table 2 Voluntary disclosure of price-sensitive information ^a

Panel A: Voluntary disclosure and non-disclosure.

	Voluntary Disclosure	No-disclosure	Total
Pre-1994	29	121	150
Post-1994	108	111	219
Whole sample	137	232	369

Panel B: Voluntary disclosure: Quantitative vs. qualitative disclosure (137 observations).

	Pre-1994	Post-1994
Quantitative Disclosure	21%	50%
Qualitative Disclosure	79%	50%

Panel C: Voluntary disclosure: News-statement Analysis (137 observations).

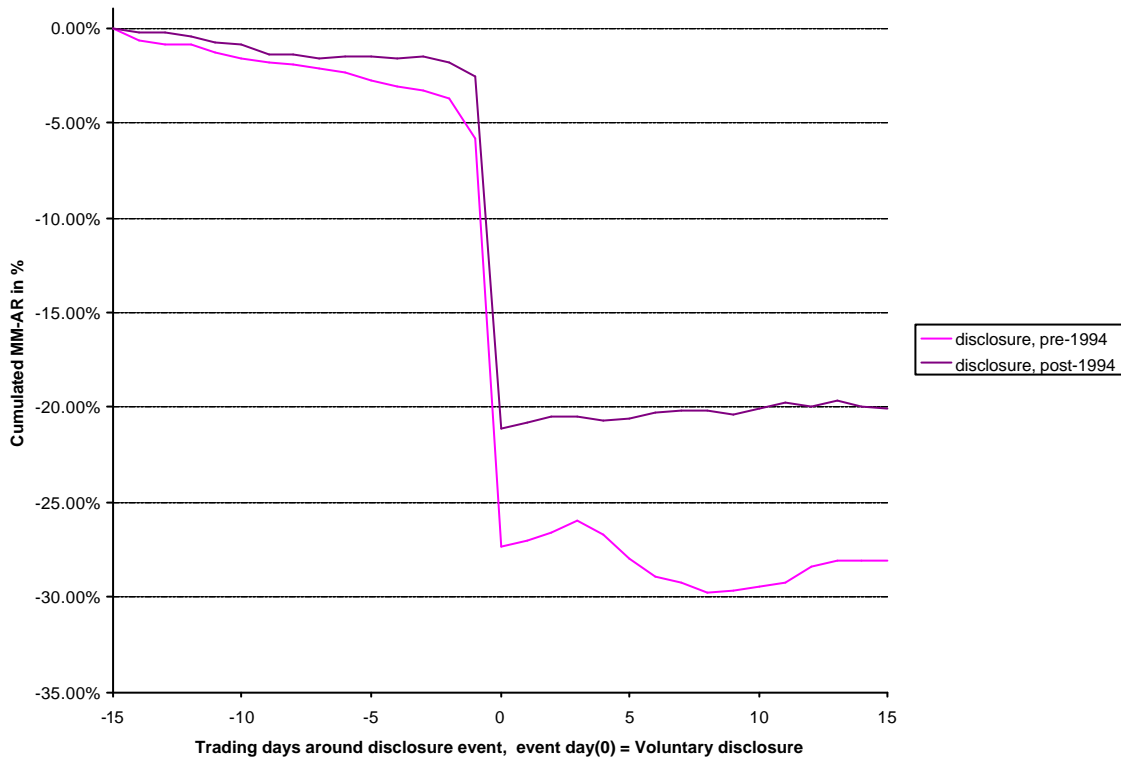
	Pre-1994	Post-1994
“results will be below market expectations / internal expectations“	35%	45%
“ statement about this or last years results“	35%	25%
“statement about profits in general“	30%	30%

Panel D: Timing of voluntary earnings disclosure relative to FYE in calendar days (137 observations).

	Pre-1994	Post-1994
Average number of days	15 days	22 days
Median number of days	24 days	23 days

^a All FTSE traded firms on IBES and EXTEL with fiscal year-ends 1992 to 1993 (pre-1994) and year-ends 1995 to mid 1998 (post-1994), a minimum of one Analyst Earnings Forecast in the 12th month before the IBES Earnings Announcement Date and Datastream Returns and Daily Prices, no change in financial year-end, less than 5 months between financial year-end and earnings announcement available and FE_{it} greater -1% . FE_{it} is the difference between the mean IBES analysts' forecast in the 6th month prior to IBES period t full year earnings announcement and IBES period t full-year earnings deflated by the Datastream share price in the beginning of the 6th month prior to IBES period t full year earnings announcement. Observations with important events (mergers, control changes) around 21 day trading day period around the earnings-announcement date or errors in the data entry on part of the IBES or EXTEL database excluded. 369 observations, 148 pre-1994 and 221 post-1994 / UK Data.

Figure 1 MM-AR around voluntary disclosure event ^a



^a All FTSE traded firms on IBES and EXTEL with fiscal year-ends 1992 to 1993 (pre-1994) and year-ends 1995 to mid 1998 (post-1994), a minimum of one Analyst Earnings Forecast in the 12th month before the IBES Earnings Announcement Date and Datastream Returns and Daily Prices, no change in financial year-end, less than 5 months between financial year-end and earnings announcement available and FE_{it} greater -1% . FE_{it} is the difference between the mean IBES analysts' forecast in the 6th month prior to IBES period t full year earnings announcement and IBES period t full-year earnings deflated by the Datastream share price in the beginning of the 6th month prior to IBES period t full year earnings announcement. Observations with important events (mergers, control changes) around 21 day trading day period around the earnings-announcement date or errors in the data entry on part of the IBES or EXTEL database excluded. 369 observations, 148 pre-1994 and 221 post-1994, voluntary disclosure: 29 pre-1994 and 108 post-1994 observations / UK Data.

^b MM-AR are cumulated market model (FTSE all share index) abnormal returns, the market model is estimated over 100 trading days after period $t-1$ EXTEL full-year earnings announcement.

Table 3 MM-abnormal returns around voluntary disclosure event pre - and post-1994 (regulation): Anticipation and overreaction^a

		t-4day	t-3day	t-2day	t-1day	t	t+1day	t+2day	t+3day	t+4day
Pre-1994	Average CAR/AR^b	-0.32%	-0.14%	-0.49%	-2.06%	-21.47%	0.25%	0.40%	0.68%	-0.78%
	Median	0.03%	0.09%	0.11%	-0.07%	-17.79%	-0.06%	0.18%	0.07%	0.03%
	Stdev	2.21%	2.00%	3.15%	4.53%	15.22%	11.02%	3.71%	4.95%	3.68%
	Minimum	-10.87%	-5.60%	-12.66%	-13.38%	-68.61%	-26.69%	-9.85%	-9.44%	-15.90%
	Maximum	2.30%	7.05%	3.29%	5.73%	1.57%	41.53%	9.86%	18.86%	4.65%
	t-stat^c	-0.82	-0.32	-2.11	-9.14	-60.69	1.47	-0.31	1.78	-2.52
	No. cases AR <-10%	0%	0%	3%	12%	89%	6%	0%	0%	2%
	No. cases AR <-3%	3%	6%	7%	23%	94%	21%	10%	9%	14%
	No. cases AR >3%	0%	3%	7%	2%	0%	18%	14%	15%	5%
	No. cases AR >10%	0%	0%	0%	0%	0%	8%	0%	4%	0%
Post-1994	Average CAR/AR	-0.17%	0.12%	-0.28%	-0.79%	-18.51%	0.34%	0.28%	-0.03%	-0.22%
	Median	0.03%	-0.01%	0.00%	-0.08%	-17.05%	0.00%	0.10%	0.03%	-0.03%
	Stdev	2.25%	2.55%	2.95%	3.14%	11.55%	6.06%	5.94%	2.62%	4.10%
	Minimum	-11.44%	-10.78%	-19.09%	-26.75%	-53.76%	-23.57%	-49.28%	-11.05%	-16.03%
	Maximum	7.55%	17.64%	12.38%	5.59%	0.06%	27.22%	16.76%	8.01%	23.57%
	t-stat	-0.19	0.15	-0.43	-0.71	-18.24	0.24	0.24	-0.04	-0.32
	No. cases AR <-10%	0%	0%	1%	1%	71%	1%	1%	1%	1%
	No. cases AR <-3%	7%	4%	8%	12%	93%	18%	7%	7%	13%
	No. cases AR >3%	5%	6%	4%	3%	0%	17%	12%	9%	7%
	No. cases AR >10%	0%	1%	1%	0%	0%	6%	4%	0%	3%

^a All FTSE traded firms on IBES and EXTEL with fiscal year-ends 1992 to 1993 (pre-1994) and year-ends 1995 to mid 1998 (post-1994), a minimum of one Analyst Earnings Forecast in the 12th month before the IBES Earnings Announcement Date and Datastream Returns and Daily Prices, no change in financial year-end, less than 5 months between financial year-end and earnings announcement available and FE_{it} greater -1% . FE_{it} is the difference between the mean IBES analysts' forecast in the 6th month prior to IBES period t full year earnings announcement and IBES period t full-year earnings deflated by the Datastream share price in the beginning of the 6th month prior to IBES period t full year earnings announcement.. Observations with important events (mergers, control changes) around 21 day trading day period around the earnings-announcement date or errors in the data entry on part of the IBES or EXTEL database excluded. 369 observations, 148 pre-1994 and 221 post-1994, voluntary disclosure: 29 pre-1994 and 108 post-1994 observations / UK Data.

^b AR_t (CAR_t) are the market model abnormal (cumulative abnormal) daily returns. Market model parameters are estimated from the 6 calendar months estimation period (six months prior to the financial year preceding the EXTEL voluntary disclosure event).

^c t-stat is the Patel standardized t-statistic.

Table 4 Disclosing firm end-of-day bid-ask spread around voluntary disclosure and subsequent earnings announcement event ^a

		t-5	t-4	t-3	t-2	t-1	t	t+1	t+2	t+3	t+4	t+5
Voluntary disclosure event, pre -1994	Average	4.90%	4.84%	4.64%	4.67%	4.34%	6.22%	6.44%	6.16%	6.21%	6.62%	7.07%
	Median	3.22%	3.17%	3.00%	3.17%	3.22%	4.55%	4.17%	4.04%	3.92%	4.48%	4.51%
	Stdev	3.88%	3.79%	3.64%	3.56%	3.34%	5.67%	5.78%	5.56%	5.49%	6.60%	8.11%
	Minimum	1.15%	1.15%	1.15%	1.15%	1.37%	0.88%	1.16%	0.87%	1.28%	0.64%	1.27%
	Maximum	13.64%	13.64%	13.64%	13.64%	13.64%	25.00%	22.22%	22.22%	22.22%	33.33%	42.86%
Voluntary disclosure event, post-1994	Average	3.69%	3.83%	3.93%	3.87%	3.94%	4.85%	4.56%	4.56%	4.73%	4.76%	4.76%
	Median	2.56%	2.73%	2.73%	2.77%	2.78%	2.96%	3.25%	3.33%	3.18%	3.18%	3.37%
	Stdev	3.45%	3.60%	3.67%	3.52%	3.52%	4.53%	3.99%	4.10%	4.50%	4.53%	4.49%
	Minimum	0.24%	0.42%	0.48%	0.28%	0.52%	0.43%	0.43%	0.43%	0.52%	0.43%	0.57%
	Maximum	25.00%	25.00%	25.00%	23.08%	23.08%	23.16%	21.33%	21.33%	25.00%	28.57%	28.57%
Earnings announcement event, pre-1994	Average	3.71%	4.11%	4.14%	4.01%	4.14%	4.32%	4.37%	4.18%	4.36%	4.43%	4.55%
	Median	2.54%	2.59%	2.86%	2.86%	2.50%	2.86%	3.08%	2.86%	2.86%	3.08%	3.08%
	Stdev	3.65%	3.92%	3.92%	3.76%	3.88%	4.28%	4.65%	4.54%	4.64%	4.66%	4.83%
	Minimum	0.79%	0.79%	0.56%	0.28%	0.80%	0.40%	0.40%	0.60%	0.75%	0.79%	0.59%
	Maximum	18.52%	18.52%	18.52%	18.52%	18.52%	17.86%	21.74%	21.74%	21.74%	21.74%	21.74%
Earnings announcement event, post-1994	Average	5.37%	5.35%	5.25%	5.22%	5.19%	5.33%	4.86%	4.95%	4.97%	5.19%	5.20%
	Median	3.59%	3.57%	3.55%	3.51%	3.49%	3.54%	3.41%	3.51%	3.53%	3.49%	3.47%
	Stdev	5.02%	4.71%	4.64%	4.62%	4.84%	5.72%	4.76%	4.42%	4.55%	4.90%	4.96%
	Minimum	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%
	Maximum	33.33%	21.09%	21.09%	21.43%	28.57%	36.36%	30.77%	30.77%	30.77%	30.77%	30.77%

^a All FTSE traded firms on IBES and EXTEL with fiscal year-ends 1992 to 1993 (pre-1994) and year-ends 1995 to mid 1998 (post-1994), a minimum of one Analyst Earnings Forecast in the 12th month before the IBES Earnings Announcement Date and Datastream Returns and Daily Prices, no change in financial year-end, less than 5 months between financial year-end and earnings announcement available and FE_{it} greater -1% . FE_{it} is the difference between the mean IBES analysts' forecast in the 6th month prior to IBES period t full year earnings announcement and IBES period t full-year earnings deflated by the Datastream share price in the beginning of the 6th month prior to IBES period t full year earnings announcement. Observations with important events (mergers, control changes) around 21 day trading day period around the earnings-announcement date or errors in the data entry on part of the IBES or EXTEL database excluded. 369 observations, 148 pre-1994 and 221 post-1994, voluntary disclosure: 29 pre-1994 and 108 post-1994 observations / UK Data.

^b The bid-ask spread is defined as the end of day Datastream bid price minus ask price as a percentage of the ask price.

Table 5 US-evidence on market reaction, size and permanence of matched disclosed and undisclosed bad news ^a

Averages, median in parentheses	FE_{it} ^b (N ^c =64)	MAR_{it} ^c “long window”(N=64)	$PERM_{it}$ ^d (N=54)
Warning: disclosed bad news	-8.0% (-3.2%)	-5.3% (-8.6%)	-6.7% (-3.3%)
No-warning: undisclosed bad news	-7.9% (-3.0%)	-3.3% (-5.9%)	-2.7% (-1.2%)

^a source: Kasznik and Lev (1995), Table 7, p. 131, p.132., disclosures are taken from NEXIS News Wires.

^b FE_{it} is the IBES mean analysts’ forecasts in the month after the third quarter earnings announcement minus the IBES full year earnings announcement deflated by the price at the end of the third quarter of fiscal year t.

^c N is the number of observations.

^d MAR_{it} is the cumulated market adjusted (CRSP equally weighted market return) return spanning from the 31st calendar day after the fiscal year t third quarter earnings announcement through the second trading day after the forth quarter earning announcement.

^e $PERM_{it}$ is the Value Line forecast of fiscal year t+1 made after fiscal year t third quarter earnings announcement and the revised fiscal year t+1 forecast made after fiscal year t forth quarter earnings announcement deflated by the share price at the end of the third quarter of fiscal year t.

Table 6 Descriptive statistics: market reaction to disclosure and non-disclosure in the event of material bad news ^a

Panel A: Post-1994 period, 208 observations.

		FE_{it} ^b	$PERM_{it}$ ^c	MAR_{it} ^d "long window"	MAR_{it} "combined window"	MAR_{it} "short window"
Non-disclosure (N=102)	Average	-3.96%	-2.15%	-12.48%		-1.28%
	Median	-1.90%	-1.88%	-16.08%		-0.83%
	Stdev	5.67%	3.34%	28.45%		7.53%
Disclosure (N=106)	Average	-6.08%	-4.74%	-33.12%	-18.50%	0.10%
	Median	-2.22%	-3.03%	-33.57%	-16.91%	0.13%
	Stdev	11.41%	5.77%	22.20%	11.52%	8.90%

Panel B: Pre-1994 period, 137 observations.

		FE_{it}	$PERM_{it}$	MAR_{it} "long window"	MAR_{it} "combined window"	MAR_{it} "short window"
Non-disclosure (N=112)	Average	-6.35%	-1.47%	0.13%		-1.29%
	Median	-2.01%	-1.16%	1.04%		-0.74%
	Stdev	9.89%	7.31%	32.97%		7.72%
Disclosure (N=25)	Average	-6.67%	-3.02%	-32.30%	-18.63%	-1.44%
	Median	-3.26%	-2.53%	-33.04%	-16.61%	-0.19%
	Stdev	10.01%	2.79%	25.85%	11.50%	5.18%

^a All FTSE traded firms on IBES and EXTEL with fiscal year-ends 1992 to 1993 (pre-1994) and year-ends 1995 to mid 1998 (post-1994), a minimum of one Analyst Earnings Forecast in the 12th month before the IBES Earnings Announcement Date and Datastream Returns and Daily Prices, no change in financial year-end, less than 5 months between financial year-end and earnings announcement available and FE_{it} greater -1%. FE_{it} is the difference between the mean IBES analysts' forecast in the 6th month prior to IBES period t full year earnings announcement and IBES period t full-year earnings deflated by the Datastream share price in the beginning of the 6th month prior to IBES period t full year earnings announcement. Observations with important events (mergers, control changes) around 21 day trading day period around the earnings-announcement date or errors in the data entry on part of the IBES or EXTEL database excluded. Datastream Market value and IBES one-period-ahead forecasts available, no outliers. 345 observations, 137 pre-1994 and 208 post-1994, UK Data.

^c MAR_{it} "long window" is the raw return from the end of the 6th months before to the trading day after period t EXTEL earnings announcement adjusted for the change in the FTSE-all share index. The "short window" includes the trading day before and after IBES full-year earnings announcement. The "combined window" includes the trading day before and after IBES full-year earnings announcement plus the voluntary disclosure event for disclosing firms.

^d $PERM_{it}$ is the difference between the first available IBES analysts' forecast for period t+1 earnings following the period t EXTEL interim earnings announcement and the last available analysts' forecast for period t+1 earnings preceeding period t EXTEL full-year earnings announcement deflated by the share price in the beginning of the 6th month prior to IBES period t full-year earnings announcement date.

Table 7 Market reaction to disclosure and non-disclosure ^a

Coefficients and adjusted R^2 (%) from pooled cross-sectional regressions of market adjusted returns on beginning of period price deflated earnings surprise (analysts' forecast error) and firm size.^b

$$MAR_{it} = \alpha_1 + \alpha_2 D_{it} + \beta_1 FE_{it} + \beta_2 FE_{it} D_{it} + \beta_3 Size_{it} + u_{it}$$

Panel A: Post-1994, 208 observations, 102 non-disclosing, 106 disclosing observations

Dep. Var.	α_1	α_2	β_1	β_2	β_3	Adj. R^2
MAR_{it}	-0.21	-0.19	-0.11	0.37	0.03***	14.79
"long window"	(-3.38)*	(-4.60)*	(-0.24)	(0.76)	(1.67)	
MAR_{it}	-0.02	-0.17	-0.01	0.16	0.01	24.66
"combined window"	(-0.69)	(6.74)*	(-0.05)	(0.52)	(0.79)	
MAR_{it}	-0.01	0.00	0.00	0.02	0.00	0.00
"short window"	(-0.69)	(0.21)	(0.02)	(0.14)	(0.79)	

Panel B: Pre-1994, 137 observations, 112 non-disclosing, 25 disclosing observations

Dep. Var.	α_1	α_2	β_1	β_2	β_3	Adj. R^2
MAR_{it}	0.02	-0.34*	0.29	-0.28	-0.00	11.58
"long window"	(0.25)	(-4.00)	(0.95)	(-0.40)	(-0.03)	
MAR_{it}	0.03	-0.24*	0.08	-0.21	-0.01	30.58
"combined window"	(0.97)	(6.58)	(0.65)	(-0.68)	(-1.06)	
MAR_{it}	0.02	-0.02	0.08	-0.26	-0.01	0.00
"short window"	(0.82)	(-1.13)	(0.91)	(-1.22)	(-0.90)	

^a All FTSE traded firms on IBES and EXTEL with fiscal year-ends 1992 to 1993 (pre-1994) and year-ends 1995 to mid 1998 (post-1994), a minimum of one Analyst Earnings Forecast in the 12th month before the IBES Earnings Announcement Date and Datastream Returns and Daily Prices, no change in financial year-end, less than 5 months between financial year-end and earnings announcement available and FE_{it} greater -1%. FE_{it} is the difference between the mean IBES analysts' forecast in the 6th month prior to IBES period t full year earnings announcement and IBES period t full-year earnings deflated by the Datastream share price in the beginning of the 6th month prior to IBES period t full year earnings announcement. Observations with important events (mergers, control changes) around 21 day trading day period around the earnings-announcement date or errors in the data entry on part of the IBES or EXTEL database excluded. Datastream Market value and IBES one-period-ahead forecasts available, no outliers. 345 observations, 137 pre-1994 and 208 post-1994, UK Data.

^b MAR_{it} "long window" is the raw return from the end of the 6th months before to the trading day after period t EXTEL earnings announcement adjusted for the change in the FTSE-all share index. The "short window" includes the trading day before and after IBES full-year earnings announcement. The "combined window" includes the trading day before and after IBES full-year earnings announcement plus the voluntary disclosure event for disclosing firms. $Size_{it}$ is the log of the Datastream market capitalisation at the beginning of the 6th month prior to period t EXTEL full-year earnings announcement. D_{it} is a dummy variable =0 if no-disclosure, 1 if disclosure. T-statistics in parentheses.

* Significant at the two-tailed 1% confidence level, *** Significant at the two-tailed 10% confidence level.

Table 8 Disclosing vs. non-disclosing firms post 1994^a

		MV_{it}^b in m. £	FE_{it}^c	$PERM_{it}^d$	MAR_{it}^e "long window"
Non-disclosure: 48 of 102 observations	Average	252.42	-2.77%	-3.36%	-24.83%
	Median	65.895	-1.91%	-2.56%	-24.28%
	Stdev	421.23	2.60%	5.24%	20.37%
	Minimum	5.93	-13.33%	-35.36%	-69.26%
	Maximum	2,118.48	-1.01%	5.28%	16.81%
Disclosure: 48 of 106 observations	Average	285.17	-4.70%	-3.15%	-21.93%
	Median	74.005	-2.39%	-2.69%	-20.56%
	Stdev	488.06	5.77%	3.00%	21.00%
	Minimum	7.07	-26.08%	-11.93%	-71.51%
	Maximum	2,312.21	-1.07%	1.69%	15.90%

^a All FTSE traded firms on IBES and EXTEL with fiscal year-ends 1992 to 1993 (pre-1994) and year-ends 1995 to mid 1998 (post-1994), a minimum of one Analyst Earnings Forecast in the 12th month before the IBES Earnings Announcement Date and Datastream Returns and Daily Prices, no change in financial year-end, less than 5 months between financial year-end and earnings announcement available and FE_{it} greater -1% . Observations with important events (mergers, control changes) around 21 day trading day period around the earnings-announcement date or errors in the data entry on part of the IBES or EXTEL database excluded. Datastream Market value and IBES one-period-ahead forecasts available, no outliers. 345 observations, 137 pre-1994 and 208 post-1994, UK Data. Disclosing firms are matched with non-disclosing firms on $|MV_{it(disclosur)} - MV_{it(non-disclosure)}| < 0.3$ and $|MAR_{it(disclosur)} - MAR_{it(non-disclosure)}| < 0.15$, no repetitions, 48 observations.

^b MV_{it} is the Datastream market capitalisation at the beginning of the 6th month prior to period t EXTEL full-year earnings announcement.

^c FE_{it} is the difference between the mean IBES analysts' forecast in the 6th month prior to IBES period t full year earnings announcement and IBES period t full-year earnings deflated by the Datastream share price in the beginning of the 6th month prior to IBES period t full year earnings announcement.

^d MAR_{it} "long window" is the raw return from the end of the 6th months before to the trading day after period t EXTEL earnings announcement adjusted for the change in the FTSE-all share index.

^e $PERM_{it}$ is the difference between the first available IBES analysts' forecast for period t+1 earnings following the period t EXTEL interim earnings announcement and the last available analysts' forecast for period t+1 earnings preceeding period t EXTEL full-year earnings announcement deflated by the share price in the beginning of the 6th month prior to IBES period t full-year earnings announcement date.

Table 9 Descriptive statistics for Logit ModelPanel A: Post-1994: 208 observations, 102 non-disclosing, 106 disclosing observations ^a

	warning disclosure			no-warning disclosure			t-test warning = no- warning
	Average	Median	Stdev	Average	Median	Stdev	
FE_{it}	-6.08%	-2.22%	11.41%	-3.96%	-1.90%	5.67%	-1.70***
$PERM_{it}$	-4.74%	-3.03%	5.77%	-2.15%	-1.88%	3.34%	-3.95*
MAR_{it}^c	-33.12%	-33.57%	22.20%	-12.48%	-16.08%	28.45%	-5.81*
SH_{it}	27.21%	28.25%	14.61%	25.98%	25.53%	15.42%	0.59
DIR_{it}	6.33%	2.03%	10.29%	12.21%	1.57%	20.03%	-2.64*
OPT_{it}	1.03%	0.70%	1.09%	1.30%	0.91%	1.47%	-1.52
$ICBT_{it}$	78.32%	86.22%	24.67%	62.82%	78.32%	37.20%	3.50*
$NOANA_{it}$	10	8	8	9	6	8	0.38
MV_{it} in m. £	266.19	104.36	447.64	338.60	52.25	810.02	-0.79
$GEAR_{it}$	53.52%	39.32%	63.46%	66.45%	45.60%	68.95%	-1.40
$MTBV_{it}$	4.43	2.44	11.12	2.95	1.65	9.17	-1.04

Panel B: Matched sample (N=48) ^b

	warning disclosure			no-warning disclosure			t-test warning = no- warning
	Average	Median	Stdev	Average	Median	Stdev	
FE_{it}	-2.77%	-1.91%	2.60%	-4.70%	-2.39%	5.77%	2.12*
$PERM_{it}$	-3.36%	-2.56%	5.24%	-3.15%	-2.69%	3.00%	-0.23
MAR_{it}^c	-24.83%	-24.28%	20.37%	-21.93%	-20.56%	21.00%	-0.69
SH_{it}	24.97%	24.20%	13.20%	28.67%	26.39%	16.65%	-1.21
DIR_{it}	6.29%	2.30%	10.23%	9.95%	1.35%	17.80%	-1.24
OPT_{it}	1.22%	0.84%	1.25%	1.25%	0.95%	1.31%	-0.11
$ICBT_{it}$	81.94%	89.48%	22.10%	61.73%	80.69%	38.90%	3.13*
$NOANA_{it}$	10	8	8	8	8	6	1.41
MV_{it} in m. £	252.43	65.90	421.23	285.18	74.01	488.06	-0.35
$MTBV_{it}$	2.63	2.37	2.47	1.53	1.50	3.10	1.93**

^a All FTSE traded firms on IBES and EXTEL with fiscal year-ends 1992 to 1993 (pre-1994) and year-ends 1995 to mid 1998 (post-1994), a minimum of one Analyst Earnings Forecast in the 12th month before the IBES Earnings Announcement Date and Datastream Returns and Daily Prices, no change in financial year-end, less than 5 months between financial year-end and earnings announcement available and FE_{it} greater -1%. Observations with important events (mergers, control changes) around 21 day trading day period around the earnings-announcement date or errors in the data entry on part of the IBES or EXTEL database excluded. Datastream Market value and IBES one-period-ahead forecasts available, no outliers. 208 observations, UK

Data.

^b Observations with FE_{it} greater -1% , post-1994 are all firms with fiscal year-ends 1995 to mid 1998, disclosures from EXTEL database, disclosing firms are matched with non-disclosing firms on $|MV_{it(disclosur)} - MV_{it(non-disclosure)}| < 0.3$ and $|MAR_{it(disclosur)} - MAR_{it(non-disclosure)}| < 0.15$, no repetitions, 48 observations.

Variable Definitions:

- FE_{it} is the difference between the mean IBES analysts' forecast in the 6th month prior to IBES period t full year earnings announcement and IBES period t full-year earnings deflated by the Datastream share price in the beginning of the 6th month prior to IBES period t full year earnings announcement.
- MAR_{it} "long window" is the raw return from the end of the 6th months before to the trading day after period t EXTEL earnings announcement adjusted for the change in the FTSE-all share index.
- $PERM_{it}$ is the difference between the first available IBES analysts' forecast for period t+1 earnings following the period t EXTEL interim earnings announcement and the last available analysts' forecast for period t+1 earnings preceeding period t EXTEL full-year earnings announcement deflated by the share price in the beginning of the 6th month prior to IBES period t full-year earnings announcement date.
- SH_{it} is the EXTEL percentage holding of ordinary shares of the three major outside shareholders.
- DIR_{it} is the EXTEL directors' beneficial holding of shares as percentage of total shares in issue:
- OPT_{it} is the EXTEL number of options on ordinary shares as a percentage of total shares in issue:
- $NOANA_{it}$ is the EXTEL number of analysts which publish forecasts over the 12 month prior to period t full year earnings announcement.
- MV_{it} in m. £: is the Datastream market capitalisation at the beginning of the 6th month before period t IBES full year earnings announcement.
- $MTBV_{it}$ is the Datastream market to book value at the beginning of the 6th month before period t IBES full year earnings announcement.
- $ICBT_{it}$ is the EXTEL period t-1 percentage of earning before interest and tax (EBIT), which is used for interest payments. If $X_{it-1} < 0$ then $ICBT_{it} = 0$.
- $GEAR_{it}$ is the EXTEL total borrowings plus preference capital divided by reserves plus ordinary capital plus other share capital plus minorities minus intangibles multiplied by 100, winsorised at 100%, available for 183 observations, 102 disclosing and 83 non-disclosing firms.

* Significant at the two-tailed 1% confidence level.

*** Significant at the two-tailed 10% confidence level.

Table 10 Logit Model of the Disclosure Decision

Panel A: Coefficient estimates of the binomial logit model. Dependent variable takes the value zero for non-disclosure and one for disclosure. The value of the estimated response coefficients and their 2-tail p-values of asymptotic t-statistics (in parentheses) are presented in the table. Variable definitions are given below. Post-1994: 208 observations, 102 non-disclosing, 106 disclosing observations ^a

Independent Variable	Full Sample ^a	p-value	Matched Sample ^b (N=48)	p-value
Intercept	-2.08	0.00*	-2.44	0.04*
FE_{it}	-2.31	0.36	7.27	0.28
$PERM_{it}$	-14.66	0.00*	0.86	0.87
SH_{it}	0.77	0.51	0.24	0.88
DIR_{it}	-2.70	0.02**	-3.18	0.07***
OPT_{it}	-8.24	0.48	30.96	0.15
$ICBT_{it}$	2.03	0.00*	2.69	0.00*
$NOANA_{it}$	0.78	0.69	0.31	0.92
$MTBV_{it}$	0.31	0.14	0.24	0.03**
Chi-Squared	42.80	0.00*	21.58	0.03**
Effron	18.08 %		22.95 %	
McFadden	14.85 %		16.22 %	

Panel B: Predictive power of the model

	Predicted non-disclosure	Predicted disclosure	Predicted non-disclosure	Predicted disclosure
Actual non-disclosure	60	42	27	21
Actual Disclosure	23	83	11	37
% of correct Predictions	68.75%		66.66%	

^a All FTSE traded firms on IBES and EXTEL with fiscal year-ends 1992 to 1993 (pre-1994) and year-ends 1995 to mid 1998 (post-1994), a minimum of one Analyst Earnings Forecast in the 12th month before the IBES Earnings Announcement Date and Datastream Returns and Daily Prices, no change in financial year-end, less than 5 months between financial year-end and earnings announcement available and FE_{it} greater -1% . Observations with important events (mergers, control changes) around 21 day trading day period around the earnings-announcement date or errors in the data entry on part of the IBES or EXTEL database excluded. Datastream Market value and IBES one-period-ahead forecasts available, no outliers. 208 observations, UK Data.

^b Observations with FE_{it} greater -1% , post-1994 are all firms with fiscal year-ends 1995 to mid 1998, disclosures from EXTEL database, disclosing firms are matched with non-disclosing firms on $|MV_{it(disclosur)} - MV_{it(non-disclosur)}| < 0.3$ and $|MAR_{it(disclosur)} - MAR_{it(non-disclosur)}| < 0.15$, no repetitions, 48 observations.

Variable Definitions:

- FE_{it} is the difference between the mean IBES analysts' forecast in the 6th month prior to IBES period t full year earnings announcement and IBES period t full-year earnings deflated by the Datastream share price in the beginning of the 6th month prior to IBES period t full year earnings announcement.
- MAR_{it} "long window" is the raw return from the end of the 6th months before to the trading day after period t EXTEL earnings announcement adjusted for the change in the FTSE-all share index.
- $PERM_{it}$ is the difference between the first available IBES analysts' forecast for period t+1 earnings following the period t EXTEL interim earnings announcement and the last available analysts' forecast for period t+1 earnings preceeding period t EXTEL full-year earnings announcement deflated by the share price in the beginning of the 6th month prior to IBES period t full-year earnings announcement date.
- SH_{it} is the EXTEL percentage holding of ordinary shares of the three major outside shareholders.
- DIR_{it} is the EXTEL directors' beneficial holding of shares as percentage of total shares in issue:
- OPT_{it} is the EXTEL number of options on ordinary shares as a percentage of total shares in issue:
- $NOANA_{it}$ is the EXTEL number of analysts which publish forecasts over the 12 month prior to period t full year earnings announcement.
- $MTBV_{it}$ is the Datastream market to book value at the beginning of the 6th month before period t IBES full year earnings announcement.
- $ICBT_{it}$ is the EXTEL period t-1 percentage of earning before interest and tax (EBIT), which is used for interest payments. If $X_{it-1} < 0$ then $ICBT_{it} = 0$.

* Significant at the two-tailed 1% confidence level.

** Significant at the two-tailed 5% confidence level.

*** Significant at the two-tailed 10% confidence level.

Table 11 Survivorship and disclosure: post-1994 ^a

	Dead after 2 years ^b					Dead after 1 year ^c
		dead	delisted	takeover	merger	
no warning disclosure (N=102)	25% (N=26)	11%	4%	8%	1%	9% (N=9)
warning disclosure (N=106/108)	15% (N=16)	8%	3%	4%	0%	6% (N=6)

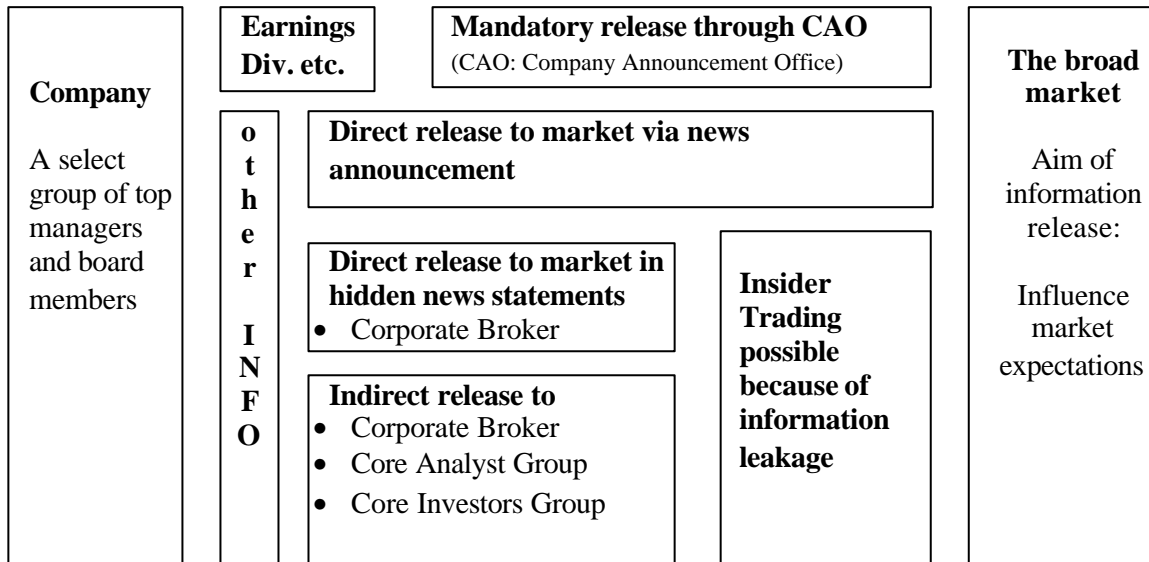
^a All FTSE traded firms on IBES and EXTEL with fiscal year-ends 1992 to 1993 (pre-1994) and year-ends 1995 to mid 1998 (post-1994), a minimum of one Analyst Earnings Forecast in the 12th month before the IBES Earnings Announcement Date and Datastream Returns and Daily Prices, no change in financial year-end, less than 5 months between financial year-end and earnings announcement available and FE_{it} greater -1% . Observations with important events (mergers, control changes) around 21 day trading day period around the earnings-announcement date or errors in the data entry on part of the IBES or EXTEL database excluded. Datastream Market value and IBES one-period-ahead forecasts available, no outliers. 208 observations, UK Data.

^b "Dead after 2 years" is defined as the two calendar years after period t EXTEL full year earnings announcement. The survivorship classification (dead, delisted, takeover and merger) are obtained from the Datastream database, "takeover" and "merger" denote hostile takeovers by other firms and mergers where the observation firm merges as a junior partner and subsequently ceases trading in its shares.

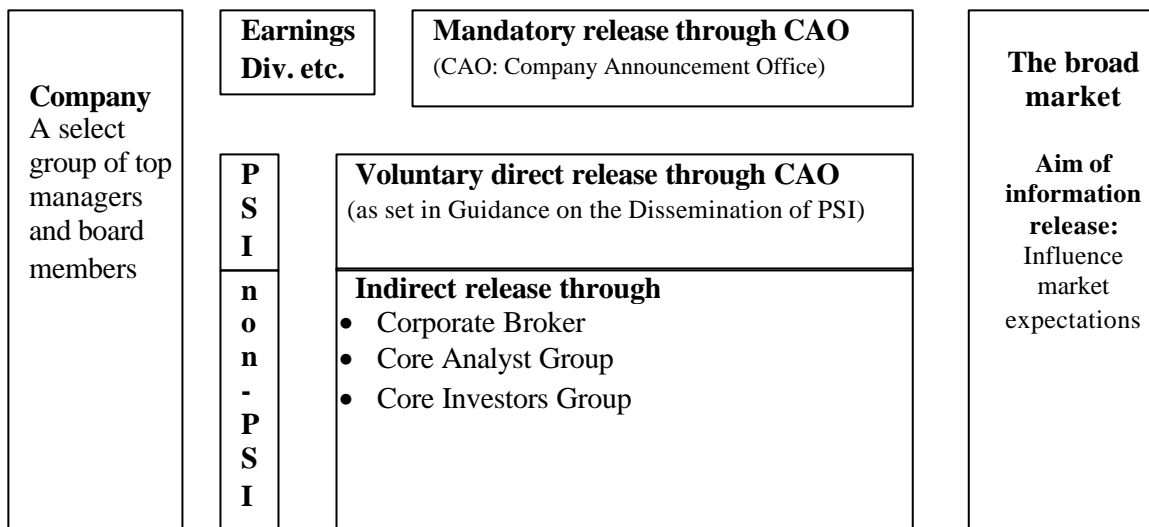
^c "Dead after 1 year" is defined as one calendar year after period t EXTEL full year earnings announcement.

Appendix 1 Information release before and after 1994 ^a

Pre-1994 period



Post 1994 period



^a Based on the papers of Holland (1997a), (1997b), Holland, J., and Stoner, G., (1996), and LSE, (1996) and Figure 2 “Corporate to Market Communication Structures” from Holland, J., and Stoner, G., (1996), p.302.