Managerial Discretion and Timeliness of Price Sensitive Information Disclosures: Evidence from the Alternative Investment Market (AIM)

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Abstract

This study examines a managerial discretion hypothesis in which managers value their insider information advantage over and above their duty to disclose price sensitive information to stockholders. Their duty does not imply that the timeliness of bad news should be different to that of good news. We find that compared to late announcements, early announcements contain more price sensitive information, are more likely to contain good news and exhibit greater pre-disclosure information asymmetry. Stocks of early disclosers have enhanced liquidity relative to late disclosers suggesting the manifestation of market discipline in late disclosers.

Key Words: Incentive Alignment, Information Asymmetry, Market Discipline, Management Discretion, Alternative Investment Market (AIM), Earnings Announcement Timing, Good News Early – Bad News Late and Reporting Lag.

JEL Codes: G10, G12, G13, G14, G15, G32, G34, G38, M40, M41, M42, M48.

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1 Introduction

Reducing information asymmetry between firms and their providers of capital is generally thought to facilitate efficient security pricing and capital allocation. It follows that investors prefer to receive price sensitive information sooner rather than later. Hence most stock exchanges impose a duty of care upon listed firms requiring them to disclose price sensitive information in a timely manner. Many studies have examined the relationship between timeliness and information content of regulatory filings (for example, Chen et al 2005; Kothari et al. 2009). Others studies have examined the interaction between market discipline, managerial discretion and agency costs (for example, D'Mello and Miranda 2010; Drobetz et al. 2010).

Investigating the exercise of managerial discretion with respect to the timeliness of price sensitive information disclosures requires a market where sufficient discretion is available and where there is sufficient liquidity for investor reactions to be observed through price changes. Previous studies of discretion in the timeliness of price sensitive information disclosures have examined heavily regulated markets. For example, markets where the maximum reporting lag for annual financial statements is 3 – 4 months from the end of the reporting period. Prior focus on markets where managerial discretion is constrained means that the scope for testing the relevant theories has also been constrained. This is because data lacks richness if the underlying variables are not allowed to vary much. Few, if any studies have examined this topic in an unregulated market where institutional constraints and minority shareholder protection are minimal. The present study rectifies this omission by providing new, out of sample, results from the Alternative Investment Market (AIM) section of the London Stock Exchange (LSE).

The AIM is, arguably, the World's most successful second tier equity market and a unique feature of the study stems from the fact that managers of AIM firms are allowed discretion to

report their annual results at any time within a period that extends to six months following the financial year end.[2] This is in contrast to the main section of the LSE where the limit is four months. The AIM has several additional characteristics that make it an unusually rich and attractive data source. First, the high dispersion in reporting lag length resulting from the discretion allowed under the AIM rules provides an ideal opportunity to determine whether prior results such as those of Kothari et a. (2009) and Chen et al. (2005) are valid outside of the US and Chinese markets respectively. Second, the wide range of firm sizes, including many relatively low market capitalisation stocks, and their consequent lack of liquidity, imply that market reactions to bad news (or no news interpreted as signalling future bad news) are likely to be magnified. This is also likely to be exacerbated by the paucity of information relative to the main market, given the significantly reduced interest from analysts in providing research for such stocks. Third, the equity of many AIM firms is often tightly held by founder shareholders who exercise varying degrees of control, meaning that the ability of minority shareholders to exercise control rights is likely to exhibit greater variation between firms than on a more tightly regulated market such as the main section of the LSE where the minimum free-float is 25%. Fourth, unlike the main section of the LSE where many firms

[2] The AIM replaced the Unlisted Securities Market (USM) on 19 June 1995, and is the junior section of the London Stock Exchange (LSE). It is regulated by the London Stock Exchange, which means that AIM listings are not subject to the UK Listing Authority rules that apply to firms listed on the main section of the LSE. The result is that AIM listed firms have to meet less stringent financial and reporting standards than those quoted on the main section of the LSE. The lower reporting threshold is intended to facilitate firms seeking to raise equity capital in their early stages of development before they have achieved a long trading history, or a stable record of profitability.

If fiscal incentives to investors are interpreted as a measure of perceived importance to future economic growth and prosperity, then Her Majesty's Treasury apparently viewed the AIM as important in this respect, because individual AIM investors qualified for business asset taper relief against capital gains tax, enterprise investment scheme tax relief, inheritance tax business property relief and loss relief, if investments are held for the qualifying minimum periods. These fiscal incentives were not available to investors in firms quoted on the main section. Despite the importance of AIM implied by these fiscal incentives, surprisingly little academic research has been conducted to examine the efficiency of this market in channelling funds into the UK economy, or the disclosure risks to investors.

publish a financial calendar detailing their reporting dates up to a year in advance, relatively few AIM firms pre-announce their reporting dates and those that do tend to do it much later, giving them more scope to exercise discretion based upon whether the results are likely to be good or bad. Because main market firms typically publish their financial calendar on their website this information is not recorded in official documentation for posterity. Therefore, after the event it is very difficult determine whether an announcement was unexpectedly late or early for firms listed on the main market. Indeed the analysis which we undertake on the AIM would be difficult to replicate on other markets and comparison between the AIM and main section of the LSE would be no more informative than comparison with prior results from other regulated markets. Overall the richness in the data resulting from these characteristics of the AIM is a key contribution of our study in that it provides insights into the reporting behaviour of firms that are not available in more tightly regulated markets.

Examination of the time lag between the end of a firm's financial reporting period and the publication of the financial results (reporting lag) reveals that early announcements contain more unanticipated information than late announcements, a finding that is contrary to the results of Kothari et al. (2009) but consistent with Chen et al. (2005). The unanticipated information released in early announcements is predominantly good news despite the symmetry inferred by the obligation to disclose all price sensitive information in a timely manner. We also find that abnormal trading volume is depressed prior to early announcements but not late announcements, indicating that pre-disclosure information asymmetry is greater prior to early announcements. Furthermore, we demonstrate that market discipline is not always sufficient to deter managers from acting against the interests of minority shareholders. For example, late announcements are preceded by increasing bid-ask spreads and firms which habitually report late are also penalised by a permanent liquidity reduction in the form of a wider bid-ask spread.

The following section (2) establishes the theory and prior literature underpinning our research hypotheses. Section (3) describes our data before the hypotheses tests are evaluated in section (4). Section (5) presents the summary and conclusions.

2 Theoretical background, prior literature and research hypotheses

Stock exchanges typically impose a duty of care on managers of listed firms obliging them to disclose price sensitive information to market participants in a timely manner. The duty does not imply that there should be a difference between the timeliness of good versus bad news. AIM rule 11 provides a good example. It states that *"An AIM company must issue notification without delay of any new developments which are not public knowledge concerning a change in: its financial condition; its sphere of activity; the performance of its business; or its expectation of its performance, which, if made public, would be likely to lead to a substantial movement in the price of its AIM securities."* Even if managers have incentives to treat the bad news differently to good news, this should not result in timing differences if stock exchanges and regulatory bodies are able to enforce their rules. However, if compliance is not enforced, or if the degree of enforcement is allowed to vary over time, or between firms, the managers of some firms may be tempted to treat the two categories of news differently.

Incentives to report bad news earlier than good news include a fear of litigation and the possibility of negotiating less demanding hurdles for performance linked remuneration (Skinner 1994; Begley and Fisher 1998; Kothari et al 2009). Conversely, incentives to delay the reporting of bad news relative to good news include providing time to stabilise the financial position of the firm, find offsetting good news, or to develop plausible excuses for the poor performance (Lurie and Pastena 1975: 59; Chen et al 2005; Kothari et al. 2009).

In addition to research examining information asymmetry and accounting information disclosures, useful insights are also available in studies of agency theory, management discretion and the incentive alignment – market discipline hypotheses.

2.1 Managerial discretion hypothesis

Since the seminal paper by Williamson (1963) the managerial discretion hypothesis has been examined in a variety of contexts in the accounting, finance and management literature. For example, the idea that managers exercise discretion provided by the existence of surplus cash to undertake value destroying projects is central to the free cash flow/managerial discretion hypothesis of Jensen (1986). A recent test of Jensen's managerial discretion hypothesis provided by D'Mello and Miranda (2010) demonstrates that debt is negatively associated with discretionary funds and with value destroying overinvestment. A further test by Drobetz et al. (2010) finds that when shareholder protection is greater or information asymmetry is lower, thereby constraining the discretion available to managers, investors place a higher market value on the cash component of a firm's equity.

A substantial body of literature examines the degree to which managers of listed firms exercise discretion in the timing of earnings announcements. In a pioneering study of US firms, Beaver (1968: 72) observed that *"[a] possible avenue for future research would be to study the information content of the time lag itself (e.g., is "bad" news reported less rapidly than "good" news?)"*. The 'good news early bad news late' phenomenon has since been documented in a number of markets and time periods around the world (for example in the US market: Kross, 1981; Kross, 1982; Kross and Schroeder, 1984; Chambers and Penman, 1984; Chai and Tung, 2002; Kothari, Shu and Wysocki, 2009; and in China: Haw, Qi and Wu, 2000; Chen, Cheng and Gao, 2005). However, Skinner (1994) argues that the threat of litigation leads firms to make disclosures, such as trading announcements on potential bad

news even before it is confirmed. Tighter regulations prompted by accounting scandals such as Enron may also have changed the way firms manage their earnings announcements, particularly if the threat of litigation against firms that delay bad news has increased. This could result in late announcements no longer being characterised by bad news. Nonetheless, much of the more recent literature, including Chen et al. (2005) and Kothari et al. (2009), is consistent with the earlier studies to the effect that firms tend to release good news earlier than bad news.

Given the extensive analysis of the good news early bad news late phenomenon, one might expect investors and regulators to apply a robust policy to discourage firms from delaying the release of bad news. In fact it has been argued that managers now have greater incentives for early voluntary disclosures of bad news than before and require additional time to verify good news before its release (Begley and Fischer 1998: 347; Kothari et al. 2009: 267). Yet in many markets including the AIM, firms still have considerable discretion regarding the duration of their reporting lag. The competing arguments and inconsistent results motivate our study which uses a recent sample of AIM firms.

2.1.1 Pre-disclosure information asymmetry and surprise

If firm managers discharge their duty to disclose price sensitive information in a timely manner this implies that there will be no association between the timing of the announcement and the absolute magnitude of information disclosed (surprise) or between the timing of the announcement and the pre-disclosure information asymmetry. On the other hand, if managers are able to exercise discretion, they may have an incentive to release good news early but in stages thus spreading the benefit over time in a way that optimizes their personal benefits (Kothari et al. 2009). Conversely bad news may be withheld in the hope that mitigating good news or a suiTable excuse can be identified, thus increasing the surprise when the bad news

is eventually released (Kothari et al. 2009: 246). Counterarguments to these hypotheses are proposed by Chen et al. (2005) who suggest that unexpectedly early good news has less time for pre-disclosure leakage than late bad news. Managers may also trail bad news in advance by guiding down analysts' profit forecasts as a form of expectations management; thus softening the shock when the bad news is eventually released in full, perhaps reducing the litigation risk highlighted by Skinner (1994), Begley and Fischer (1998) and others. In addition, as the reporting lag increases, investors begin to get suspicious and either: (a) assume that the late news will be bad, or (b) start to obtain clues as to its content, either from discussions with management or other sources such as the results of competing firms (Chambers and Penman 1984). Hence, Chen et al. (2005) argue that both the amount of unanticipated information and the perceived pre-disclosure information asymmetry is greater in firms reporting early. Prior research clearly provides a foundation for the management discretion hypothesis by providing both intuition and empirical evidence in support of the idea that managers treat the disclosure of good and bad news differently.

Our null hypothesis predicts that there will be no difference in the timing of good news versus bad news announcements. Hence, our alternative management-discretion-hypothesis predicts that if managers are allowed discretion in the timing of announcements, either explicitly through regulatory omission or implicitly through lack of regulatory enforcement, they will exercise it when it is in their interests. Acceptance of the alternative hypothesis implies that timing of disclosures will vary depending upon the magnitude and nature of the information and the ability of managers to exploit their information asymmetry with respect to outsiders. The inconsistency between the findings of Chen et al. and those of Kothari et al. with regard to information asymmetry and surprise provide an opportunity to investigate another facet of the management discretion hypothesis by testing the null that: *"there is no*

significant difference between early and late announcements regarding the absolute quantity of unanticipated information and the level of pre-disclosure information asymmetry."

Critical assumptions relevant to our hypotheses are: (a) investors prefer to receive price sensitive information as soon as possible; (b) regulators impose an obligation on firm managers to disclose price sensitive information as soon as it becomes available; and (c) there is no systematic difference in the average time required to identify and confirm the existence of good and bad news respectively.

2.2 Incentive alignment and market discipline hypotheses

A fundamental assumption underpinning our analysis is that an exercise of managerial discretion resulting in differential reporting of good versus bad news is detrimental to the interest of minority shareholders and the reputation of stock exchanges. It is arguable that the existence of such discretion strengthens the case in favour of greater regulation and enforcement.

Regulatory enforcement of disclosure rules faces several challenges. First, determining whether information is price sensitive is subjective, often only possible with hindsight and then only by subjecting large samples of data to extensive statistical analysis. Second, it is difficult to determine the point in time when managers could reasonably have been expected to become aware of the information or that it was price sensitive. Managers can argue that they were not aware that the information was material enough to be price sensitive, or that price reactions following disclosures are simply noise, or the result of liquidity trades unrelated to the disclosure. In recognition of these challenges, exchanges such as the main section of the LSE impose restrictions on the timing of annual earnings announcements, such as the mandatory 4-month window following the fiscal year end. Firms are also encouraged to publish their reporting date months in advance so that changes to scheduled publication

dates necessitate explanations to investors. The resulting lack of discretion and uncertainty regarding timeliness means that exchanges characterised by such norms offer little scope for evaluating the effects of differential timeliness of good versus bad news disclosures.

Advocates of deregulation might argue that 'if there is no evidence that firm managers exercise discretion with adverse effects, we should not simply assume that relaxing controls will result in adverse behaviour'. Instead investors (principals) should ensure that the interests of managers (agents) are aligned with their own. Hence, if managerial discretion results in harm to investors, the incentive alignment - market discipline hypothesis implies that investors will react negatively with the effect that wayward managers are subjected to 'market discipline' (Jensen and Meckling 1976; Fama 1980; Jensen 1986).

As well as exercising control rights and taking direct action, investors' negative reactions can also be reflected via their 'exit' resulting in a depressed stock price and correspondingly high cost of capital or a withdrawal of liquidity. If managerial incentives are aligned with investors, this will reduce the value of equity based compensation, impair employment prospects due to reputational damage, and impair capital raising activities, thus restricting the managers' ability to grow the firm and to justify their own advancement. For example, Akhigbe and Martin (2008) find that changes in disclosures and governance characteristics bring about changes in the risk metrics of US firms consistent with the market discipline hypothesis.

In the face of perceived information asymmetry market-makers increase bid-ask spreads, thereby providing a mechanism by which market discipline can take effect (Glosten and Milgrom 1985). If firm managers exploit information asymmetry by withholding bad news, then the average bid-ask-spread will be higher in firms where the reporting lag is longer. Conversely, firms which report bad news early would be expected to have a lower bid ask spread than firms that delay reporting negative news of a similar magnitude. Other things

being equal increases in bid ask spread will lower the stock price (Fang et al. 2009). Hence, withdrawal of liquidity has a direct effect on minority shareholders but also on the value of equity based compensation awarded to firm managers.

It is possible that delaying the release of negative information will exacerbate its impact since shareholders are offered a 'silent signal' of bad news to come. When investors are provided with information, uncertainty-risk is removed, even if the information does not contain 'good-news'. On the other hand, when no information is provided, investors are likely to assume the worst and may sell their shares (Fama and Laffer, 1971). The information asymmetry increases the risk, and hence, the required return, with an inverse effect on the stock price Akhigbe and Martin (2008).

The problem with market discipline in its broad sense is that it hurts minority investors as well as rent-seeking managers. In order to be effective, incentives must be structured so that the adverse effects of market discipline cross the threshold at which managers cease to misbehave before investors bear a disproportionate share of the pain. If this is not achieved the threat of discipline is an insufficient deterrent to protect minority investors from the pernicious exercise of managerial discretion. On the other hand, when market discipline is effective, the adverse behaviour does not occur and the punishment is not applied. In this situation market discipline is not observable in the form of stock price or liquidity changes. Thus empirical studies of market discipline suffer from a type II error problem in that when it works, you cannot observe its effects, you can only note the absence of ill-effects. In other words, you conclude that the patient is healthy by the absence of symptoms to the contrary. It is only when the deterrent fails and market discipline is applied that we are able to detect its existence by observing the side effects of the treatment. At this stage we can reject the null hypothesis that it is an effective deterrent and thus accept the alternative that it is ineffective. However, this methodology only works for sick patients, i.e. 'misbehaving firms'.

Our null hypothesis states that market discipline is effective in aligning the interests of shareholders and managers so that discretion with regards to the timeliness of price sensitive information is not exercised against the interests of shareholders. If the null holds there will be no market reaction to delayed announcements, in the form of either, changes to stock prices or to liquidity. Furthermore, delayed negative announcements are expected to receive a similar market reaction to early negative announcements while late positive announcements are expected receive a similar reaction to early positive announcements. Rejection of the null and acceptance of the alternative implies that the threat of market discipline alone is insufficient to protect minority shareholders against the adverse effects of managerial discretion.

3 Data selection and time period of analysis

We base our financial years for data analysis upon the UK fiscal year, which runs from April to March. Individual reporting lags for an initial sample of 464 firms were derived using financial year end and regulatory annual results announcement dates that are hand collected from NexisUK. Our first year of data includes firms with financial year-ends from April 2006 to March 2007, followed by three additional years to the end of March 2010. The four year data sample included a bull market, the crash of 2008 and a subsequent rebound. The variety of market conditions and recency of the data comprising 1,856 firm years addresses the possibility that attention drawn to the good news early – bad news late phenomenon by prior research may have reduced the tendency of firm managers to exercise discretion.

The firms used in this study are selected from the Thomson-Reuters-Datastream (DS) list of UK domestic firms which are part of the London Stock Exchange AIM section (DS list code: UKAIM) which contains both live and dead firms. Firms with non UK ISIN numbers were removed because, although categorised by DS as being UK domestic firms, they may

originate from a jurisdiction with different company law and corporate governance standards to the UK. In addition, the following categories of firms were excluded from our study: (1) financial firms including investment entities; (2) firms that had a market capitalization of less than £5m on the 1st January 2006; (3) firms whose announcement data was either missing, or otherwise found to be unreliable because the data conflicted with data from other sources; (4) firms suspended in the year before the 2006/2007 financial year-end, and (5) firms whose initial listing on the AIM took place after the 1st January 2006. These exclusions were made in order to ensure that the sample was not corrupted by firms that were unlikely to be tradable in an economically meaningful size; financial firms subject to different regulatory constraints; non-trading firms such as cash shells and recent IPOs that might have other characteristics not related to reporting lag that could bias the results.

The reporting lag is defined as the number of calendar days between the financial year-end and the reporting date. In the final year of the sample (2009/2010), no reporting date exists for firms suspended as a result of failing to make the six month deadline and not reinstated by the end of the study period. These firms are given a default reporting lag of 190 days. For the sample as a whole, it is assumed that any firm that does not report within 180 calendar days of the year-end is suspended, even if the firm eventually reports and is reinstated.

Two methods are used to define early and late firms. The first method sorts firms into quintiles based upon their reporting lag. Early firms comprise the first and second quintiles with the shortest reporting lag. On-time firms are those from the middle quintile and late firms comprise the fourth and fifth quintiles. The second method, only applies to the most recent three years of data as firms are sorted based upon the change in their reporting lag relative to the previous year. As with the first method, early and late firms comprise the first and fifth quintiles respectively. However, the distribution of year to year changes in reporting lag is highly clustered around zero in that most ‘on-time’ firms report within plus or minus

three calendar days of their reporting date last year. This six-day window for on-time firms includes many announcements from quintiles 2 and 4 as well as quintile 3.

4 Data analysis

4.1 Summary statistics

The basic distribution characteristics of firm reporting lags, industry groups and firm financial year-ends are reported in Table 1. Most of the sample firms are in the industrials, consumer services, technology, and basic materials sectors. The most frequent year-end is December followed by March, June and September. The minimum reporting lag observed is 31 calendar days and the maximum is 410 calendar days. Within this range the 25th percentile for the whole sample is 78 days, the median is 94 days and the 75th percentile is 142 days. The distribution of firms within different reporting lag ranges can also be observed in Figure 1 for individual years and for all years combined. The distribution is slightly bimodal, as around 15% report in the few weeks immediately preceding the 6 month deadline, while a further group of firms report after six months and have their listings temporarily suspended as a result. The data presented in Table 1 and in Figure 1 indicate that apart from an increase in the proportion of suspended firms in the financial year 2009/10, there is little variation in the distribution between each of the years studied.

The distribution of early/late reporting firms in different size categories is illustrated in Figure 2. Nearly 50% of suspended firms had a market capitalization of < £5m at the preceding financial year-end, while around 70% of suspended firms had a market capitalisation of < £15m. More of the firms with a market capitalisation < £5m at the preceding financial year are late or suspended firms, than firms in the middle or early reporting lag quintile. However, in the population of firms > £5m at the preceding financial year-end, and firms which report before the 6 month deadline, there is little difference in the distribution of early, middle and late quintiles throughout the different size categories.

For each firm in the study the trailing 3-month average of the logarithmic percentage bid-ask spread was recorded at the financial year-end date preceding the announcement. The distributions of the early-reporting quintile, middle quintile, late-reporting quintile and suspended firms among different bid-ask spread ranges are illustrated in Figure 3. It is clear that the distribution of suspended firms and late firms is weighted toward higher bid-ask spread categories compared to the early and middle reporting quintiles of firms and that the early reporting quintile also appears to have a greater proportion of firms in the lower bid-ask spread categories than the middle quintile. The cross-sectional sample means of individual firms' bid-ask spreads during the 2-year observation period for the early and late reporting portfolios are illustrated in Figure 4. It is evident that firms in the early reporting portfolio have an average bid-ask-spread that is around 3% lower than those in the late reporting portfolio over the whole observation period. Both portfolios contain firms of similar size; therefore, the difference in average bid-ask-spreads is not due to a firm size effect. The patterns displayed in figures 3 and 4 imply that late firms are perceived by the market to be characterized by high levels of information asymmetry between insiders and outsiders as early as the financial year-end preceding the announcement. Withdrawal of liquidity from late reporting firms is arguably a form of market discipline, although it is not clear how the costs of this discipline are shared between firm managers and shareholders.

4.2 Characteristics of early/late reporting firms

Following the data collection and the preliminary analysis described in section 4.1, the sample of 1,856 firm years was further edited to remove firms with a market capitalization of < £5m at the financial year-end date preceding the announcement and firms which were suspended due to their having a reporting lag greater than 180 calendar days (approximately 6 months). This editing process allowed us to focus our analysis upon firms which were still tradable during the period of analysis. The results reported in subsequent sections are thus

based upon a final edited sample of 1,515 firm years for firms sorted based upon reporting lag quintile and 1,064 firm years for firms sorted based upon the change in their reporting lag relative to the previous year. Additional unreported analysis indicates that our conclusions are robust to the editing process.

4.2.1 Pre and post announcement performance

In our initial analysis we follow Kothari et al. (2009) and apply a modified version of the zero-one model in which individual firms are all assumed to have abnormal returns of zero and sensitivity to the market return (beta) of one. Our proxy for the market portfolio is the capitalization weighted average of the FTSE AIM Allshare Index and the FTSE Allshare Index. Individual firm abnormal returns are calculated by taking the geometric difference between the daily total returns of individual firms and our benchmark portfolio. Firms are then sorted into quintiles based upon reporting lag. Buy and hold returns of early and late quintile portfolios are then calculated as the returns that would have been achieved by an investor if an equal amount had been invested in each firm 250 trading days before the announcement and then held without re-balancing until 250 trading days after the announcement. The returns achieved by these early and late reporting quintile portfolios are illustrated in Figure 5. The 95% confidence intervals are based upon the cross-sectional standard errors of individual firm cumulative buy and hold returns over the observation period. It is clear from Figure 5, that the early portfolio outperforms the late portfolio by a substantial margin over the two-year observation period. In fact, the late portfolio continues to exhibit a negative return trend more or less until the end of the observation period. These observations are consistent with the market discipline hypothesis in that the stocks of late reporters persistently underperform those of early reporters.

4.3 Price sensitivity of earnings announcements

The first stage of our hypotheses testing procedure is to determine the price sensitive information content of annual earnings announcements. For information to be price sensitive it must be both unanticipated and sufficiently material to imply a change to the present value of the firms projected cash flows. Given the large number of firm years in our sample, we can draw robust inferences regarding the magnitude and sign of the price-sensitive information released by observing stock price reactions around the publication date. By specifying a return generating model that controls for risk and other confounding variables, we assume that price sensitive information contained in good and bad news announcements is accompanied by stock price increases and decreases respectively. Therefore, least squares coefficients for model I are estimated for each firm, with individual firm excess returns used as the dependent variable.

$$r_{i,t} = a_{i,t} + b_1 R_{m,t} + b_2 R_{m,t-1} + b_3 SMB_t + b_4 SMB_{t-1} + b_5 VMG_t + b_6 VMG_{t-1} + b_7 r_{i,t-1} + \varepsilon_t \qquad \text{(I).}$$

The abbreviation, $r_{i,}$ is the daily excess total return on security *i*. The abbreviations: R_m, SMB_i, VMG_i, are the excess return on the market, the size premium and the value premium respectively for each firm, *i*.[3] The coefficients, $b_1 - b_6$ represent the sensitivity of firm daily excess returns to changes in the common risk factors. AIM firms are often small relative to the average size of firms listed on the LSE and they may have higher or lower sensitivity to market risk than average. The specification of model I controls for the effects of firm size and firm style on the return generating process. In addition to the inclusion of lagged firm returns as an independent variable, our model specification includes coefficients on lagged market

[3] The size factor, small minus large (SMB) is derived by taking the geometric difference between the total returns of the FTSE UK Small Cap Style Index (WSUTDK£) and those of the FTSE UK Large Cap Style Index (WLUTDK£). Likewise, the style factor value minus growth (VMG) is derived from the geometric difference between the total returns of the FTSE UK Growth Style Index (WGUTDK£) and the FTSE UK Value Style Index (WVUTDK).

excess returns and lagged size and style factors to mitigate against thin-trading biases (Dimson, 1979; Dimson and Marsh 1983). Both groups of firms frequently experience days when no trading occurs. Therefore, to provide further mitigation for thin trading bias, we substitute market excess returns for firm excess returns on days when both of the following two conditions are met simultaneously: (a) a firm's stock price does not change and (b) its trading volume is zero. We call such events no-price-days (NPDs). Model coefficients are estimated for each firm using daily excess returns spanning the period from 250 trading days prior to the announcement through to 61 days beforehand [- 250, - 61].

Least squared estimates for each firm are then used to derive estimation and event period expected returns, residuals and prediction errors respectively. Residuals and prediction errors are then standardized and used to derive the average abnormal returns (AARs) and cumulative average abnormal returns (CAARs) following a modified version of the *share time series* method described by Armitage (1995:35).

Panel A of Table 2 reports the CAAR statistics of all firms aggregated over the four years and also separated into individual years but without distinguishing between early and late announcers. The announcement day AARs reported in panel A are all positive and significant at the $p < 5\%$ level. Median AARs are also all positive and the percentages of firm returns < 0 are all < 50%. This indicates that annual earnings announcements generally contain price sensitive information comprising good news. This finding is robust across all market conditions given that the four years span the final year of a bull market, the 2008 crash and a substantial rebound in 2009/10. The CAAR statistics for other event windows are more mixed, although the CAAR for the [- 60, - 21] windows are all negative and significant at the $p < 1\%$ level.

The CAAR statistics aggregated for all years but separated into early, on-time and late reporting quintiles are reported in panel B of Table 2. In this instance, firm reporting lags are

ranked relative to other firms in order to define early, on time and late quintiles. The announcement day AARs are positive for all quintiles apart from the late reporting firms in quintile 5 (Q5) which are not significantly different from zero. Q5 is the only group with the proportion of announcement day returns less than 0 is greater than 50%. Positive announcement day abnormal returns of early firms in Q1, Q2 and the moderately late firms in Q3 are significant at the $p < 1\%$ level. These results indicate that price sensitive information is reported earlier while on time and late reporting firms in are not releasing price sensitive information. We cannot say from these results that price sensitive information containing bad news is likely to be released later than good news.

As well as defining timeliness of annual earnings announcements relative to firms' peers, as in Table 2 panel B, it is also possible to define timeliness within firms by comparing the change in reporting lag between successive years. This change can then be compared across firms. A potential complication is that if a firm reported very late in the previous year, a very large reduction in reporting lag the following year might simply reflect a recovery to a more normal reporting lag following an exceptional firm specific event that increased reporting lag in the prior year. Likewise, if a firm reporting late in the prior year was close to the six-month regulatory limit, increasing the reporting lag further the following year will result in the firm being suspended for exceeding the limit. On the other hand, a firm that reported very early in the previous year has only limited scope to reduce the reporting lag still further in the current year. In order to address this complication we separate firms into two groups. Those that reported earlier than the median and those that reported later than the median last year. This allows us to investigate whether the information content of announcements by firms that reported early last year and earlier still this year, is different to announcements of firms that reported late last year but less late this year. Likewise we can compare firms that reported

early last year, but less early this year and late last year and later still this year. The results of this analysis are presented in Table 3.

Panel A of Table 3 reports the CAAR statistics of firms that had reporting lags less than the median last year. This group of firms is further subdivided into five quintiles: Q1 and Q2 earlier than last year, Q3 on time or up to 5-days later than last year. Q4 and Q5 are later than last year. Panel B reports results for firms that had reporting lags greater than the median last year. For this subsample, Q1 – Q3 are earlier than last year, Q4 is on-time or up to 7-days later than last year and Q5 is late. It is clear from Table 3 that most firms that were early last year and earlier still this year report price sensitive news that is good because the announcement day AAR is positive and significant at a p of < 0.01%. In fact less than 38% of early firms and less than 45% of all firms in this group have negative announcement day returns. However, the announcement day AAR of firms that reported earlier than the median last year but more than 5-days later this year are not significantly different from zero. These results clearly indicate that the price sensitive information content of early announcements is more likely to be positive than negative. However, support for the managerial discretion hypothesis is limited by the fact that unlike early announcements there is no evidence that late announcements contain price sensitive information.

Panel B of Table 3 reports the corresponding results for firms that reported later than the median last year. Once again, the quintiles of firms that reported earlier than last year had an announcement day AAR that was positive. However, significance levels were lower than for the group that was early last year, with no quintiles having an AAR significant at the 5% level and only two Q1 and Q4 significant at the p < 10% level. These results indicate that firms which reported later than their peers last year are less likely to be reporting price sensitive information than firms that reported early last year, or that the mix of good and bad news is such that the mean is not significantly different from zero.

4.3.1 Pre and post event performance

Across all firm groupings reported in Tables 2 and 3, there is a general tendency for stock prices to drift down in the event window [-60, -21], i.e. 3 – 1 month before the announcement. The negative CAAR in this window is significant at the p < 1% level respectively for 11 out of the 20 groupings reported in both panels of both Tables. Panel A of Table 2 also provides evidence of further negative price movement in the final month before the announcement [-20, -1]. As well as positive event day AARs, a positive CAAR significant at the p < 5% level for the [0, + 1] window is observed in 6 out of the 20 firm groupings reporting early relative to peers, earlier than the median last year and earlier still this year. The post event CAAR for the [0, + 20] event windows is positive and significant at the 1% level in 9 out of the 20 groups in Tables 2 and 3. The same event window is negative and significant at the 1% level in the late Q5 quintile in panel B of Table 2 but not in Table 3. The [0, + 60] event window CAAR statistics are significant and positive in the early and on time quintiles but negative and significant in the late quintiles of Table 2, panel B. The same event window CAAR statistics are significant at the p < 1% level and positive in the early Q1 - Q2 subsamples in the panel A of Table 3. These findings suggest that AIM firms were generally underperforming their benchmarks between 3 months and 1 month before their announcements. However following the announcement early reporting firms and in particular firms reporting early relative to their peers and early relative to last year are more likely to outperform than late firms during the 3-month post announcement window, a finding consistent with the results discussed earlier from figure 5.

Overall, the findings indicate that early announcements contain more price sensitive information and that this price sensitive information is positive. Contrary to our managerial discretion hypothesis, there is no evidence that late announcements are more likely to contain price sensitive information that is negative.

4.3.2 Tests of interactions between reporting lag and announcement day returns

An alternative to the approach adopted in model I is to estimate a pooled regression using stacked (long format) data. This allows individual firm and year fixed effects to be added to the controls already included in model I, together with a dummy to capture event day average abnormal returns ($AAR_{t,0}$), plus interaction dummies to determine the relationship between the announcement day AAR and the timeliness of reporting. An additional feature of this approach is that it allows us to include firms suspended for late reporting, either this year or last year, and small firms with a market value of < £5m at the financial year end. This is because we can control for these using dummy variables and firm fixed effects. The two variations of what we shall refer to as model II (MII a, and MII b) represent such an approach and the results are presented in Table 4. These results are consistent with those of model I in that both versions of model II show an AAR on the announcement day of 4.7% and 3.6% significant at the $p < 0.01\%$ level. The interaction coefficient for reporting lag and announcement day returns shows that the average announcement day abnormal return declines by between 0.03% and 0.2% for each additional day of reporting lag. Hence a firm that has a reporting lag of 180 days compared the peer group median of 94 days has an expected announcement day abnormal return of about half that of the average. In model II a, this finding is amplified by the negative interaction between change in reporting lag from last year and also firms in the late reporting quintile (Q5) and the announcement day AAR. Both of these coefficients are marginally significant and negative at the $p < 10\%$ level. Furthermore, firms are late this year relative to last year have daily returns which are about 0.001% lower than average for each extra day of delay compared to last year. This finding is significant at the $p < 5\%$ level. Therefore, we can conclude that firms reporting late relative to their peers report news that is less positive than average.

There is an, albeit somewhat weak, argument that the above results could be biased by endogeneity between the reporting lag and the information content of the announcement. Therefore, we control for this risk in model II b by using the reporting lag in the previous year as an instrument for the reporting lag in the current year. This is possible because although reporting lags are highly correlated from year to year within firms, the reporting lag in the previous year cannot be determined by the information content of the current year's results. The coefficient of the interaction between reporting lag last year and the announcement day abnormal return this year is negative and significant at the $p < 0.01\%$ level. This is consistent with the interaction between the current year reporting lag and the announcement day abnormal return observed for model II a, thus confirming that endogeneity does not bias the results.

4.4 Pre-disclosure information asymmetry and surprise

AIM rule 11 obliges firms to publish information that is price sensitive. However, it does not specify that information that is a 'little bit' price sensitive should be published later than information that is 'highly' price sensitive. Therefore, unless firm managers convincingly argue that slightly price sensitive information is harder to identify than highly price sensitive information and thus requires a longer publication delay to confirm its existence, one would not expect early announcements to contain more surprising news than late announcements, provided that both sets of announcements contain news that is price sensitive.

The amount of unanticipated information (surprise) in announcements is positively correlated with the degree of pre-disclosure information asymmetry (Atiase and Bamber 1994; Kim and Verrecchia 1994; and Lobo and Tung 1997). Information asymmetry is positively associated with bid-ask spread and negatively associated with abnormal trading volume. In this study we examine both abnormal bid-ask spreads and abnormal trading volume in the 3-months prior

to and following the announcements of early and late firms. Abnormal bid-ask spreads and abnormal trading volume are derived by the multistep process detailed below.

Firms' daily logarithmic percentage spreads are divided by their standard deviation estimated over the entire data sample to standardize them. Coefficients for model III are then estimated for each firm using daily standardized spreads over the period spanning one year prior to and two months following the announcement date:

$$LnBAS_{i,t} = a + b_1 D_{t,-6} + b_2 D_{t,-5} + b_3 D_{t,-4} + b_4 D_{t-3} + b_5 D_{t-2} + b_6 D_{t-1} + b_7 D_{t-0} + b_8 D_{t+1} + b_9 D_{t+2} + b_{10} D_{t+3} + b_{11} D_{t+4} + b_{12} D_{t+5} + b_{13}\sigma_{m,t} + b_{16}\sigma_{m,t-1} + b_{14} A\sigma_{m,t} + b_{15} A\sigma_{m,t-1} + b_{16} LnBAS_{i,t-1} + \varepsilon_{i,t} \quad \text{(II).}$$

The $LnBAS_{i,t}$ is the standardized logarithmic percentage spread for each firm i at time t. The dummy variables $D_{t-6,}$ through D_{t+5} control for abnormal bid-ask spreads in the 6 days prior to the announcement day, the announcement day and the 5 days following the announcement day. In order to control for the tendency of all firm bid-ask spreads to increase on days when the market volatility is high and in particular when market volatility is associated with negative market returns, the model includes a proxy variable for market volatility $\sigma_{m,t}$ in the form of the absolute return on the market on day t and the proxy variable for asymmetric volatility $A\sigma_{m,t}$, which is the absolute return on the market on days when the market return is negative and zero on all other days. The lagged dependent variable mitigates possible biases resulting from serial correlation in the bid-ask spread variable.

Abnormal bid ask spreads are then derived for each firm by calculating predicted values for the dependent variable using the intercept and coefficients b_{13} through b_{16} in the above model but excluding coefficients b_1 through b_{12}. These predicted values are then subtracted from the observed values. The resulting prediction errors are standardized by dividing by the

standard error of each firm's regression estimate in model III to give a standardized estimate of the abnormal bid-ask spread for each firm on each day of the observation period.

Sample mean cumulative abnormal bid-ask spreads for early and late reporting firms defined by reporting lag quintiles are plotted in figure 6 over a period spanning 60 trading days prior to and 60 trading days after the announcement. It is evident from the 2 standard error bands that cumulative abnormal bid-ask spreads of early and late firms defined in this way are not significantly different from zero or from each other. Cumulative abnormal bid-ask spreads for firms categorized as early or late based upon the timing of their announcement relative to their previous year's announcement, instead of by their reporting lag quintile are also plotted in figure 7. As in figure 6, early firms do not exhibit any significant cumulative abnormal bid-ask spread prior to, during or following the announcement. However, in contrast to early firms and late firms defined by their reporting lag quintile, firms defined as late relative to their reporting lag in the previous year exhibit a steady increase in abnormal bid-ask spreads over the whole observation period, and this increase becomes significantly different from zero around the announcement date. Withdrawal of liquidity prior to the announcement is evidence in support of the market discipline hypothesis for unexpectedly late firms.

4.4.1 Analysis of trading volume

Trading volume is very noisy, particularly in AIM firms that tend to be smaller and less liquid than firms on the main market. Furthermore, trading volume as a percentage of shares outstanding is highly right-skewed and leptokurtic, with the result that extreme values have the potential to bias the results of OLS estimates of normal and abnormal volume. In order to address this problem, we undertook the following transformation of all volume data during the event window.

$$TVol_{i,t} = Ln(Vol_{i,t} + 1)^{1/4} \quad (1)$$

Where $TVol_{i,t}$ is the transformed trading volume as a percentage of shares outstanding for firm i on day t, $Vol_{i,t}$ is the same but prior to transformation while Ln is the natural logarithm. Least squares coefficients are then estimated for model (IV):

$$TVol_{i,t} = a + b_1 D_{t,-6} + b_2 D_{t,-5} + b_3 D_{t,-4} + b_4 D_{t-3} + b_5 D_{t-2} + b_6 D_{t-1} + b_7 D_{t-0} + b_8 D_{t+1} + b_9 D_{t+2} + b_{10} D_{t+3} + b_{11} D_{t+4} + b_{12} D_{t+5} + b_{13} Vol_{m,t} + b_{16} Vol_{m,t-1} + b_{14} A\sigma_{m,t} + b_{15} A\sigma_{m,t-1} + b_{16} TVol_{i,t-1} + \varepsilon_{i,t}$$

(IV).

Independent variables for model IV are as for model III apart from $Vol_{m,t}$, which is the total volume of shares traded on the FTSE 100 Index as a percentage of shares outstanding. This is less noisy than the volume for individual firms so it is standardized by dividing each daily observation by the standard deviation for all days. Using model IV, we then follow the same procedure as adopted for bid-ask spread above, in order to estimate abnormal trading volume for each firm.

The sample means of cumulative abnormal trading volume for early and late firms defined by reporting lag quintile are plotted in figure 8. It is clear from figure 8 that cumulative abnormal trading volume declines prior to the announcement for early reporting firms and that this decline is significantly different from zero and significantly different from the cumulative abnormal trading volume of the late reporting firms. In fact the cumulative abnormal return of late reporting firms increases prior to the announcement. In figure 9 the equivalent sample means are also reported for early and late firms defined according to their change in reporting lag from the previous year. Broadly speaking figure 9 confirms the pattern observed in figure 8, in that early firms exhibit significantly negative cumulative abnormal trading volume prior to the announcement and this trading volume is also

significantly lower than that of late firms. However, cumulative abnormal trading volume of late firms is not significantly different from zero prior to the announcement.

Abnormal trading volume prior to earnings announcements is lower and the trading volume during the announcement is higher when the level of pre-disclosure information asymmetry is greatest (Atiase and Bamber 1994; and Lobo and Tung 1997). Our evidence from figures 8 and 9, indicate that pre-disclosure abnormal trading volume is lowest in early reporting firms indicating that early announcements contain more unanticipated information than late announcements. Furthermore, pre-disclosure abnormal trading volume in firms with the longest reporting lags is positive and increasing prior to late announcements indicating that firms which report late relative to their peers leak information prior to the announcement. In contrast, firms which report late relative to previous years do not exhibit abnormal trading volume prior to the announcement, suggesting that firms which are unexpectedly late exhibit different information asymmetry characteristics to firms which report late consistently over multiple years. This finding is supported by the increasing abnormal bid-ask spread evident in this category of firms by examination of figure 7. Overall, the volume results are supportive of the hypothesis that pre-disclosure information asymmetry is greatest in early announcements. We have already established that early announcements are more likely to contain price sensitive information than late announcements and that information is more likely to be good news than bad news. Therefore, these additional results suggest that the managers of AIM firms exercise discretion in an asymmetric fashion in that early disclosures contain more price sensitive information than on time or late disclosures and that price sensitive information is more likely to be comprised of good news than bad news.

4.4.2 Analysis of unanticipated information content

In panel A of Table 5, cumulative absolute abnormal returns over the event window t_0, t_{+1} are ranked according to the announcement day abnormal return rather than the early/late criterion, so that the lowest quintile of announcement day abnormal returns are defined as bad news and the highest good news. It is evident from this ranking that the average cumulative absolute abnormal return (surprise) in the good news quintile is higher than that of the bad news quintile and that the difference is significant at the $p < 0.01$ level. We also find the same result if we remove the most extreme 10% of the good and bad news returns from our sample. Thus, contrary to the findings of Kothari et al. (2009) for the US market but in line with the findings of Chen et al. (2005) for the Chinese market, we find that good news announcements contain more unanticipated information than bad news announcements. This is consistent with the patterns reported in Tables 2 and 3 where early announcements correspond with significant and positive abnormal returns while the abnormal returns of late announcements are not significantly different from zero, thus failing to reject the null that late announcements contain any price sensitive information, either positive or negative.

The differences in abnormal trading volume and abnormal bid-ask spread on the announcement date between early and late firms are also reported in panel B of Table 5. When firms are defined as early/late based upon their reporting lag rank quintile, announcement day average abnormal trading volume is higher in early firms, but the difference in abnormal bid-ask spread is not significantly different from zero. Hence analysis of abnormal trading volume on and around the announcement day provides evidence in support of the management discretion hypothesis to the effect that early announcements contain more unanticipated information than late announcements.

4.5 Synopsis

We carried out a number of robustness checks including: (1) not substituting market returns for firm returns on days when no trading or price change occurred; (2) varying the model specification to include additional lags on the control variables; (3) varying the winsorization criteria from 0% to 10% in each tail; (4) partitioning the data into different financial years, different quartiles of market capitalization and quartiles of average bid-ask spread. In all of our robustness checks we obtained qualitatively similar results with consistent coefficient signs on the key variables of interest.

Overall the results confirm that stock prices react positively to early announcements of annual results. In their study of the US market, Kothari et al. (2009) argue that firm managers have an incentive to release good news slowly, while Chen et al. (2005) argue the reverse. We find evidence that the average surprise contained in both good news and early announcements is greater than in late announcements. We also find evidence consistent with that of Chen et al., to the effect that the level of pre-disclosure information asymmetry is greater in early firms than in late firms. A possible explanation for the differences and similarities between the findings of the three studies is that our results, like those of Chen et al., are based upon the observed timeliness in the reporting of mandatory annual financial results. In contrast, Kothari et al., examine dividend changes and voluntarily disclosed earnings forecasts. They infer timeliness based upon the absolute magnitude of market price reactions following the announcements.

5 Summary and conclusions

Our study provides clear evidence that when firms report earlier than their peers they are more likely to be reporting good news and that the good news has not been anticipated by investors prior to the announcement. In addition, we find evidence that unexpected information is greater in good news announcements than in bad news announcements and

evidence that the pre-disclosure information asymmetry is greater for early announcements than for late announcements. The average bid-ask-spreads of late firms are 3% higher than early firms of a similar size. Our findings extend prior research that has focused primarily upon the US market and support Chen et al. (2005) who find that good news announcements are more likely to contain unanticipated information than bad news announcements.

The AIM is important as both a domestic and an international capital market for young and growing firms and it has sometimes exceeded rivals such as the NASDAQ in its ability to attract new listings and foreign listings (Gerakos, Lang and Maffett, 2011). Our results from a sample comprising 1,856 firm-years with a combined year-end market capitalization > £70bn are economically significant and have practical relevance to financial regulators, accounting standard setters, stock exchanges, firm managers who are in possession of undisclosed bad news, and also to investors contemplating the implications of variations in reporting lags within and between firms. In short, we find that when managers of listed firms are allowed discretion with regard to the timeliness of annual earnings announcements they exercise that discretion. While we find some evidence of a market discipline effect in the form of reduced liquidity it is not clear that the managers responsible feel these effects more acutely than the minority shareholders.

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Table 1

Basic firm distribution characteristics

Panel A: Reporting lag distribution in days for all years combined and individual years					
Statistics	All years	06/07	07/08	08/09	09/10
Min	31	31	38	31	40
25th percentile	78	76	78	77	81
Median	94	89	94	97	104
75th Percentile	142	125	129	144	159
Max	410	209	410	333	259
Mean	111	104	110	112	119
Median exc. lags > 180	92	89	93	94	90
Mean exc. lags > 180	104	103	105	107	102
Panel B: Firm distribution between industry group and between financial year-end month					
Industry group	No.	%	Month	No.	%
Industrials	112	24%	December	203	44%
Consumer services	79	17%	March	91	20%
Technology	72	16%	June	61	13%
Basic materials	57	12%	September	34	7%
Oil and gas	48	10%	July	15	3%
Healthcare	43	9%	April	12	3%
Consumer goods	37	8%	May	10	2%
Telecomms	8	2%	October	10	2%
Utilities	8	2%	August	9	2%
			February	7	2%
			November	6	1%
			January	6	1%
Totals	464	100%	Totals	464	100%

Notes:

Industry groups are the Thomson Reuters Datastream level 2 industry groupings for the UK market detailed fully in Table 1.

Table 2

CAARs aggregated across early and late firms, panel A, and aggregated across years but separate reporting lag (RL) quintiles (Q1 – Q5), panel B.

Panel A: CAARs aggregated for early, on time and late							***Panel B: Separate CAARs for early, on time and late***					
All reporting lags and all years, *N = 1490*							**All years Q1: Early relative to peers, *RL = 31 – 72 days, N = 317***					
	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]
CAAR - mean	-0.78	0.05	0.49	0.50	0.31	-0.27	-0.99	-0.02	0.99	1.05	0.67	0.70
CAAR - median	-0.85	-0.22	0.21	0.17	-0.12	-0.70	-1.17	-0.39	0.78	0.77	0.20	-0.47
Negative %	52.1%	51.0%	42.1%	47.3%	51.0%	51.2%	53.0%	51.7%	34.0%	42.8%	51.9%	51.6%
T - stat	-23.94	1.65	6.05	7.58	7.88	-7.36	-12.45	-0.35	5.71	7.56	7.40	8.76
p - value t	0.00%	11.59%*	0.00%	1.70%	0.00%	0.00%	0.00%	72.79%*	0.00%	1.71%	0.00%	0.00%
All reporting lags fiscal year 2006/07, *N = 435*							**All years Q2: Early relative to peers, *RL = 73 – 84 days, N = 280***					
	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]
CAAR - mean	0.49	0.62	0.36	0.47	0.52	0.09	0.08	0.06	0.75	0.86	0.80	0.14
CAAR - median	-0.42	0.00	0.14	0.16	-0.09	-0.51	-0.66	-0.40	0.45	0.39	0.10	-0.57
Negative %	51.2%	50.0%	44.5%	46.5%	50.9%	51.0%	51.8%	52.0%	38.1%	45.2%	50.8%	51.3%
T - stat	7.10	11.10	2.31	3.78	7.77	1.41	1.16	0.86	3.70	5.25	9.50	1.80
p - value t	0.00%**	0.00%	2.10%	6.30%	0.00%	16.3%*	25.3%*	39.98%	0.03%	3.45%	0.00%	7.75%*
All reporting lags fiscal year 2007/08, *N = 403*							**All years Q3: On-time relative to peers, *RL = 85 – 99 days, N = 304***					
	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]
CAAR - mean	-1.30	-0.16	0.73	0.58	0.02	-1.44	-0.65	-0.09	0.27	0.36	0.61	0.62
CAAR - median	-0.62	-0.13	0.36	0.25	0.01	-0.65	-0.66	-0.39	0.04	-0.02	-0.37	-0.93
Negative %	51.2%	50.4%	37.4%	47.3%	50.5%	50.7%	51.4%	51.8%	47.2%	50.2%	51.7%	51.3%
T - stat	-20.64	-2.55	5.29	5.17	0.31	-19.82	-9.74	-1.42	1.45	2.36	6.75	7.68
p - value t	0.00%	1.96%	0.00%	3.55%	76.02%	0.00%	0.00%	17.19%*	14.91%	14.19%	0.00%	0.00%!
All reporting lags fiscal year 2008/09, *N = 323*							**All years Q4: Late relative to peers, *RL = 100 – 130 days, N = 294***					
	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]
CAAR - mean	-0.60	0.22	0.59	0.62	1.07	2.56	-1.04	-0.04	0.54	0.46	0.37	-1.42
CAAR - median	0.10	0.25	0.25	0.24	0.65	1.25	-0.65	-0.17	0.24	0.22	0.16	-0.49
Negative %	49.7%	48.8%	42.0%	46.4%	47.8%	48.3%	51.6%	50.8%	39.5%	45.3%	49.6%	50.8%
T - stat	-8.04	2.57	2.71	3.68	11.19	27.99	-15.78	-0.49	2.88	3.14	4.49	-17.88
p - value t	0.00%	1.88%!	0.71%	6.66%	0.00%	0.00%	0.00%	62.84%*	0.42%	8.83%	0.02%	0.00%
All reporting lags fiscal year 2009/10, *N = 335*							**All years Q5: Late relative to peers, *RL = 131 – 180 days, N = 295***					
	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]
CAAR - mean	-2.05	-0.59	0.32	0.35	-0.29	-1.95	-1.13	0.55	-0.07	-0.19	-0.74	-1.16
CAAR - median	-2.23	-0.92	0.05	-0.00	-0.88	-2.58	-1.08	0.17	-0.04	-0.11	-0.23	-0.72
Negative %	56.8%	55.4%	44.7%	49.1%	54.9%	55.0%	52.6%	48.8%	51.9%	53.0%	51.0%	51.0%
T - stat	-42.28	-11.31	2.29	3.04	-3.60	-30.93	-13.97	6.95	-0.48	-1.53	-8.76	-13.72
p - value t	0.00%	0.00%	2.26%	9.34%	0.18%	0.00%	0.00%	0.00%	63.43%	26.59%	0.00%	0.00%

This Table reports the cumulative average abnormal return (CAAR) statistics for the whole sample of firms aggregated across all years, the whole sample in each individual year and individual reporting lag quintiles (RL) aggregated across all years. Average abnormal returns (AARs) are calculated using a 5% winsorization. P – values marked "*" become or remain negative and significant with a 10% winsorization, those marked "!" cease to be significant. Other significance levels are robust to winsorization thresholds.

Table 3

CAARs early/late firms relative to previous year separated into, those reporting earlier than average in the previous year and those reporting later

Panel A: Reporting lag in the previous year < median							***Panel B: Reporting lag in the previous year > median***					
Early previous year - Q1: 57 - 2 days earlier still this year, *N = 144*							**Late previous year - Q1: 157 - 29 days earlier this year, *N = 107***					
	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]
CAAR - mean	-0.98	0.05	1.18	1.33	0.76	1.10	-1.60	0.25	0.40	0.49	0.50	-0.89
CAAR - median	-0.72	-0.38	0.78	0.80	0.18	-0.28	-1.97	-0.59	0.22	0.21	-0.38	-1.86
Negative %	51.3%	51.5%	37.5%	42.8%	51.5%	50.9%	55.4%	53.0%	42.2%	46.4%	52.4%	53.1%
T - stat	-9.17	0.49	4.25	5.91	6.19	9.04	-1.63	0.25	1.93	0.34	0.73	-1.02
p - value t	0.00%	62.76%	0.00%	2.74%	0.00%	0.00%	11.05%*	80.89%	5.58%	76.50%	47.36%	31.38%*
Early previous year - Q2: 1 day earlier still this year, *N = 90*							**Late previous year - Q2: 28 - 8 days earlier this year, *N = 125***					
	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]
CAAR - mean	-1.78	-0.33	1.39	1.48	1.30	0.96	-1.78	-0.42	0.34	0.16	-0.06	-0.68
CAAR - median	-1.21	-0.32	1.16	1.11	0.70	0.16	-1.74	-0.57	0.14	0.06	-0.68	-1.88
Negative %	53.1%	51.4%	24.3%	39.1%	50.5%	51.2%	54.3%	52.8%	42.5%	50.8%	52.8%	52.9%
T - stat	-15.27	-2.58	5.20	6.70	9.60	7.32	-1.71	-0.46	1.64	0.11	-0.06	-0.67
p - value t	0.00%	1.83%	0.00%	2.16%	0.00%	0.00%	9.56%	65.37%	10.29%	92.27%	95.58%	50.58%
Early previous year - Q3: 0 - 5 days later this year, *N = 112*							**Late previous year - Q3: 7 - 1 days earlier this year, *N = 94***					
	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]
CAAR - mean	-1.19	-0.41	0.56	0.33	0.11	-0.68	-1.55	-0.42	0.46	0.57	0.53	-0.94
CAAR - median	-1.31	-0.40	0.57	0.37	0.08	-0.68	-1.90	-0.56	-0.02	-0.06	-0.46	-1.82
Negative %	53.0%	51.6%	41.5%	50.2%	50.9%	51.6%	54.1%	52.5%	50.2%	51.1%	52.0%	53.0%
T - stat	-0.93	-0.50	1.81	0.32	0.47	0.41	-1.96	-0.51	1.54	0.49	0.83	-1.11
p - value t	35.62%	62.00%	7.29%	77.92%	64.57%	68.61%	5.66%	61.29%	12.84%	67.16%	41.86%	27.09%*
Early previous year - Q4: 6 - 13 days later this year, *N = 87*							**Late previous year - Q4: 0 - 7 days later this year, *N = 90***					
	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]
CAAR - mean	-0.59	-0.41	0.20	0.12	-0.29	-1.45	-1.06	0.14	0.62	0.48	0.22	-0.48
CAAR - median	-0.96	-0.95	0.28	0.14	-0.41	-0.78	-0.47	-0.10	0.25	0.12	-0.05	-0.14
Negative %	52.0%	52.7%	44.3%	51.0%	51.2%	51.0%	50.7%	50.8%	37.0%	47.4%	49.9%	49.9%
T - stat	-0.66	-0.49	0.44	0.27	-0.41	-1.86	-1.59	0.18	1.81	0.35	0.21	-0.55
p - value t	51.08%	62.76%	66.03%	81.30%	68.39%	6.80%	12.00%*	86.22%	7.44%	76.06%	83.72%	58.45%
Early previous year - Q5: 14 – 113 days later this year, *N = 101*							**Late previous year – Q5: 8 - 81 days later this year, *N = 105***					
	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]	[- 60, - 21]	[-20, - 1]	[0]	[0, + 1]	[0, + 20]	[0, + 60]
CAAR - mean	-0.47	0.47	0.21	0.14	0.01	-0.34	-1.48	0.05	-0.01	-0.18	-0.63	-0.86
CAAR - median	0.12	-0.03	0.29	0.25	0.47	0.62	-0.60	0.18	-0.01	-0.05	0.11	0.21
Negative %	49.5%	49.3%	40.8%	46.5%	48.8%	49.5%	51.1%	48.8%	50.3%	50.8%	49.5%	49.6%
T - stat	-0.56	0.66	0.62	0.23	0.02	-0.43	-1.84	0.07	-0.02	-0.18	-0.89	-1.12
p - value t	57.79%	51.86%	53.50%	83.74%	98.80%	66.58%	7.37%	94.81%	98.24%	87.31%	38.52%	26.83%*

This Table reports cumulative abnormal return (CAAR) statistics for two groups of firms. Those that reported before the median reporting lag last year and those that reported after the median. Within each group, firms are further sorted into quintiles relative to their change in reporting lag from the previous year. Average abnormal returns (AARs) are calculated using a 5% winsorization. P – values marked "*" become or remain negative and significant with a 10% winsorization. Other significance levels are robust to different winsorization thresholds.

Table 4

Analysis of announcement day average abnormal return using a pool structure

Independent variable coefficients and stats.	MII a	MII b
Intercept	0.00%	-0.01%
T - stat	-0.02	-0.70
p - value t	98.08%	48.62%
Announcement day dummy ($AAR_{t,0}$)	4.7%	3.6%
T - stat	8.27	9.18
p - value t	0.00%	0.00%
Interaction - $AAR_{t,0}$ with reporting lag (RL) this year	-0.03%	
T - stat	-4.21	
p - value t	0.00%	
Interaction - $AAR_{t,0}$ with RL last year (LY)		-0.02%
T - stat		-5.61
p - value t		0.00%
Interaction - $AAR_{t,0}$ with change RL from last year	-0.01%	
T - stat	-1.70	
p - value t	8.91%	
Interaction - $AAR_{t,0}$ with RL late (RL Q5 dummy)	-0.91%	
T - stat	-1.75	
p - value t	8.05%	
Interaction - $AAR_{t,0}$ with dummy RL > 180 days LY	-0.56%	-0.37%
T - stat	-0.80	-0.56
p - value t	42%	57.6%
Interaction - $AAR_{t,0}$ with dummy RL > 180 days	-0.91%	
T - stat	-1.16	
p - value t	24%	
RL Late this year	0.06%	
T - stat	1.70	
p - value t	9.0%	
RL > 180 days this year	0.05%	
T - stat	1.03	
p - value t	30%	
RL > 180 days last year	0.05%	0.10%
T - stat	1.21	2.82
p - value t	22.60%	0.47%
RL This year	0.000%	
T - stat	-0.41	
p - value t	68.02%	
Change in RL from last year	-0.001%	
T - stat	-2.34	
p - value t	1.94%	

This table presents the results of two variations of the pooled regression model II (MII a and MII b). Model II uses the same control variables as model I, namely: lagged dependent variable, market, size and style. Unlike model I, model II coefficients are estimated using a pooled (stacked) regression in which daily returns for each firm span the whole estimation and event window combined [-181, + 60]. In addition, model II includes firm and year fixed effects, an event day dummy, firm specific variables relating to reporting lag and different combinations of the firm specific reporting lag variables that interact with the event day dummy. Control variable coefficients are not reported but they are generally positive and significant as predicted by the theory underpinning model I.

Table 5

Comparing the unanticipated information content of early and late announcements

Panel A: Sorting based upon Ann. day abnormal return rank - cumulative average absolute Ab. returns t – 0, t + 1					
Bad (B.)	Middle (M.)	Good (G.)	Diff. B. - G.	Diff. B. - M.	Diff. G. - M.
0.12	0.02	0.14	-0.02	0.10	0.12
(23.12)***	(15.04)***	(23.70)***	(-2.47)**	(18.92)***	(20.26)***
Panel B: Sorting based upon reporting lag rank					
Early (E.)	M.	Late (L.)	Diff. E. - L.	Diff. E. - M.	Diff. L. - M.
Absolute average Ann. day Ab. returns, t – 0					
0.05	0.05	0.05	-0.00	0.00	0.00
(16.74)***	(12.37)***	(11.54)***	(-0.47)	(-0.61)	(-0.11)
Cumulative average absolute Ab. returns t – 0, t + 1					
0.07	0.07	0.07	-0.00	-0.00	-0.00
(19.96)***	(14.58)***	(14.96)***	(-0.87)	(-1.12)	(-0.24)
Cumulative average absolute Ab. returns t – 1, t + 1					
0.09	0.10	0.10	-0.01	-0.01	0.00
(22.36)***	(16.12)***	(16.11)***	(-1.85)*	(-1.75)*	(0.10)
Panel C: Sorting based upon change in reporting lag compared to previous year					
Absolute average Ann. day Ab. returns, t – 0					
0.052	0.048	0.059	-0.007	0.004	0.011
(11.64)***	(11.04)***	(11.25)***	(-1.15)	(0.47)	(1.58)
Cumulative average absolute Ab. returns t – 0, t + 1					
0.077	0.070	0.081	-0.004	0.007	0.011
(13.70)***	(13.81)***	(13.63)***	(-1.15)	(0.90)	(1.35)
Cumulative average absolute Ab. returns t – 1, t + 1					
0.11	0.10	0.11	-0.00	0.01	0.02
(15.78)***	(14.64)***	(15.93)***	(-0.38)	(1.05)	(1.40)

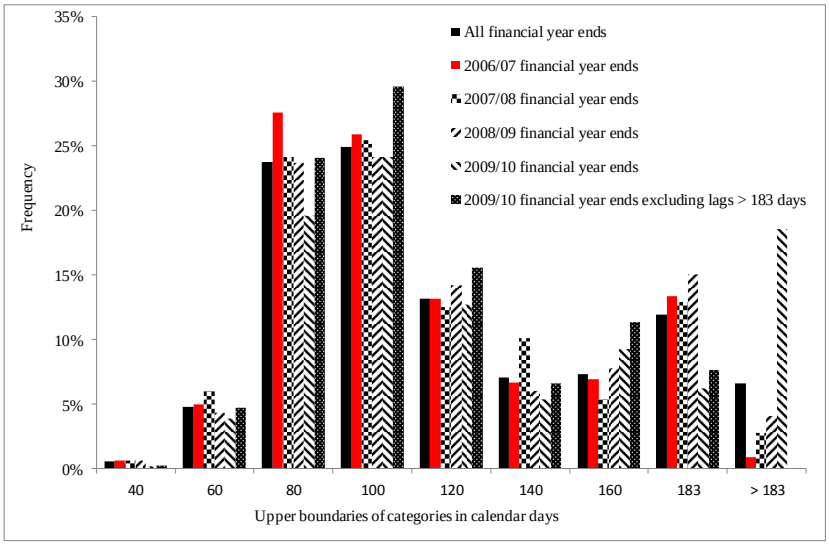
Panel D: Announcement day liquidity reaction	
Firms sorted by RL rank	Early/late defined by change in RL from previous year
Diff. E. – L.	Diff. E. – L.
Bid-Ask Spread	Bid-Ask Spread
0.014	-0.14
(0.250)	(-1.80)*
Trading volume	Trading volume
0.040	0.004
(6.400)***	(0.555)

Notes:

Abbreviations are as follows: degrees of freedom (d.f.), difference (diff.), reporting lag (RL) announcement (Ann.) and abnormal (Ab.). The symbols ***, **, *, denote significance at the p < 0.01, 0.05 and 0.10 levels respectively. Significance levels are based upon a 2 - tailed T - test unequal variances with t-statistics in parenthesis.

Figure 1

Frequency of different reporting lags for each year of study and all years combined.

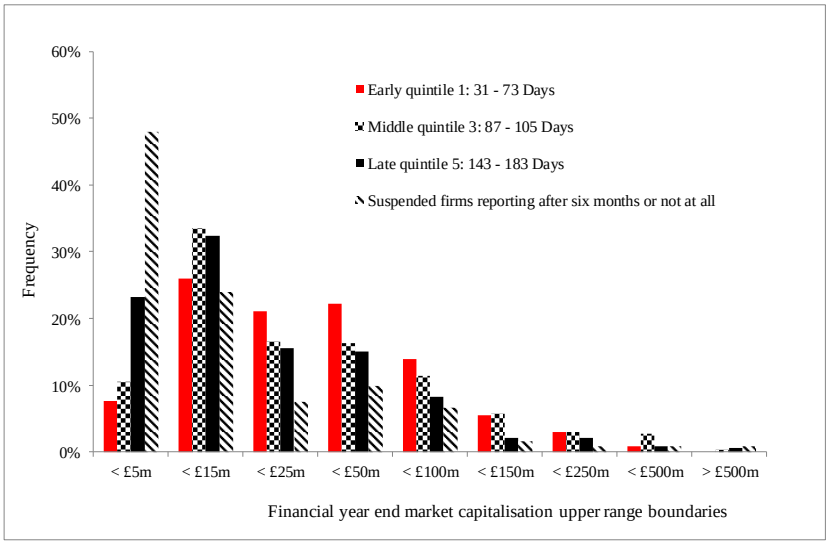


Notes:

Reporting lags are defined as the number of calendar days between a firm's financial year end and the announcement of the annual results. The category > 183 days includes the reporting lags of firms which are suspended for failing to report within six-months of the year end, but then subsequently have their listing reinstated following publication of the results.

Figure 2

Distribution of firm size among early, normal, late and suspended firm years

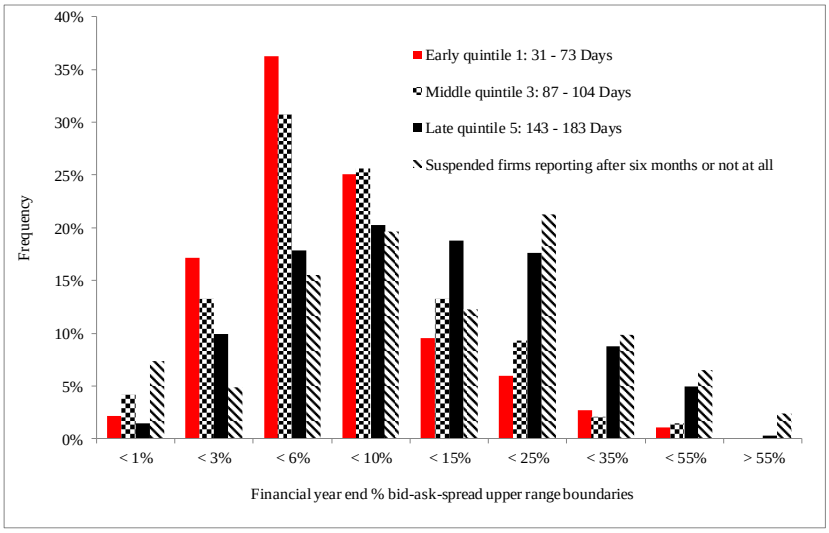


Notes:

The three categories: early, middle and late, exclude firms with a reporting lag > 183 days.

Figure 3

Distribution of bid-ask-spreads among early, middle, late and suspended firm years

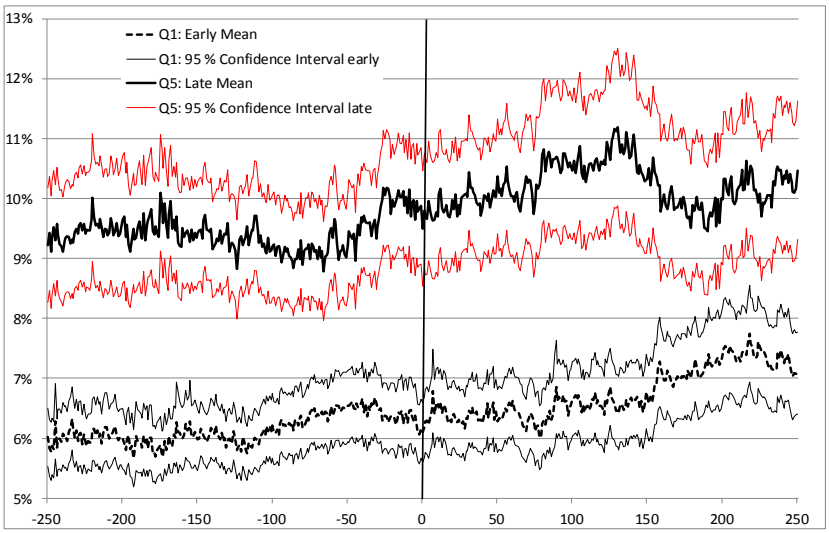


Notes:

The bid ask spreads are 3 month trailing averages of the logarithmic % spread observed at the financial year-end to which the reports relate. The three categories: early, middle and late, exclude firms with a reporting lag > 183 days.

Figure 4

Average log % bid ask spread of early versus late reporting firms

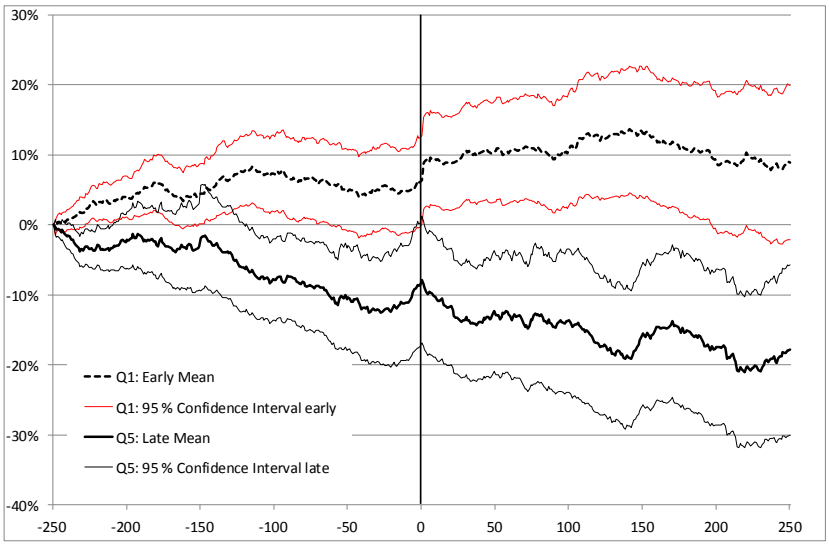


Notes:

In order to mitigate against the possibility that differences between bid ask spreads are a result of firm size rather than reporting lag quintiles, the two sample means plotted in the Figure have been derived from size matched samples each containing 300 firms. This is achieved by first removing all firms with a market capitalization at the financial year-end of less than £5m, then sorting the data on the basis of reporting lag. The top and bottom quintiles based upon reporting lags are themselves sorted based upon firm size at the financial year-end. Within the 2 extreme reporting lag quintiles, early and late samples each containing 300 firm years are assembled so that the smallest firm in each sample is £5m. This ensures that there is considerable overlap in firm size between the early and late reporting sample, although the largest firms in the late reporting sample are actually larger than those in the early reporting sample. For example, the range for the early sample is £5m - £145m and in the late sample it is £5m - £400m. This demonstrates that the larger average spread reported in the late sample is not due to the late sample containing smaller firms than the early sample.

Figure 5

Buy and hold abnormal returns 250 trading days before and after the announcement

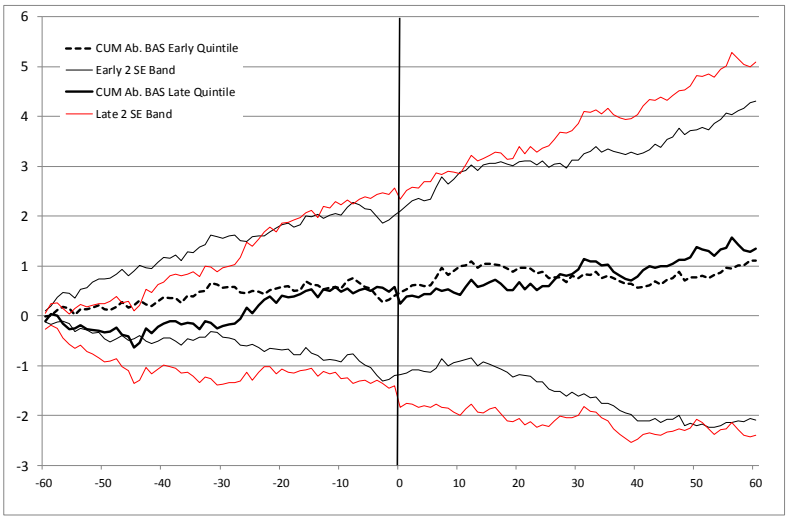


Notes:

Sample mean buy and hold abnormal returns (BHAR) are plotted as thick lines in the Figure together with the respective upper and lower 95% confidence intervals around the sample means (thin lines). The horizontal axis plots the event time in trading days. The thick hashed line represents the earliest reporting quintile of firms reporting between 1 month and 2.5 months of their financial year-ends, while the thick bold line represents BHARs in the late reporting quintile comprising firms reporting between 4.5 and 6 months of the year-end, but excluding the returns of firms suspended for reporting more than 6 months after the year-end. Geometric differences between daily firm returns and the daily returns of a capitalization weighted combination of the FTSE AIM Allshare Index and the FTSE Allshare Index are compounded over the study period, so that BHARs represent the abnormal return that would have been earned on a portfolio invested equally in all securities in the respective category on day – 250 and held without rebalancing to day + 250. Portfolio abnormal returns in each quintile have been winsorized by subtracting the 1% of firms with the highest and 1% with lowest ending values respectively. Firms with a market capitalization of less than £5m at the financial year-end before the announcement are excluded. Firms within the two groups span a comparable range of sizes based on market capitalisation at each financial year-end and there are 290 firm years in each group after winsorization and size matching.

Figure 6

Sample mean cumulative abnormal bid-ask spread with early and late firms defined by peer group.

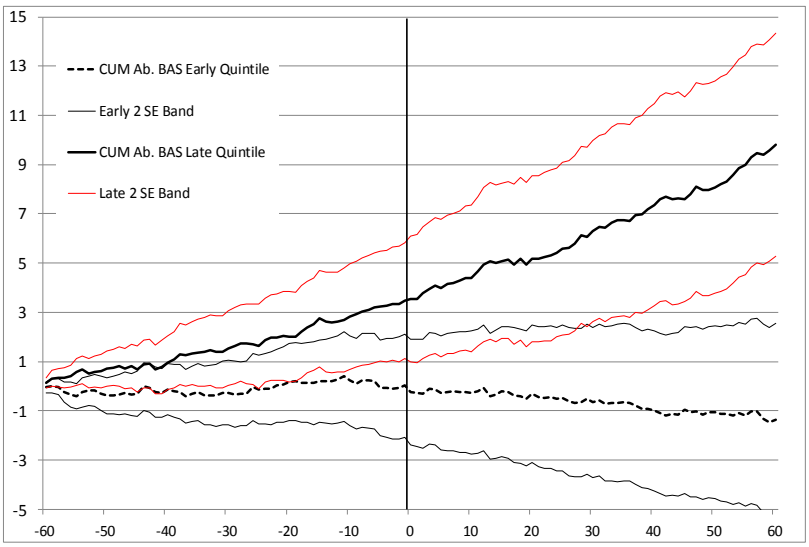


Notes:

Abnormal bid ask spreads for individual firms are derived by first calculating predicted values for each firm using the estimated intercept and coefficients b_{13} –b_{16} in model III. Daily abnormal bid-ask spreads for each firm comprise the prediction errors divided by each firm's the standard error of the regression.

Figure 7

Sample mean cumulative abnormal bid-ask spread with early and late firms defined by change in reporting lag compared to the previous year.

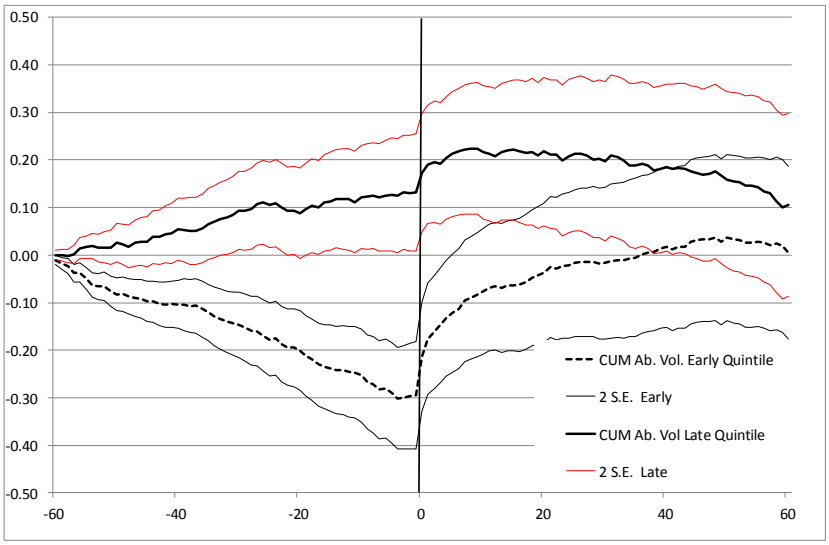


Notes:

Abnormal bid ask spreads for individual firms are derived by first calculating predicted values for each firm using the estimated intercept and coefficients b_{13} –b_{16} in model III. Daily abnormal bid-ask spreads for each firm comprise the prediction errors divided by each firm's the standard error of the regression.

Figure 8

Sample-mean cumulative abnormal trading-volume with early and late firms defined by peer group

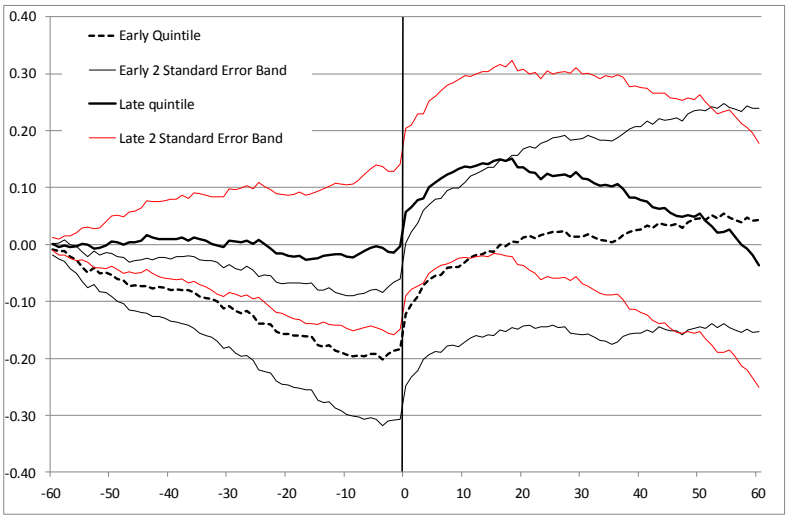


Notes:

Abnormal trading-volumes for individual firms are derived by first calculating predicted values for each firm using the estimated intercept and coefficients b_{13} –b_{16} in model IV. Daily abnormal trading-volumes for each firm comprise the prediction errors divided by each firm's the standard error of the regression.

Figure 9

Sample-mean cumulative abnormal trading volume with early and late defined by change in reporting lag compared to the previous year



Notes:

Abnormal trading-volumes for individual firms are derived by first calculating predicted values for each firm using the estimated intercept and coefficients b_{13} –b_{16} in model IV. Daily abnormal trading-volumes for each firm comprise the prediction errors divided by each firm's the standard error of the regression.