Benchmark Beating and its Implications for Earnings Management: The Role of Context Specific Capital Market Incentives and Analysts' Cash Flow Forecasts

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Certificate of Authorship/Originality

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Abstract

This doctoral thesis re-examines the phenomenon of 'benchmark beating', and the extent to which it is likely to reflect earnings management. To address this issue, the thesis considers two links between benchmark beating and earnings management, and these are outlined in two separate research papers/chapters. These are: (1) Earnings Management Incentives and Intra- Year shifts in the Earnings Distribution, and (2) Analyst Cash Flow Forecasts and Earnings Benchmark Beating by Australian Firms. Chapter One is consistent with the view that the incentives to manage earnings are important and suggests that tests of benchmark beating (or other indicators of possible earnings management) should first identify those cases where explicit earnings management would be of most benefit to the firm.

Chapter Two investigates whether analysts, as sophisticated information intermediaries, do play a monitoring role in firm's reporting behaviour. Chapter Two documents evidence contrary to prior literature (e.g. McInnis and Collins 2011; Call et al. 2000; Mohanram 2011) which highlights the disciplining implication of analyst cash flow forecasts on accruals and benchmark beating behavior. In this regard, chapter two adds to the literature that challenges the view that analysts are leaders in communicating the implications of complex financial information to investors (e.g. Bradshaw et al. 2001; Lehavy 2009; Keskek and Tse 2013).

Thesis Introduction

The detection of earnings manipulation is an important issue in forensic accounting research. Schipper (1989) defines earnings management as 'purposeful intervention in the external financial reporting process with the intent of providing some type of gain, as opposed to say, merely facilitating the neutral operation of the process'. This definition, in addition to numerous other academic articulations, fundamentally hinges on the intentional application of accounting rules to achieve a desired set of financial results. The extent of earnings management is currently the subject of corporate regulators' scrutiny, courtroom debates, and numerous articles in the financial press. This doctoral thesis re-examines the phenomenon of 'benchmark beating', and the extent to which it is likely to reflect earnings management. To address this issue, the thesis considers two links between benchmark beating and earnings management, and these are outlined in two separate research papers/chapters. These are: (1) *Earnings Management Incentives and Intra-Year Shifts in the Earnings Distribution* and (2) *Analysts Cash Flow Forecasts and Earnings Benchmark Beating by Australian Firms*. Chapter one adopts a methodological innovation by Kerstein and Rai (2007) (hence forth, KR) in selecting benchmark beating observations and subjects these observations to context specific capital market incentives. Chapter two investigates whether analysts, as sophisticated information intermediaries, do play a monitoring role in firm's reporting behaviour. Specifically, by examining whether the provision of cash flow forecasts by analysts impair the earnings management and benchmark beating behaviour of Australian firms. The primary purpose of this introductory section is to provide an overall perspective for each of the two individual research papers.

[1] Earnings Management Incentives and Intra-Year Shifts in the Earnings Distribution

Chapter one proposes that capital market incentives play a role in the benchmark beating behavior of firms, consistent with earnings management around the loss avoidance threshold. In recent studies, KR (2007, 2012) examine changes to the earnings distribution, not just the earnings distribution itself. Using logistic regressions to explain the discontinuity in the earnings distribution, KR specifically compare movements of the same length and distance during the fourth quarter between treatment and control firms that are in adjacent intervals in the earnings distribution after three quarters. They show that compared to a control group, a high proportion of firms with small cumulative profits or losses at the end of the third quarter report small annual profits rather than small annual losses. In this spirit, this paper follows the methodological innovation of KR (2007) in selecting benchmark beating firms. In doing so, the paper considers specific capital market incentives that might be inherent to this cohort of firms. These are (1) external financing related incentives, and (2) overvaluation related incentives.

Dechow and Skinner (2000) argue that it is important in tests of earnings management to carefully identify instances where the incentive to manage earnings is strongest. Given the low power of methods used to detect earnings management (i.e., estimating unexpected accruals and real earnings manipulations) this is critical to the successful identification of earnings management. After incorporating explicit incentives to beat a pertinent earnings benchmark, I expect it is more likely that benchmark beating would not be an artefact of sample selection and scaling issues previously highlighted (Durtschi and Easton, 2005;

2009). The capital market incentives which arise from overvaluation and external financing activities are just two examples of such incentives.

In this paper, two approaches were utilised to test the hypotheses regarding earnings management by firms with strong capital market incentives with intra-year shifts in the earnings distribution to avoid reporting an annual loss. The first approach uses a logistic regression to analyse whether treatment firms manage earnings up to the end of the fourth quarter to avoid reporting an annual loss relative to the control group, while the second method uses multivariate analysis, with the dependent variables being unexpected accruals and real earnings management.

Overall, results in this paper not only documents general benchmark beating evidence consistent with KR (2007), but reasonable evidence consistent with capital market incentives being associated with that behaviour, which makes it more likely that it is earnings management. Specifically, empirical analysis in the paper are consistent with opportunistic benchmark beating behaviour by firms with strong capital market incentives in the smallest loss and smallest profit interval of year-to-date earnings at the end of the third quarter (hereafter referred to as YTDQ3) in avoiding annual losses relative to the control groups. First, logistic results find that the discontinuity in the annual earnings interval can be traced to the abnormal movement of firms in the smallest YTDQ3 loss interval into the smallest annual profit interval. In addition, there is evidence of an abnormal retention of firms from the smallest YTDQ3 profit interval into the smallest annual profit interval. Furthermore, there is some evidence which shows that small loss firms (i.e., interval of -1 of YTDQ3) and small profit firms (i.e., interval of +1 of YTDQ3)

classified as security issuers shift at a higher rate in to the "just meet or beat" benchmark at the end of the fourth quarter relative to other firms.

Second, multivariate analyses show that firms in the smallest loss interval of YTDQ3 classified as security issuers or overvalued engage in upwards earnings management via accruals relative to the control group. Similar results are documented for firms in the smallest profit interval of YTDQ3, except overvaluation incentives are not significant. Moreover, there is also limited evidence of earnings management via real activities by firms in the smallest loss and smallest profit interval of YTDQ3 with strong capital market incentives.

This paper ultimately contributes to the accounting literature by documenting an earnings management explanation for the observed discontinuity in the distribution of the earnings level. The paper is consistent with the view that the incentives to manage earnings are important and suggests that tests of benchmark beating (or other indicators of possible earnings management) should first identify those cases where explicit earnings management would be of most benefit to the firm.

[2] **Analysts Cash Flow Forecasts and Earnings Benchmark Beating by Australian Firms**

Chapter two investigates whether analysts, as sophisticated information intermediaries, do play a monitoring role in firm's reporting behaviour. Specifically, by examining whether the provision of cash flow forecasts by analysts impair the earnings management and benchmark beating behaviour of Australian firms. This paper is motivated by the mixed evidence in prior literature on whether analysts are leaders in communicating the

implications of complex financial information to investors and consequently the role they play in monitoring firms reporting behaviour.

McInnis and Collins (2011) argue and find for U.S. firms that cash flow forecasts provide an important monitoring role over firms reported earnings. They attribute this to the ability of external parties to easily decompose an earnings surprise into the portion attributable to unexpected cash flows and a portion attributable to unexpected accruals following the provision of cash flow forecasts by sell-side analysts. Following the above arguments, this paper posits that cash flow forecasts act as a disciplining mechanism that directly affects managers' opportunistic reporting behavior. To test the above conjecture, the paper re-examines three questions posited by McInnis and Collins (2011). These three question are; (1) Is there a decline in the level of firms unexpected accruals after the provision of cash flow forecasts?; (2) Does the level of earnings management in real activities increase after the provision of cash flow forecasts?; and (3) Does the probability of meeting or beating analysts' earnings targets decrease after the provision of cash flow forecasts?.

To test these questions, an analysis of within-firm inter-temporal changes is conducted for firms before and after analysts began providing cash flow forecasts and the findings is benchmarked against a control sample. I identify a sample of firm-years for which I/B/E/S provides both earnings and operating cash flow forecasts (treatment sample) and an industry size matched sample of firm-years without cash flow forecasts (control sample). The industry size matching procedure, inter- temporal change analyses using a difference-in-differences design allows inferences to be drawn on the direction of causation, which helps mitigate endogenous self-selection concerns that plague purely cross-sectional research designs.

In contrast to recent studies (McInnis and Collins 2011; Call et al. 2000; Mohanram 2011) who highlight the disciplining implication of analyst cash flow forecasts on accruals and benchmark beating behaviour, I find no improvement in accrual quality after the release of cash flow information by analysts across our sample period. In H1, I find no evidence to suggest that treatment firms experience a significant decline in income increasing accruals (positive unexpected accruals) after the provision of cash flows forecasts. Results on H2 reveals mixed results, i.e. an increase in abnormal production costs after the provision of cash flow forecasts, and no evidence of cuts in discretionary expenditure and increased channel stuffing and excessive discounts. Similarly, for H3, I find insufficient evidence to suggest that the probability of meeting or beating earnings targets declines after the provision of cash flows. In addition, the benchmark beating results in the main tests are uniformly robust to alternative explanations. Overall, my results add to the existing literature (e.g. Bradshaw et al. 2001; Lehavy 2009; Keskek and Tse 2013) that challenge the view that analysts are leaders in communicating the implications of complex financial information to investors. In addition, the paper contributes to the limited evidence on the extent of earnings management by Australian firms.

Chapter One:

Earnings Management Incentives and Intra-Year Shifts in the Earnings Distribution

1. Introduction

In this paper I investigate the extent to which capital market considerations (i.e. overvaluation and external financing) provides an incentive for firms to beat earnings benchmarks and whether such benchmark beating can reliably be interpreted as evidence of upwards earnings management. This research reflects the call by Dechow and Skinner (2000) to focus research examining earnings management on those firms with the highest incentives to manage earnings. Given mixed prior evidence on the extent which apparent benchmark beating can be interpreted as indicative of earnings management (Hayn (1995), Burgstahler and Dichev (1997), Dechow et al. (2003), Coulton et al. (2005)), my focus on context specific capital market incentives is motivated by a desire to separate instances of earnings outcomes that naturally sit just above the benchmark from those that are most likely to have incentives to manipulate.

Prior evidence shows that capital market considerations affect managerial behavior and corporate actions, including accrual-based and transaction-based earnings management (Graham et al. 2005). For the overvaluation incentive, Jensen (2005) suggests that this type of behavior (among others) reflects agency costs that arise as a result of overvalued equity. Managers of overvalued firms may take actions to inflate reported performance in an effort to justify the overvalued stock price. Such actions could include overinvesting through acquisitions or expansions, managing earnings and committing frauds. In a similar manner, if firm needs to raise cash to finance ongoing operations (i.e. external financing) and growth plans, then a high stock price will reduce the cost of raising new equity. Dechow et al. (1996) find that firms identified by the SEC as manipulating earnings tend to be issuing

equity. Moreover, Teoh et al. (1998) and Rangan (1998) find evidence of earnings management at the time of seasoned equity offerings (SEOs)[1]. A similar conclusion is found surrounding new debt issues (see Liu et al. (2010)). In this paper, I examine the significance of both the agency costs of overvalued equity and external financing activity costs as a determinant of earnings management.

I identify a group of firms where earnings management is more likely to have occurred (i.e. overvaluation incentive or external financing incentive), and then carefully consider whether firm year observations with earnings immediately above the loss avoidance threshold reflects increased earnings management. Firm year observations with earnings immediately above (below) the loss avoidance point are selected using the methodological innovation by Kerstein and Rai (2007, 2012) (hereafter referred to as KR)[2]. Following on from the methodological innovation of KR, I first examine whether intra-year shifts in the earnings distribution by firms to avoid an annual loss is evidence of earnings management. Second, I investigate if capital market related incentives (external financing and overvaluation) do play a role in the benchmark beating behavior of these suspect firms, which is consistent with earnings management around the loss avoidance threshold.

In this paper, I initially select as my treatment group firms that incur small losses or small profits at the end of the first three quarters but report their annual earnings in the earnings interval distribution immediately above the benchmark (i.e. firms that shifted (maintained) position from a cumulative small loss (profit) at the end of the third quarter to a small

[1] These results have been called in to question by recent studies such as Ball and Shivakumar (2008) and Shan, Taylor, and Walter (2013). This is discussed in the hypotheses development.
[2] KR develop and extend the earnings distribution approach to identifying earnings management by examining the changes in the cumulative earnings distribution from the beginning to the end of the firm's fourth fiscal quarter. KR (2012) refers to this approach as the "conditional distribution approach".

annual profit). These treatment firms are argued to have a high chance of managing earnings upwards to avoid small annual losses. Given that firms closer to the loss avoidance threshold require smaller amounts of manipulation to achieve profitability, they are likely to incur lower costs of earnings management than firms further from the loss avoidance threshold. The control group consists of firms in the earnings distribution interval adjacent to the treatment group. In the absence of earnings management, firms that are in close proximity to each other in the earnings distribution after three quarters are likely to have a similar probability of shifting a given length and direction during the fourth quarter.[3]

In the first stage, a logistic regression is used to examine whether the likelihood of shifts by the treatment firms into the smallest profit interval of the annual earnings distribution differ from shifts of the control group, ceteris paribus. In addition, I consider whether the likelihood of shifts by treatment firms' into the smallest annual profit interval are more evident when interacted with strong capital market incentives (i.e. external financing, and overvaluation relative to the control group firms. For robustness, I consider whether treatment firms' shifts that move into the smallest annual losses are less frequent than the control group. Following KR, I also control for shifts due to fundamental economic factors unrelated to earnings management by including measures such as size, passage of the Sarbanes Oxley Act (SOX), industry and year dummies in the logistic regression.

For the second stage, I compare measures of earnings management (unexpected accruals and RAM) for treatment firms that have high capital market incentives and that shift into the smallest profit interval of the annual earnings distribution relative to shifts of the

[3] Refer to Figure 1 for treatment and control group selection process.

control group. Specifically, I examine whether firms in the treatment group exhibit larger unexpected accruals or larger real earnings management relative to the control groups. This form of empirical testing is done to overcome the limitations that are a direct result of the large number of benchmark beating observations that are expected by pure chance (absent earnings management) and the low power of the unexpected accruals and real earnings management techniques to distinguish the small magnitude of manipulation, in what is believed to be a portion of earnings manipulators immediately above the earnings benchmark.

In summary, results in this paper not only documents general benchmark beating evidence consistent with KR (2007), but reasonable evidence consistent with capital market incentives being associated with that behaviour, which makes it more likely that it is earnings management. Specifically, empirical analysis in the paper are consistent with opportunistic benchmark beating behaviour by firms with strong capital market incentives in the smallest loss and smallest profit interval of YTDQ3 earnings in avoiding annual losses relative to the control groups. First, logistic results find that the discontinuity in the annual earnings interval can be traced to the abnormal movement of firms in the smallest YTDQ3 loss interval into the smallest annual profit interval. In addition, there is evidence of an abnormal retention of firms from the smallest YTDQ3 profit interval into the smallest annual profit interval. Furthermore, there is some evidence which shows that small loss firms (i.e., interval of -1 of YTDQ3) and small profit firms (i.e., interval of +1 of YTDQ3) classified as security issuers shift at a higher rate in to the "just meet or beat" benchmark at the end of the fourth quarter relative to other firms.

Multivariate results are consistent with opportunistic benchmark beating behaviour by firms with strong capital market incentives in the smallest loss and smallest profit interval of year to date earnings at the end of the third quarter (hereafter YTDQ3) in avoiding annual losses. Specifically, firms in the smallest loss interval of YTDQ3 classified as security issuers or overvalued engage in upwards earnings management relative to the control group. That is, these firms have higher levels of unexpected accruals relative to the control group. Similar results are documented for firms in the smallest profit interval of YTDQ3, except overvaluation incentives are not significant. Moreover, there is some evidence of earnings management via real activities by firms in the smallest loss and smallest profit interval of YTDQ3 with strong capital market incentives.

This paper contributes to extant research which questions whether evidence consistent with benchmark beating can be interpreted as being consistent with earnings management. Prior evidence (Dechow et al., 2003; Coulton et al., 2005) fails to find consistent evidence supporting inferences raised in the prior literature (e.g. Burgstahler and Dichev 1997, DeGeorge et al. 1999, Jacob and Jorgensen 2007) that observes the distribution of annual earnings, and suggests that managers manipulate small annual pre-managed losses into small annual profits. This is a result of prior studies inability to have a well specified benchmark for earnings prior to managerial manipulation (i.e. unmanaged earnings) and the failure of prior studies to recognize the role of incentives to actually beat relevant benchmarks (i.e. it is benchmark beating itself that is the incentive. In contrast to KR (2007, 2012), I explicitly focus on a subset of firms where there is, ex ante, a strong incentive to actually beat relevant benchmark. This paper therefore adds to our understanding of when benchmark beating coupled with capital market incentives may

(may not) be indicative of earnings management. Finally, the paper also reconciles the conditional distribution evidence outlined by KR (2007 & 2012) to accruals based means of earnings management (higher positive unexpected accruals) and higher RAM that are consistent with an earnings management explanation.

The remainder of this paper continues as follows. Section two provides prior evidence linking benchmark beating to earnings management, background discussion of incentives that encourage firms to beat benchmarks, and develops the hypotheses being tested. Section 3 outlines the data and sample used in the paper. The empirical methodology is outlined in section four. The results of the analyses are reported and discussed in section five. Robustness tests are reported in section six and the paper concludes with a summary in section six.

2. Literature Review

2.1. Evidence linking benchmark beating to earnings management: unexpected accruals and real activities manipulation

A vast literature in earnings management has consistently documented visual evidence of a significant discontinuity in earnings around various thresholds. These thresholds include earnings levels around zero (avoid reporting a loss), earnings changes (avoid earnings decline) and beating analysts' forecasts (positive earnings surprise). Hayn (1995) shows that for EPS deflated by share price, there is a discontinuity around zero for earnings levels. Burgstahler and Dichev (1997) subsequently developed a statistical test to measure the extent of any such discontinuity, and also used this approach to investigate the extent of possible earnings management to avoid negative changes in earnings, as well as avoiding

losses. DeGeorge et al. (1999) extends this approach by documenting the existence of a discontinuity in the distribution of analyst forecast errors. In two recent studies, KR (2007, 2012) examines the changes to the earnings distribution, not just the earnings distribution itself (KR terms this as the "conditional distribution" approach). Using logistic regressions to explain the discontinuity in the earnings distribution, KR specifically compare movements of the same length and distance during the fourth quarter between treatment and control firms that are in adjacent intervals in the earnings distribution after three quarters. They show that compared to a control group, a high proportion of firms with small cumulative profits or losses at the end of the third quarter report small annual profits rather than small annual losses. Overall, these authors suggest that firms focus on these benchmarks and attempt to meet or beat them.

Other studies have attempted to provide a link between evidence of benchmark beating and potential explanations for earnings management. Beatty et al. (2002) contrast the likelihood of private versus public banks avoiding earnings declines. They argue that evidence of an asymmetric pattern in earnings changes (i.e. more small increases than small decreases) can be interpreted as evidence of the extent of earnings management and, consequently, compare the extent of this asymmetry between privately and publicly owned banks. Dichev and Skinner (2002) identify the extent to which covenant slack measured directly from borrowing agreements displays a discontinuity at zero.

This cross-sectional distribution based evidence of earnings management around benchmarks has acquired additional support from a number studies conducted outside the U.S. (e.g. Holland and Ramsey (2003) in Australia, Gore Pope and Singh (2002) in the UK). However, cross-sectional distribution approach is silent on the approach applied to

manipulate earnings (McNichols (2000)). The question of why (i.e. incentives) and how (i.e. accruals manipulation or RAM) firms beat these benchmarks have remained relatively unexplored.

To address the limitations of the distributional approach, recent studies combine evidence of benchmark beating (as the assumed incentive to manage earnings) with firm-specific measures of earnings management such as unexpected accruals. These studies have tried to observe the extent to which benchmark beating firms also display evidence consistent with unexpected accruals – based method of identifying earnings management. An example is Dechow et al. (2003) who conduct empirical analyses on whether the Jones-type unexpected accruals explains the "discontinuity" in the earnings distribution identified by Burgstahler and Dichev (1997) and Hayn (1995). They find that there are no significant differences between the relative magnitudes of unexpected accruals of small profit and small loss firm[4]. Similarly, Coulton et al. (2005) acknowledge that benchmark beaters have unusually high (i.e. more positive) unexpected accruals relative to other firms. However, they find no significant differences between the means of unexpected accruals for benchmark beating groups and just miss groups,

A number of studies discuss the possibility that managerial intervention in the reporting process can occur not only via accounting estimates and methods, but also through operational decisions. Healy and Wahlen (1999) and Dechow and Skinner (2000) point to acceleration of sales, alterations in shipment schedules, and delaying of research and

[4] The authors, however, discuss five non-earnings management explanation for the kink in earnings. These include: (i) management taking real actions to improve performance, (ii) selection biases due to exchange listing requirements, (iii) the effect of scaling by market values, (iv) accounting rules and conservatism, and (v) the effect of financial assets.

development (R&D) and maintenance expenditures as earnings management methods available to managers. Roychowdhury (2006) terms this "real activities manipulation" where he defines it as departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations. Roychowdhury (2006) finds evidence consistent with managers manipulating real activities to avoid reporting annual losses and to some extent beating analyst forecasts. Specifically, he documents evidence suggesting price discounts to temporarily increase sales, overproduction to report lower cost of goods sold, and reduction of discretionary expenditures to improve reported margins. In addition, he also finds that incentives to meet zero earnings seem to be influencing real activities manipulation.

Durtchi and Easton (2005) offer an alternative explanation for the observed discontinuity that is unrelated to earnings management behavior. They assert that scaling could be responsible for the finding of discontinuities at zero in Burgstahler and Dichev (1997), both directly and indirectly through an induced sample selection bias. First, they contend that a larger proportion of loss firms do not have a beginning of year price, which is used to construct the deflator, available on the COMPUSTAT annual files. This could result in a selection bias. Second, beginning of year prices for small loss firms are systematically lower than the corresponding figures for small profit firms. This could induce the observed discontinuities in scaled earnings. Scaling moves small loss firms away from zero and small profit firms towards zero thus inducing the appearance of a discontinuity at zero. Their study also attributes the discontinuity to differential market pricing between small loss and small profit firms. They conclude that the shape of these distributions is not *ipso*

facto evidence of earnings management. In similar vein, Beaver et al. (2003a) argue that the discontinuity is a result of the asymmetric effects of earnings components for profit and loss firms. Effective tax rates are higher for profit firms, drawing profit observations towards zero, and negative special items, which are greater in magnitude and frequency for loss firms, pull loss observations away from zero.

Jacob and Jorgensen (2007) reinforce the conclusion of Burgstahler and Dichev (1997) regarding discontinuities around zero and prior earnings using histograms of earnings. They question claims by Durtchi and Easton (2005) with regards to scaling inducing the results that Burgstahler and Dichev (1997) report in the vicinity of zero in the histogram of scaled earnings. They base their argument on analyses that compares the distribution of fiscal year (t) earnings with a benchmark distribution comprised of a weighted average of six quarters of earnings ending in the third quarter of year t.[5] They claim that differences between the distribution of fiscal year earnings and the distribution of the average of the three "as-if- years" of earnings is evidence of earnings management. They also indicate that for the most part, earnings management is not confined to the immediate vicinity of the earnings threshold but is discernible over the broader sections of earnings and earnings change histograms.

In contrast to Beaver et al (2003a), Jacob and Jorgensen (2007) also demonstrate that changes at zero from large negative deviations to large positive ones that are observed for net income is also apparent for pre–tax income observations. They conclude that the asymmetric tax treatment of gains and losses is not primarily responsible for the discontinuity at zero in net income. However, Durtchi and Easton (2009) show that the

[5] Jacob and Jorgensen (2007) show a discontinuity is also evident for unscaled net income (Table 4).

results of Jacob and Jorgensen (2007) with regards to the difference between the distributions is again a statistical artefact; averaging smooths the distribution of the underlying data. They argue that more plausible explanations for the shapes of earnings distributions are sample selection bias and scaling; distributions that are not affected by these research design flaws do not exhibit patterns that suggest earnings are being managed to avoid losses.

2.2. Incentives for earnings management provided by earnings-based targets

Prior accounting research indicates that firms have incentives to beat a number of earnings benchmarks.[6] Phillips, Pincus, and Rego (2003) provide evidence that manipulation of accruals leads to an increase in deferred tax expense. In their study, they isolate the deferred tax component of total income taxes and highlight its usefulness in detecting earnings management to avoid an earnings decline and in detecting earnings management to avoid a loss. The ability of this metric to capture the book-to-tax timing differences that result from aggressive financial reporting provides evidence that is consistent with the earnings management explanation.

In a recent study focusing on firms unexpectedly meeting/missing earnings thresholds, Herrman et al. (2010) find that investors do not consider unexpectedly meeting or missing the profit threshold or meeting the earnings increase thresholds to be incremental to the analyst forecast error. However they do find some evidence that missing the earnings increase threshold illicits an incremental average market penalty, albeit for small firms.

[6] These are; (i) earnings levels, (ii) earnings improvement/changes, and (iii) beating analyst forecasts.

Further evidence consistent with earnings management is provided by numerous authors investigating the behavior of individual accruals. Moehrle (2002) provides some evidence of manipulation by investigating the reversals of prior years' restructuring charges. A study by Beaver *et al.* (2003a) on US property–casualty insurers using required disclosures for the claim loss reserve find that firms with small positive earnings significantly understate the loss reserve accrual relative to firms that have small negative earnings.

Moving away from accruals choices, a study on stock repurchases by Bens et al. (2003) provides evidence that managers partially finance these repurchases by reducing R&D. Dechow and Sloan (1991) find that CEOs reduce spending on R&D toward the end of their tenure to increase short term earnings. Baber et al. (1991) and Bushee (1998) also find evidence consistent with reduction of R&D expenditures to meet earnings benchmarks. Earnings targets undoubtedly provide incentives for earnings management. The contribution of the aforementioned studies is that they provide evidence on specific tools that firms might use to manage earnings.

2.3. Earnings management and research design choices

There appears to be a widely held belief among accounting researchers that "earnings management" is rife. Ball (2013) offers the clearest critique of this assumption. He argues that a powerful cocktail of authors' strong priors, strong ethical and moral views, limited knowledge of the determinants of accruals in the absence of manipulation, and willingness to ignore correlated omitted variables in order to report a result, seems to have fostered a research culture that tolerates grossly inadequate research designs and publishes blatantly false positives.

One aspect of this literature that Ball (2013) found particularly galling is the frequency with which a paper's results can be explained equally well by what he refers to as a plausible economic null hypothesis. That is the generic structure of an "earnings management" story involves some sort of agency theory. The cost to managers (as agents) of manipulating reported numbers in their self-interest is lower than the cost to shareholders (as principals) to detect and correct for the manipulation, and these relative costs together determine the equilibrium amount of "cooking the books." The economic null hypothesis therefore is the absence of agency costs, in which case manipulation is perfectly detected and managers obviously would have nothing to gain by it. In study after study, an explanation of the results that does not involve manipulation is at least equally plausible.

Ball and Brown (2014) argue that timeliness – or its absence – was a central concept in their 1968 study (Ball and Brown 1968) and, they believe, it remains a central and perhaps underappreciated property of financial reporting today. Ball and Brown (1968) was instrumental in establishing on a 'scientific" basis that accounting reports were systematically related to economic value, a view that the then dominant orthodox view of accounting rejected. Ironically, it seems the pendulum has swung the other way; annual accounting reports are viewed as the dominant source of timely information about a firm.

As evident in Ball and Brown (1968), most of the information contained in reported income is anticipated by the market before the annual report is released. In fact, anticipation is so accurate that the actual income number does not appear to cause any unusual jumps in the announcement month (BB 1968, 170). Consistent with this notion, there is abundant evidence that accounting reports in fact do not to provide a relatively large proportion of the new information used by the equity market. One of the two principal conclusions drawn

by Ball and Brown (1968, p. 176) was that "the annual income report does not rate highly as a timely medium." Similar evidence is clear from a variety of studies published since (Lev, 1989).

Furthermore, Ball and Shivakumar (2008, pp. 979-980) observe, the reason that accounting reports survive in competition with the myriad other sources of information is unlikely to be that the financial statements contain relatively large quantities of new information. By its nature, accounting earnings is low frequency (quarterly), not discretionary (announced every quarter, independent of whether there is substantial new information to report), and primarily backward-looking. Other information, and hence revision in share price, is comparatively high frequency, frequently discretionary (released only when there is substantial information to report), and both forward-looking and backward-looking.

Another reason for this belief being so persistent is that, despite the clear conclusion in Ball and Brown (1968, p. 176) that earnings information is not timely, the subsequent literature employed short-window event studies to suggest the opposite. These studies certainly demonstrate some surprise content of earnings when released, but their use of a short-window benchmark tends to exaggerate its relative magnitude (Ball and Shivakumar, 2008).

2.4. Hypothesis development

2.4.1. Conditional distribution approach vs. earnings distribution approach

Prior studies (e.g. Hayn, 1995 and Burgstahler & Dichev, 2002) examining earnings distributions base their inferences of earnings management entirely on the existence of a discontinuity in the annual earnings distribution. However, these prior findings are difficult

to verify in the absence of an observable earnings distribution prior to manipulation. The shape of the annual earnings distribution alone is not sufficient to identify the timing of earnings management, nor is it sufficient to indicate the direction in which earnings are managed. This highlights the potential problems with regards to making inferences about earnings management from an annual earnings distribution. To address this issue, by way of an analogy, KR argues that it is more informative to gauge the speed and direction of an object by examining its location at two consecutive points rather than at one point in time. As a corollary, they propose that an examination of the change in cumulative earnings between the end of the third quarter and the end of the fourth quarter can yield insights in the discretionary behavior of managers in reporting annual earnings.

The fourth quarter represents managers' last opportunity during the year to manage annual earnings. It also provides managers with the latest information to base their earnings management targets. In a similar vein, Dechow and Shakespeare (2009) argue that by waiting till the end of quarter, managers obtain information about the amount of earnings needed to meet their targets. In contrast, Durtchi and Easton (2009) express doubts about the existence of upwards earnings management in the fourth quarter due to the integral method of accounting. Specifically, a significant expected earnings shift during the fourth quarter attributable to the integral method of accounting reduces management's flexibility to manipulate earnings. Under the integral method of accounting, firms are required to estimate costs over the first three quarters which means quarter four involves one of settling up (i.e. accrual accounting). This settling up involves the reconciliation of estimates made in the previous quarters to actual expenses in the final quarter. KR considers the issue of integral accounting and finds a persistent pattern of upward earnings management around

the zero earnings benchmark. They argue that their findings weaken the inferences made Durtchi and Easton (2009) with respect to the degree of expected accounting choices imposed on managers as a consequence of the integral method of accounting. Thus, analyzing the changes in firms' cumulative earnings distribution over the fourth quarter is critical to evaluating the loss avoidance hypothesis.

Thus, analyzing the change in a firm's cumulative earnings distribution over the fourth quarter is critical to evaluating the loss avoidance hypothesis. Hence, following KR, I test the following hypotheses stated in the alternative form[7]:

H1a: *Firms manage fourth quarter earnings upwards to convert small cumulative losses at the end of the third quarter into small annual profits.*

H1b: *Firms manage fourth quarter earnings upwards to prevent small cumulative profit at the end of the third quarter from becoming small annual losses*

In this paper, I first establish the presence of earnings management in H1a and H1b (as per KR), but primarily focus on the role that capital market incentives play in this benchmark beating behavior which can be interpreted as indicative of earnings management. Specifically, I separately test for the loss avoidance hypothesis (H1a and H1b), and then as a joint test with capital market incentives (i.e. overvaluation and external financing incentives. These capital market incentives are discussed in detail below.

[7] KR (2007) test a similar hypotheses, however I use this hypotheses as my base case to which further hypotheses and tests are developed later in the paper.

2.4.2. External financing activities

One incentive to managing earnings is to maintain a high stock price. I investigate whether managers who manage their financial statements are particularly concerned with a high stock price. If the firm needs to raise cash to finance ongoing operations and growth plans, then a high stock price will reduce the cost of raising new equity. Dechow and Skinner (2000) contends that such corporate events provide opportunities for managers to engage in earnings management activities. A maintained assumption in this work is that firms manage earnings at the time of equity offerings (e.g., Teoh et al. (1998), and Cohen and Zarowin (2010)) and around new debt issues (e.g., Liu et al. (2010)). Specifically, Teoh et al. (1998) and Rangan (1998) find that reported earnings of firms that make SEOs are unusually high at the time of the SEO and these high reported earnings are attributable to unusually high accruals. Similarly, Dechow et al. (1996) find that firms identified by the SEC as manipulating earnings tend to be issuing equity.

However, recent studies such as Ball and Shivakumar (2008) and Shan et al. (2013) have called in to question prior evidence of IPO earnings management (e.g., Teoh et al. 1998, and Rangan 1998). They suggest two fundamental concerns with prior evidence claiming that IPO firms manage earnings upwards around the IPO. First, they argue that researchers typically pay insufficient attention to reasons as to why such firms may not want to engage in earnings management and/or why earnings management is likely to be expected and hence, detected. Second, firms experiencing large external financing inflow tends to use the received cash proceeds to increase its inventory and accounts receivable as a consequence of expanding its operations. These activities result in a dramatic increase in working capital, with the rate of change for working capital significantly exceeding that for

revenues. Although current accruals of this type have nothing to do with earnings management (i.e., they reflect the rational investment of IPO proceeds in operating activities), these transactions would likely be identified by existing models of unexpected accruals as giving rise to income-increasing earnings management, even after controlling for the change in sales. Moreover, Shan, Taylor and Walter (2013) demonstrate that significant changes in net external financing, whether debt or equity-related, are likely to be correlated with many other circumstances alleged to give rise to an incentive to manage earnings.

Given these mixed findings, this paper revisits the earnings management hypothesis in the context of benchmark beating evidence, but uses the KR method and also explicitly considers incentives to engage in benchmark beating. The above discussion leads to the following testable hypotheses stated in the alternative form:

H2a: *Firms with external financing related incentives manage earnings upwards to convert small cumulative losses at the end of the third quarter into small annual profits.*

H2b: *Firms with external financing related incentives manage earnings upwards to prevent small cumulative profit at the end of the third quarter from becoming small annual losses.*

2.4.3. Overvaluation hypothesis

Overvaluation is defined by Jensen (2005) as arising when there is substantial overvaluation in a particular stock and the company is not in a position to deliver the required results (except by pure luck) to justify its value. Jensen argues that overvalued firms can suffer from adverse consequences because extreme valuation may encourage managers to act in ways that are detrimental to the long run value of their firms. As a firm

becomes more overvalued, the pressure to meet increasingly unrealistic earnings targets becomes greater. Although managers potentially could constrain the market's earnings expectation, to do so would likely adversely affect managers' short-term interests and the short-term value of their firms. Rather than curbing or reducing optimism, managers may reinforce market optimism by presenting their firms as favorably as possible. Thus when prices are too high, managers will have to resort to upward earnings management if they wish to maintain, however temporarily, the excessive share price.

In a study of firms restating earnings, Badertscher (2011) finds that more highly overvalued firms engage in more aggressive earnings management including real transactions management, accrual management, and more egregious GAAP violations than less overvalued firms. Houmes and Skantz (2010) find similar results and further document evidence that the overvalued equity incentive is incremental to a CEO's equity portfolio incentive. In contrast to Badertscher (2011), Houmes and Skantz (2010) focus on within-GAAP earnings management, use a much broader sample, and do not claim that highly valued firms are indeed overvalued.

Regardless of the exact causes of overvaluation, over time the price of overvalued equity should revert towards its underlying value. This price reversion is inevitable because information about the firm's fundamentals will be revealed over time, and investors' opinions about valuation will converge towards the underlying value. However, a drop in equity price for any reason is rarely desirable to managers. In contrast, managers have a lot to gain when equity price increases. First, their wealth and compensation increase with the stock price through stock-performance-based incentives (e.g., Burns and Kedia, 2008). Second, the manager's job security increases with the stock price. A manager is less likely

to lose his job when the stock is performing well (e.g., Weisbach, 1988). Third, a strong stock performance increases the manager's value in the executive labor market. The opposite of all the above could happen if equity price drops. Motivated by these incentives, a manager naturally strives for higher stock price.

To prolong the overvaluation, a manager can resort to value decreasing activities such as overinvesting through acquisitions or expansions, committing frauds, or managing earnings. It is worth noting that value decreasing activities like overinvesting and acquisitions can be due to things other than current overvaluation. For example, managers can engage in acquisitions because they have strong hubris (Roll, 1986), they are overconfident (Malmendier and Tate, 2005), or overly optimistic (Heaton, 2002). In this situation, the manager believes that the high stock valuation is justified because he/she has superior ability or because there are abundant positive-NPV investment opportunities. In contrast, overvaluation-induced income-increasing earnings management or financial frauds can be more clearly attributed to the agency conflicts outlined by Jensen (2005). This is because the assumption is that managers know with a great deal of certainty that their firms are overvalued and as a consequence, they engage in overinvesting and other value decreasing activities to sustain the inflated price in the short run.

Accounting earnings management is more prevalent than financial fraud, such deceit is often the precursor of financial frauds. Graham et al. (2006) provide evidence that the aggregate shareholder value destroyed by earnings management far exceeds that by high-profile fraud cases. Therefore, I focus on the relation between overvaluation and earnings management. Revisiting this relation between overvaluation and earnings management within this specific subsample (i.e. KR classification) is critical for evaluating whether

prior findings (e.g., Badertscher 2011) holds true for this cohort of firms.[8] The above discussion leads to the following testable hypotheses stated in the alternative form:

H3a*: Firms with overvaluation related incentives manage earnings upwards to convert small cumulative losses at the end of the third quarter into small annual profits.*

H3b*: Firms with overvaluation related incentives manage earnings upwards to prevent small cumulative profit at the end of the third quarter from becoming small annual losses.*

3. Data and Sample

3.1. Sample

I sample all firms in COMPUSTAT between 1987 and 2009 with sufficient data available to calculate the COMPUSTAT-based variables utilised in this paper for each firm-year. I require that cash flow from operations be available on COMPUSTAT from the Statement of Cash Flows. This restricts my sample to the post-1986 period.

Given that one of the primary focuses of the paper is on the loss avoidance threshold, I use annual data for the tests although consideration is given for the fourth quarter earnings where it is argued that earnings management might be prevalent. Further, the loss avoidance threshold is probably more important at the annual level, since a number of firms that are consistently profitable at the accrual level are likely to report individual quarterly losses due to seasonality effects. Annual losses, on the other hand, are likely to be viewed more seriously by the numerous stakeholders of firms, such as lenders and suppliers,

[8] Badertscher (2011) find that overvalued firms tend to manage earnings upwards and this is more pervasive when the duration of overvaluation increases.

particularly because they are audited and considered more reliable. Thus, managers are likely to have greater incentives to avoid reporting annual losses.

To collect the sample I merge annual and quarterly data using CUSIP. Following Burgstahler and Dichev (1997) and KR (2007), I eliminate firms with missing data on net income (COMPUSTAT Xpressfeed variable NI) and firms in financial and regulated industries (variable SIC between 4400-4999, and between 6000 and 6500).[9] I also eliminate observations with NI=0 and delete observations where quarterly earnings data for any of the first three quarters is missing. I further delete observations where cumulative earnings after three quarters (*NI3Q*) are zero, resulting in *NI=NIQ*. In addition, observations with missing or zero value of total assets (AT) and Sales (Sale) are deleted. The total number of observations used for the loss avoidance tests differs for each subsample and as such is detailed in the results section.

3.2. Use of KR analyses to select suspect firm – years

KR use the distribution of cumulative earnings after three quarters as a benchmark to infer earnings management in the fourth quarter. They analyse the evolution of the earnings distribution during the fourth quarter by comparing the earnings distribution at the end of the first three quarters to that at the end of the year. The KR method is based on the premise that managers engage in upwards earnings management to avoid losses only when the benefits of managing earnings exceed the costs of doing so. KR makes an intuitive assumption in that the benefits of avoiding a loss and reporting a positive income are similar for all firms. This maintained assumption is somewhat different for costs, where it

[9] Consistent with prior literature, financial firms are argued to have a different accrual accounting process, thus deleted from the sample.

is expected that firms closest to the earnings benchmark (loss avoidance threshold) require the least amount of upward earnings management to achieve profitability, ceteris paribus. Therefore companies that are closest to earnings benchmarks (loss avoidance threshold) after three quarters are most likely to manage earnings upwards in the fourth quarter, and thus constitute the treatment cohort. Control groups are defined as firms that were in close proximity (adjacent interval) in the deflated net income distribution after three quarters, and thus had a similar probability of shifting a given length and direction in the fourth quarter.

Using the logic of KR, I identify firm year observations that are close to the loss avoidance threshold (i.e., those with either small cumulative loss or small cumulative profit) at the end of the first three quarters but report their annual earnings in the earnings interval distribution immediately above the loss avoidance threshold (i.e. small annual profit). This approach is clearly outlined in Figure 1.

To apply KR analyses to net income, cumulative net income after three quarters, *NI3Q*, is defined as follows:

NI3Q = NI –NIQ; where *NI* is the annual net income and *NIQ* is the earnings of the fourth fiscal quarter.

3.2.1. Interval formation:

To form the empirical distribution for the loss avoidance threshold, *NI3Q* and *NI* are scaled by the lagged value of the total assets The resulting observations are distributed across interval distribution widths equal to 0.01 (i.e. in interval widths of 1% of lagged total

assets)[10]. Firms with scaled earnings ranging from zero and one percent of their total assets (interval distribution widths zero to one) are categorised as *Small Profit* firms. Similarly, firms with scaled earnings that are less than one percent of their total assets (interval distribution widths negative one to negative two) are termed *Small Loss* firms.

3.3. Conditional Analysis for capital markets incentives

3.3.1. External Financing

I use two empirical constructs to capture a firm's need to raise additional capital. Firstly, I use an indicator variable identifying whether the firm has issued new debt or equity during the period (*actual issuance*), and secondly, I construct a measure of *ex ante financing need*. Some managers may have wished to raise new capital but did not because they were unable to secure favorable terms; following Dechow et al. (2011), this ex ante measure of financing need provides a measure of the incentive to raise new capital. As such, I report an indicator variable that equals one if the firm is estimated to have negative free cash flows over the next two years that exceed its current asset balance[11].

3.3.2. Overvaluation hypothesis

Following Rhodes-Kropf, Robinson, and Viswanathan (RKRV, 2005), I decompose market value of assets to book value of assets (*M/B)* to obtain the misvaluation measures. If a perfect measure of the firm's true value exists, (V), M/B can be first denoted as:

$$M/B = M/V \times V/B. \quad (1)$$

[10] KR use beginning period market value as their scaling variable instead of beginning period total assets. They however find no significant difference when using total assets in their robustness test.
[11] Please refer to footnote 13.

where M/V captures misvaluation and V/B captures growth opportunities. Rewriting (1) into logarithmic form, I obtain:

$$m - b = (m - v) + (v - b), \tag{2}$$

where lowercase denotes logarithmic values. If markets potentially make mistakes in estimating discounted future cash flows or, as in RKRV (2005), markets do not have all the information known by managers, the price-to-true value, ($m - v$), captures the part of ln(M/B) that is associated with misvaluation. RKRV (2005) acknowledge that this perhaps does not correspond to an asset-pricing sense of mispricing, depending on whether the information in v is known to the market. If the market price does not reflect true value, then ln(M/V) will be positive in times of overvaluation, and negative in times of undervaluation. The deviation of the firm's market value from its true value, ($m - v$) can arise from industry-wide misvaluation or firm-specific misvaluation. Therefore, for any firm i at year t, (m - v) can be further decomposed into two components, and I decompose (m - b) as following:

$$m_{it} - b_{it} = \underbrace{m_{it} - v(\theta_{it};\alpha_{jt})}_{\text{firm-specific error}} + \underbrace{v(\theta_{it};\alpha_{jt}) - v(\theta_{it};\alpha_{j})}_{\text{industry-level}} + \underbrace{v(\theta_{it};\alpha_{j}) - b_{it}}_{\text{long-run valuation}} \tag{3}$$

where j is used to denote industry. v is expressed as a linear function that multiplies some firm-specific accounting information θ_{it}, and a vector of estimated accounting valuation multiples α. $v(\theta_{it};\alpha_{jt})$ is the estimated firm value based on contemporaneous industry-level valuation multiples α_{jt}. Thus, the first component in Eq. (3) captures the valuation error

caused by firm-specific deviation from contemporaneous industry-level valuation. $v(\theta_{it};\alpha_j)$ is the estimated firm value based on long-run industry-level valuation multiples α_j. Thus, the second component in Eq. (3) captures the valuation error caused by the deviation of current industry valuation from the long-run industry valuation. The third component in Eq. (3) is the difference between long-run value and book value, i.e., the logarithm of the true value-to-book ratio, capturing growth opportunities. Note that each of the three components varies across firms and years because each component utilizes θ_{it}, which is firm *i*'s accounting information at year *t*. To operationalize Eq. (3), the valuation models $v(\theta_{it};\alpha_{jt})$ and $v(\theta_{it};\alpha_j)$ need to be estimated. Again, following RKRV, I estimate the valuation models as a function of book value, net income, and financial leverage. To get an aggregate measure of overvaluation, I follow Chi and Gupta (2009), and estimate a total valuation error (hereafter *TV_Err*) as the sum of the firm-specific valuation error (hereafter *FSV_Err*) and the industry-level valuation error (hereafter *ILV_Err*).[12]

3.4. Proxies for earnings management

3.4.1. Real earnings management

To capture real earnings management, I follow Roychowdhury (2006) and estimate normal cash flow from operations, discretionary expenses (advertising, R&D, and SG&A), and production costs.

First, normal cash flow from operations is expressed as a linear function of sales and change in sales in the current period. To estimate the model, I run the following cross-sectional regression for every for each Fama and French 12 industry grouping and year:

[12] For my main tests, I utilise the total valuation metric (*TV_Err*) to measure overvaluation.

$$CFO_t / A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1 (S_t / A_{t-1}) + \beta_2 (\Delta S_t / A_{t-1}) + \varepsilon_t \quad (4)$$

where A_{t-1} is the total assets at the beginning of period *t*, S_t the sales during period t and

$\Delta S_t = S_t - S_{t-1}$. For every firm-year, abnormal cash flow from operations is the actual CFO minus the ‘‘normal’’ CFO calculated using estimated coefficients from the corresponding industry-year model and the firm-year’s sales and lagged assets.

Second, production costs are estimated from the following industry-year regression.

$$PROD_t / A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1 (S_t / A_{t-1}) + \beta_2 (\Delta S_t / A_{t-1}) + \beta_3 (\Delta S_{t-1} / A_{t-1}) + \varepsilon_t \quad (5)$$

Third, under the simplifying assumptions in Roychowdhury (2006), discretionary expenses are expressed as a linear function of lagged sales. That is the regression is estimated as follows:

$$DISEXP_t / A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1 (S_{t-1} / A_{t-1}) + \varepsilon_t \quad (6)$$

where $DISEXP_t$ is discretionary expenses in period t. I use lagged sales instead of contemporaneous sales to avoid the problem of firms exhibiting unusually low residuals when they manage sales upward to increase reported earnings in any year, even when they do not reduce discretionary expenses.

3.4.2. Measuring unexpected accruals

To capture accrual based earnings management, I utilise the modified Jones model (Dechow et al. 1995). Consistent with Hribar and Collins (2002), total accruals (TA) is defined as the difference between operating profit and cash flow from operations. With

reference to COMPUSTAT, total accruals = Data # 18 – Data # 308. This direct measure of accruals is less subject to measurement error, especially in situations where acquisitions or divestitures occur (Hribar and Collins 2002).

Following Kothari et al. (2005), I control for the effect of performance on accruals. Specifically, I expand the set of explanatory variables used in traditional modified-Jones (1995) models of discretionary accruals by including return on assets (ROA_{it}). In this spirit, the Modified Jones model unexpected accrual is estimated cross-sectionally for each Fama and French 12 industry grouping (excluding financial services) in each year from 1987 to 2009. This is estimated as

$$TA_{it} = \beta_0 + \beta_1(\Delta SALES_{it} - \Delta AR_{it}) + \beta_2 PPE_{it} + \beta_3 ROA_i + \varepsilon_{it}, \quad (7)$$

Where $\Delta SALES_{it}$ (COMPUSTAT item # 12) is the change in sales divided by the lagged value of total assets, $ASSETS_{it-1}$(COMPUSTAT item # 6), ΔAR_{it} (COMPUSTAT item # 2) is the change in accounts receivable deflated by the lagged value of total assets, $ASSETS_{it-1}$, ROA is the return on assets (COMPUSTAT item # 123/ COMPUSTAT item # 6) and PPE_{it} (COMPUSTAT item #8) is gross property, plant and equipment scaled by $ASSETS_{it-1}$. The use of assets as the deflator is intended to mitigate heteroskedasticity in residuals. However, White (1980) statistics for the annual, cross-sectional, industry models demonstrates that deflation reduces, but does not eliminate heteroskedasticity. Given that unexpected accruals are a residual estimate from a model of expected accruals, this paper uses residuals from the annual cross-sectional industry regression model in Eq. (7) as the modified-Jones model unexpected accruals.

4. Research Design

4.1. Tests of Hypotheses

To test the hypotheses described in Section 2.3, I use two different tests for firms in the interval surrounding the loss avoidance threshold in the YTDQ3 earnings. First, I use logistic regressions to examine whether shifts by the treatment group firms into the smallest profit interval of the annual earnings distribution differ from shifts of the control group, ceteris paribus. Second, I compare measures of earnings management (unexpected accruals and RAM) for treatment firms classified as having capital market incentives that shift into the smallest profit interval of the annual earnings distribution relative to shifts of the control group.

4.1.1. First stage tests: Logistic Regression

The following logistic regression models are developed to test why firms might want beat earnings benchmarks. Logistic regressions allow inferences about whether the probability of treatment group firms shifting into the smallest profit (*Small_Profit)* or smallest loss (*Small_Loss)* interval are significantly different from the probability of shifts of equal length and direction by control group firms, after controlling for economic factors such as size, industry, and year. The dependent variable, $Meet_{jt}$, is a response variable that indicates whether a firm in an interval of scaled year-to-date earnings after three quarters shifted to the small profit interval of scaled annual earnings or not. To avoid cumbersome interactions, I estimate the *Small_Loss* and *Small_Profit* groups separately as follows:

$$Meet_{jt} = \beta_0 + \beta_1 Small\_Loss + \beta_2 TV + \beta_3 Small\_Loss*TV + \beta_4 Small\_Loss*Exfin\_Need + \beta_5 Small\_Loss*Act\_Issue + \beta_6 Exfin\_Need + \beta_7 Act\_Issue + \beta_8 Size + \beta_9 Sox + \sum_i \kappa_i IND_i + \sum_i \eta_t YR_t + \varepsilon_{jt}$$ [13] (8)

$$Meet_{jt} = \beta_0 + \beta_1 Small\_Profit + \beta_2 TV + \beta_3 Small\_Profit*TV + \beta_4 Small\_Profit*Exfin\_Need + \beta_5 Small\_Profit*Act\_Issue + \beta_6 Exfin\_Need + \beta_7 Act\_Issue + \beta_8 Size + \beta_9 Sox + \sum_i \kappa_i IND_i + \sum_i \eta_t YR_t + \varepsilon_{jt}$$ (9)

Where the independent variables (excluding interactions) are defined as:

$Small\_Loss_t$ = 1 if a firm is in the smallest loss interval of year-to-date earnings after three quarters (hereafter YTDQ3); = 0 otherwise;

$Small\_Profit_t$ = 1 if a firm is in the smallest profit interval of YTDQ3; = 0 otherwise;

TV_t = 1 if firms YTDQ3 total valuation error is positive and in the top quintile in its industry-year; = 0 otherwise;

$Exfin\_Need_t$ = an indicator variable to capture the ex-ante financing need of a firm measured at the end of the third quarter, coded 1 if [(CFO-past three year average capital expenditures)/Current assets] <-0.5;

[13] Following Dechow at al. (2011), I include both external financing related measures in the same logistic regression. One of the measures is an *ex-ante* measure whereas the other is an *ex-post* measure of external financing. Although this may raise some potential modelling issues, additional analyses shows that including only one measure in the model is not materially different from having both measures modelled in. I have chosen the later rather than the former in my tests.

Act_Issue_t = an indicator variable coded 1 if a firm issued securities (debt and equity) in t+4 quarters (i.e., an indicator variable coded 1 if DATA 108>0 or DATA111>0); = 0 otherwise; t= end of the third quarter in the current year.

Fin_Lev_t = financial leverage ratio calculated as [1- (shareholders' equity/total assets)];

SOX_t = an indicator variable to capture the Sarbanes Oxley Act, 1 if firm year >= 2002; = 0 otherwise;

$Size_t$ = natural log of total assets.

IND_i = Industry dummy = 1 if Fama and French 12 industry classification of a firm = i; = 0 otherwise. i= (1, 2,..,12);

YR_t = Year Dummy = 1 if fiscal year = t; = 0 otherwise. t = 1988–2005. Year 1987 is omitted as a base case.

Similar to KR, I estimate the change in odds (relative to the control group) of firms in the -1 interval of the YTDQ3 distribution moving one interval up in the distribution of annual earnings. Likewise, I estimate the change in odds of firms in the +1 interval of the YTDQ3 distribution staying in the same interval in the distribution of annual earnings. Logistic regression estimates of Eq. (8) provide a test of Hypothesis H1a, H2a and H3a. Eq. (9) provide tests of Hypotheses H1b, H2b, and H3b.

Treatment group firms are closest to the loss avoidance threshold in the YTDQ3 distribution and are viewed as the most likely candidates for earnings management. In the estimation of Eq. (8), I use firms in the -1 interval of YTDQ3 as the treatment group, represented by the indicator variable *Small_Loss*. In logistic estimates of Eq. (9), firms in

the +1 interval of YTDQ3 are used as the treatment group, represented by the indicator variable *Small_Profit*. In addition, all the logistic regression estimates include external financing related incentive variables (*Exfin_Need* and *Act_Issue*), and overvaluation related incentive variables (*TV*). These incentives variables are interacted with both the *Small_Loss* and *Small_Profit* indicator variables in the logistic regression models in order to determine their incremental effect, if any.

Following KR, I use firms in the -2 (+2) interval of the YTDQ3 distribution as the control group for the treatment group consisting of firms in the -1 (+1) interval of the YTDQ3 distribution. Firms that are closest to the treatment firms in the YTDQ3 distribution are expected to have a similar probability of shifting intervals during the fourth quarter in the absence of earnings management. In addition, firms that report YTDQ3 losses are more likely to report losses in the fourth quarter than firms with YTDQ3 profits, given that YTDQ3 losses are indicative of poor performance throughout the current year. Collectively, these arguments indicate that the fourth-quarter migration rates and directions of firms with YTDQ3 losses (profits) are likely to be similar to nearby YTDQ3 loss (profit) firms. On the other hand, the fourth-quarter migration rates for the firms with YTDQ3 losses are likely to be systematically different from those of YTDQ3 profit firms during the fourth quarter.[14]

Each logistic regression equation is estimated using an appropriate treatment group and control group and then tested for robustness using an expanded control group. For example, consider the estimation of Eq. (8), which is used to test Hypotheses H1a, H2a, and H3a. The sample for estimating Eq. (8) consists of firms in the -1 interval of the YTDQ3

[14] Refer to KR (2007) for detailed explanation on control group selection.

distribution (the treatment group) and firms in the -2 interval of the YTDQ3 distribution (the main control group). The corresponding results are shown in Table 4 Panel A. I also estimate Eq. (8) using an expanded control group that consists of firms in intervals -2 to -5 of the YTDQ3 distribution. The corresponding results are shown in Table 4, Panel B.

Hypotheses H1a predicts that firms in the -1 interval of YTDQ3 that would have reported smallest annual losses have an abnormally high likelihood of moving to the next-higher interval during the fourth quarter to achieve smallest annual profits. This association is hypothesised to be stronger for firms with external financing (i.e. H2a) and overvaluation (i.e. H3a) related incentives respectively. Firms in the -2 interval have incentives either to move down one interval, to create future reserves, or to not move at all rather than to move up one interval and report smallest annual losses. In contrast, for -1 firms, while the incentives for moving down one interval to create future reserves or not moving at all are similar to those of -2 firms, their strongest incentive is to move up one interval and reap the benefits of avoiding a loss.

Thus, using logistic regressions for testing Hypothesis H1a, H2a and H3a, the estimates of Eq. (8) should reveal that the odds of moving up to the small profit interval of annual NI are higher for firms that belong to the -1 interval of YTDQ3 than to those that belong to the -2 interval of YTDQ3. In addition, I expect this shift to be incrementally significant when I include external financing related incentive variables (*Exfin_Need* and *Act_Issue*), and overvaluation related incentive variables (*TV*). Under the null, the odds of meeting or beating the earnings level benchmark (i.e. annual small profit) are the same for -1 YTDQ3 firms and -2 YTDQ3 firms. The testable prediction of Hypotheses H1a, H2a, and H3a is thus that the coefficients on *Small_Loss* (β_1), *TV* (β_2), *Exfin_Need* (β_6), *Act_Issue* (β_7), and

interaction variables are positive in Eq. (8). Specifically H1a; *Small_Loss* (β_1), H2a; *Exfin_Need* (β_6), *Act_Issue* (β_7), and H3a; *TV* (β_2), are expected to be positive.

For hypotheses H1b, H2b, and H3b, I examine an empirical prediction outlined in KR (2007). Essentially, KR argues that firms with small YTDQ3 profits have incentives to manage earnings up to avoid reporting small annual losses if they have small fourth-quarter losses, and incentives to manage earnings down to create reserves (after ensuring that they will record a small annual profit for the current year) for future earnings management purposes if they have small fourth-quarter profits. As a corollary, firms in the +1 interval of YTDQ3 will stay in the +1 net income (hereafter NI) interval at a relatively high rate. Logistic estimates of Eq. (9) should therefore find that firms in the +1 interval of YTDQ3, identified by indicator variable *Small_Profit*, have higher odds of staying in the same NI interval (i.e. annual small profit) in comparison to firms in the control group. Again, I expect this shift to be incrementally significant when external financing (i.e. H2b) related incentive variables (*Exfin_Need* and *Act_Issue*), and overvaluation (i.e. H3b) related incentive variable (*TV)* are regressed in the model. The null hypothesis predicts that the difference in odds will be zero. The testable implication of Hypotheses H1b, H2b, and H3b is thus that the coefficients on *Small_Profit* (β_1), *TV* (β_2), *Exfin_Need* (β_6), *Act_Issue* (β_7), and interaction variables are positive in Eq. (9).

4.1.2. Seconds stage tests: Multivariate analysis

The papers initial focus is on comparing the changes in the level of unexpected accruals and real earnings management for treatment firms that have strong capital market incentives (overvaluation or external financing) with (i) all remaining benchmark beating

firms absent capital market incentives, and (ii) all other firms in the sample interval. Essentially, I use the same treatment and control groups used in the logistic regression tests.

The first set of test seeks to determine if the decision to manipulate is related to the "heightened" incentive which arises from capital market incentives (overvaluation or external financing) to achieve the threshold, and not just specific to a decision to manipulate given the proximity of the benchmark more generally. The second test (comparing treatment firms with all other firms in the sample interval) aims to provide initial evidence on whether benchmark-beating firms with capital market incentives have unusual levels of unexpected accruals and RAM that helped to meet the benchmark. Given that a large number of observations are expected in the benchmark beating interval absent any manipulation, conducting the second comparison is very important. In summary, I focus my attention on firms where the pressures of having substantially overvalued equity or external financing activities and therefore incentives to beat the benchmark are highest.

To conduct the multivariate tests, I estimate the changes in the level of unexpected accruals and real earnings management measures from the end of the third quarter and the fourth quarter. This ensures that both time periods (i.e. end of third quarter and fourth quarter) are considered and also helps mitigate the doubts of upwards earnings management in the fourth quarter due to the integral method of accounting expressed by Durtchi and Easton (2009).[15] In doing so, the following measures of earnings management are considered in the analysis; (i) *UACC*, the unexpected accruals proxy estimated using the modified Jones (1995), (ii) *ABNCFO*, the abnormal cash flows from Roychowdhury (2006) model, (iii) *ABNDISC*, the abnormal discretionary expenditures estimated using the Roychowdhury

[15] Refer to hypotheses development section for detailed explanation on the integral method accounting

(2006) model, and (iv) *ABNPROD,* abnormal production cost estimated using the Roychowdhury (2006) model.

I estimate the changes in the level of unexpected accruals and real earnings management measures (relative to the control group) of treatment firms in the -1 interval of the YTDQ3 distribution moving one interval up in the distribution of annual earnings. Likewise, I estimate the changes in the level of unexpected accruals and real earnings management measures of firms in the +1 interval of the YTDQ3 distribution staying in the same interval in the distribution of annual earnings. Firms in the treatment group (firms in the -1 and +1 interval of the YTDQ3 distribution with strong capital market incentives) are expected to be associated with high unexpected accruals (positive *UACC*) and/or high real earnings management (positive *ABNPROD* and negative *ABNDISC*, and negative *ABNCFO*) relative to the control group. Hypotheses H1 (i.e. H1a and H1b), H2 (i.e. H2a and H2b), and H3 (i.e. H3a and H3b) predict that firms in the -1 (+1) interval of YTDQ3 engage in upwards earnings management to achieve smallest annual profits. This association is hypothesised to be stronger for firms with external financing (i.e. H2a and H2b) and overvaluation (i.e. H3a and H3b) related incentives respectively.

5. Results

5.1. Descriptive Statistics

Figures 2a, 2b and 2c reports the distribution of cumulative operating income at the end of the third quarter scaled by opening total assets, operating income for the fourth quarter scaled by opening total asset, and annual operating income scaled by opening total assets respectively. The discontinuities in these distributions around the zero profit thresholds for

the scaled cumulative earnings after the third quarter, scaled earnings for the fourth quarter, and the scaled annual earnings are highly significant with a Burgstahler and Dichev (1997) test statistic of 33.33, 66.78, and 17.49 respectively[16]. It is also worth noting that the interval of concern also has the highest frequency (i.e. peak of the distribution) and as consequence, Holland and Ramsay (2003) argue that a significant test statistic would be inevitable, even in the absence of earnings management. As a corollary, this is considered more carefully in the later part of this result section. Table 1 reports the descriptive statistics for the overall sample used in this paper for selected parameters of the model employed. The average and median total accruals (*TACC*) are both negative, while means of unexpected accruals (*UACC* and *UACCQ*) are extremely close to zero (by construction).

Table 2 shows correlations between total accruals, operating cash flows and the unexpected accruals, and between the unexpected accruals, and the other parameters employed in the model used to test the earnings management hypothesis. Pearson (Spearman) correlations appear above (below) the diagonal. As a natural consequence of using a large dataset, most of the correlations are statistically significant. As expected, there is a very strong positive correlation between the measures of unexpected accruals and total accruals. Similarly high correlations are observed for the cash flow and total accruals, albeit to a lesser extent. There is negative correlation between firm size and unexpected accruals. A possible explanation is that larger companies are subject to greater scrutiny, therefore more reluctant to manage earnings via accruals as it is easily detected. As expected there is a negative correlation between unexpected accruals and cash flow from operations.

[16] BD (1997) denotes the total number of observations as *N* and the probability that an observation will fall into the interval *i by* p_i, the variance of the difference between the observed and expected number of observations for interval *i* is approximately Npi(1-pi) +(1/4)N(pi-1 + p i+1)(1 - pi-1 - p i+1).

Table 3 shows the correlations between benchmark beating group, overvaluation and external financing proxies. Pearson (Spearman) correlations appear above (below) the diagonal. As expected, there is a significant positive relation between lagged overvaluation and current overvaluation measures. Prima facie, this result is consistent with Jensen (2005), who argues that firms will seek to prolong the overvaluation when they can. Current period external financing need is positively correlated with next period cash flow from financing (both debt and equity) and negatively correlated with next period security offering. This result is plausible, in that not all firms that seek external financing via security offering are successful. Of interest, is that both the small profit and small loss groups are negatively correlated with the overvaluation and external financing measures. This relation between the benchmark beating group and capital market incentives is further discussed in the results section

5.2. First stage test results- logistic regression

5.2.1. Evolution of the fourth quarter earnings for firms in the interval -1 of YTDQ with external financing and overvaluation related incentives

Table 4 provides results of estimating Eq. (8), which examines the hypotheses of loss avoidance of: (1) *Small_Loss* firms (i.e., H1a); *Small_Loss* firms with external financing related incentives (i.e., H2a), and (3) *Small_Loss* firms with overvaluation related incentives (i.e., H3a). This examines whether the odds of moving up one interval (i.e. to the annual small profit interval) during the fourth quarter are higher if a firm belongs to the -1 interval of YTDQ3 rather than to the control group. The estimate of coefficient β_1 on *Small_Loss* in Eq. (8) is 0.865 in Panel A (where the control group is YTDQ3 interval -2).

This implies that the odds of a firm moving up to the annual small profit interval increases 137.57% if that firm belongs to the -1 interval of YTDQ3 rather than to the control group. This is similar to KR (2007) who report that the odds of a firm moving up to the annual small profit interval increases by 120.8% if that firm belongs to the -1 interval of YTDQ3 rather than to the control group. In Panel B (where the control group consists of firms in YTDQ3 intervals -2 to -5), the coefficient β_1 on *Small_Loss* is 1.485, implying that the odds of moving to the small annual profit interval increase by 341.67% (compared to 110.6% in KR 2007) if a firm belongs to the -1 interval of YTDQ3 rather than to the control group. The coefficients β_1 in both panels are significant at better than the 0.1% level. Similar to KR (2007), this evidence is consistent with the loss avoidance hypothesis that firms manage earnings up to convert small cumulative losses at the end of the third quarter into small annual profits.

Contrary to H2a, estimates on coefficient of *Exfin_Need* (β_6) and *Act_Issue* (β_7) are -0.456 and 0.051 respectively in Panel A (where the control group is YTDQ3 interval -2) and statistically insignificant. In Panel B (where the control group consists of firms in YTDQ3 intervals -2 to -5), the coefficients on β_6 on *Exfin_Need* is -0.831, implying that the odds of moving up to the annual small profit interval decrease by 55.92% if a firm belongs to the *Exfin_Need* group. The coefficients β_7 on *Act_Issue* is not significantly different from zero. Of noteworthy attention, is that the coefficient on *Exfin_Need* is contrary to expectation (i.e. negative as opposed to being positive). A possible explanation for this is due in part to the inability of the ex-ante financing measure to distinguish between firms that actively seek to raise finance from ones that do not. That is, not all firms that desire external financing are able to secure one.

However, logistic regression results on interaction variables β_4, and β_5 (i.e. *Small_Loss*Exfin_Need* and *Small_Loss*Act_Issue)* are only significant in panel B. This indicates that in the extended control sample in panel B, the odds of a *Small_Loss* firm with *Exfin_Need* and *Act_Issue* moving up to the annual small profit interval increases 70.47% and 32.96% respectively. This evidence is consistent with prior literature (such as Teoh et al., 1998, Rangan, 1998 and Liu et al. 2010), that firms tend to engage in upwards earnings management prior to security offerings. Results in panel A highlight that being close to the loss avoidance threshold at the end of the third quarter is a sufficient condition to put pressure on a firms to manage its earnings up to avoid an annual loss. As for panel B, results show that there are some incremental effects of external financing related incentives on firms with small losses at the end of the third quarter in avoiding an annual loss.

For H3a (i.e., *Small_Loss* firms with overvaluation related incentives), the logistic regression estimate on coefficient of *TV* (β_2) is 0.449 in Panel A (where the control group is YTDQ3 interval -2). The coefficient on *TV* is significant at the 5% level. This implies that the odds of a firm moving up to the annual small profit interval increase 56.60% if that firm is overvalued. In Panel B (where the control group consists of firms in YTDQ3 intervals -2 to -5), the results are consistent with Panel A, with the coefficients on *TV* being positive and significant at the 1% level. That is, the coefficient on *TV* is 0.502, implying that the odds of moving up to the annual small profit interval increase by 65.24% if the firm is classified as being overvalued. However, the coefficient on the interaction variable in H3a (i.e. *Small_Loss*TV*) in both panels A and B are mixed and only significant in panel B. Contrary to expectations, results in panel B indicate that the odds of a *Small_Loss* firm

moving up to the annual small profit interval decrease 29.4% if that firm is classified as being overvalued.

Taking results from tests of H1a, H2a, and H3a together, there is some evidence that firms manage earnings up to convert small cumulative losses at the end of the third quarter into small annual profits. However, there is limited evidence (i.e. Panel B) from the tests that firms with external financing related incentives manage earnings upwards to convert small cumulative losses at the end of the third quarter into small annual profits (i.e., H2a). Of noteworthy attention is the higher probability of overvalued firms moving to the annual small profit interval relative to non- overvalued firms. However, I do not find results consistent with overvalued firms in the *Small_Loss* cohort shifting at a higher rate to the annual small profit interval relative to other firms.

5.2.2. Evolution of the fourth quarter earnings for firms in the interval +1 of YTDQ with external financing and overvaluation related incentives

Table 5 provides regression estimates of Eq. (9), which examines the loss avoidance behaviour of: (1) *Small_Profit* firms (i.e., H1b) ; *Small_Profit* firms with external financing related incentives (i.e., H2b), and (3) *Small_Profit* firms with overvaluation related incentives (i.e., H3b). The estimate of coefficient β_1 on *Small_Profit* in Eq. (9) is 1.211 in Panel A (where the control group is YTDQ3 interval +2) and is significant at better than the 1% level. The coefficient implies that the odds of a YTDQ3 firm staying in the same NI interval increase by 235.78% if that firm belongs to the +1 interval of YTDQ3 rather than to the control group. In Panel B of Table 5 (where the control group consists of the firms in YTDQ3 intervals +2 – +5), the estimate of coefficient β_1 on *Small_Profit* in Eq. (9) is

2.035. The odds of a YTDQ3 firm staying in the same NI interval increase by 665.38% if that firm belongs to the +1 interval of YTDQ3 rather than to the control group.

For H1b, the coefficient of *Act_Issue* (β_7) is -0.284 in Panel A (where the control group is YTDQ3 interval +2) whereas the coefficient on *Exfin_Need* (β_6) is insignificant. This implies that the odds of a firm moving to the annual small profit interval decrease by 24.70% if that firm engages in security issuances in year t+1. Results for security issuances in this subsample is plausible, due in part that firms that issue securities (debt or equities) in year t+1 are more likely shift up one interval rather than to maintain (i.e. small profit) its position for that matter. In Panel B (where the control group consists of firms in YTDQ3 intervals +2 to +5), the coefficients on β_6 on *Exfin_Need* and β_7 on *Act_Issue* are similar.

Interestingly, the coefficient estimates on the interaction variable *Small_Profit*Act_Issue* in both panels A and B significant at conventional levels. That is 0.246 and 0.404, which implies that the odds of a *Small_Profit* firm with *Act_Issue* staying in the same NI (annual small profit) interval increase by 27.86 % in panel A and 49.74% in panel B. Similar results are reported for Small*_Profit*Exfin_Need*, except that it is only significant in panel B. Taken together this result lends support for H2b.

For H3b, the coefficient on the overvaluation proxy, *TV* (β_2) in both panels A and B are not significant at conventional levels. Similarly, logistic regression results on the coefficient of the interaction variable (i.e. *Small_Profit*TV*) is not significantly different from zero. This again implies that there is no incremental effect of overvaluation related incentives on firms with small profit at the end of the third quarter in preventing an annual loss. A possible explanation for this could be that firms that are overvalued are expected to consistently

exceed earnings benchmarks every quarter, hence unlikely to be in the *Small_Profit* cohort, albeit in this subsample.

To summarize, the results in Tables 4–5 are consistent with loss avoidance by both *Small_Loss* firms (i.e., H1a) and *Small_Profit* firms (i.e., H1b). These analyses suggest that the discontinuity in the annual earnings interval can be traced to the abnormal movement of firms in the smallest YTDQ3 loss interval into the smallest annual profit interval. In addition, there is evidence of an abnormal retention of firms from the smallest YTDQ3 profit interval into the smallest annual profit interval. There is limited evidence (i.e. panel B of Tables 4 and 5), that this association is present when conditioning these same firms (*Small_Loss*- H2a and *Small_Profit*- H2b) to external financing related incentives (*Exfin_Need* or *Act_Issue*). However there is inconclusive evidence to support Hypotheses H3a (i.e., *Small_Loss*) and H3b (i.e., *Small_Profit*) that the incentive to managing earnings up to avoid an annual loss is stronger for firms that face overvaluation related incentives.

5.2. Second stage test results- Multivariate Analysis

5.2.1. Test of earnings management for firms in the interval -1 of YTDQ with external financing related incentives.

Table 6a reports changes in accruals and real earnings management of firms classified as security issuers (i.e. treatment firms) shifting from the small loss interval of YTDQ3 (interval -1 of YTDQ3) into the smallest profit interval of annual earnings (interval +1 of annual earnings). Evidence in Table 6a indicates that treatment firms that issue security (debt or equity) report positive (negative) changes in levels of unexpected accruals from the

cumulative three quarters to the fourth fiscal quarter. Similar results exist for the changes in the levels of RAM (i.e. abnormal discretionary expenditures). However, my tests focus on the relative level of accruals and RAM for treatment firms and other groups. The first such comparison is with other benchmark beating firms not classified as security issuers (i.e. Control 1 group). For unexpected accruals measure (UACC), the treatment firms have higher unexpected accruals than other benchmark beating firms not classified as security issuers (i.e. Control 1 group), with the difference statistically significant at the 1 % level. For RAM, the changes in the levels of abnormal discretionary expenditures for treatment firms are lower relative to other benchmark beating firms not classified as security issuers, indicating upwards RAM. In contrast, the changes in the levels of abnormal production is lower for the treatment firm relative to other benchmark beating firms not classified as security issuers, and is more consistent with downwards RAM.

Changes in earnings management measures (UACC and RAM) for treatment firms are next compared to the 'Control 2' cohort (firms in the YTDQ3 interval -2). Consistent with upwards earnings manipulations, changes in mean UACC values are higher for the treatment firm observations and the difference is statistically significant at the 1% level. In addition, treatment firms do exhibit lower changes in levels of abnormal discretionary expenditures relative to firms in the YTDQ3 interval -2 samples. However, I find that treatment firms have lower abnormal production costs. This indicates downwards real earnings manipulations. My final comparison is between treatment firms with external financing need and firms in the 'Control 3' group (firms in the YTDQ3 interval -2 to -5). There is consistent evidence that the treatment firms have higher unexpected accruals and lower abnormal discretionary expenditures than firms in the YTDQ3 interval -2 to -5

sample. Similarly, results on abnormal production costs are indicative of downwards real earnings manipulation.

In Table 6B, I test for an ex-ante measure of external financing (i.e., firms that might be in need of external financing). Contrary to expectation, changes in accruals of firms classified as in need of external financing (i.e. treatment firms) shifting from small loss interval of cumulative earnings after three quarters into smallest profit interval of annual earnings are smaller relative to the control groups. This implies downwards accruals manipulation for this subsample of firms relative to the control groups. Real earnings measures are mostly insignificant at conventional test levels. These results potentially highlights an underlying financial reporting difference between actual security issuers (Table 6A) and firms that are classified as in need of external financing (Table 6B). This could be due in part to the inability of the ex-ante (*Exfin Need*) financing measure to distinguish between firms that actively seek to raise finance from ones that do not. That is, not all firms that desire external financing are able to secure one.

In summary, these results suggest that treatment firms (benchmark beating firms that are classified as security issuers) have higher levels of unexpected accruals than control groups (i.e. Control 1, Control 2, and Control 3). However, when considering RAM, results are mixed, i.e. both upwards (low abnormal discretionary expenditures) and downwards real earnings manipulations (low abnormal productions costs). As such, I am able to document consistent evidence that treatment firms (with actual security issues) behave differently than other benchmark beating firms. Overall, these results lend strong support of upwards earnings management via accruals management in the fourth quarter by benchmark beating firms that issue debt or equity (i.e. treatment firms) relative to the control sample.

5.2.2. Test of earnings management for firms in the interval -1 of YTDQ with overvaluation related incentives.

Table 6C reports changes in accruals and real earnings management of firms with overvalued equity (i.e. treatment firms) shifting from small loss interval of YTDQ3 (in the interval -1 of YTDQ3) into smallest profit interval of annual earnings. Unexpected accruals measure (i.e., UACC) for treatment firms are higher than other benchmark beating firms that are not overvalued (i.e., Control 1 group). This difference is statistically different from zero at the 1 % level. For RAM, the changes in the levels of abnormal discretionary expenditures for treatment firms are lower relative to other benchmark beating firms not classified as overvalued, which is indicative of upwards RAM. In contrast, the changes in the levels of abnormal production is lower for the treatment firm relative to other benchmark beating firms not classified as overvalued, and is more consistent with downwards RAM.

Second, changes in earnings management measures (UACC and RAM) for overvalued benchmark beating firms (i.e. treatment firms) is next compared to the 'Control 2' cohort (firms in the YTDQ3 interval -2). Consistent with upwards earnings manipulations, changes in mean UACC values are higher for the treatment firm observations and statistically significant at the 1% level. Moreover, treatment firms do exhibit lower changes in levels of abnormal discretionary expenditures relative to firms in the YTDQ3 interval -2 samples. However, I find that treatment firms have lower abnormal production costs. This is indicative of downwards real earnings manipulations.

The final comparison is between treatment firms and firms in the 'Control 3' group (firms in the YTDQ3 interval -2 to -5). There is consistent evidence that the treatment firms have

higher unexpected accruals and lower abnormal discretionary expenditures than firms in the YTDQ3 interval -2 to -5 sample. Similarly, results on abnormal production costs are downwards and indicative of downwards real earnings manipulation. In summary, these results suggest that treatment firms (benchmark beating firms classified as overvalued) have higher levels of unexpected accruals than other control groups (i.e. Control 1, Control 2, and Control 3). However, when considering RAM, results are mixed, i.e. both upwards (low abnormal discretionary expenditures) and downwards real earnings manipulations (low abnormal productions costs). As such, I am able to document consistent evidence that treatment firms behave differently than other benchmark beating firms. As far as the multivariate analysis approach is concerned, these results lend some support of upwards earnings management via accruals (and RAM to a certain extent) in the fourth quarter for treatment firms with overvaluation incentives relative to the control sample.

5.2.3. Test of earnings management for firms in the interval +1 of YTDQ with external financing related incentives

Table 7A shows results for the changes in accruals and real earnings management of firms that are classified as security issuers (i.e. treatment firms) shifting from the small profit interval of YTDQ3 (in the interval +1 of YTDQ3) into the smallest profit interval of annual earnings. In H1b, the focus is on the relative changes in the level of accruals and RAM for treatment firms and other groups. The first such comparison is with other benchmark beating firms not classified as security issuers (i.e. Control 1 group). For unexpected accruals measure (UACC), the treatment firms have higher unexpected accruals than the 'Control 1' observations, with the difference statistically significant at the 1 % level. For RAM, the changes in the levels of abnormal discretionary expenditures for treatment firms

are lower relative to other benchmark beating firms not classified as security issuers which are indicative of upwards RAM. Treatment firms do exhibit low abnormal cash flows, albeit not significant at conventional test levels. In contrast, the changes in the levels of abnormal production is lower for the treatment firm relative to other benchmark beating firms not classified as security issuers, and is more consistent with downwards RAM.

Changes in earnings management measures (UACC and RAM) for treatment firms are next compared to the 'Control 2' cohort (firms in the YTDQ3 interval +2). Shifts by treatment firms in to the smallest profit interval of the annual distribution are associated with upwards earnings manipulations via accruals. That is, changes in mean UACC values are higher for the treatment firm observations and statistically significant at the 1% level relative to the control group. In addition, treatment firms do exhibit lower changes in levels of abnormal discretionary expenditures and abnormal cash flows relative to firms in the YTDQ3 interval +2 samples. However, I find that treatment firms have lower abnormal production costs. This is indicative of downwards real earnings manipulations. The final comparison is between treatment firms and firms in the 'Control 3' group (firms in the YTDQ3 interval +2 to +5). There is evidence of upwards earnings management by treatment firms relative to the control sample. That is, treatment firms have higher unexpected accruals, lower abnormal discretionary expenditures, and lower abnormal cash flows relative to firms in the YTDQ3 interval +2 to +5 sample. In contrast, abnormal production costs are downwards and indicative of downwards real earnings manipulation.

Table 7B shows results when using an alternate proxy of external financing, i.e. firms that might be in need of external financing. Again, following results in Table 6B, I find that results are contrary to those firms classified as security issuers. The changes in accruals of

firms classified as in need of external financing (i.e. treatment firms) shifting from a small profit interval of cumulative earnings after three quarters into the smallest profit interval of annual earnings are not significantly different from the control groups. However, there is some evidence that treatment firms exhibit high abnormal production costs relative to all the control groups. This implies some evidence of upwards real earnings manipulation for this subsample of firms relative to the control groups. Again, these results shows the underlying financial reporting differences between actual security issuers (Table 7A) and firms that are classified as in need of external financing (Table 7B).

In summary, these results suggest that treatment firms (benchmark beating firms that are classified as security issuers) have higher levels of unexpected accruals than other control groups (i.e. Control 1, Control 2, and Control 3). However, when considering RAM, results are mixed, i.e. both upwards (low abnormal discretionary expenditures) and downwards real earnings manipulations (low abnormal productions costs). For benchmark beating firms classified as in need of external financing, I find some evidence of upwards real earnings manipulation (high abnormal production costs) relative to the control sample. Taken together, results from the multivariate analysis approach lend some support to the hypothesis that benchmark beating firms with external financing incentives (i.e. treatment firms) engage in upwards earnings management by shifting from the small profit interval of cumulative earnings after three quarters into the smallest profit interval of annual earnings.

5.2.4. Test of earnings management for firms in the interval +1 of YTDQ with overvaluation related incentives

Table 7C reports changes in accruals and real earnings management of firms with overvalued equity (i.e. treatment firms) shifting from small profit interval of YTDQ3 (in the interval +1 of YTDQ3) into smallest profit interval of annual earnings. In comparison with other benchmark beating firms not classified as overvalued (i.e. Control 1 group), unexpected accruals measure (UACC) for the treatment firms is not significantly different. However, this is different from the significant results documented in Table 6C (where the treatment firms were in the YTDQ3 interval -1). For RAM, the changes in the levels of abnormal discretionary expenditures and abnormal cash flows for treatment firms are lower relative to other benchmark beating firms not classified as overvalued, which is indicative of upwards RAM. In contrast, the changes in the levels of abnormal production is lower for the treatment firm relative to other benchmark beating firms not classified as overvalued, and is more consistent with downwards RAM.

Results of estimating changes in earnings management measures (UACC and RAM) for treatment firms relative to the 'Control 2' cohort (firms in the YTDQ3 interval +2) is consistent with upwards earnings manipulations. That is changes in abnormal cash flows and abnormal discretionary expenditures are low relative to the control sample. However, I find that treatment firms have lower abnormal production costs. This is indicative of downwards real earnings manipulations. Again, changes in mean UACC values are not significantly different for the treatment firms relative to the control sample.

For the final comparison, treatment firms are compared to firms in the 'Control 3' group (firms in the YTDQ3 interval +2 to +5). Results are quantitatively similar to the

comparisons above. In summary, these results suggest that treatment firms (firms in the YTDQ3 interval +1 with overvaluation) do engage in real earnings manipulation. Consistent with upwards real earnings manipulation, treatment firms have low abnormal discretionary expenditures and low abnormal cash flows relative to the control groups. However, consistent with downwards real earnings manipulations, treatment firms exhibit low abnormal productions costs relative to all the control samples. Treatment firms in Table 6C (YTDQ3 interval -1 with overvaluation) exhibit upwards accruals management whilst treatment firms in this case- Table 7C (YTDQ3 interval +1 with overvaluation) do not appear to do so and are more inclined to real earnings manipulation. A possible explanation could be that treatment firms in each of the subsamples (YTDQ3 interval -1 and YTDQ3 interval +1) engage in methods of managing earnings that they have enough flexibility in the fourth quarter. In sum, these results lend strong support of upwards earnings management via accruals (and RAM to a certain extent) in the fourth quarter for treatment firms with overvaluation incentives relative to the control sample. The results lend some support of upwards earnings management for benchmark beating firms with overvaluation incentives (i.e. treatment firms) shifting from the small profit interval of cumulative earnings after three quarters into the smallest profit interval of annual earnings.

6. Robustness

6.1. Sensitivity to unscaled earnings

In addition to the robustness test already included in the main tests (i.e. extended control groups), I also examine whether evidence of benchmark beating is sensitive to the use of scaled earnings. To conduct the tests, I re-estimate both the logistic models (first stage

tests) and multivariate analyses (second stage tests) using un-scaled earnings with an interval width of $500,000. For brevity, I only report logistic and regression results for small loss firms (i.e. un-scaled earnings of between -$500,000 - $0 after the third quarter) who shifted to the next higher interval of un-scaled annual earnings ($0 - $500,000).[17]

Table 8 provides logistic regression estimates of Eq. (8), which examines the hypotheses of loss avoidance of: (1) *Small_Loss* firms (i.e., H1a); *Small_Loss* firms with external financing related incentives (i.e., H2a), and (3) *Small_Loss* firms with overvaluation related incentives (i.e., H3a). The logistic regression estimate of coefficient β_1 on *Small_Loss* in Eq. (8) is 0.695 in Panel A (where the control group is YTDQ3 interval -2). This implies that the odds of a firm moving up one interval increase 100.43% if that firm belongs to the -1 interval of YTDQ3 rather than to the control group. I find results that suggest that the odds of overvalued firms and firms issuing securities moving up one interval in the earnings distribution increase 36.70% (30.17%). This difference is statistically significant at the 5% level. Interaction variables are not significant at conventional test levels and consistent with the main results. In Panel B (where the control group consists of firms in YTDQ3 intervals -2 to -5), the results are somewhat consistent with Panel A. This evidence is consistent with the loss avoidance Hypothesis H1a, that firms manage earnings up to convert small year-to-date losses through three quarters into small annual profits. Overall, logistic results are consistent with the main results

Table 9A provides multivariate analyses for changes in accruals and real earnings management of firms classified as security issuers (i.e. treatment firms) shifting from small

[17] Although not reported, robustness results for the other subsample tests that were conducted in the main tests (i.e. *Exfin_Need* and *Small Profit*) are quantitatively similar to those derived in the main tests.

loss interval of un-scaled YTDQ3 (in the interval -1 of YTDQ3) into smallest profit interval of un-scaled annual earnings. In comparison with other benchmark beating firms not classified as security issuers (i.e. Control 1 group), unexpected accruals measure (UACC) for the treatment firms are higher than the 'Control 1' observations. This difference is statistically different at the 1 % level. For RAM, the changes in the levels of abnormal discretionary expenditures for treatment firms are lower relative to the 'Control 1' observations, which is indicative of upwards RAM.

For the second comparison, changes in earnings management measures (UACC and RAM) of treatment firms are compared to the 'Control 2' cohort (firms in the YTDQ3 interval -2). Consistent with upwards earnings manipulations, changes in mean UACC values are higher for the treatment firm observations and statistically significant at the 1% level. Moreover, RAM measures are mixed and insignificant for the most part. The final comparison is between treatment firms and the 'Control 3' group (firms in the YTDQ3 interval -2 to -5). Again, I find that treatment firms have higher unexpected accruals relative to the 'Control 3' sample.

Table 9B provides multivariate analyses for changes in accruals and real earnings management of firms with overvalued equity (i.e. treatment firms) shifting from the small loss interval of un-scaled YTDQ3 (in the interval -1 of YTDQ3) into the smallest profit interval of un-scaled annual earnings. First, I compare treatment firms with other benchmark beating firms not classified as overvalued (i.e. Control 1 group). Unexpected accruals measure (UACC) for the treatment firms is higher than the 'Control 1' observations. This difference is statistically different from zero at the 1 % level. Similar to the main results, I find that the changes in the levels of abnormal discretionary expenditures

for treatment firms are lower relative to other benchmark beating firms not classified as overvalued, which is indicative of upwards RAM. In contrast, the changes in the levels of abnormal production is lower for the treatment firm relative to other benchmark beating firms not classified as overvalued, and is more consistent with downwards RAM.

Second, changes in earnings management measures (UACC and RAM) of treatment firms are compared to the 'Control 2' cohort (firms in the YTDQ3 interval -2). Consistent with upwards earnings manipulations, changes in mean UACC values are higher for the treatment firm observations and statistically significant at the 1% level. Moreover, RAM measures are mixed, with both abnormal productions costs and abnormal discretionary expenditures being negative and significant. For the final comparison, treatment firms have higher unexpected accruals relative to firms in the YTDQ3 interval -2 to -5 sample. Again, results indicate mixed evidence for RAM, i.e. low abnormal production costs and low abnormal discretionary expenditures. In summary, these results, using unscaled earnings are largely similar to the conclusions derived in the main tests.

6.2. Sensitivity of firm specific measures of unexpected accruals and RAM

Finally, I also examine the sensitivity of firm specific measures of earnings management (i.e. unexpected accruals and real earnings management measures) to the systematic differences arising from firm specific, industry and year effects not captured in the main analysis. To do this, I regress firm specific measures of accruals and RAM on the following explanatory variables shown in the equation below.

$$UACCQ/ABNCFOQ/ABNPRODQ/\ ABNDISCQ_{jt} = \beta_0 + \beta_1\ KR\_1 + \beta_2\ KR\_2 + \beta_3 TV + \beta_4\ Exfin\_Need + \beta_5\ ACT\_ISS + \beta_6\ KR\_1*TV + \beta_7\ KR\_1*\ Exfin\_Need + \beta_8\ KR\_1*\ ACT\_ISS + \beta_9$$

$$KR\_2*TV + \beta_{10} KR\_2* Exfin\_Need + \beta_{11} KR\_3* ACT\_ISS + \beta_{12} Fin\_Lev + \beta_{13} NET\_Xfin + \beta_{14} Size$$

$$+ \beta_{15} Sox + \sum_i \kappa_i IND_i + \sum_i \eta_t YR_t + \varepsilon_{jt} \quad (10)$$

Where the independent variables not defined previously are as follows:

KR_1 = dummy variable, coded "1" if firm i in year t reported a cumulative negative net income at the end of the third quarter (scaled by lagged total assets) of between -1% and 0% (i.e. small loss) but reported a positive annual net income (scaled by lagged total assets) of between 0 and 1%, and zero otherwise;

KR_2 = dummy variable, coded "1" if firm i in year t reported a cumulative positive net income at the end of the third quarter (scaled by lagged total assets) of between 0% and 1% (i.e. small profit) and positive annual net income (scaled by lagged total assets) of between 0 and 1%, and zero otherwise;

Net_Xfin = is the current period net external financing measured by ΔEquity + ΔDebt. ΔEquity represents net cash received from the sale (and/or purchase) of common and preferred stock less cash dividends paid (COMPUSTAT annual data #108 less #115 less #127). ΔDEBT represents net cash received from the issuance (and/or reduction) of debt (COMPUSTAT annual data #111 less #114 plus #301).

The dependent variables in Eq. (10) above are ; *UACCQ*, the fourth quarter unexpected accruals proxy estimated using the modified Jones (1995), *ABNCFOQ*, the fourth quarter abnormal cash flows from Roychowdhury (2006) model, *ABNDISCQ*, the fourth quarter abnormal discretionary expenditure estimated using the Roychowdhury (2006) model, and

ABNPRODQ, the fourth quarter abnormal production cost estimated using the Roychowdhury (2006) model.

Table 10 reports results of estimating Eq. (10) for both external financing and overvaluation related incentives for the earnings level threshold. Each column shows results using unexpected accruals and different real earnings management proxies respectively. Benchmark beaters (treatment firms) are represented in this case by *KR_1* and *KR_2*. *KR_1* (*KR_2*) is defined as firms that reported a cumulative negative (positive) net income at the end of the third quarter (scaled by lagged total assets) of between -1% and 0% (0 and 1%) but reported a positive annual net income (scaled by lagged total assets) of between 0 and 1%. Results in Table 10 show that firms shifting from small loss interval of scaled cumulative earnings after three quarters into smallest profit interval of scaled annual earnings (*KR_1*) have positive unexpected accruals and significantly negative levels of abnormal cash flows. Similar results are documented for the *KR_2* sample (i.e. firms that reported a cumulative positive net income at the end of the third quarter (scaled by lagged total assets) of between 0% and 1% (i.e. small profit) and positive annual net income (scaled by lagged total assets) of between 0 and 1%). These results confirm upwards earnings management in the fourth quarter by benchmark beating firms (*KR_1* & *KR_2*) via unexpected accruals (i.e. positive accruals) and at least some effects of RAM (i.e. negative abnormal cash flow and negative abnormal discretionary expenditures).

The coefficient on β_6 (*KR_1*TV*), indicates that overvalued firms shifting from small loss interval of scaled YTDQ3 into the smallest profit interval of scaled annual earnings do exhibit high levels of positive unexpected accruals and low levels of abnormal discretionary expenditure. Similar results are documented for β_9 (*KR_2*TV*) (i.e.,

overvalued firms shifting from small profit interval of scaled YTDQ3into the smallest profit interval of scaled annual earnings), albeit less pronounced.

For external financing related incentives, the coefficient on the interaction between *KR_1*ACT_ISS* and *KR_1*EXFIN_NEED* is indicative of downwards accruals manipulations and mixed results for RAM measures in the fourth quarter (i.e. *ABNCFOQ* and *ABNDISCQ*). Specifically, firms shifting from the small loss interval of scaled cumulative earnings after three quarters into smallest profit interval of scaled annual earnings with external financing related incentives are associated with low unexpected accruals in the fourth quarter. In addition, RAM measures are indicative of both upwards earnings manipulations (negative abnormal discretionary expenditure) and downwards earnings manipulations (positive abnormal cash flows). Similar conclusions are derived for *KR_2*ACT_ISS* and *KR_2*EXFIN_NEED* (i.e. overvalued firms shifting from small profit interval of scaled cumulative earnings after three quarters into smallest profit interval of scaled annual earnings).

The coefficient on *SOX* indicates that unexpected accruals in the fourth quarter are generally lower post the introduction of SOX, whereas RAM measures indicate upwards earnings manipulations via abnormal cash flows (i.e. negative *ABNCFOQ*). Overall, evidence of earnings management from these firms specific measures of earnings management are consistent with the results derived in the main tests.

In sum, results from Table 10, primarily shows that the KR method, not only highlight that benchmark beating is potentially evidence of earnings management, but reasonable

evidence consistent with capital market incentives being associated with that behaviour, which makes it more likely that it is earnings management.

7. Discussion and Conclusion

This paper provides evidence that the incentives to avoid an annual loss could induce managers to engage in activities that enables favourable shifts in a firm's cumulative earnings distribution during the fourth quarter. Using the methodological innovation of KR, I first examine whether intra-year shifts in the earnings distribution by firms to avoid annual loss is consistent with earnings management. Second, I provide evidence on whether capital market related incentives (external financing and overvaluation) do play a role in the benchmark beating behavior of these suspect firms. In this paper, two approaches were utilised to test the hypotheses regarding earnings management by firms with strong overvaluation and external financing related incentives with intra-year shifts in the earnings distribution to avoid annual loss. The first approach uses a logistic regression to analyse whether treatment firms manage earnings up at the end of the fourth quarter to avoid reporting an annual loss relative to the control group, while the second method uses multivariate analysis, with the dependent variables being unexpected accruals and real earnings management. This research addresses the need to focus attention on cases of benchmark beating where earnings management is most likely to occur. I also conduct several robustness tests that confirm the stability of the variables selected for my models and the coefficient estimates.

In summary, results in this paper not only documents general benchmark beating evidence consistent with KR (2007), but reasonable evidence consistent with capital market

incentives being associated with that behaviour, which makes it more likely that it is earnings management. Specifically, empirical analysis in the paper are consistent with opportunistic benchmark beating behaviour by firms with strong capital market incentives in the smallest loss and smallest profit interval of YTDQ3 earnings in avoiding annual losses relative to the control groups. First, logistic results find that the discontinuity in the annual earnings interval can be traced to the abnormal movement of firms in the smallest YTDQ3 loss interval into the smallest annual profit interval. In addition, there is evidence of an abnormal retention of firms from the smallest YTDQ3 profit interval into the smallest annual profit interval. Furthermore, there is some evidence which shows that small loss firms (i.e., interval of -1 of YTDQ3) and small profit firms (i.e., interval of +1 of YTDQ3) classified as security issuers shift at a higher rate in to the "just meet or beat" benchmark at the end of the fourth quarter relative to other firms.

Second, multivariate analyses show that firms in the smallest loss interval of YTDQ3 classified as security issuers or overvalued engage in upwards earnings management via accruals relative to the control group. Similar results are documented for firms in the smallest profit interval of YTDQ3, except overvaluation incentives are not significant. Moreover, there is some evidence of earnings management via real activities by firms in the smallest loss and smallest profit interval of YTDQ3 with strong capital market incentives.

Given the recurring debate about the extent to which apparent benchmark beating is indicative of some degree of earnings management (compare Jacob and Jorgensen, 2007 and Durtschi and Easton, 2009), my results suggest an opportunity to at least partially resolve this debate. Having the presence of explicit incentives to care about the

consequences of (not) beating a pertinent earnings benchmark, I expect it is more likely that benchmark beating would not be an artefact of sample selection and scaling issues previously highlighted (Durtschi and Easton, 2005; 2009). As Dechow and Skinner (2000) point out, it is important in tests of earnings management to carefully identify instances where the incentive to manage earnings is strongest. Given the low power of methods used to detect earnings management (i.e. estimating unexpected accruals and real earnings manipulations) this is critical to the successful identification of earnings management. Evidence from this paper is consistent with the view that the incentives to manage earnings are important, and I suggest that future tests of benchmark beating (or other indicators of possible earnings management) should first identify those cases where explicit earnings management would be of most benefit to the firm. The capital market incentives which arise from overvaluation and external financing activities are just two examples of such incentives. The identification and testing of others remains an opportunity for future research.

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Figures and Tables

Figure 1: Basic treatment group and control group selection process prior to being conditioned to Capital Market Incentives (Overvaluation and External Financing)

	Treatment Group		**Control Group**
Indicator Variable	YTDQ3 Interval	Annual Earnings Interval	(YTDQ3 Intervals)
Small_Loss	-1	-1	-2 -2 to -5
Small_Profit	+1	+1	+2 +2 to +5

Interval distribution widths are equal to 0.01(i.e. in interval widths of 1% of lagged total assets).

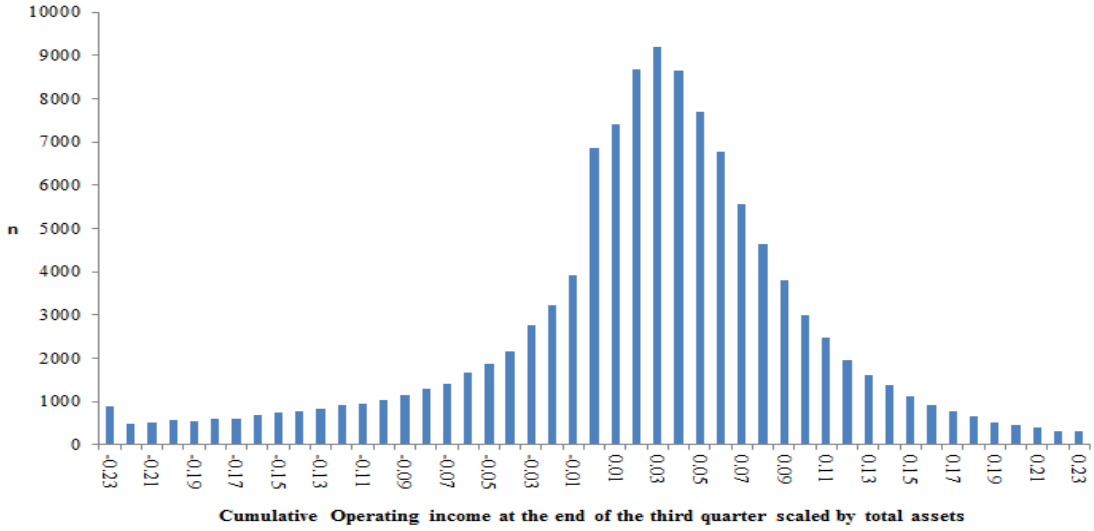

Figure 2a: The distribution of cumulative operating income at the end of third quarter scaled by total assets.

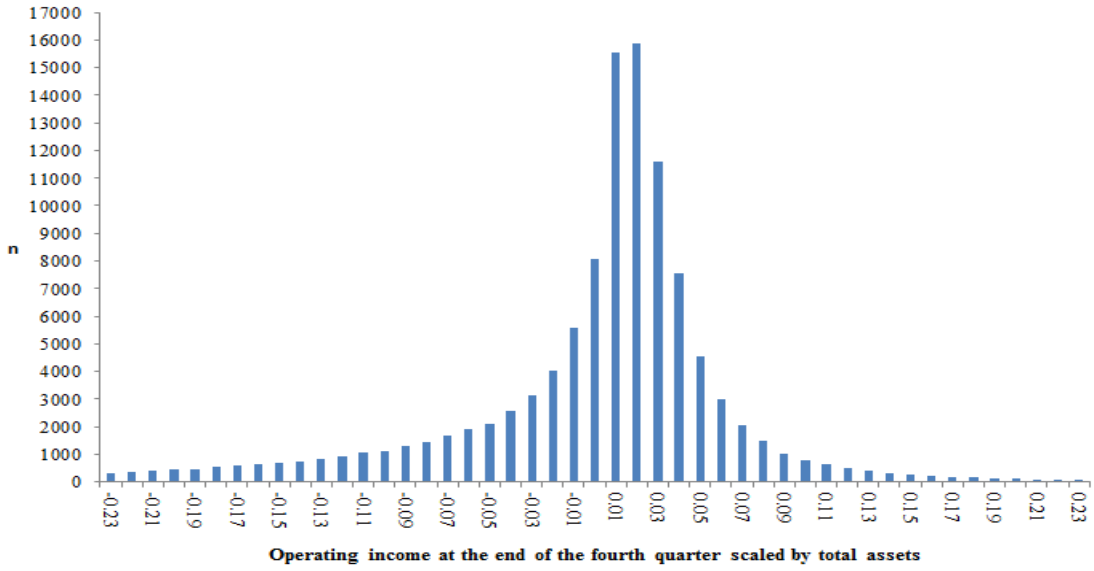

Figure 2b: The distribution of the forth quarter operating income scaled by total assets.

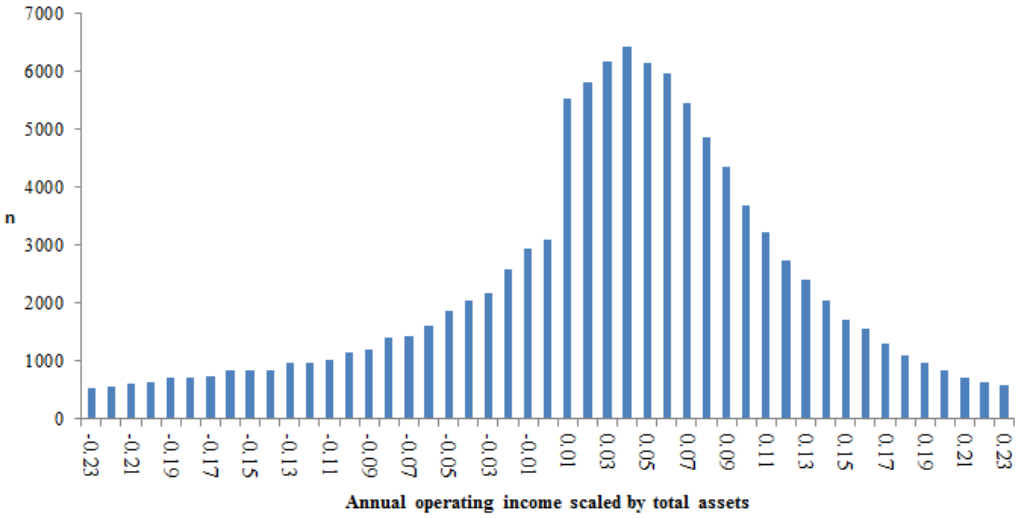

Figure 2c: The distribution of annual operating income scaled by total assets.

Table 1: Summary Statistics

Variable	Mean	25th Pctl	Median	Std Dev	75th Pctl
TACC	-0.161	-0.168	-0.067	0.317	-0.009
UACC	0.000	-0.047	0.015	0.201	0.081
UACCQ	0.000	-0.006	0.046	0.193	0.089
ROA	-0.141	-0.141	0.018	0.410	0.073
CFO	-0.124	-0.105	0.048	0.481	0.127
OITA	-0.221	-0.076	0.028	15.592	0.086
SIZE	18.460	16.852	18.343	2.335	19.980
NET_XFIN	0.203	-0.096	-0.023	17.681	0.015
CA	0.906	0.346	0.565	17.741	0.804
CL	0.416	0.151	0.247	10.221	0.385
FIN_LEV	0.470	0.273	0.473	0.244	0.653
TV_ERR	0.002	-0.399	-0.064	0.669	0.332
VB_RA	1.299	0.886	1.240	0.639	1.640
CFF	0.098	-0.038	0.004	0.410	0.105
NIQ4	-0.103	-0.032	0.007	8.336	0.026
NIQ3	-0.117	-0.037	0.021	10.056	0.063

The sample consists of all non-financial stocks for US firms with available data on COMPUSTAT database over 1987-2009.

TACC is the annual operating income after tax less cash from operations, divided by lagged total assets;
UACC is the industry-year unexpected accruals measured using the performance-adjusted modified Jones model using annual figures. All variables are scaled by the lagged value of total assets:

$$TACC_{it} = \alpha + \beta_1(\Delta Sales_{it} - \Delta Rec_{it}) + \beta_2 PPE_{it} + \beta_3 ROA_{it} + \varepsilon_{it};$$

UACCQ is the industry-year unexpected accruals measured using the performance-adjusted modified Jones model using fourth quarter figures:
CFO is annual cash flow from operating activities, divided by lagged total assets;
OITA is annual operating income after tax divided by lagged total assets;
NET_XFIN is the sum of net debt financing and net equity financing scaled by total assets;
ROA is return on assets calculated as operating income after tax divided by average total assets;
SIZE is the natural log of total assets at the start of the year;
CA is the current assets, divided by lagged total assets;
CL is the current liabilities, divided by lagged total assets;
FIN_LEV is financial leverage ratio calculated as [1- (shareholders' equity/total assets)];
TV_ERR is the current year total valuation error: *TV_ERR= ILV_ERR + FSV_ERR;*
VB_RA is the current year difference between long-run value and book value i.e., the logarithm of the true value-to-book ratio; capturing growth opportunities.
CFF = Level of finance raised in year t+1 (DATA 313/Average total assets);
NIQ4 is the fourth quarter operating income after tax divided by lagged total assets;
NIQ3 is the cumulative operating income after tax at the end of the third quarter divided by lagged total assets (beginning of the fiscal year);

Table 2: Correlation Matrix of Continuous Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
TACC(1)	1	0.654	0.865	0.362	0.730	0.722	0.049	0.147	-0.039	-0.048	-0.075	-0.137	-0.138	0.039
TACCQ (2)	0.555	1	0.397	0.888	0.502	0.565	0.021	0.103	-0.012	-0.069	-0.052	-0.112	-0.074	0.026
UACC(3)	0.717	0.332	1	0.435	0.004	0.253	0.004	-0.089	-0.005	-0.019	0.002	-0.002	0.089	0.004
UACCQ(4)	0.303	0.778	0.467	1	-0.041	0.172	0.000	-0.104	-0.004	-0.034	0.000	-0.005	0.017	0.002
ROA(5)	0.499	0.332	-0.034	-0.049	1	0.791	0.071	0.341	-0.041	-0.014	-0.095	-0.237	-0.394	0.054
CFO(6)	0.091	0.195	-0.408	-0.150	0.696	1	0.055	0.281	-0.034	0.013	-0.113	-0.134	-0.509	0.043
OITA(7)	0.375	0.190	-0.025	-0.044	0.994	0.623	1	0.023	-0.578	0.002	-0.015	-0.019	-0.084	0.814
SIZE(8)	0.090	0.089	-0.145	-0.108	0.345	0.370	0.311	1	-0.016	0.242	0.048	-0.094	-0.181	0.018
NET_XFIN(9)	-0.057	-0.034	0.049	0.007	-0.245	-0.275	-0.236	-0.302	1	-0.020	0.019	-0.004	0.080	-0.297
FIN_LEV(10)	-0.072	-0.090	-0.012	-0.014	-0.075	0.003	-0.076	0.243	-0.369	1	-0.015	0.768	-0.101	0.001
TV_ERR(11)	-0.003	-0.004	-0.016	0.005	0.043	0.037	0.089	0.115	0.147	-0.046	1	-0.020	0.229	-0.017
VB_RA(12)	-0.125	-0.112	-0.022	-0.014	-0.135	-0.114	-0.105	-0.058	-0.177	0.767	-0.107	1	0.039	-0.015
CFF(13)	0.051	-0.023	0.253	0.086	-0.292	-0.402	-0.265	-0.203	0.450	-0.067	0.181	0.025	1	-0.060
NIQ4(14)	0.321	0.257	-0.028	-0.031	0.825	0.542	0.830	0.291	-0.190	-0.063	0.105	-0.112	-0.235	1

Pearson correlations are above the diagonal; spearmen below. The sample consists of non-financial stocks with available data on COMPUSTAT 1987-2009.

Where:

TACC is the annual operating income after tax less cash from operations, divided by lagged total assets;
UACC is the industry-year unexpected accruals measured using the performance-adjusted modified Jones model using annual figures. All variables are scaled by the lagged value of total assets:

$$TACC_{it} = \alpha + \beta_1(\Delta Sales_{it} - \Delta Rec_{it}) + \beta_2 PPE_{it} + \beta_3 ROA_{it} + \varepsilon_{it};$$

UACCQ is the industry-year unexpected accruals measured using the performance-adjusted modified Jones model using fourth quarter figures:
CFO is annual cash flow from operating activities, divided by lagged total assets;
OITA is annual operating income after tax divided by lagged total assets;
NET_XFIN is the sum of net debt financing and net equity financing scaled by total assets;
ROA is return on assets calculated as operating income after tax divided by average total assets;
SIZE is the natural log of total assets at the start of the year;
FIN_LEV is financial leverage ratio calculated as [1- (shareholders' equity/total assets)];
TV_ERR is the current year total valuation error: *TV_ERR= ILV_ERR + FSV_ERR;*
VB_RA is the current year difference between long-run value and book value i.e., the logarithm of the true value-to-book ratio; capturing growth opportunities.
CFF = Level of finance raised in year t+1 (DATA 313/Average total assets);
NIQ4 is the fourth quarter operating income after tax divided by lagged total assets;

Table 3: Correlations among Incentive Variables

	1	2	3	4	5	6	7	8	9	10	11
LAG_TV_ER (1)	1	0.301	0.953	-0.040	0.588	0.577	0.114	0.014	0.060	0.120	0.110
LAG_ILV_ER (2)	0.279	1	-0.004	-0.039	0.096	0.005	0.303	-0.016	0.025	0.031	0.040
LAG_FSV_ER (3)	0.940	-0.010	1	-0.027	0.584	0.603	0.020	0.019	0.055	0.115	0.103
LAG_VB_RATIO (4)	-0.115	-0.061	-0.103	1	0.104	0.099	0.032	0.661	0.069	0.083	0.070
TV_ERR (5)	0.593	0.118	0.584	0.064	1	0.954	0.299	-0.018	0.011	0.217	0.148
FSV_ERR (6)	0.576	0.005	0.604	0.061	0.941	1	-0.001	-0.003	0.025	0.200	0.131
ILV_ERR (7)	0.133	0.384	0.022	0.001	0.278	-0.007	1	-0.043	-0.038	0.088	0.074
VB_RA (8)	-0.018	-0.036	-0.015	0.696	-0.106	-0.094	-0.064	1	0.158	0.110	0.073
EXFIN_NEED (9)	0.045	0.026	0.036	0.051	-0.001	0.007	-0.027	0.130	1	0.349	-0.001
CFF (10)	0.083	0.064	0.070	0.031	0.139	0.114	0.105	0.016	0.299	1	0.163
ACT_ISSUE (11)	0.123	0.045	0.116	0.081	0.159	0.143	0.074	0.085	-0.001	0.235	1

Pearson correlations are above the diagonal; spearmen below. The sample consists of non-financial stocks with available data on COMPUSTAT 1987-2009.

Where:

LAG_TV_ER is the lagged year total valuation error: *LAG_TV_ER= LAG_ILV_ER + LAG_FSV_ER;*
LAG_ILV_ER is the lagged valuation error caused by the deviation of current industry valuation from the long-run industry;
LAG_FSV_ER is the is the lagged valuation error caused by firm-specific deviation from contemporaneous industry-level valuation;
LAG_VB_RATIO is the lagged difference between long-run value and book value i.e., the logarithm of the true value-to-book ratio, capturing growth opportunities.
TV_ERR is the current year total valuation error: *TV_ERR= ILV_ERR + FSV_ERR;*
ILV_ERR is the is the current year valuation error caused by the deviation of current industry valuation from the long-run industry;

FSV_ERR is the is the current year valuation error caused by firm-specific deviation from contemporaneous industry-level valuation;
VB_RA is the current year difference between long-run value and book value i.e., the logarithm of the true value-to-book ratio; capturing growth opportunities;
EXFIN_NEED is a proxy for a firm's ex-ante financing needs. A binary indicator variable set equal to one if a firm is expected to have negative future free cash flow that exceed its current assets balance, and set equal to zero otherwise.
ACT_ISSUE = an indicator variable coded 1 if the firm issued securities (debt and equity) during year t+1 (i.e., an indicator variable coded 1 if DATA 108>0 or DATA111>0);
CFF = Level of finance raised in year t+1 (DATA 313/Average total assets);

Table 4: Logistic regression of the probability of shifting from small loss interval of scaled YTDQ3 earnings to the smallest profit interval of scaled annual earnings (Period 1987-2009)

$$Meet_{jt} = \beta_0 + \beta_1 Small\ Loss + \beta_2 TV + \beta_3\ Small\ Loss*TV + \beta_4\ Small\ Loss*Exfin\_Need + \beta_5\ Small\ Loss*Act\_Issue + \beta_6\ Exfin\_Need + \beta_7\ Act\_Issue + \beta_8\ Size + \beta_9\ Sox + \sum_i \kappa_i\ IND_i + \sum_i \eta_t\ YR_t + \varepsilon_{jt}$$

Variable	Coefficient	Mean Estimate	Δ Odds(%)	Wald χ2	Pr > χ2
Panel A: Control group consists of firms in the interval -2 of YTDQ3					
Intercept	β_0	-3.851		50.69	<.0001
Small Loss	β_1	0.865	137.57%	73.92	<.0001
TV	β_2	0.449	56.60%	4.52	0.0335
*Small Loss*TV*	β_3	-0.316		1.64	0.2005
*Small Loss*Exfin_Need*	β_4	0.139		0.12	0.7255
*Small Loss*Act_Issue*	β_5	0.201		0.95	0.3289
Exfin_Need	β_6	-0.456		1.89	0.1691
Act_Issue	β_7	0.051		0.10	0.757
Size	β_8	0.059	6.09%	5.90	0.0151
Sox	β_9	0.199		0.61	0.4366
Model statistics: Number of observations = 5264; Likelihood ratio test for β = 0: χ2 = 192.03(p<0.0001)					
Panel B: Control group consists of firms in the interval -2 to -5 of YTDQ3					
Intercept	β_0	-4.195		75.76	<.0001
Small Loss	β_1	1.485	341.67%	315.47	<.0001
TV	β_2	0.502	65.24%	9.72	0.0018
*Small Loss*TV*	β_3	-0.349	-29.43%	2.91	0.0878
*Small Loss*Exfin_Need*	β_4	0.533	70.47%	2.73	0.0985
*Small Loss*Act_Issue*	β_5	0.285	32.96%	2.94	0.0866
Exfin_Need	β_6	-0.819	-55.92%	10.92	0.001
Act_Issue	β_7	-0.009		0.01	0.943
Size	β_8	0.044	4.45%	3.90	0.0481
Sox	β_9	0.202		0.76	0.3829
Model statistics: Number of observations = 10375; Likelihood ratio test for β = 0: χ2 = 557.60(p<0.0001)					

The table provides estimates of Eq. (8) using a logistic regression. Coefficients on industry and year dummies are not reported. The response variable, *Meet*, indicates whether a firm in an interval of scaled year-to-date earnings after three quarters (YTDQ3, defined below) shifted to the small profit interval of scaled annual earnings (NI, defined below) or not. Intervals refer to those of earnings metrics YTDQ3 and NI. Intervals are centered around the zero-profit threshold. Each interval width is 0.01 and is the same for YTDQ3 and NI. Interval +1 (-1) is the smallest profit (loss) interval. The sample consists of firms in the smallest loss interval of YTDQ3 and a control group. In Panel A, the control group consists of firms in interval -2 of YTDQ3. In Panel B, the control group consists of firms in intervals -2 to -5 of YTDQ3. The control group is set up as the base case. The probability of migration if a firm belongs to the control group is:

$$p_1 = 1/\ [1+ \exp\ (\beta_0 + \beta_2 TV + \beta_3 Small\_Loss*TV + \beta_4 Small\_Loss*Exfin\_Need + \beta_5 Small\_Loss*Act\_Issue + \beta_6\ Exfin\_Need + \beta_7\ Act\_Issue + \beta_8\ Size + \beta_9\ Sox + \sum_i \kappa_i\ IND_i + \sum_i \eta_t\ YR_t + \varepsilon_{jt}\ )].$$

The Δ Odds (%) column shows the percentage change in odds of migrating from an earnings interval of YTDQ3 to the small profit interval of NI if a firm belongs to the smallest loss interval of YTDQ3 instead of to the control group.

Variable definitions:

(a) *YTDQ3* = Year-to-date earnings after three quarters/TA= COMPUSTAT (Quarterly item #69:(Q1+Q2+Q3))/ TA
Where: TA = Beginning period Total Assets = (Annual COMPUSTAT item #6) in millions of dollars
(b) *NI* = Scaled annual earnings = COMPUSTAT annual item #172/TA;
(c) *MB* (response variable) = 1 if a firm migrated from an earnings interval of YTDQ3 to the small profit interval of NI; = 0 otherwise;
(d) p_1 = Probability that *MB* = 1;
(e) *Small_Loss* = 1 if a firm is in the smallest loss interval of YTDQ3; = 0 otherwise;
(f) *Size* = Log (TA);
(g) *TV* = 1 if firms YTDQ3 total valuation error is positive and in the top quintile in its industry-year; = 0 otherwise;
(h) *Exfin_Need* = A proxy for a firm's ex-ante financing needs and is measured at the end of the third quarter. Set equal to 1 if a firm is expected to have negative future free cash flow that exceed its current assets balance; = 0 otherwise;
(i) *Act_Issue* = 1 if a firm issued securities (debt and equity) in t+4 quarters (i.e., an indicator variable coded 1 if DATA 108>0 or DATA111>0); = 0 otherwise; t= end of the third quarter in the current year.
(j) *SOX* = an indicator variable to capture the Sarbanes Oxley Act, 1 if firm year >= 2002; = 0 otherwise;
(k) IND_i = Industry dummy = 1 if Fama and French 12 industry classification of a firm = i; = 0 otherwise;
(l) YR_t = Year Dummy = 1 if fiscal year = t; = 0 otherwise. . t = 1988–2009. Year 1987 is omitted as a base case.

Table 5: Logistic regression of the probability of shifting from small profit interval of YTDQ3 earnings to the smallest profit interval of scaled annual earnings (Period 1987-2009)

$$Meet_{jt} = \beta_0 + \beta_1 Small\ Profit + \beta_2 TV + \beta_3\ Small\ Profit*TV + \beta_4\ Small\ Profit*Exfin\_Need + \beta_5\ Small\ Profit*Act\_Issue + \beta_6\ Exfin\_Need + \beta_7\ Act\_Issue + \beta_8\ Size + \beta_9\ Sox + \sum_i \kappa_i\ IND_i + \sum_i \eta_t\ YR_t + \varepsilon_{jt}$$

Variable	Coefficient	Mean Estimate	Δ Odds(%)	Wald $\chi2$	Pr > $\chi2$
Panel A: Control group consists of firms in the interval +2 of YTDQ3					
Intercept	β_0	-2.354		38.32	<.0001
Small Profit	β_1	1.211	235.78%	307.39	<.0001
TV	β_2	-0.018		0.01	0.9268
*Small Profit*TV*	β_3	-0.216		0.84	0.3591
*Small Profit*Exfin_Need*	β_4	0.040		0.02	0.8784
*Small Profit*Act_Issue*	β_5	0.246	27.86%	3.21	0.0734
Exfin_Need	β_6	0.067		0.11	0.7416
Act_Issue	β_7	-0.284	-24.70%	7.13	0.0076
Size	β_8	0.031	3.10%	2.99	0.0836
Sox	β_9	-0.236		1.89	0.1694
Model statistics: Number of observations = 8869; Likelihood ratio test for β = 0: χ2 = 510.23(p<0.0001)					
Panel B: Control group consists of firms in the interval +2 to +5 of YTDQ3					
Intercept	β_0	-2.038		35.15	<.0001
Small Profit	β_1	2.035	665.38%	1235.91	<.0001
TV	β_2	0.040		0.08	0.7822
*Small Profit*TV*	β_3	-0.301		2.51	0.113
*Small Profit*Exfin_Need*	β_4	-0.252		1.35	0.2453
*Small Profit*Act_Issue*	β_5	0.404	49.74%	12.42	0.0004
Exfin_Need	β_6	0.302	35.24%	3.86	0.0495
Act_Issue	β_7	-0.363	-30.46%	21.06	<.0001
Size	β_8	-0.029	-2.85%	3.21	0.073
Sox	β_9	-0.242		2.66	0.1031
Model statistics: Number of observations = 24129; Likelihood ratio test for β = 0: χ2 = 1765.90(p<0.0001)					

Notes: The table provides estimates of Eq. (9) using logistic regression. Coefficients on industry and year dummies are not reported. The response variable, *MB*, indicates whether a firm in an interval of scaled year-to-date earnings after three quarters (YTDQ3, defined below) shifted (stayed) to (in) the small profit interval of scaled annual earnings (NI, defined below) or not. Intervals refer to those of earnings metrics YTDQ3 and NI. Intervals are centered around the zero-profit threshold. Each interval width is 0.01 and is the same for YTDQ3 and NI. Interval +1 (-1) is the smallest profit (loss) interval. The sample consists of firms in the smallest profit interval of YTDQ3 and a control group. In Panel A, the control group consists of firms in interval +2 of YTDQ3. In Panel B, the control group consists of firms in intervals +2 to +5 of YTDQ3. The control group is set up as the base case. The probability of migration if a firm belongs to the control group is:

$$P_2 = 1/\ [1+ \exp\ (\beta_0 + \beta_2\ TV + \beta_3\ Small\_Profit*TV + \beta_4\ Small\_Profit*Exfin\_Need + \beta_5\ Small\_Profit\ *Act\_Issue + \beta_6\ Exfin\_Need + \beta_7\ Act\_Issue + \beta_8\ Size + \beta_9\ Sox + \sum_i \kappa_i\ IND_i\ + \sum_i \eta_t\ YR_t + \varepsilon_{jt}\ )].$$

The Δ Odds (%) column shows the percentage change in odds of migrating from an earnings interval of YTDQ3 to the small profit interval of NI if a firm belongs to the smallest profit interval of YTDQ3 instead of to the control group.

Variable definitions:

(a) *YTDQ3* = Year-to-date earnings after three quarters/TA= COMPUSTAT (Quarterly item #69:(Q1+Q2+Q3))/ TA
Where: TA = Beginning period Total Assets = (Annual COMPUSTAT item #6) in millions of dollars
(b) *NI* = Scaled annual earnings = COMPUSTAT annual item #172/TA;
(c) *MB* (response variable) = 1 if a firm migrated from an earnings interval of YTDQ3 to the small profit interval of NI; = 0 otherwise;
(d) p_2 = Probability that *MB* = 1
(e) *Small_Profit* = 1 if a firm is in the smallest profit interval of YTDQ3; = 0 otherwise;
(f) *Size* = Log (TA);
(g) *TV* = 1 if firms YTDQ3 total valuation error is positive and in the top quintile in its industry-year; = 0 otherwise;
(h) *Exfin_Need* = A proxy for a firm's ex-ante financing needs and is measured at the end of the third quarter. Set equal to 1 if a firm is expected to have negative future free cash flow that exceed its current assets balance; = 0 otherwise;
(i) *Act_Issue* = 1 if a firm issued securities (debt and equity) in t+4 quarters (i.e., an indicator variable coded 1 if DATA 108>0 or DATA111>0); = 0 otherwise; t= end of the third quarter in the current year.
(j) *SOX* = an indicator variable to capture the Sarbanes Oxley Act, 1 if firm year >= 2002; = 0 otherwise;
(k) IND_i = Industry dummy = 1 if Fama and French 12 industry classification of a firm = i; = 0 otherwise;
(l) YR_t = Year Dummy = 1 if fiscal year = t; = 0 otherwise. t = 1988–2009. Year 1987 is omitted as a base case.

Table 6A: Changes in accruals management and real earnings management for firms shifting from smallest loss interval of scaled YTDQ3 earnings to smallest profit interval of scaled annual earnings and external financing related incentives (*Actual Issues*) on earnings management.

	Treatment (interval -1 of YTDQ3 with *Actual Issues*)			Control 1 (interval -1 of YTDQ3 with no *Actual Issues*)			Control 2 (interval -2 of YTDQ3)			Control 3 (interval -2 to -5 of YTDQ3)		
	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff
Unexpected Accruals (UACC)												
Mean	-0.270	0.028	0.297	-0.297	-0.060	0.237	-0.285	-0.021	0.265	-0.286	-0.018	0.268
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.061			0.033			0.030		
	t-stat			4.28***			4.45***			4.13***		
Abnormal cash flows (ABNCFO)												
Mean	-0.042	0.028	0.069	-0.100	-0.035	0.065	-0.066	-0.003	0.064	-0.066	-0.001	0.065
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.005			0.006			0.005		
	t-stat			0.49			1.27			1.01		
Abnormal production costs (ABNPROD)												
Mean	-0.069	0.007	0.076	-0.130	0.002	0.132	-0.102	-0.010	0.092	-0.100	-0.008	0.092
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.056			-0.017			-0.016		
	t-stat			-5.09***			-2.84***			-2.81***		
Abnormal discretionary expenditures(ABNDISC)												
Mean	-0.176	-0.032	0.144	-0.270	-0.034	0.235	-0.203	-0.022	0.181	-0.228	-0.020	0.207
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.091			-0.036			-0.063		
	t-stat			-8.66***			-5.50***			-9.68***		

*,** and *** indicate significance at the 10%, 5% and 1% level, respectively on a two tailed test.

Sample observations are drawn from firms with required data available in COMPUSTAT database (excluding financial services firms) over 1987-2009. The table shows the changes in the mean unexpected accruals and real activities management of cumulative earnings after three quarters (*Q1-Q3*) and the fourth quarter (*Q4*) for treatment and control samples respectively. The *Treatment* group refers to firms that issued debt or equity securities in t+4 quarters (where t = end of the third quarter in the current year), and reported a cumulative negative net income at the end of the third quarter (scaled by lagged total assets) of between -1% and 0% (i.e. small loss) but reported a positive annual net income (scaled by lagged total assets) of between 0 and 1% (i.e. small profit). *Control 1* refers to all firms that report similar earnings characteristics as the *Treatment* group, except for not having issued any debt or equity securities in t+4 quarters. *Control 2* group consists of firms in interval -2 of YTDQ3 whereas *Control 3* group consists of firms in intervals -2 to -5 of YTDQ3. The dependent variables in the regression are UACC, ABNCFO, ABNPROD, and ABNDISC.

UACC - Modified Jones unexpected accruals with current ROA;
ABNCFO- Abnormal cash flow measure as per Roychowdhury (2006);
ABNPROD- Abnormal production cost measure as per Roychowdhury (2006);
ABNDISC- Abnormal discretionary expenditures measure as per Roychowdhury (2006).

Table 6B: Changes in accruals management and real earnings management for firms shifting from smallest loss interval of scaled YTDQ3 earnings to smallest profit interval of scaled annual earnings and external financing related incentives (*Exfin Need*) on earnings management**.**

	Treatment (interval -1 of YTDQ3 with *Exfin Need*)			Control 1 (interval -1 of YTDQ3 with no *Exfin Need*)			Control 2 (interval -2 of YTDQ3)			Control 3 (interval -2 to -5 of YTDQ3)		
	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff
Unexpected Accruals (UACC)												
Mean	-0.202	0.011	0.213	-0.284	-0.001	0.283	-0.285	-0.021	0.265	-0.286	-0.018	0.268
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.070			-0.052			-0.055		
	t-stat			-3.02***			-2.31**			-2.45**		
Abnormal cash flows (ABNCFO)												
Mean	-0.008	0.044	0.052	-0.064	0.005	0.069	-0.066	-0.003	0.064	-0.066	-0.001	0.065
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.017			-0.012			-0.013		
	t-stat			-1.32			-0.95			-1.06		
Abnormal production costs (ABNPROD)												
Mean	-0.077	0.030	0.106	-0.089	0.003	0.093	-0.102	-0.010	0.092	-0.100	-0.008	0.092
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.013			0.014			0.014		
	t-stat			0.70			0.74			0.77		
Abnormal discretionary expenditures(ABNDISC)												
Mean	-0.234	-0.028	0.206	-0.204	-0.033	0.171	-0.203	-0.022	0.181	-0.228	-0.020	0.207
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.035			0.025			-0.002		
	t-stat			2.01**			1.53			-0.11		

*,** and *** indicate significance at the 10%, 5% and 1% level, respectively on a two tailed test.

Sample observations are drawn from firms with required data available in COMPUSTAT database (excluding financial services firms) over 1987-2009. The table shows the changes in the mean unexpected accruals and real activities management of cumulative earnings after three quarters (*Q1-Q3*) and the fourth quarter (*Q4*) for treatment and control samples respectively. The *Treatment* group refers to firms that are in need of external financing (*Exfin_Need*) at the end of the third quarter and reported a cumulative negative net income at the end of the third quarter (scaled by lagged total assets) of between -1% and 0% (i.e. small loss) but reported a positive annual net income (scaled by lagged total assets) of between 0 and 1% (i.e. small profit). *Control 1* refers to all firms that report similar earnings characteristics as the *Treatment* group, except for not having a need for external financing (*Exfin_Need*). *Control 2* group consists of firms in interval -2 of YTDQ3 whereas *Control 3* group consists of firms in intervals -2 to -5 of YTDQ3. The dependent variables in the regression are UACC, ABNCFO, ABNPROD, and ABNDISC.

UACC - Modified Jones unexpected accruals with current ROA;
ABNCFO- Abnormal cash flow measure as per Roychowdhury (2006);
ABNPROD- Abnormal production cost measure as per Roychowdhury (2006);
ABNDISC- Abnormal discretionary expenditures measure as per Roychowdhury (2006).

Table 6C: Changes in accruals management and real earnings management for firms shifting from smallest loss interval of scaled cumulative YTDQ3 earnings to smallest profit interval of scaled annual earnings and overvaluation related incentives on earnings management.

	Treatment (interval -1 of YTDQ3 with *Overvaluation*)			Control 1 (interval -1 of YTDQ3 with no *Overvaluation*)			Control 2 (interval -2 of YTDQ3)			Control 3 (interval -2 to -5 of YTDQ3)		
	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff
Unexpected Accruals(UACC)												
Mean	-0.277	0.041	0.318	-0.278	-0.009	0.270	-0.285	-0.021	0.265	-0.286	-0.018	0.268
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.049			0.054			0.051		
	t-stat			3.06***			3.72***			3.53***		
Abnormal cash flows (ABNCFO)												
Mean	-0.043	0.030	0.073	-0.064	0.003	0.067	-0.066	-0.003	0.064	-0.066	-0.001	0.065
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.007			0.010			0.008		
	t-stat			0.66			1.11			0.97		
Abnormal production costs (ABNPROD)												
Mean	-0.032	0.017	0.049	-0.099	0.003	0.102	-0.102	-0.010	0.092	-0.100	-0.008	0.092
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.053			-0.043			-0.043		
	t-stat			-4.56***			-4.16***			-4.13***		
Abnormal discretionary expenditures(ABNDISC)												
Mean	-0.080	-0.022	0.058	-0.230	-0.035	0.196	-0.203	-0.022	0.181	-0.228	-0.020	0.207
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.138			-0.123			-0.150		
	t-stat			-9.79***			-9.40***			-11.49***		

*,** and *** indicate significance at the 10%, 5% and 1% level, respectively on a two tailed test.

Sample observations are drawn from firms with required data available in COMPUSTAT database (excluding financial services firms) over 1987-2009. The table shows the changes in the mean unexpected accruals and real activities management of cumulative earnings after three quarters (*Q1-Q3*) and the fourth quarter (*Q4*) for treatment and control samples respectively. The *Treatment* group refers to firms that reported a cumulative negative net income at the end of the third quarter (scaled by lagged total assets) of between -1% and 0% (i.e. small loss) but reported a positive annual net income (scaled by lagged total assets) of between 0 and 1% (i.e. small profit) and whose YTDQ3 overvaluation measure is positive and in the top quintile in its industry-year. *Control 1* refers to all firms that report similar earnings characteristics as the *Treatment* group, except for being overvalued. *Control 2* group consists of firms in interval -2 of YTDQ3 whereas *Control 3* group consists of firms in intervals -2 to -5 of YTDQ3. The dependent variables in the regression are UACC, ABNCFO, ABNPROD, and ABNDISC.

UACC - Modified Jones unexpected accruals with current ROA;
ABNCFO- Abnormal cash flow measure as per Roychowdhury (2006);
ABNPROD- Abnormal production cost measure as per Roychowdhury (2006);
ABNDISC- Abnormal discretionary expenditures measure as per Roychowdhury (2006).

Table 7A: Changes in accruals management and real earnings management for firms shifting from smallest profit interval of scaled YTDQ3 earnings to smallest profit interval of scaled annual earnings and external financing related incentives (*Actual Issues*) on earnings management.

	Treatment (interval +1 of YTDQ3 with *Actual Issues*)			Control 1 (interval +1 of YTDQ3 with no *Actual Issues*)			Control 2 (interval +2 of YTDQ3)			Control 3 (interval +2 to +5 of YTDQ3)		
	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff
Unexpected Accruals(UACC)												
Mean	-0.274	0.029	0.303	-0.381	-0.146	0.236	-0.340	-0.070	0.270	-0.305	-0.032	0.273
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.068			0.033			0.030		
	t-stat			7.35***			6.07***			5.62***		
Abnormal cash flows (ABNCFO)												
Mean	-0.025	0.026	0.051	-0.168	-0.112	0.056	-0.108	-0.044	0.064	-0.068	-0.011	0.057
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.006			-0.014			-0.007		
	t-stat			-0.81			-4.23***			-2.17**		
Abnormal production costs (ABNPROD)												
Mean	-0.086	-0.012	0.074	-0.225	-0.025	0.199	-0.162	-0.011	0.151	-0.123	0.002	0.125
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.125			-0.077			-0.051		
	t-stat			-17.06***			-17.15***			-11.88***		
Abnormal discretionary expenditures(ABNDISC)												
Mean	-0.216	-0.036	0.180	-0.290	-0.034	0.256	-0.236	-0.017	0.219	-0.215	-0.021	0.195
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.076			-0.039			-0.015		
	t-stat			-12.67***			-9.44***			-3.70***		

*,** and *** indicate significance at the 10%, 5% and 1% level, respectively on a two tailed test.

Sample observations are drawn from firms with required data available in COMPUSTAT database (excluding financial services firms) over 1987-2009. The table shows the changes in the mean unexpected accruals and real activities management of cumulative earnings after three quarters (*Q1-Q3*) and the fourth quarter (*Q4*) for treatment and control samples respectively. The *Treatment* group refers to firms that issued debt or equity securities in t+4 quarters (where t = end of the third quarter in the current year), and reported a cumulative positive net income at the end of the third quarter (scaled by lagged total assets) of between 0% and 1% (i.e. small profit) and a positive annual net income (scaled by lagged total assets) of between 0 and 1% (i.e. small profit). *Control 1* refers to all firms that report similar earnings characteristics as the *Treatment* group, except for not having issued any debt or equity securities in t+4 quarters. *Control 2* group consists of firms in interval +2 of YTDQ3 whereas *Control 3* group consists of firms in intervals +2 to +5 of YTDQ3. The dependent variables in the regression are UACC, ABNCFO, ABNPROD, and ABNDISC.

UACC - Modified Jones unexpected accruals with current ROA;
ABNCFO- Abnormal cash flow measure as per Roychowdhury (2006);
ABNPROD- Abnormal production cost measure as per Roychowdhury (2006);
ABNDISC- Abnormal discretionary expenditures measure as per Roychowdhury (2006).

Table 7B: Changes in accruals management and real earnings management for firms shifting from smallest profit interval of scaled YTDQ3 earnings to smallest profit interval of scaled annual earnings and external financing related incentives (*Exfin Need*) on earnings management.

	Treatment (interval +1 of YTDQ3 with *Exfin Need*)			Control 1 (interval +1 of YTDQ3 with no *Exfin Need*)			Control 2 (interval +2 of YTDQ3)			Control 3 (interval +2 to +5 of YTDQ3)		
	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff
Unexpected Accruals(UACC)												
Mean	-0.265	0.014	0.279	-0.322	-0.047	0.275	-0.340	-0.070	0.270	-0.305	-0.032	0.273
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.004			0.009			0.006		
	t-stat			0.23			0.56			0.35		
Abnormal cash flows (ABNCFO)												
Mean	-0.057	0.007	0.063	-0.086	-0.034	0.052	-0.108	-0.044	0.064	-0.068	-0.011	0.057
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.011			-0.001			0.006		
	t-stat			1.01			-0.09			0.58		
Abnormal production costs (ABNPROD)												
Mean	-0.207	-0.021	0.186	-0.138	-0.017	0.121	-0.162	-0.011	0.151	-0.123	0.002	0.125
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.065			0.035			0.060		
	t-stat			4.30***			2.38**			4.12***		
Abnormal discretionary expenditures(ABNDISC)												
Mean	-0.258	-0.032	0.227	-0.245	-0.035	0.210	-0.236	-0.017	0.219	-0.215	-0.021	0.195
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.017			0.008			0.032		
	t-stat			1.47			0.75			2.96***		

*,** and *** indicate significance at the 10%, 5% and 1% level, respectively on a two tailed test.

Sample observations are drawn from firms with required data available in COMPUSTAT database (excluding financial services firms) over 1987-2009. The table shows the changes in the mean unexpected accruals and real activities management of cumulative earnings after three quarters (*Q1-Q3*) and the fourth quarter (*Q4*) for treatment and control samples respectively. The *Treatment* group refers to firms that are in need of external financing (*Exfin_Need*) at the end of the third quarter and reported a cumulative positive net income at the end of the third quarter (scaled by lagged total assets) of between 0% and 1% (i.e. small profit) and a positive annual net income (scaled by lagged total assets) of between 0 and 1% (i.e. small profit). *Control 1* refers to all firms that report similar earnings characteristics as the *Treatment* group, except for not having a need for external financing (*Exfin_Need*). *Control 2* group consists of firms in interval +2 of YTDQ3 whereas *Control 3* group consists of firms in intervals +2 to +5 of YTDQ3. The dependent variables in the regression are UACC, ABNCFO, ABNPROD, and ABNDISC.

UACC - Modified Jones unexpected accruals with current ROA;
ABNCFO- Abnormal cash flow measure as per Roychowdhury (2006);
ABNPROD- Abnormal production cost measure as per Roychowdhury (2006);
ABNDISC- Abnormal discretionary expenditures measure as per Roychowdhury (2006).

Table 7C: Changes in accruals management and real earnings management for firms shifting from smallest profit interval of scaled YTDQ3 earnings to smallest profit interval of scaled annual earnings and overvaluation related incentives on earnings management.

	Treatment (interval +1 of YTDQ3 with *Overvaluation*)			Control 1 (interval +1 of YTDQ3 with no *Overvaluation*)			Control 2 (interval +2 of YTDQ3)			Control 3 (interval +2 to +5 of YTDQ3)		
	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff
Unexpected Accruals(UACC)												
Mean	-0.239	0.041	0.280	-0.325	-0.050	0.275	-0.340	-0.070	0.270	-0.305	-0.032	0.273
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.005			0.010			0.007		
	t-stat			0.35			0.73			0.48		
Abnormal cash flows (ABNCFO)												
Mean	-0.008	0.029	0.037	-0.090	-0.036	0.054	-0.108	-0.044	0.064	-0.068	-0.011	0.057
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.017			-0.027			-0.020		
	t-stat			-2.09**			-3.66***			-2.73***		
Abnormal production costs (ABNPROD)												
Mean	-0.046	-0.002	0.044	-0.151	-0.019	0.132	-0.162	-0.011	0.151	-0.123	0.002	0.125
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.088			-0.106			-0.081		
	t-stat			-7.96***			-10.19***			-7.80***		
Abnormal discretionary expenditures(ABNDISC)												
Mean	-0.122	-0.018	0.104	-0.256	-0.036	0.220	-0.236	-0.017	0.219	-0.215	-0.021	0.195
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.116			-0.115			-0.091		
	t-stat			-10.06***			-10.24***			-8.14***		

*,** and *** indicate significance at the 10%, 5% and 1% level, respectively on a two tailed test.

Sample observations are drawn from firms with required data available in COMPUSTAT database (excluding financial services firms) over 1987-2009. The table shows the changes in the mean unexpected accruals and real activities management of cumulative earnings after three quarters (*Q1-Q3*) and the fourth quarter (*Q4*) for treatment and control samples respectively. The *Treatment* group refers to firms that reported a cumulative positive net income at the end of the third quarter (scaled by lagged total assets) of between 0% and 1% (i.e. small profit) and a positive annual net income (scaled by lagged total assets) of between 0 and 1% (i.e. small profit) and whose YTDQ3 overvaluation measure is positive and in the top quintile in its industry-year. *Control 1* refers to all firms that report similar earnings characteristics as the *Treatment* group, except for being overvalued. *Control 2* group consists of firms in interval +2 of YTDQ3 whereas *Control 3* group consists of firms in intervals +2 to +5 of YTDQ3. The dependent variables in the regression are UACC, ABNCFO, ABNPROD, and ABNDISC.

UACC - Modified Jones unexpected accruals with current ROA;
ABNCFO- Abnormal cash flow measure as per Roychowdhury (2006);
ABNPROD- Abnormal production cost measure as per Roychowdhury (2006);
ABNDISC- Abnormal discretionary expenditures measure as per Roychowdhury (2006).

Table 8: Logistic regression of the probability of shifting from small loss interval of un-scaled YTDQ3 earnings to the smallest profit interval of un-scaled annual earnings (Period 1987-2009)

$$Meet_{jt} = \beta_0 + \beta_1 Small\ Loss + \beta_2 TV + \beta_3\ Small\ Loss*TV + \beta_4\ Small\ Loss*Exfin\_Need + \beta_5\ Small\ Loss*Act\_Issue + \beta_6\ Exfin\_Need + \beta_7\ Act\_Issue + \beta_8\ Size + \beta_9\ Sox + \sum_i \kappa_i\ IND_i + \sum_i \eta_t\ YR_t + \varepsilon_{jt}$$

Variable	Coefficient	Mean Estimate	Δ Odds(%)	Wald $\chi 2$	Pr > $\chi 2$
Panel A: Control group consists of firms in the interval -2 of YTDQ3					
Intercept	β_0	-6.120		83.65	<.0001
Small Loss	β_1	0.695	100.43%	29.93	<.0001
TV	β_2	0.313	36.70%	5.23	0.0222
*Small Loss*TV*	β_3	-0.171		0.59	0.4439
*Small Loss*Exfin_Need*	β_4	-0.950	-61.31%	7.46	0.0063
*Small Loss*Act_Issue*	β_5	-0.165		0.66	0.415
Exfin_Need	β_6	-0.006		0.00	0.979
Act_Issue	β_7	0.264	30.17%	3.47	0.0623
Size	β_8	0.196	21.60%	39.64	<.0001
Sox	β_9	0.166		0.41	0.5219
Model statistics: Number of observations = 5264; Likelihood ratio test for $\beta = 0$: $\chi 2 = 149.19 (p<0.0001)$					
Panel B: Control group consists of firms in the interval -2 to -5 of YTDQ3					
Intercept	β_0	-7.994		224.18	<.0001
Small Loss	β_1	1.243	246.46%	131.05	<.0001
TV	β_2	0.509	66.35%	17.62	<.0001
*Small Loss*TV*	β_3	-0.334		2.61	0.1059
*Small Loss*Exfin_Need*	β_4	-0.725	-51.58%	5.32	0.0211
*Small Loss*Act_Issue*	β_5	-0.092		0.27	0.602
Exfin_Need	β_6	-0.336	-28.50%	3.15	0.0758
Act_Issue	β_7	0.191		2.45	0.1173
Size	β_8	0.264	30.20%	115.73	<.0001
Sox	β_9	0.119		0.26	0.6119
Model statistics: Number of observations = 10375; Likelihood ratio test for $\beta = 0$: $\chi 2 = 353.31 (p<0.0001)$					

Notes: The table provides estimates of Eq. (8) using logistic regression. Coefficients on industry and year dummies are not reported. The response variable, *Meet*, indicates whether a firm in an interval of scaled year-to-date earnings after three quarters (YTDQ3, defined below) shifted to the small profit interval of scaled annual earnings (NI, defined below) or not. Intervals refer to those of earnings metrics YTDQ3 and NI. Intervals are centered around the zero-profit threshold. Each interval width is 0.01 and is the same for YTDQ3 and NI. Interval +1 (-1) is the smallest profit (loss) interval. The sample consists of firms in the smallest profit interval of YTDQ3 and a control group. In Panel A, the control group consists of firms in interval +2 of YTDQ3. In Panel B, the control group consists of firms in intervals +2 to +5 of YTDQ3. The control group is set up as the base case. The probability of migration if a firm belongs to the control group is:

$$P_2 = 1/\ [1+ \exp\ (\beta_0 + \beta_2\ TV + \beta_3\ Small\_Profit*TV + \beta_4\ Small\_Profit*Exfin\_Need + \beta_5\ Small\_Profit\ *Act\_Issue + \beta_6\ Exfin\_Need + \beta_7\ Act\_Issue + \beta_8\ Size + \beta_9\ Sox + \sum_i \kappa_i\ IND_i + \sum_i \eta_t\ YR_t + \varepsilon_{jt})].$$

The Δ Odds (%) column shows the percentage change in odds of migrating from an earnings interval of YTDQ3 to the small profit interval of NI if a firm belongs to the smallest profit interval of YTDQ3 instead of to the control group.

Variable definitions:

(a) *YTDQ3* = Year-to-date earnings after three quarters/TA= COMPUSTAT (Quarterly item #69:(Q1+Q2+Q3))/ TA
Where: TA = Beginning period Total Assets = (Annual COMPUSTAT item #6) in millions of dollars
(b) *NI* = Scaled annual earnings = COMPUSTAT annual item #172/TA;
(c) *Y_stay* (response variable) = 1 if a firm migrated from an earnings interval of YTDQ3 to the same interval of NI; = 0 otherwise;
(d) p_2 = Probability that *Y_stay* = 1
(e) *Small_Profit* = 1 if a firm is in the smallest profit interval of YTDQ3; = 0 otherwise;
(f) *Size* = Log (TA);
(g) *TV* = 1 if firms YTDQ3 total valuation error is positive and in the top quintile in its industry-year; = 0 otherwise;
(h) *Exfin_Need* = A proxy for a firm's ex-ante financing needs and is measured at the end of the third quarter. Set equal to 1 if a firm is expected to have negative future free cash flow that exceed its current assets balance; = 0 otherwise;
(i) *Act_Issue* = 1 if a firm issued securities (debt and equity) in t+4 quarters (i.e., an indicator variable coded 1 if DATA 108>0 or DATA111>0); = 0 otherwise; t= end of the third quarter in the current year.
(j) *SOX* = an indicator variable to capture the Sarbanes Oxley Act, 1 if firm year >= 2002; = 0 otherwise;
(k) IND_i = Industry dummy = 1 if Fama and French 12 industry classification of a firm = i; = 0 otherwise;
(l) YR_t = Year Dummy = 1 if fiscal year = t; = 0 otherwise. t = 1988–2009. Year 1987 is omitted as a base case.

Table 9A: Changes in accruals management and real earnings management for firms shifting from smallest profit interval of un-scaled YTDQ3 earnings to smallest loss interval of un-scaled annual earnings and external financing related incentives (*Actual Issues*) on earnings management.

	Treatment (interval -1 of YTDQ3 with *Actual Issues*)			Control 1 (interval -1 of YTDQ3 with no *Actual Issues*)			Control 2 (interval -2 of YTDQ3)			Control 3 (interval -2 to -5 of YTDQ3)		
	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff
Unexpected Accruals (UACC)												
Mean	-0.250	0.062	0.313	-0.261	-0.013	0.247	-0.287	-0.023	0.264	-0.287	-0.020	0.267
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.066			0.048			0.045		
	t-stat			4.80***			5.44***			5.17***		
Abnormal cash flows (ABNCFO)												
Mean	-0.036	0.037	0.072	-0.057	-0.004	0.053	-0.068	-0.003	0.064	-0.067	-0.002	0.065
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.019			0.008			0.007		
	t-stat			2.05**			1.46			1.23		
Abnormal production costs (ABNPROD)												
Mean	-0.087	0.006	0.094	-0.095	0.007	0.102	-0.102	-0.010	0.092	-0.100	-0.008	0.091
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.008			0.002			0.002		
	t-stat			-0.71			0.21			0.30		
Abnormal discretionary expenditures(ABNDISC)												
Mean	-0.227	-0.014	0.213	-0.263	-0.014	0.249	-0.199	-0.024	0.175	-0.224	-0.021	0.203
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.036			0.038			0.010		
	t-stat			-3.08***			4.36***			1.18		

*,** and *** indicate significance at the 10%, 5% and 1% level, respectively on a two tailed test.

Sample observations are drawn from firms with required data available in COMPUSTAT database (excluding financial services firms) over 1987-2009. The table shows the changes in the mean unexpected accruals and real activities management of cumulative earnings after three quarters (*Q1-Q3*) and the fourth quarter (*Q4*) for treatment and control samples respectively. The *Treatment* group refers to firms that issued debt or equity securities in t+4 quarters (where t = end of the third quarter in the current year), and reported a cumulative negative net income at the end of the third quarter (scaled by lagged total assets) of between -1% and 0% (i.e. small loss) but reported a positive annual net income (scaled by lagged total assets) of between 0 and 1% (i.e. small profit). *Control 1* refers to all firms that report similar earnings characteristics as the *Treatment* group, except for not having issued any debt or equity securities in t+4 quarters. *Control 2* group consists of firms in interval -2 of YTDQ3 whereas *Control 3* group consists of firms in intervals -2 to -5 of YTDQ3. The dependent variables in the regression are UACC, ABNCFO, ABNPROD, and ABNDISC.

UACC - Modified Jones unexpected accruals with current ROA;
ABNCFO- Abnormal cash flow measure as per Roychowdhury (2006);
ABNPROD- Abnormal production cost measure as per Roychowdhury (2006);
ABNDISC- Abnormal discretionary expenditures measure as per Roychowdhury (2006).

Table 9B: Changes in accruals management and real earnings management for firms shifting from smallest profit interval of un-scaled YTDQ3 earnings to smallest loss interval of un-scaled annual earnings and overvaluation related incentives on earnings management.

	Treatment (interval -1 of YTDQ3 with *Overvaluation*)			Control 1 (interval -1 of YTDQ3 with no *Overvaluation*)			Control 2 (interval -2 of YTDQ3)			Control 3 (interval -2 to -5 of YTDQ3)		
	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff	Q1-Q3	Q4	Diff
Unexpected Accruals (UACC)												
Mean	-0.261	0.067	0.327	-0.254	0.019	0.273	-0.287	-0.023	0.264	-0.287	-0.020	0.267
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			0.055			0.063			0.060		
	t-stat			3.01***			3.79***			3.62***		
Abnormal cash flows (ABNCFO)												
Mean	-0.014	0.034	0.048	-0.052	0.014	0.066	-0.068	-0.003	0.064	-0.067	-0.002	0.065
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.018			-0.016			-0.017		
	t-stat			-1.55			-1.55			-1.70*		
Abnormal production costs (ABNPROD)												
Mean	-0.022	0.020	0.041	-0.104	0.004	0.108	-0.102	-0.010	0.092	-0.100	-0.008	0.091
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.067			-0.051			-0.050		
	t-stat			-4.85***			-4.12***			-4.08***		
Abnormal discretionary expenditures(ABNDISC)												
Mean	-0.138	0.010	0.148	-0.263	-0.018	0.245	-0.199	-0.024	0.175	-0.224	-0.021	0.203
p-value			<.0001			<.0001			<.0001			<.0001
	Treatment change-Control change			-0.097			-0.027			-0.055		
	t-stat			-6.24***			-1.91*			-3.84***		

*,** and *** indicate significance at the 10%, 5% and 1% level, respectively on a two tailed test.

Sample observations are drawn from firms with required data available in COMPUSTAT database (excluding financial services firms) over 1987-2009. The table shows the changes in the mean unexpected accruals and real activities management of cumulative earnings after three quarters (*Q1-Q3*) and the fourth quarter (*Q4*) for treatment and control samples respectively. The *Treatment* group refers to firms that reported a cumulative negative net income at the end of the third quarter (scaled by lagged total assets) of between -1% and 0% (i.e. small loss) but reported a positive annual net income (scaled by lagged total assets) of between 0 and 1% (i.e. small loss) and whose YTDQ3 overvaluation measure is positive and in the top quintile in its industry-year. *Control 1* refers to all firms that report similar earnings characteristics as the *Treatment* group, except for being overvalued. *Control 2* group consists of firms in interval -2 of YTDQ3 whereas *Control 3* group consists of firms in intervals -2 to -5 of YTDQ3. The dependent variables in the regression are UACC, ABNCFO, ABNPROD, and ABNDISC.

UACC - Modified Jones unexpected accruals with current ROA;
ABNCFO- Abnormal cash flow measure as per Roychowdhury (2006);
ABNPROD- Abnormal production cost measure as per Roychowdhury (2006);
ABNDISC- Abnormal discretionary expenditures measure as per Roychowdhury (2006).

Table 10: Unexpected accruals and RAM measures for firms in the smallest profit/smallest loss interval of scaled YTDQ3 earnings moving in to the smallest profit interval of scaled annual earnings and capital market related incentives**.**

	UACCQ	ABNCFOQ	ABNPRODQ	ABNDISCQ
	Coeff	*Coeff*	*Coeff*	*Coeff*
	(t-stat)	*(t-stat)*	*(t-stat)*	*(t-stat)*
Intercept	0.0867	-0.0108	-0.0065	0.1561
	*11.51****	*-1.52*	*-0.86*	*20.48****
KR_1	0.0171	-0.0227	0.0148	-0.0032
	*2.64****	*-2.81****	*0.96*	*-0.43*
KR_2	0.0119	-0.0165	-0.0272	-0.0088
	*2.45***	*-3.77****	*-1.54****	*-2.43***
TV	-0.0093	-0.0114	-0.0048	0.0383
	*-3.10****	*-4.84****	*-1.71**	*13.78****
EXFIN_NEED	0.0308	-0.0774	-0.0277	0.0102
	*15.23****	*-16.54****	*-6.72****	*3.24****
ACT_ISS	-0.0030	-0.0062	-0.0054	0.0260
	*-2.67****	*-4.25****	*-2.78****	*19.10****
*KR_1*TV*	0.0147	0.0026	0.0069	-0.0317
	*3.13****	*0.47*	*0.67*	*-4.94****
*KR_1*EXFIN_NEED*	-0.0409	0.0879	0.0354	-0.0209
	*-3.26****	*9.02****	*1.20*	*-2.55****
*KR_1*ACT_ISS*	-0.0062	0.0170	-0.0111	-0.0188
	-1.07	*2.11***	*-0.63*	*-2.31****
*KR_2*TV*	0.0059	0.0090	0.0094	-0.0295
	1.36	*3.12****	*0.58*	*-3.63****
*KR_2*EXFIN_NEED*	-0.0177	0.0775	0.0249	-0.0291
	*-3.53****	*12.35****	*1.86**	*-4.60****
*KR_2*ACT_ISS*	0.0033	0.0026	0.0113	-0.0123
	0.69	*0.56*	*0.69*	*-3.56****
Fin_Lev	-0.0042	-0.0109	0.0317	-0.0037
	-1.61	*-5.30****	*6.02****	*-0.96*
NET_XFIN	-0.0001	-0.0002	-0.0001	0.0001
	-1.52	*-1.50*	*-0.73*	*0.79*
Size	-0.0005	0.0051	0.0007	-0.0094
	-1.14	*14.91****	*1.71**	*-20.39****
SOX	-0.0232	-0.0251	-0.0079	0.0026
	*-5.42****	*-7.31****	*-4.15****	*1.15*
Year_Effect	Yes	Yes	Yes	Yes
Ind_ Effect	Yes	Yes	Yes	Yes
nobs	88,104	89,232	89,232	89,232
Adj R^2	0.038	0.129	0.006	0.060

*,** and *** indicate significance at the 10%, 5% and 1% level, respectively on a two tailed test.

The table provides estimates of Eq. (10) using a cluster regression. Sample observations are drawn from firms with required data available in Compustat database (excluding financial services firms) over 1987-2009. The dependent variables in the regression are UACCQ, ABNCFOQ, ABNPRODQ, and ABNDISCQ.

UACCQ - Modified Jones unexpected accruals with current ROA measure for the fourth quarter;

ABNCFOQ- Abnormal cash flow measure for the fourth quarter as per Roychowdhury (2006);

ABNPRODQ- Abnormal production cost measure for the fourth quarter as per Roychowdhury (2006);

ABNDISCQ- Abnormal discretionary expenditure measure for the fourth quarter as per Roychowdhury (2006);

KR_1 = dummy variable, coded "1" if firm *i* in year *t* reported a cumulative negative net income at the end of the third quarter (scaled by lagged total assets) of between -1% and 0% (i.e. small loss) but reported a positive annual net income (scaled by lagged total assets) of between 0 and 1%, and zero otherwise;

KR_2 = dummy variable, coded "1" if firm i in year t reported a cumulative positive net income at the end of the third quarter (scaled by lagged total assets) of between 0% and 1% (i.e. small profit) and positive annual net income (scaled by lagged total assets) of between 0 and 1%, and zero otherwise;

TV = 1 if firms YTDQ3 total valuation error is positive and in the top quintile in its industry-year; = 0 otherwise;

Exfin_Need = a proxy for a firm's ex-ante financing needs. A binary indicator variable set equal to one if a firm is expected to have negative future free cash flow that exceed its current assets balance, and set equal to zero otherwise.

Act_Issue 1 if a firm issued securities (debt and equity) in t+4 quarters (i.e., an indicator variable coded 1 if DATA 108>0 or DATA111>0); = 0 otherwise; t= end of the third quarter in the current year.

*KR_1*TV* = Interaction term between *KR_1* and *TV;*

KR_1 EXFIN_NEED* = Interaction term between *KR_1* and *EXFIN_NEED*;

*KR_1*ACT_ISS* = Interaction term between *KR_1* and *ACT_ISS;*

*KR_2*TV* = Interaction term between *KR_2* and *TV;*

KR_2 EXFIN_NEED* = Interaction term between *KR_2* and *EXFIN_NEED*;

*KR_2*ACT_ISS* = Interaction term between *KR_2* and *ACT_ISS;*

Fin_Lev = financial leverage ratio calculated as [1- (shareholders' equity/total assets)];

Net_Xfin = is the current period net external financing measured by ΔEquity + ΔDebt. ΔEquity represents net cash received from the sale (and/or purchase) of common and preferred stock less cash dividends paid (COMPUSTAT annual data #108 less #115 less #127).12 ΔDEBT represents net cash received from the issuance (and/or reduction) of debt (COMPUSTAT annual data #111 less #114 plus #301).

Size = natural logarithm of total assets;

Sox = an indicator variable to capture the Sarbanes Oxley Act, 1 if firm year >= 2002; = 0 otherwise;

Ind_Effect = 1 if Fama and French 12 industry classification of a firm = i; = 0 otherwise. i= (1, 2,.. 12);

Year_Effect = Year Dummy = 1 if fiscal year = t; = 0 otherwise. t = 1988–2005. Year 1987 is omitted as a base case.

Chapter Two:

Analysts Cash Flow Forecasts and Earnings Benchmark Beating by Australian Firms

1. Introduction

Analysts are widely viewed as leaders in communicating the implications of complex financial information to investors and also sophisticated information intermediaries who improve market efficiency. To this end, there are papers that suggest that sell side analysts provide a monitoring mechanism on firm's accounting. For example, McInnis and Collins (2011), argue that the provision of cash flow forecasts by sell-side analysts leads to a reduction in the level of firm's accruals manipulations and the probability of firms to meet or beat earnings targets. In a follow up study to Richardson et al. (2010) on the disappearance of the accrual anomaly, Mohanram (2011) finds that the disappearance of the accrual anomaly coincides with an increase in the incidence of analysts' cash flow forecasts. He concludes that the provision of cash flow forecasts by sell-side analyst contributed to the disappearance of the anomaly.

However there is a lot of evidence that this is unlikely to be the case. For example, Bradshaw et al. (2001) argue that analysts themselves do not understand the difference between accruals and cash flows. That is, they find that analysts do not fully incorporate accruals information in their forecasts, and conclude that "even professional investment intermediaries who specialize in interpreting accounting information do not alert investors to the subsequent earnings problems that are associated with high accruals. Recent study by Keskek and Tse (2013), show that the decline in the accrual anomaly is not associated with what analysts do. Specifically, they find no evidence to suggest that analysts initiated the disappearance of the anomaly by issuing forecasts that a free of accrual related bias. Collectively, these studies point to the fact that it is a bit of a stretch to see from their

results, that analysts are likely to discipline what is likely to be relatively subtle earnings management choices.

Given this natural tension in the literature, it is imperative to subject the role that analysts' play (if any) in monitoring firms reporting behavior to careful analysis. To believe that analysts actually discipline managers, one must first assume that earnings management is widespread. In addition, earnings management is not likely to be blindly obvious, otherwise there is no point in doing it. Second, to detect a reduction in earnings management, the earnings management must be at least observable in order to measure its decline. Third, is earnings management likely to be reduced by analysts?

In this paper, I investigate whether analysts, as sophisticated information intermediaries, do play a monitoring role in firm's reporting behaviour. Specifically, by examining whether the provision of cash flow forecasts by analysts, impair the earnings management and benchmark beating behaviour of Australian firms. It is likely that producing a cash flow forecasts is a way that monitors managements accounting choices, where the accounting choice are fairly subtle anyway. This is largely dependent on whether firms engage in either accrual or real earnings manipulations. As a corollary, I consider accruals and real earnings manipulations as well as benchmark beating, as tests for earnings management in the paper.

Researchers' interest in the effects of cash flow forecasts on firms' reporting behaviour likely reflects the increasing tendency for analysts to issue cash flow forecasts in addition to their earnings forecasts and stock recommendations through financial information service companies. Several recent papers investigate the predictive ability and disciplining

implications of analyst cash flow forecasts.[18] For example, McInnis and Collins (2011) argue that cash flow forecasts increase the transparency of accrual manipulations used to manage earnings. That is, cash flow forecasts enable parties external to the firm to easily decompose an earnings surprise into the portion attributable to unexpected cash flows and a portion attributable to unexpected accruals.

In looking at Australian firms, the paper re-examines three questions posited by McInnis and Collins (2011). Firstly, does the level of unexpected accruals of firms' decrease after the provision of cash flow forecasts? Secondly, does the level of real activities manipulation of firms' increase after the initial provision of cash flow forecasts by analysts? Finally does the probability of meeting or beating analysts' earnings targets decrease after the initial provision of cash flow forecasts by analysts? Given that cash flow forecasts increases the transparency of accrual manipulations, which in turn, increases the expected costs of engaging in earnings management through accruals, management are less likely to resort to accrual manipulation. Thus, it is intuitive that by increasing the transparency of accrual manipulations, analysts' provision of cash flow forecasts serves as an effective earnings management constraint that increases the quality of reported accruals. As a corollary, by reducing accrual manipulations, the provision of cash flow forecasts will reduce the likelihood that firms will meet or beat earnings targets. McInnis and Collins (2011) argue that as the cost of managing earnings via accruals becomes high in the presence of cash flow forecasts, managers are likely to shift to other mechanisms (such as real earnings management) in an effort to achieve earnings benchmarks.

[18] Call et al (2009) and Givoly et al. (2009)

Compared to the financial environment in the U.S., Australia is relatively small, therefore have less number of firms, and do not have the same depth of analyst's coverage. Given the various differences between Australian and US financial environment, it is imperative to subject Australian evidence of benchmark beating and accrual quality to careful analysis. The primary focus of this paper is whether analysts play a monitoring role in firm's reporting behaviour. Specifically, this is done by examining the disciplining implications of analyst cash flow forecasts on accruals and benchmark beating behaviour.

To test these hypotheses, within-firm inter-temporal change tests are conducted for firms before and after analysts began providing cash flow forecasts and the findings are benchmarked against a control sample. I identify a sample of firm-years for which I/B/E/S provided both earnings and operating cash flow forecasts (treatment sample) and an industry size matched sample of firm-years without cash flow forecasts (control sample). The industry size matching procedure, inter- temporal change analyses using a difference-in-differences design allows inferences to be drawn on the direction of causation, which help mitigate endogenous self-selection concerns that plague purely cross-sectional research designs.

Results indicate that there is insufficient evidence to suggest that treatment firms experience a significant decline in income increasing accruals (positive unexpected accruals) after the provision of cash flows. However, I find an increase in abnormal production costs after the provision of cash flow forecasts, but no evidence of cuts in discretionary expenditure or increased channel stuffing and excessive discounts. Moreover, there is insufficient evidence to support the notion that the probability of meeting or beating earnings targets declines after the provision of cash flow forecasts. Neither do I find firms

that reduce their positive unexpected accruals after the provision of cash flow forecasts having lower (higher) discretionary expenditure (abnormal production costs). Overall, the results do not provide evidence that suggests that the provision of cash flow forecasts do act as a deterrent to income increasing earnings management conducted through accrual manipulations. There is limited evidence to suggest as the cost of managing earnings via accruals becomes high in the presence of cash flow forecasts, managers are likely to resort to real earnings management (e.g. high abnormal productions costs) in an effort to achieve earnings benchmarks. However, this is not consistent with other measures of real earnings management (e.g. low abnormal cash flows and low discretionary expenditures).

To ensure that alternative explanations will not drive the main results, various robustness tests are conducted. First, I consider that implications of the data selection criteria used in this paper, which had led to a loss of a substantial number of observations. To ensure that my results are not sensitive to this, I look at all treatment firms and compare them in the pre and post periods for all the main tests. Second, is to change the definition of the post-CF period to be the year of the first cash flow forecast and the following year. In the main tests, I excluded the year of the initial cash flow because it may not have an effect on what firms do. This moves my experimental designs closer to McInnis and Collins (2011). Third, I control for the potential effect of IFRS adoption on firms earnings reporting behaviour. Last, I consider two competing explanations for benchmark beating behaviour. The first is that the issuance of cash flow forecasts portends a decline in economic performance of firms and this is why a decline in the meet-or-beat tendencies of the treatment sample over time might be observed. The second is that once analysts issue cash flow forecasts, firms might focus on meeting their cash flow targets at the expense of their

earnings targets. The results of these additional tests show that none of these alternative explanations for benchmark beating behaviour to be driving the results.

This paper contributes to extant research which investigates the role that analysts play in monitoring firm financial reporting behaviour. Prior evidence (Keskek and Tse 2013; Givoly et al. 2009; Bradshaw et al. 2001) fails to find consistent evidence supporting inferences raised in prior literature (e.g. McInnis and Collins 2011; Mohanram 2011; Elgers et al. 2003) that provision of cash flow forecasts by analysts' serves to deter earnings management through accruals and positively impacts accruals quality. Call et al. (2011) find that cash flow forecasts are not simply naïve extensions of their earnings forecasts, and conclude that cash flow forecasts reflect analysts' substantive insights on accruals. I investigate whether such insights impact on firm's financial reporting behavior through reduced accrual-related manipulation. I find, however, that accrual-related manipulation by firms is unrelated to the analyst's provision of cash flow forecasts, suggesting that analysts who forecast cash flows do not reflect better understanding of the information in accruals than normal earnings forecasts.

Finally, this paper extends the findings in McInnis and Collins (2011) into a Non U.S. setting. In doing so, the findings of this paper add to the limited evidence on the extent of earnings management by Australian firms.

The remainder of the paper is organized as follows. Section 2 reviews prior literature and develops the hypotheses. Section 3 describes the sample and methodology, and Section 4 presents descriptive statistics and results of the empirical tests. Section 5 contains some robustness tests to explain the benchmark beating results. Section 6 provides a conclusion.

2. Prior research and hypotheses development

2.1. Cash flow forecasts and the transparency of accrual manipulations

The dissemination of cash flow forecasts by analysts is relatively recent phenomenon in both the U.S. and Australia. Forecasts of operating cash flow for both Australian and U.S. firms began appearing in the I/B/E/S detail files in 1993, and have increased in prevalence over the last decade. For example, in Australia (U.S.) the proportion of firms in I/B/E/S for which analysts predicted both earnings and operating cash flows was roughly 2.48% (1%) in 1993, 90.41% (12%) in 1999, and 77.93% (39%) in 2003.[19] Prior literature such as DeFond and Hung (2003) argue that analysts' cash flow forecasts are demand driven. In their study, they find that analysts tend to forecast cash flows for firms where accounting, operating and financing characteristics suggest that cash flows are useful in interpreting earnings and assessing firm viability. Given that cash flow forecasts are endogenously determined, it is important to control for firm-specific characteristics associated with the provision of cash flow forecasts. To control for this issue, this paper considers two approach,: (1) an inter-temporal change analysis is conducted, effectively using each firm as its own control; and (2) by identifying a sample of control firms that are selected by a matching procedure based on a firm's industry and size. I/B/E/S documentation indicate that analysts' cash flow forecasts do not merely represent crude manipulations of earnings, such as EBITDA; rather, they represent relatively sophisticated projections of cash flows from continuing operations. Thus, when analysts forecast both earnings and cash flows, they also implicitly forecast total operating accruals. Given both an earnings and a cash

[19] Observing a cash flow forecast in I/B/E/S is a joint product of analysts forecasting cash flows, analysts making those forecasts available to I/B/E/S and I/B/E/S disseminating those forecasts.

flow forecast, outsiders can readily decompose an earnings surprise in to the portion attributable to cash flow and the portion attributable to accruals. Thus, cash flow forecasts provide a readily available and objective benchmark for assessing unexpected accrual manipulations in either a positive (income-increasing) or negative (income-decreasing) direction

2.2. Predictive and disciplining implications of cash flow forecast

Call (2008) posit and finds that cash flow forecasts serve as an important monitoring role over firms' reported cash flow information, which improves its predictive ability.[20] That is, the ability of reported cash flows to predict future cash flows is greater for firms whose analysts issue cash flow forecasts, and improves when analysts begin forecasting cash flows. They also document that firms' abnormal operating cash flows are significantly smaller in the years immediately after analysts' cash flow forecasts are initiated. Although not tested directly, this finding suggests that analysts' cash flow forecasts deter managers from engaging in earnings management through real activities management in ways that affect cash flows. McInnis and Collins (2011), takes a closer look at this issue and find opposite results. Using an inter-temporal change analysis approach, McInnis and Collins (2011) find that firms for which cash flows are provided turn to other benchmark beating mechanisms such as real activities management, following the provision of cash flow forecasts.

[20] Call (2008) examines the association between analysts' cash flow forecasts and the predictive ability and pricing of operating cash flows.

In a more recent paper, Call et al. (2009) consider the impact that the provision of cash flow forecast have on analyst ability to forecast earnings. That is they investigate whether analysts' earnings forecasts are more accurate when they also issue cash flow forecasts. They argue that analysts are more likely to attend to the individual components of earnings (cash flows and accruals) and have a better grasp of the time-series properties of earnings and its components when they forecast both earnings and cash flows. Consistent with their predictions, they find that analysts' earnings forecast that are accompanied by cash flow forecasts are more accurate than those not accompanied by cash flow forecasts. Further evidence that cash flow forecasts act to constrain opportunistic earnings management is provided by Wasley and Wu (2006). They predict that when management issues cash flow forecasts, they pre-commit to a certain composition of earnings in terms of cash flows versus accruals, thus reducing the degrees of freedom in earnings management. Consistent with this prediction, they find that when managers are managing earnings upward by manipulating unexpected accruals, they are less likely to issue a management cash flow forecast because doing so would draw attention to the upward manipulation in earnings.

While the above studies indirectly suggest analysts' cash flow forecast are meaningful to investors and assist analysts' themselves in forecasting earnings, an important recent study by Givoly et al. (2009) conclude that analysts' cash flow forecasts lack sophistication because these forecast are derived simply by adding back depreciation and amortization expense to analysts own earnings forecasts. They further add that cash flow forecasts are naïve and relatively inaccurate extensions of analyst' own earnings forecasts and have

limited information content, casting doubt on their usefulness.[21] Further, Lehavy (2009) disagrees with the conclusion of Call et al.'s (2009) arguing that their results are sensitive to stale forecasts and extreme bad news earnings surprises. Recently, Keskek and Tse (2013) examines whether such insights are reflected in reduced accrual-related bias in earnings forecasts. They find that analysts who provide cash flow forecasts tend to be less subject to excessive optimism in their earnings forecasts. However, that accrual-related optimism in analysts' earnings forecasts is unrelated to the analyst's provision of cash flow forecasts, suggesting that earnings forecasts from analysts who forecast cash flows do not reflect better understanding of the information in accruals than forecasts from other analysts.

2.3. Hypothesis development

2.3.1. Effect of analysts' cash flow forecasts on accrual management

In line with McInnis and Collins (2011), the paper predicts that analysts' provision of operating cash flow forecasts makes manipulation of accruals more transparent, thereby increasing the expected costs to firms and managers of engaging in earnings management through accrual manipulation. As the expected costs of manipulating earnings via accruals increase, managements' incentives to do so are expected to decrease. Thus by increasing the transparency of accrual manipulations, analysts' provision of cash flow forecasts serve as an effective earnings management constraint that increases the quality of reported accruals. Accordingly, it makes intuitive sense to expect firms for which analysts provide

[21] However, Call et al. (2011) argue that cash flow forecasts are not simply naïve extensions of their earnings forecasts, and conclude that cash flow forecasts reflect analysts' substantive insights on accruals

cash flow forecasts to exhibit higher quality accruals (i.e., smaller positive, negative and absolute abnormal accruals and less accrual noise) following the provision of cash flow forecasts relative to before these forecasts were issued. The above discussion leads to the following testable hypotheses stated in the alternative form:

H1. *The level of unexpected accruals of firms' decreases after the initial provision of cash flow forecasts by analysts.*

2.3.2. Cash flow forecast and firms' choice of alternative benchmark beating mechanism

Prior research suggests that managers have strong incentives to beat earnings benchmarks. DeGeorge et al. (1999) document a significant 'discontinuity' in the empirical distribution of earnings surprises at and just above zero: too many firms seem to just meet or beat analysts' earnings forecasts relative to the number of firms that just miss these forecasts. In a survey of 401 CFOs by Graham et al. (2005), they found that over 80% of the respondents agreed or strongly agreed that capital market-based incentives are a major reason why their companies try to meet earnings benchmarks. Over 74% of the respondents agreed or strongly agreed that ''meeting earnings benchmarks" helped them convey future growth prospects of their company to investors.

Furthermore, Brown and Caylor (2005) find that the tendency of firms to avoid reporting negative earnings surprises has been increasing over time and that analyst's earnings expectations now represent the most important threshold firms seek to exceed. A variety of studies have examined whether accrual management is associated with the disproportionate number of reported earnings surprises equal to a few cents per share or less. In general, the findings have been mixed. For example Payne and Robb (2000), Matsumuto (2002), and

Ayers et al. (2006) find that accrual management is related to meeting or beating analysts' earnings forecasts, while other studies such as Schwartz (2004) and Phillips et al. (2003) fail to find such an association.

McInnis and Collins (2011) argue that the presence of cash flow forecasts makes accrual manipulations to achieve EPS targets more transparent. This transparency reduces the stock price benefit of an accrual manipulating strategy (Melendrez et al., 2008), and also potentially increases its cost (e.g., through a higher probability of regulatory scrutiny). Thus, it is predicted that analysts' cash flow forecasts serve to constrain firms in their ability to manage accruals to meet earnings targets. When firms' ability to manage earnings through accruals is constrained they are likely to shift to other mechanisms to meet earnings benchmarks. Roychowdury (2006) finds that firms manipulate real activities, such as cutting discretionary expenditures, raising production levels, or offering excessive discounts to generate higher earnings. Prior research suggests that firms shift to these real activities management techniques to manage earnings when the costs of managing earnings through accruals increase (Cohen et al., 2008; Cohen and Zarowin, 2010). Although not tested in this paper, prior literature such as Matsumoto (2002), Bartov et al. (2002), and McInnis and Collins (2011) argues that managers can guide analysts' expectations downward in order to meet EPS forecasts. If cash flow forecasts constrain accrual management, it is reasonable to expect that firms will turn to alternative benchmark beating mechanisms in the face of cash flow forecasts. The above discussion leads to the following testable hypotheses stated in the alternative form:

H2. *The level of real activities earnings management of firms' increases after the initial provision of cash flow forecast by analysts'.*

2.3.3. Effect of cash flow forecast on firms' ability to beat earnings benchmarks

Alternative benchmark beating mechanisms are not costless substitutes for accrual management, however. Real transactions management, such as cutting current discretionary expenditures like R&D, can lead to poorer future operating performance (Bhojraj et al., 2009) and adversely affect firm value. In addition to cost considerations, not all firms will necessarily find this alternative mechanism for meeting earnings targets equally effective. For example, some firms may be unable to cut discretionary expenditures in a timely fashion if resource commitments have already taken place. That is, it may be impossible for a firm to meaningfully cut R&D expenditures late in the year to avoid a negative earnings surprise if the majority of its R&D budget has already been expended. In short, even if firms, on average, cut discretionary spending in the face of cash flow forecasts, such activities are costly. Therefore, they may not serve as perfect substitutes for accrual manipulation to achieve earnings benchmarks. Accordingly, it is expected that the provision of cash flow forecasts will, on average, serve to constrain firms' ability to meet earnings targets via accruals. The above discussion leads to the following testable hypotheses stated in the alternative form:

H3. *The probability of meeting or beating analysts' earnings targets decreases after the initial provision of cash flow forecasts by analysts'.*

The above hypothesis (H3) is made under the maintained hypothesis that analysts' behaviour with respect to forecasting earnings does not change after the provision of cash flow forecasts.[22]

3. Sample methodology

In this section, I describe the sample and the methodology used to test the hypotheses developed above. Section 3.1 briefly describes the data sources, and Section 3.2 provides an overview of the studies design, along with a detailed description of the tests of H1 through H3. I utilise a difference-in-differences design to test the predictions by comparing inter-temporal differences for treatment (cash flow forecast) and control (non-cash flow forecast) samples. This design allows us to infer changes in the following characteristics after the issuance of cash flow forecasts: accrual quality (H1); real activities earnings management (H2); and the tendency to meet EPS targets (H3).

3.1. Data

The sample includes annual EPS forecasts for Australian firms on the I/B/E/S detail file from 1993 to 2011. This paper uses annual data because the majority of cash flow forecasts are provided on an annual basis. Because the paper uses a variety of accounting variables in the tests that follow, I also eliminate observations lacking necessary data from ASPECT.

Panel A of Table 1 reports the number and proportion of firms with analysts making one-year ahead cash flow forecasts in total and by-year over the sample period. Panel A

[22] Alternative predictions if this assumption does not hold is considered when discussing the meet-or-beat results later in the paper.

indicates that 88.71% of the 1,533 firms with earnings forecasts also include at least one cash flow forecast, and 82.95% of the 8,839 total earnings forecasts also include cash flow forecasts. The proportion of forecasts increases from 2.48% in 1993 to 89.69% in 2011, with the increases in 1994 being relatively large. Thus, analysts make cash flow forecasts for an economically significant proportion of firms with earnings forecasts. Panel B of Table 1 presents the total number of firms in each of 10 industry groups, along with the number and proportion of firms with cash flow forecasts, ranked by the forecast proportions. I define industry groups using the Standard and Poor's classification scheme in the ASPECT database. Panel B indicates that there is some variation in the proportions of firms with cash flow forecasts across industries. For example, while analysts forecast cash flows for 95.83% of the firms in the Telecommunications industry (the highest proportion), they only forecast cash flows for 84.21% of the firms in the Materials industry (the lowest proportion). Because firms' accounting, operating and financing characteristics are correlated with industry membership, Panel B is consistent with differences in these characteristics driving the demand for cash flow forecasts.

Figure 1 shows the distribution of matched initial cash forecast years in the sample. The resulting matched observations are equally distributed over the sample years. I try to tease out some of the time element by focusing specifically on careful matching, which actually spreads testing over time, relative to what I would be doing if I was looser on my matching criteria. Naturally it would be sufficient to expect that the matched observations would be skewed to the early years (i.e. 1994 -1998). However this is not the case, due in part to the lack of matching control firms in the initial years, which is a consequence of limited analyst

observations available for Australian firms relative to the U.S. In total, the number of individual treatment firms matched to an appropriate control firm is 442.

3.2. Empirical Methodology

3.2.1. Methodology

Following McInnis and Collins (2011), the difference-in-difference design is implemented in several steps. First, for each firm with a cash flow forecast in the sample period, the first year in which analysts' cash flow forecasts appear in the I/B/E/S detail file (the ''initial'' year) is identified. Second, all observations for each firm up to two years prior to this initial year are then selected. These observations comprise our pre-cash flow forecast (pre-CF) sub-sample. In addition, all available observations up to two years subsequent to this initial year for each firm are selected, with the requirement that cash flow forecasts exist in these subsequent years. Observations for the initial and subsequent two years for each firm comprise our post-cash flow forecast (post-CF) sub-sample. In contrast to McInnis and Collins (2011), I exclude the year of the initial cash flow forecasts from the post-CF sample, because it may not have an effect on what firms do. That is, they may not have a clear warning that analysts would do this (i.e., play a monitoring role).[23] The choice of a two-year window for the pre-CF and post-CF sub-periods is somewhat arbitrary and reflects a trade-off between selecting a window long enough to allow firms' earnings management choices to adjust to the implications of cash flow forecasts, yet short enough to avoid picking up other potential economic events common to all sample firms that could

[23] To move my experimental designs closer to McInnis and Collins (2011), I re-run the tests in the robustness section by including the initial cash flow year and yield similar results. Refer to robustness tests for details.

impact earnings quality measures.[24] The pre-CF sub-sample contains 880 observations, whereas post-CF sub-sample contains 884 observations. Together, these 1764 observations comprise the ‘‘treatment’’ sample.

Furthermore, a control sample is utilized to help ensure that any inter-temporal changes in accrual quality, real activities management, and benchmark-beating that are documented for the CF forecasting (treatment) sample are not common to all firms over the sample period. A sample of firms for which analysts do forecast earnings but do not forecast cash flows that are similar, along multiple relevant dimensions, to firms for which analysts do forecast cash flows. To identify control firms, I utilise a matching procedure based on industry, and size.[25] For each ‘initial’ firm-year in the treatment sample described above, I select a matching firm (without a cash flow forecast) in the same year that has the same industry code and closest firm size.[26] Figure 1 shows the sample distribution of matched initial cash flow forecast years.

This matching procedure neutralizes industry and size differences across samples and ensures that these differences have no impact on the outcomes of interest. Once the industry and size matches are obtained, pseudo pre-CF (up to two years back) and post-CF (up to two years forward) periods for each control firm are constructed. Although control firms have no true ‘‘event year’’ like the treatment firms, this process yields a control sample with pre-CF and post-CF periods that have a similar dispersion in calendar time to the periods that comprise the treatment sample. To maintain the statistical independence of

[24] McInnis and Collins (2011) had a 3 year window for their pre and post cash flow sample. I however use up to 2 years for my pre and post cash flow samples due to limited data for Australian firms.
[25] This is different from McInnis and Collins (2011) who used a propensity score procedure. They however note in their paper that similar results were derived when they used an industry and size matching procedure (p.g.224 footnote 5).
[26] In un-tabulated results of robustness tests, I also consider a matching firms with no analyst following (i.e. without a cash flow or earnings forecast). Interestingly, results are quantitatively similar with the main tests.

the tests, a matching firm-year is allowed to be used only once. If a matching firm-year is the best match (based on industry, size and year) for more than one cash flow forecast firm-year, the tie is broken by selecting the match with the smallest absolute difference in firm size. In addition, matched firms are only retained if they do not have a cash flow forecast in either of the two years after the initial matching year. The final control sample consists of 1291 firm-year observations, comprising 849 observations in the pre-CF and 442 observations in the post-CF period.

3.2.2. Accrual estimation models

In testing the prediction that cash flow forecasts deter accrual manipulation (H1), I examine inter-temporal shifts in the modified-Jones (Dechow et al. 1995) model. Following Kothari et al. (2005), I use the regression approach to controlling the effect of performance on accruals. This approach expands the set of explanatory variables used in traditional models of unexpected accruals by including return on assets.

$$TA_{it} = \beta_0 + \beta_1(\Delta SALES_{it} - \Delta AR_{it}) + \beta_2 PPE_{it} + \beta_4 ROA_i + \varepsilon_{it}, \quad (1)$$

Where $\Delta SALES_{it}$ (ASPECT item # 7070) is the change in sales divided by the lagged value of total assets, $ASSETS_{it-1}$(ASPECT item # 5090), ΔAR_{it} (ASPECT item # 4995) is the change in accounts receivable deflated by the lagged value of total assets, $ASSETS_{it-1}$, ROA is the return on assets (ASPECT item # 8020/ ASPECT item # 5090) and PPE_{it} (ASPECT item # 5030) is gross property, plant and equipment scaled by $ASSETS_{it-1}$. The use of assets as the deflator is intended to mitigate heteroskedasticity in residuals. However, White (1980) statistics for the annual, cross-sectional, industry models demonstrates that deflation reduces, but does not eliminate heteroskedasticity. Given that

unexpected accruals are a residual estimate from a model of expected accruals, I use residuals from estimating Eq. (1) using cross-sectional industry-year regressions as the modified-Jones model unexpected accruals.

To test for temporal shifts in average unexpected accruals, the treatment and control samples are pooled together by estimating the following regression:

$$UNACC_t = \alpha + \beta_1 TREAT_t + \beta_2 POST\_CF_t + \beta_3 POST\_CF_t * TREAT_t + \beta_4 ROA_t + \beta_5 ROA_t * TREAT_t + \beta_6 MTB_t + \beta_7 LEV_t + \beta_8 SIZE_t + \beta_9 BLOAT_t + \beta_{10} SHARES_t + \varepsilon_t \quad (2)$$

where *UNACC* is either the positive, negative, or the absolute value of unexpected accruals. *TREAT* is an indicator variable set to 1 if the observation belongs to the treatment sample, and zero otherwise. *POST_CF* is an indicator variable set to 1 if an observation belongs to the post-CF forecast period in either sample, or zero if the observation falls in the pre-CF forecast period. *ROA* is income before extraordinary items scaled by average total assets. *ROA* is included in the regression to control for differences in performance across the two samples because prior research documents a relation between unexpected accruals and performance (e.g., Dechow et al., 1995). Additionally, Kothari et al. (2005) offer evidence that controlling for *ROA* reduces the probability of Type I error in earnings management studies where performance differences are not part of the hypotheses being tested.

The vector of controls used in the regression includes variables that are known to be associated with unexpected accruals. *LEV* denotes financial leverage and is positively related to unexpected accruals. *SIZE* is negatively related to unexpected accruals, so I expect a negative loading on this variable. Barton and Simko (2002) that firms with

'bloated'' balance sheets (history of positive cumulative accruals) may be less able to manage accruals upward to meet current earnings targets. *BLOAT* is defined as net operating assets (essentially total assets less cash) scaled by sales. Firms with a large number of shares outstanding (*SHARES)*, all else equal, will have to engage in a larger dollar amount of earnings management to generate a one penny increase in EPS. Firms with high growth prospects (high market-to-book (*MTB*) ratio) face greater pressure to meet earnings targets (Skinner and Sloan, 2002).

The coefficients of interest in Eq. (3) are β_2 and β_3. $B_2+ \beta_3$ (β_2) measures the incremental change in unexpected accruals for the treatment (control) sample in the post-CF forecast period relative to the pre-CF forecast period. Therefore, β_3 is the incremental shift in unexpected accruals unique to treatment firms. Consistent with the prediction that the provision of cash flow forecast will deter both income-increasing and income-decreasing earnings management, β_3 and $\beta_2+ \beta_3$ are expected to be negative for positive and absolute values of unexpected accruals, and positive for negative unexpected accruals for the treatment sample. That is, the average magnitude of positive, negative and absolute value of unexpected accruals are expected to become smaller if the provision of cash flow forecasts constrains manager's opportunistic accruals manipulations.

3.2.3. Real earnings management estimation models

To test the prediction that firms exhibit greater evidence of managing earnings through real activities manipulation after the provision of cash flow forecasts, I follow the approach utilised in Roychowdhury (2006) and estimate normal cash flow from operations, discretionary expenses (advertising, R&D, and SG&A), and production costs.

First, normal cash flow from operations is expressed as a linear function of sales and change in sales in the current period. To estimate the model, I run the following cross-sectional regression for every industry and year:

$$CFO_t/A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1 (S_t/ A_{t-1}) + \beta_2 (\Delta S_t/A_{t-1}) + \varepsilon_t \quad (3)$$

where CFO_t is the net operating cash flow (ASPECT item #9100), A_t is the total assets (ASPECT item #5090) at the end of period t, S_t (ASPECT item # 7070) the sales during period t and $\Delta S_t = S_t - S_{t-1}$. For every firm-year, abnormal cash flow from operations is the actual CFO minus the ‘‘normal’’ CFO calculated using estimated coefficients from the corresponding industry-year model and the firm-year’s sales and lagged assets.

Following Roychowdhury (2006) the model for normal production cost is estimated from the following industry-year regression.

$$PROD_t / A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1(S_t/ A_{t-1}) + \beta_2 (\Delta S_t/A_{t-1}) + \beta_3 (\Delta S_{t-1}/A_{t-1}) + \varepsilon_t \quad (4)$$

where $PROD_t$ is equal to cost of goods sold (ASPECT item #2600) plus change in inventory (ASPECT item #5000), scaled by lagged total assets.

Under the simplifying assumptions in Roychowdhury (2006), discretionary expenses are expressed as a linear function of lagged sales. Hence, I estimate discretionary expenses using the following industry-year regression.

$$DISEXP_t / A_{t-1} = \alpha_0 + \alpha_1 (1/A_{t-1}) + \beta_1 (S_{t-1}/ A_{t-1}) + \varepsilon_t \quad (5)$$

where $DISEXP_t$ is equal to selling and administrative expense (ASPECT item #50+ ASPECT item #50) + research & development expense (ASPECT item #53) + capitalised

research & development costs (ASPECT item #459) + exploration expense (ASPECT item #51) + capitalised exploration cost(ASPECT item #458), scaled by lagged total assets.

Finally, given that the three individual metrics do not capture the total effects of real earnings management, I adopt the approach in Zang (2012) and Cohen and Zarowin (2010) by combining the three individual measures to compute two comprehensive metrics of real earnings management activities. For the first measure, *RAM1*, abnormal discretionary expenses (*ABNDISC*) is multiplied by negative one (so that the higher amount, the more likely it is that the firm is cutting discretionary expenses) and is then added to abnormal production costs (*ABNPROD)*. The higher the amount of this aggregate measure, the more likely the firm engaged in real earnings management activities.[27] For the second measure, *RAM2*, again consistent with Zang (2012) and Cohen and Zarowin (2010), abnormal cash flows from operations (*ABNCFO*) and abnormal discretionary expenses (*ABNDISC*) are both multiplied by negative one and they are then aggregated into one measure.

$$RAM1 = (ABNDISC^{*}\text{-}1) + ABNPROD \quad (6)$$

$$RAM2 = (ABNCFO^{*}\text{ -}1) + (ABNDISC^{*}\text{ -}1) \quad (7)$$

3.2.4. Linking changes in accruals management to real earnings management

To try and link changes in unexpected accruals following the provision of cash flow forecasts to increases in real earnings management, the following cross-sectional logit models are estimated for treatment and control firms separately.

$$Prob\ (CUTACCR_t = 1) = \alpha_0 + \beta_1 ABNDISC_t + \beta_2 ABNPROD_t + \beta_3 ABNCFO_t + \varepsilon_t \quad (8)$$

[27] As for RAM1, I multiply by negative one, so that the higher these amounts the more likely that the firm is engaging in sales manipulations and cutting discretionary expenditures to manage reported earnings upwards.

$$Prob\ (CUTACCR_t = 1) = \alpha_0 + \beta_1 RAM1_t + \varepsilon_t \quad (9)$$

$$Prob\ (CUTACCR_t = 1) = \alpha_0 + \beta_1 RAM2_t + \varepsilon_t \quad (10)$$

CUTACCR is a dummy variable equal to 1 if a firm reduces its average level of positive unexpected accruals from the pre-CF to the post-CF period. All other variables are as previously defined. These logit models are estimated using data from the post-CF period (after the issuance of cash flow forecasts). Treatment firms are expected to reduce their income-increasing abnormal accruals following the provision of cash flow forecasts and to have lower (more negative) abnormal discretionary expenditures and abnormal operating cash flows and higher abnormal production. Accordingly, β_1 and β_3 are expected to be negative and β_2 to be positive for treatment firms. For the aggregate measures in Eq. (9) and Eq. (10), β_1 are expected to be positive. The higher the amount of this aggregate measure, the more likely the firm engaged in real earnings management activities. No predictions are made for control firms.

3.2.5. Testing for shifts in benchmark beating

Finally, to test the prediction involving the incidence of benchmark beating following the provision of cash flow forecasts (H3), I adopt McInnis and Collins (2011) approach, by using a logistic regression to estimate the probability that a firm will meet or beat analysts' earnings expectations, given a vector of explanatory variables. The dependent variable, meet or beat (MEET), is a dummy variable equal to 1 if the firm's reported earnings equals or exceeds analysts' earnings forecasts (i.e., EPS surprise is zero or positive), and zero otherwise (i.e., EPS surprise is negative). EPS surprise is defined as actual earnings per I/B/E/S less the last available analyst forecast of earnings prior to the annual earnings

announcement date. The treatment and control samples are pooled together by estimating Eq. 11 below. The variables of interest are *POST_CF* and *POST_CF*TREAT*, where post-cash flow forecast period (POST_CF), is a dummy variable equal to 1 if the firm-year in question falls in the post-CF period, and zero otherwise. *POST_CF*TREAT* is an interaction term between post_CF firm year observations and treatment firms. In line with prior literature, a set of control variables are included (explained in more detail below) as covariates. Specifically I estimate:

$$Prob\ (MEET_t = 1) = \alpha + \beta_1 TREAT_t + \beta_2 POST\_CF_t + \beta_3 POST\_CF_t * TREAT_t + \beta_4 CFO_t + \beta_5 TACC_t + \beta_6 CAPINT_t + \beta_7 ALTMAN\_Z_t + \beta_8 SIZE_t + \beta_9 BLOAT_t + \beta_{10} SHARES_t + \beta_{11} MTB_t + \beta_{12} FOLLOW_t + \beta_{13} PMB_t + \beta_{14} REVDOWN_t + \beta_{15} WRITE_t + \beta_{16} LOSS_t + \beta_{17} EARNGROW_t + \varepsilon_t \quad (11)$$

Estimates from the above equation (Eq.11) enables the assessment of the effect of cash flow forecasts on the probability that a firm will meet or beat analysts' earnings forecasts (i.e., zero or positive forecast error) versus the alternative of missing analysts' forecasts (i.e., negative forecast error). H3 predicts that the coefficient on *POST_CF* and the *POST_CF*TREAT* will be negative for the treatment sample.

The vector of controls used in the regression includes variables designed to predict whether firms will meet or beat their earnings targets or variables that are known to be associated with the provision of cash flow forecasts. Cash flow from operations (CFO) is included because this is a variable that prior research (Phillips et al., 2003; Ayers et al., 2006) has utilized as a measure of performance to help explain why firms meet their earnings targets. This paper also includes four of the five economic determinants of cash flow forecast provision identified by DeFond and Hung (2003): (1) accruals (*TACC*), (2) capital intensity

(*CAPINT*), (3) Altman's Z-score (*ALTMAN_Z*) and (4) market value (*SIZE*)[28]. These controls are included to guard against the possibility that shifts in these variables may be correlated with firms' tendencies to meet or beat analysts' forecasts (*MEET*). Firms in poor financial condition are expected to have a harder time meeting earnings expectations relative to other firms. Thus, Altman's Z-score (*ALTMAN_Z*) is expected to have a positive loading. Prior research (Barton and Simko, 2002, Matsumoto, 2002) has shown that *SIZE* is positively related to meeting earnings targets, so I expect a positive loading on this variable.

In addition, additional control variables are included based on the findings of Barton and Simko (2002) that firms with 'bloated'' balance sheets (history of positive cumulative accruals) may be less able to manage accruals upward to meet current earnings targets. *BLOAT* is defined as net operating assets (essentially total assets less cash) scaled by sales. Firms with a large number of shares outstanding, all else equal, will have to engage in a larger dollar amount of earnings management to generate a one penny increase in EPS. As a corollary, both net assets bloat (*BLOAT*) and the average number of shares outstanding (*SHARES*) are included in Eq. (11) and expect the coefficients on these variables to be negative. Firms with high growth prospects (high market-to-book (*MTB*) ratio) face greater pressure to meet earnings targets (Skinner and Sloan, 2002) as do firms with a large analyst following (Barton and Simko, 2002). Therefore, *MTB* ratio and the number of analysts following a firm in a given year (*FOLLOW*) are both included in Eq. (11). Intuitively it is expected that the coefficients on *MTB* and *FOLLOW* to be positive.

[28] I exclude heterogeneity of accounting choices (CHOICE) as this is not applicable for Australian firms and also data is unavailable.

Moreover, Barton and Simko (2002) argue that firms that meet earnings targets in the prior period are more likely to do so in the current period, thus a dummy variable (*PMB*) is included in the model to capture this effect and expect this variable to be positively related to *MEET*. A dummy variable termed *REVDOWN* is created, to indicate whether analysts' forecasts have been revised downward during the year (Matsumoto (2002) and Bartov et al. (2002)). *REVDOWN* is equal to 1 if the last forecast of annual EPS prior to the announcement date is less than the first forecast for that year. Because expectations management is a mechanism for avoiding negative earnings surprises, one might expect *REVDOWN* to be positively related to *MEET*. However, downward revisions may also be a sign of bad news for the period and may actually be negatively related to *MEET* (Barton and Simko, 2002). Thus, no position on the direction of the sign of the coefficient is taken on this variable.

Finally, a primary concern when testing for shifts in benchmark beating over time is that shifts in performance before and after the provision of cash flow forecasts may explain firms' propensities to beat earnings targets. Given that both *CFO* and *TACC* are included in Eq. (11), the paper effectively controls for differences in *ROA*. As a precaution, the following performance- related dummy variables are added: *WRITEOFF*, equal to 1 if the firm had asset write downs during the year, and zero otherwise. *LOSS* is set equal to 1 if the firm incurred a loss for the year, and zero otherwise. *EARNGROW* is set equal to 1 if earnings this year grew from last year, and zero otherwise. It is expected that *WRITEOFF* and *LOSS* be negatively related to *MEET*, while a positive relation between *MEET* and *EARNGROW* is expected. In addition to the controls discussed above, year and industry dummy variables are included in Eq. (11) to control for the year and industry effects.

4. Results

4.1. Descriptive statistics

Table 2 presents means of selected variables used in our analysis for both the treatment and matched samples. Panel A presents means for the two samples in the pre-CF period, while Panel B presents means in the post-CF period. Panel C compares the changes in means from the pre-CF period to the post-CF across samples. Results of the pre-CF in Panel A show that treatment firms (with cash flow forecasts) are larger, financially stable (higher Altman Z score), and have smaller magnitude of accruals relative to the control sample. Firms with cash flow forecasts on average are characterized as having higher market-to-book, have high analyst following, achieve high incidence of loss avoidance, exhibit earnings growth relative to the control sample.

In Panel B, firms with cash flow forecasts, exhibit similar results to Panel A, except that they have higher operating cash flow and more shares outstanding relative to control firms in the post-CF period. In examining the relative changes from the pre to the post- CF period across samples in Panel C, I find that treatment firms show a relative increase in absolute abnormal accruals (*ABS_UACC*) after the provision of cash flow forecasts. Prima facie, this is inconsistent with H1 and contrary to McInnis and Collins (2011) study on U.S firms. Nevertheless I investigate this further in subsequent tests below.

4.2. Accruals test results

Table 3 presents estimates of the time series changes in the average magnitude of positive, negative, and the absolute value of unexpected accruals for my treatment and control samples. Significance tests are one-sided where predictions are offered, and are two sided

otherwise. As discussed earlier, $\beta_2 + \beta_3$ (β_2) measures the incremental change in unexpected accruals for the treatment (control) group in the post-CF period relative to the pre-CF period. As such, β_3 is the incremental shift in unexpected accruals of treatment firms. Therefore I expect coefficient estimates on β_3 and $\beta_2+\beta_3$ to be negative for positive and absolute unexpected accruals and positive for negative unexpected accruals. Results for positive unexpected accruals show that $\beta_2+\beta_3 = 0.00$ and insignificant at conventional test levels. This result indicates that the decline in income increasing accruals of treatment firms from pre-to post-CF period is not significantly different from the control group.

As conjectured earlier in the paper, the provision of cash flow forecasts may deter downward earnings management as well as upward earnings management. However, results do not provide evidence consistent with this conjecture. The average magnitude of income-decreasing unexpected accruals for treatment firms after the issuance of cash flow forecasts relative to before the provision of cash flow forecasts is $\beta_2+\beta_3 =0.016$,which is not significant at test levels. The temporal decline in the magnitude of negative unexpected accruals for control firms (β_2) and the difference in changes in income-decreasing abnormal accruals across samples (β_3) are not significantly different from zero.

Finally, Table 3 also presents results for the absolute value of unexpected accruals. There is insufficient evidence to suggest that treatment firms experience a decline in absolute unexpected accruals after the provision of cash flow forecasts. Overall, results in Table 3 show insufficient evidence that the provision of cash flow forecasts deters income-increasing earnings management by treatment firms. In similar vein, there is no evidence to suggest income-decreasing management. These results are in contrast to evidence on U.S. firms documented by McInnis and Collins (2011).

The vector of controls used in the regression includes variables that are known to be associated with unexpected accruals. As expected, *SIZE* is negatively related to unexpected accruals, whereas highly leveraged firms (*LEV*) tend to have a higher absolute value of unexpected accruals on average. Similarly, firms with high market to book (*MTB*) are consistent with high absolute levels of unexpected accruals. Firms with a large number of shares outstanding (*SHARES)*, have positive unexpected accruals and high absolute value of unexpected accruals on average.

4.3. Real activities management results

Table 4 presents results on test of H2, which predicts that the use of real activities management to increase earnings is likely to increase after the provision of cash flow forecasts. In Panel A, results on abnormal discretionary expenditures (*ABNDISC*) are more consistent with downwards earnings management. That is average abnormal discretionary expenditure increases (i.e. less negative) after the provision of cash flows among both our treatment and control samples. More so, is the differences across the two samples is significant at test levels. Similar results are documented for abnormal cash flows (*ABNCFO*) in Panel C.

In Panel B, I find a significant increase in average abnormal production cost (*ABNPROD*) among treatment firms (0.198 *t-stat*=6.51) after the provision of cash flow forecasts. In similar vein, abnormal production cost for control firms (0.124 *t-stat*=2.81) increase as well. The difference in the mean estimates between the treatment and control group is significant (0.074 *t-stat*=2.91) at the 1% levels across samples. However, it is important to note that although the mean estimates for both the treatment and control group have

increased from the pre-CF period to the post CF period, they are still negative. Therefore, this suggests that this not consistent with material real earnings manipulations.

Similar findings are derived when using aggregate real earnings management measures (*RAM1*-Panel D and *RAM2*- Panel E). That is, I find a significant increase in average aggregate real earnings management (*RAM1* and *RAM2*) among both treatment (0.255 *t-stat*=7.13, 0.493 *t-stat*=12.48) and control (0.188 *t-stat*=3.60, 0.304 *t-stat*=5.71) firms after the provision of cash flow forecasts. Again, results show that although mean estimates for both the treatment and control group have increased from the pre-CF period to the post CF period, they are still negative. Overall, the real activities tests in Table 4 do not yield sufficient evidence in support for H2.

4.4. Results linking changes in unexpected accruals to real earnings management

Table 5 presents additional tests on H2. In this section, I directly test whether treatment and control firms tradeoff real activities management for accruals management following the provision of cash flow forecasts. The results indicate that treatment firms that cut their positive unexpected accruals from the pre-to post-CF period do not have lower (higher) abnormal discretionary expenditure (abnormal production costs) that is significantly different from zero. For control firms, similar results is obtained, except that control firms that cut their positive unexpected accruals from the pre-to post-CF period do exhibit larger abnormal discretionary expenditures.

In Table 4, I find treatment firms that cut their positive unexpected accruals have higher abnormal cash flows in the post-CF period (*t-stat*=2.69). In part, this can be due to firms'

attempts to manage cash flows after the provision of cash forecasts or by firms' choices to cut costs not classified as discretionary in nature. Alternatively, given that there is a strong negative relationship between accruals and cash flows (see Dechow, 1994; Sloan, 1996; Dechow and Dichev, 2002) at the firm level, it is possible that the positive relation between declining accruals and higher abnormal cash flows could be driven by this effect. For aggregate measures of real earnings management, I do find similar results (i.e. *RAM2*), and this can be attributed to the increase in the magnitude of abnormal cash flows.[29] In sum, the results in Table 5 provide no conclusive evidence that treatment firms that cut positive unexpected accruals switch to real earnings management to achieve earnings benchmarks.

4.5. Benchmark beating results

Table 6 presents tests of H3- the prediction that the incidence of benchmark beating declines following the provision of cash flow forecasts. The treatment and control samples are pooled together by estimating the logistic model in Eq. (11). $\beta_2 + \beta_3$ (β_2) measures the incremental change in the probability of meeting or beating analyst forecasts for the treatment (control) sample in the post-CF forecast period relative to the pre-CF period. Therefore, β_3 is the incremental shift in meet or beat (*MEET*) probability unique to treatment firms. Essentially, I expect β_3 and $\beta_2 + \beta_3$ to be negative for the treatment sample.

β_3 is -0.074 and is not significantly different from zero, albeit in the right direction (i.e. negative). This indicates that there is a decline in the probability of meeting or beating analyst forecasts for treatment firms after the provision of cash flow forecasts. However, it is not significantly different from control firms. Similarly, for $\beta_2 + \beta_3$, the mean estimate, -0.315 is in the right direction (i.e. negative) but is not significantly different from zero.

[29] That is RAM2 = (ABNCFO*-1)+(ABNDISC*-1)

This suggests that the decline in the probability of meeting or beating forecasts by treatment firms is not significantly different in the pre and post-CF period. The loadings on the control variables are generally consistent with expectations across samples, except that *SIZE* is significant and negative in the opposite direction (i.e. negative).

In addition, the maintained hypothesis in these tests is that analysts do not purposely change their behaviour with respect to forecasting earnings in the post-CF period relative to the pre-CF period. To ensure that this holds true, I conduct a "micro-level" analysis on my meet-or-beat tests, similar to the tests reported in Table 5. This test ensures that my meet-or-beat results are due to changes in firm behaviour rather changes in analysts forecasting behaviour. Table 7 presents logistic results on the effects of alternative benchmark beating mechanisms (i.e., real earnings management) on meet-or-beat probability after the provision of cash flow forecasts. Essentially, I expect that firms that use this mechanism increase their likelihood of meeting or beating earnings targets after the provision of cash flow forecasts. I find that treatment firms with higher unexpected accruals have a higher probability of meeting earnings targets. However, I do not find consistent evidence to suggest that treatment firms that engage in real earnings manipulations have a higher probability of meeting earnings targets in the post-CF period.

In summary, results of the empirical tests generally do not yield evidence consistent with any reduction in earnings management as evidenced by unexpected accruals (i.e., H1), and does not yield consistent evidence of reduced earnings management through real activities (i.e., H2). I also fail to find evidence consistent with a decline in frequency of potential benchmark beating behaviour (i.e., H3). In H1, I do not find that treatment firms experience a significant decline in income increasing accruals (positive unexpected

accruals) after the provision of cash flows relative to the control sample. Results on H2 reveals mixed results, i.e. an increase in abnormal production costs after the provision of cash flow forecasts, and no evidence of cuts in discretionary expenditure and increased channel stuffing and excessive discounts. For H3, I do not find sufficient evidence that the probability of meeting or beating earnings targets declines after the provision of cash flows.

5. Robustness tests

5.1. Sensitivity to the data selection criteria

Using the strict matching criterion which is highlighted in the methodology section (i.e., section *3.2.1*) of this paper leads to loss of a substantial number of observations. To ensure that my results are not sensitive to this, I look at all treatment firms and compare them in the pre and post periods for all the main tests. For example, Eq. (2) is adjusted and re-estimated as follows:

$$UACC_t = \alpha + \beta_1 POST\_CF_t + \beta_2 ROA_t + \beta_3 SIZE_t + \beta_4 LEV_t + \beta_5 MTB_t + \beta_6 BLOAT_t + \beta_7 SHARES_t + \varepsilon_t \quad (12)$$

where both independent and dependent variables have been previously defined. For brevity purposes, I only report results on Eq. 12 (i.e., refined Eq. (2)).[30] Table 8 presents estimates of the time series changes in the average magnitude of positive, negative, and the absolute value of unexpected accruals for my treatment samples. In Eq. (12), β_1 measures the levels of unexpected accruals for the treatment group in the post-CF period relative to the pre-CF

[30] Un-tabulated results show similar outcome for other main tests for treatment firms over the pre and post-CF periods.

period. Results for positive unexpected accruals show that β_1 = 0.01 and insignificant at conventional test levels. This result indicates that the level of income increasing accruals of treatment firms is not significantly different in the pre-to post-CF period.

As conjectured earlier in the paper, the provision of cash flow forecasts may deter downward earnings management as well as upward earnings management. However, results do not provide evidence consistent with this conjecture. The average magnitude of income-decreasing unexpected accruals for treatment firms after the issuance of cash flow forecasts relative to before the provision of cash flow forecasts is β_1 =0.017,which is not significant at test levels.

Finally, Table 8 also presents results for the absolute value of unexpected accruals. There is insufficient evidence to suggest that treatment firms experience a decline in absolute unexpected accruals after the provision of cash flow forecasts. Overall, results in Table 8 show insufficient evidence that the provision of cash flow forecasts deters income-increasing earnings management by treatment firms. In similar vein, there is no evidence to suggest income-decreasing management. These results are consistent with the results highlighted earlier in the main tests. The results on the vector of controls used in the regression are also consistent with the main tests. That is, *SIZE* is negatively related to absolute unexpected accruals, whereas highly leveraged firms (*LEV*) tend to have a higher absolute value of unexpected accruals and negative unexpected accruals on average. Firms with high market to book (*MTB*) are consistent with high absolute levels of unexpected accruals. Whereas, firms with a large number of shares outstanding (*SHARES)*, have positive high absolute value of unexpected accruals on average.

5.2. Definition of the post-CF period

In the main tests, I excluded the year of the initial cash flow because it may not have an effect on what firms do. That is, they may not have a clear warning that analysts would do be playing a monitoring role. To mitigate this issue and also to move my experimental designs closer to McInnis and Collins (2011), I instead change the definition of the post-CF period to be the year of the first cash flow forecast and the following year. I then re-run all the main tests using this criteria. I only report results for Eq. (2), i.e., time series changes in the average magnitude of positive, negative, and the absolute value of unexpected accruals for my treatment and control samples.[31]

Table 9 presents estimates of the time series changes in the average magnitude of positive, negative, and the absolute value of unexpected accruals for my treatment and control samples. . As discussed earlier, $\beta_2+\beta_3$ (β_2) measures the incremental change in unexpected accruals for the treatment (control) group in the post-CF period relative to the pre-CF period. As such, β_3 is the incremental shift in unexpected accruals of treatment firms. Results for positive unexpected accruals show that $\beta_2+\beta_3$ = 0.01 and insignificant at conventional test levels. This result is consistent with the results in the main tests and indicates that the decline in income increasing accruals of treatment firms from pre-to post-CF period is not significantly different from the control group.

For tests on downward earnings management, results do not provide evidence consistent with this conjecture. The average magnitude of income-decreasing unexpected accruals for treatment firms after the issuance of cash flow forecasts relative to before the provision of cash flow forecasts is $\beta_2+\beta_3$ =0.001,which is not significant at test levels. The temporal

[31] Un-tabulated results for other tests are consistent with results documented in the main results section of this paper.

decline in the magnitude of negative unexpected accruals for control firms (β_2) and the difference in changes in income-decreasing abnormal accruals across samples (β_3) are not significantly different from zero.

Finally, Table 3 also presents results for the absolute value of unexpected accruals. There is insufficient evidence to suggest that treatment firms experience a decline in absolute unexpected accruals after the provision of cash flow forecasts. Overall, results in Table 9 show insufficient evidence that the provision of cash flow forecasts deters income-increasing earnings management by treatment firms. In similar vein, there is no evidence to suggest income-decreasing management. These results are consistent with the results highlighted earlier in the main tests. Likewise, results on the vector of controls used in the regression are also consistent with the main tests.

5.3. Other sensitivity tests

I run a variety of additional robustness checks to ensure the consistency of my main results. First, I investigate whether my results are sensitive to the adoption of IFRS by Australian firms. The time frame which the dissemination of cash flow forecasts increased in prevalence is marked concurrently with some unique development and changes in the Australian financial and capital market environment. A unique event in the corporate environment in Australia was the mandatory adoption of International Financial Reporting Standards (IFRS) in year 2005 by Australian firms, which was seen as a major event in the Australian capital market. The questions of interest in this period were whether analysts benefitted from IFRS adoption and to what extent did this impact on forecasts accuracy of

analysts. As a corollary, I re-run the main tests and include an indicator variable, *IFRS*, as an additional independent variable in Eq. (2).

For brevity, I only report results for tests on the modified Eq. (2) on Table10.[32] For the coefficient on β_7 (*IFRS***TREAT*), I find insufficient evidence of income increasing accruals for treatment firms after the adoption of IFRS relative to the matched control sample. However, coefficient on β_6 (*IFRS*) is significant and positive for both income increasing accruals and absolute value of accruals, and negative for income decreasing accruals. This suggests that post adoption of IFRS, firms engaged in income increasing accruals and had higher absolute accruals relative to pre-adoption of IFRS. Results on other variables are consistent with the main results shown in Table 3. Overall, I find that my non-results are robust to competing explanations. Specifically, my results are not driven by the change in the reporting environment (i.e., IFRS adoption).

6. Conclusion

Analysts are widely viewed as leaders in communicating the implications of complex financial information to investors and also sophisticated information intermediaries who improve market efficiency. To this end, there are papers that suggest that sell side analysts provide a monitoring mechanism on firm's accounting. For example, McInnis and Collins (2011), argue that the provision of cash flow forecasts by sell-side analysts leads to a reduction in the level of firm's accruals manipulations and the probability of firms to meet or beat earnings targets. However there is a lot of evidence that this is unlikely to be the case. For example, Bradshaw et al. (2001) argue that analysts themselves do not

[32] Untabulated results for other tests where IFRS is included is consistent with the main results.

understand the difference between accruals and cash flows. Recently, Keskek and Tse (2013), show that the decline in the accrual anomaly is not associated with what analysts do. Specifically, they find no evidence to suggest that analysts initiated the disappearance of the anomaly by issuing forecasts that a free of accrual related bias. Collectively, these studies point to the fact that it is a bit of a stretch to see from their results, that analysts are likely to discipline what is likely to be relatively subtle earnings management choices.

Given this natural tension in the literature, this paper investigates whether analysts, as sophisticated information intermediaries, do play a monitoring role in firm's reporting behaviour. Specifically, by examining whether the provision of cash flow forecasts by analysts impair the earnings management and benchmark beating behaviour of Australian firms. In contrast to recent studies (McInnis and Collins 2011; Call et al. 2000; Mohanram 2011) who highlight the disciplining implication of analyst cash flow forecasts on accruals and benchmark beating behaviour, I find no improvement in accrual quality after the release of cash flow information by analysts across our sample period.

In H1, I examine whether management is less likely to resort to accrual manipulation following the initial provision of cash flow forecasts by analysts'. I find no evidence to suggest that treatment firms experience a significant decline in income increasing accruals (positive unexpected accruals) after the provision of cash flows forecasts. For H2, I examine whether managers in an effort to achieve earnings benchmarks are likely to shift to real activities management as the cost of managing earnings via accruals becomes high in the presence of cash flow forecasts. Results on H2 reveals mixed results, i.e. an increase in abnormal production costs after the provision of cash flow forecasts, and no evidence of cuts in discretionary expenditure and increased channel stuffing and excessive discounts.

H3 predicts that by reducing accrual manipulations, the provision of cash flow forecasts will reduce the likelihood that firms will meet or beat earnings targets. I find insufficient evidence to suggest that the probability of meeting or beating earnings targets declines after the provision of cash flows. In addition, the main results documented in this paper (i.e., non-results) are uniformly robust to alternative explanations. Overall, my results add to the existing literature (e.g. Bradshaw et al. 2001; Lehavy 2009; Keskek and Tse 2013) that challenge the view that analysts are leaders in communicating the implications of complex financial information to investors.

The empirical analyses in this paper are subject to standard caveats regarding sample selection and endogeneity. While my industry and size matching procedure and difference-in-difference design helps alleviate some of these issues, there is a possibility that my findings are being driven by omitted variables and sample selection. I therefore acknowledge that some caution is warranted in interpreting these results.

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Figures and Tables

Table1: Descriptive analysis of all Australian firms with one-year ahead earnings forecasts contained in IBES from 1993-2011

	Total firms	Total observations	Observations per year								
			1993	**1994**	**1995**	**1996**	**1997**	**1998**	**1999**	**2000**	**2001**
Number of earnings forecasts											
With cash flow forecasts	1360	7332	5	160	218	245	274	349	349	405	470
Without cash flow forecasts	173	1507	197	92	106	69	55	39	37	46	42
Total	1533	8839	202	252	324	314	329	388	386	451	512
Proportion of earnings forecasts											
With Cash flow forecasts	88.71%	82.95%	2.48%	63.49%	67.28%	78.03%	83.28%	89.95%	90.41%	89.80%	91.80%
Without cash flow forecasts	11.29%	17.05%	97.52%	36.51%	32.72%	21.97%	16.72%	10.05%	9.59%	10.20%	8.20%
Total	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100.00%
			2002	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Number of earnings forecasts											
With cash flow forecasts			475	392	411	440	500	559	556	501	501	522
Without cash flow forecasts			41	111	81	85	81	71	96	105	93	60
Total			516	503	492	525	581	630	652	606	594	582
Proportion of earnings forecasts											
With Cash flow forecasts			92.05%	77.93%	83.54%	83.81%	86.06%	88.73%	85.28%	82.67%	84.34%	89.69%
Without cash flow forecasts			7.95%	22.07%	16.46%	16.19%	13.94%	11.27%	14.72%	17.33%	15.66%	10.31%
			100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

Panel B: Distribution of number and proportion of firms with cash flow forecasts, by industry groups[a]

Industry group	Number of firms		
	Total	*With* cash flow forecasts	Proportion of firms *With* cash flow forecasts (%)
Consumer Discretionary	148	140	94.59%
Consumer Staples	52	48	92.31%
Energy	133	112	84.21%
Financials & Real Estate	206	193	93.69%
Health Care	93	85	91.40%
Industrials	183	173	94.54%
Information Technology	72	66	91.67%
Materials	324	285	87.96%
Telecommunication Services	24	23	95.83%
Utilities	29	27	93.10%
Total firms with industry information	1264	1152	91.14%
Add: Firms with missing industry information	269		
Total firms	1533		

[a] Industry groups as per Standard and Poors Sector classification.

Figure 1: Sample distribution of matched initial cash flow forecasts for Australian firms from 1993-2009

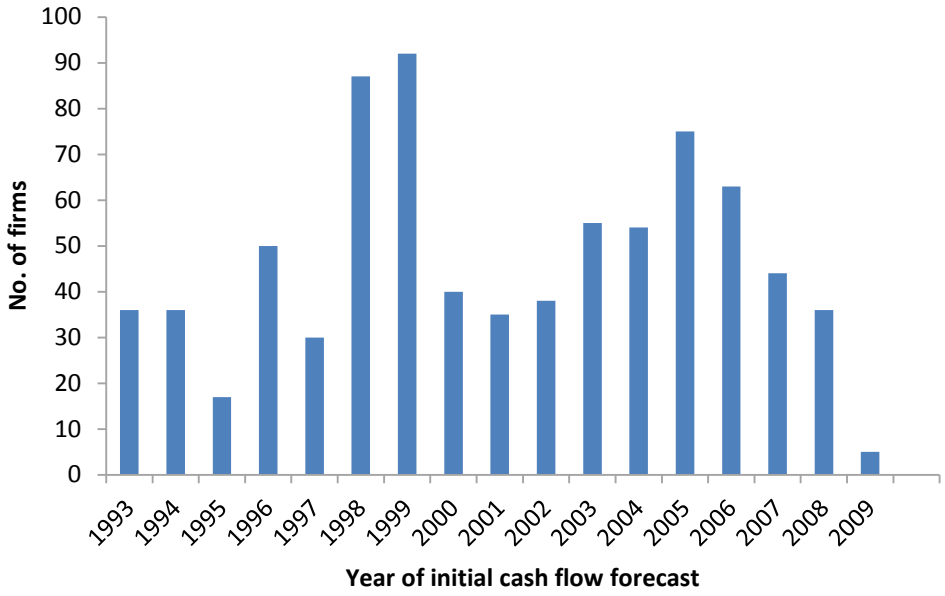

Table 2: Means of selected variables for firms with cash flow forecasts (treatment) and without cash flow forecasts (control)

Variable	Treatment	Control	Diff	*t*-stat
Panel A: Pre-cash flow forecast period				
CF Forecast determinants				
SIZE	17.925	16.959	0.966	12.50***
CAPINT	1.529	1.945	-0.416	-0.93
ACC	-0.288	-0.162	-0.126	-7.07***
ALTZ	-2.706	-3.400	0.694	1.85*
Other variables				
CFO	-0.392	-0.261	-0.131	-4.85***
MEET	0.550	0.429	0.121	1.08
MTB	2.228	1.933	0.294	2.10**
BLOAT	-7.226	-3.785	-3.441	-2.23**
SHARES	16.880	16.552	0.328	1.58
FOLLOW	6.051	2.944	3.106	2.32**
PMB	0.283	0.191	0.093	1.01
REVDOWN	0.578	0.611	-0.033	-0.28
WRITEOFF	0.179	0.179	0.000	0.02
LOSS	0.340	0.523	-0.183	-9.06***
EARNGROW	0.568	0.506	0.062	2.78***
ABS_UACC	0.041	0.050	-0.009	-2.11**
Panel B: Post-cash flow forecast period				
CF forecast determinants				
SIZE	18.859	17.383	1.477	15.91***
CAPINT	1.915	1.964	-0.049	-0.08
ACC	-0.049	-0.066	0.017	1.51
ALTZ	-0.987	-3.214	2.227	4.84***
Other variables				
CFO	0.024	-0.061	0.084	5.69***
MEET	0.456	0.333	0.123	1.04
MTB	2.609	1.691	0.919	5.45***
BLOAT	2.502	-2.264	4.766	-2.05**
SHARES	18.482	18.016	0.466	3.10***
FOLLOW	3.566	2.882	0.684	0.77
PMB	0.408	0.333	0.075	0.64
REVDOWN	0.597	0.412	0.185	1.54
WRITEOFF	0.213	0.252	-0.039	-1.64
LOSS	0.311	0.611	-0.300	-11.20***
EARNGROW	0.440	0.591	-0.151	5.35***
ABS_UACC	0.057	0.059	0.003	-0.46
Panel C: Changes from pre to post-cash flow forecast period				
CF forecast determinants				
SIZE	0.934	0.424	0.510	8.87***
CAPINT	0.386	0.019	0.367	1.03
ACC	0.239	0.096	0.143	14.20***

ALTZ	1.720	0.186	1.534	5.43***
Other variables				
CFO	0.415	0.200	0.215	14.63***
MEET	-0.094	-0.095	0.001	0.05
MTB	0.382	-0.243	0.625	5.97***
BLOAT	9.728	1.521	8.207	6.17***
SHARES	1.603	1.465	0.138	1.12
FOLLOW	-2.485	-0.062	-2.423	-7.24***
PMB	0.125	0.143	-0.018	-0.59
REVDOWN	0.019	-0.199	0.218	6.71***
WRITEOFF	0.034	0.073	-0.039	-2.87***
LOSS	-0.029	0.089	-0.118	-7.37***
EARNGROW	-0.128	0.085	-0.213	-12.39***
ABS_UACC	0.016	0.009	0.007	2.00**

This table provides mean values of selected variables in the cash flow forecast (''treatment'') and non-cash flow forecast (''control'') samples. For the treatment sample, I select all annual EPS forecasts for Australian firms on the I/B/E/S detail file from 1993 to 2011, and retain observations with available data in ASPECT. For each firm with a cash flow forecast in my sample, I identify the first year in which analysts start forecasting cash flows (the ''initial'' year). I then select all available observations for each firm up to two years prior to this initial year. These observations comprise our "pre" sub-sample. I also select all available observations up to two years subsequent to this initial year for each firm, with the requirement that cash flow forecasts exist in these subsequent years. Observations for the initial and subsequent years for each firm comprise our ''post'' sub-sample. To construct my control sample, I do the following. For each ''initial'' firm-year in my treatment sample described above, I select a matching firm (without a cash flow forecast) in the same year that has the closest size and industry matching. I then look up to two years forward and back to construct pseudo ''pre'' and ''post'' periods for each control firm. This process yields a control sample with ''pre'' and ''post'' periods that have a similar dispersion in calendar time to the periods in my treatment sample. Continuous variables have been winsorized at the 1st and 99th percentile of the distributions. See Appendix 1 for variable definitions and measurements.

Table 3: Time series changes in average unexpected accruals of Australian Firms

$UACC_t = \alpha + \beta_1 TREAT_t + \beta_2 POST\_CF_t + \beta_3 POST\_CF_t * TREAT_t + \beta_4 ROA_t + \beta_5 ROA_t * TREAT_t + \beta_6 MTB_t + \beta_7 LEV_t + \beta_8 SIZE_t + \beta_9 BLOAT_t + \beta_{10} SHARES_t + \varepsilon_t$

	Dep. variable: positive unexpected accruals			**Dep. variable: negative unexpected accruals**			**Dep. variable: abs. value of unexpected accruals**		
	Pred.sign	Est.	*t*-stat	Pred.sign	Est.	*t*-stat	Pred.sign	Est.	*t*-stat
α Intercept	?	0.047	2.63***	?	-0.738	9.82***	?	0.069	2.89***
β_1 Treat	?	-0.001	-0.27**	?	0.012	0.67	?	0.002	0.36
β_2 POST_CF	?	-0.005	-1.08	?	0.029	1.34	?	-0.001	-0.10
β_3 POST_CF*Treat	-	0.006	1.00	+	-0.013	-0.47	?	0.002	0.27
β_4 ROA	?	0.028	4.86***	?	0.005	0.21	?	-0.005	-0.65
β_5 ROA*Treat	?	-0.003	-1.98**	?	0.084	2.96***	?	0.015	1.69*
β_6 MTB	+	0.001	1.57	-	0.002	0.88	?	0.003	5.21***
β_7 LEV	+	0.009	1.50	-	0.259	10.86***	?	0.056	7.39**
β_8 SIZE	-	-0.002	-2.68***	?	-0.005	-1.40	?	-0.005	-4.27***
β_9BLOAT	-	0.001	5.52**	+	0.001	5.92***	?	0.001	6.08**
β_{10} SHARES	+	0.001	2.41**	-	-0.001	-0.30	?	0.002	3.59***
Test: $\beta_2 + \beta_3 = 0$	-	0.001	0.83	+	0.016	0.30	-	0.001	0.74

This table presents differences in the average levels of positive, negative, and absolute unexpected accruals. Unexpected accruals are the residuals from the following regression (estimated by industry and year): $Accruals_t = \alpha + \beta_1((1+k)\Delta Sales_t - \Delta Receivables_t) + \beta_2 PPE_t + \beta_3 Accruals_{t-1} + \beta_4 SalesGrowth_t + \varepsilon_t$. *Treat* is an indicator variable set to 1 if the observation belongs to the treatment sample, *POST_CF* is an indicator variable set to 1 if an observation belongs to the "post" period in either sample, *ROA* is income before extraordinary items scaled by lagged total assets,. All tests are two sided, where directional differences are predicted. See appendix 1 for other variable definitions and measurements.

*,**,*** indicates significance at 10%,5%, and 1% levels

Table 4: Changes in real activities management after the issuance of cash flow forecasts

	Treatment			Control		
	Pre	Post	Diff	Pre	Post	Diff
Panel A:						
Abnormal discretionary expenditures(ABNDISC)						
Mean	-0.244	-0.108	0.136	-0.222	-0.013	0.097
t-stat	-16.95	-7.64	6.18***	-13.06	-6.39	3.57***
	Treatment change-Control change			0.039		
	t-stat			2.33**		
Panel B:						
Abnormal production(ABNPROD)						
Mean	-1.042	-0.844	0.198	-0.974	-0.850	0.124
t-stat	-1.55	-1.02	6.51***	-1.12	-1.50	2.81**
	Treatment change-Control change			0.074		
	t-stat			2.91***		
Panel C:						
Abnormal cash flows(ABNCFO)						
Mean	-0.453	-0.164	0.289	-0.344	-0.209	0.135
t-stat	-29.01	-10.10	11.94***	-17.29	-9.53	4.29***
	Treatment change-Control change			0.153		
	t-stat			8.08***		
Panel D:						
Aggregate real earnings management measure 1 (RAM1)						
Mean	-1.417	-1.161	0.255	-1.332	-1.144	0.188
t-stat	-72.64	-35.51	7.13***	-40.35	-10.19	3.60***
	Treatment change-Control Change			0.068		
	t-stat			2.25**		
Panel E:						
Aggregate real earnings management measure 2 (RAM2)						
Mean	-0.831	-0.338	0.493	-0.611	-0.307	0.304
t-stat	-32.34	-13.11	12.48***	-18.28	-2.59	5.71***
	Treatment change-Control change			0.189		
	t-stat			5.98***		

Estimates of real activities management are obtained following Roychowdury (2006). Abnormal discretionary expenditures are estimated as the residuals from a regression by industry and year, of R&D, advertising, selling and administration expenses on current sales. Abnormal production is estimated as the residual from a regression, by industry and year, of COGS plus the change in inventory on current sales and current and lagged changes in sales. Abnormal cash flows is estimated as the residual from a regression, by industry and year, of current and lagged sales. All variables are scaled by lagged total assets. Refer to Roychowdury (2006) for further estimation details.

*,**,*** indicates significance at 10%,5%, and 1% levels

Table 5: Cross-sectional relation between cuts in unexpected accruals and alternative benchmark beating mechanisms

$Prob(CUTACRR_t=1) = \alpha + \beta_1 ABNDISC_t + \beta_2 ABNPROD_t + \beta_3 ABNCFO_t + \varepsilon_t$

Panel A: Individual measures of Real Earnings Management

	Treatment			Control		
	Pred. Sign	Est.	*t*-stat	Pred. Sign	Est.	*t*-stat
Intercept	?	-0.174	-0.93	?	0.217	0.88
ABNDISC	-	0.605	0.78	?	2.993	2.49**
ABNPROD	+	0.017	0.09	?	0.011	0.04
ABNCFO	-	1.888	2.69***	?	1.025	1.3

Panel B: Aggregate Measure 1 of Real Earnings Management

$Prob(CUTACRR_t=1) = \alpha + \beta_1 RAM1_t + \varepsilon_t$

	Treatment			Control		
	Pred. Sign	Est.	*t*-stat	Pred. Sign	Est.	*t*-stat
Intercept	?	-0.132	-0.73	?	0.159	0.74
RAM1	+	-0.006	-0.04	?	0.093	0.51

Panel C: Aggregate Measure 2 of Real Earnings Management

$Prob(CUTACRR_t=1) = \alpha + \beta_1 RAM2_t + \varepsilon_t$

	Treatment			Control		
	Pred. Sign	Est.	*t*-stat	Pred. Sign	Est.	*t*-stat
Intercept	?	-0.156	-1.29	?	0.188	1.15
RAM2	+	-1.384	-2.38**	?	-2.095	-2.59***

In Panel A, CUTACRR1 is a dummy variable equal to 1 if a firm cut its average level of **positive** unexpected accruals from the pre to the post period (see Table 2). Abnormal discretionary expenditures (ABNDISC), abnormal production (ABNPROD), and abnormal cash flows (ABNCFO) are defined in table 4 and Appendix 1. Panels B and C are aggregate measures of real earnings management, RAM1 and RAM2 respectively and are defined in Appendix 1. Following McInnis and Collins (2011), the regression is estimated cross-sectionally among treatment and control firms in the post_CF period. Standard errors are clustered by firm.

*,**,*** indicates significance at 10%,5%, and 1% levels

Table 6: Time-series effect of the issuance of cash flow forecasts on the probability of meeting or beating analysts' earnings forecasts

$Prob(MEET_t=1) = \alpha + \beta_1 Treat_t + \beta_2 Post\_CF_t + \beta_3 Post\_CF_t * Treat_t + \beta_4 CFO_t + \beta_5 TACC_t + \beta_6 CAPINT_t + \beta_7 ALTMAN\_Z_t + \beta_8 SIZE_t + \beta_9 BLOAT_t + \beta_{10} SHARES_t + \beta_{11} MTB_t + \beta_{12} FOLLOW_t + \beta_{13} PMB_t + \beta_{14} REVDOWN_t + \beta_{15} WRITE_t + \beta_{16} LOSS_t + \beta_{17} EARN\_GROW_t + \varepsilon_t$

	PredSign	Coefficient	*t*-stat
Variables of interest			
Treat	?	0.247	0.54
Post_CF	-	-0.241	-0.71
Post_CF*Treat	-	-0.074	-0.09
Control variables			
CFO	+	0.247	0.71
TACC	+	0.293	0.65
CAPINT	?	-0.001	-0.06
ALTMAN_Z	+	0.042	2.70***
SIZE	+	-0.101	-1.58*
BLOAT	-	0.001	0.55
SHARES	-	0.004	0.21
MTB	+	-0.025	-0.91
FOLLOW	+	0.072	2.85***
PMB	+	-0.038	-0.27
REVDOWN	?	0.172	1.16
WRITE	-	-0.342	-2.13**
LOSS	-	-0.831	-3.70***
EARN_GROW	+	0.484	3.02***
		Coefficient	*P-value*
Test: $\beta_2 + \beta_3 = 0$	-	-0.315	0.63
Industry & Year dummies		Included	

The logit regression is estimated using both my treatment and control samples together (see Table 2 for sample construction). Treat is an indicator variable set to 1 if an observation comes from the treatment sample and zero otherwise, Post_CF is an indicator variable set to 1 if an observation comes from the post_CF forecast period in either sample, and zero otherwise. To avoid potential autocorrelation problems in the data, I estimate a logistic regression with clustered standard error by firm. Results are quantitatively similar when using a standard logistic regression. All significance levels are based on one-tailed probabilities if a directional prediction is offered, and are based on two trailed probabilities otherwise. All other variables are defined in Appendix 1.

*,**,*** indicates significance at 10%,5%, and 1% levels

Table 7 Effects of alternative benchmark beating mechanisms on meet-or-beat probability

Panel A:

$Prob\ (\text{MEET}_t = 1) = \alpha + \beta_1 UACC_t + \beta_2 ABNDISC_t + \beta_3 ABNPROD_t + \beta_4 ABNCFO_t + \varepsilon_t$

Variables	Pred Sign	Parameter Est.	*t-stat*
Intercept		-0.680	-3.73***
UACC	+	5.221	3.23***
ABNDISC	-	-1.621	-1.55*
ABNPROD	?	0.099	1.02
ABNCFO	+	0.656	0.90

Panel B:

$Prob\ (\text{MEET}_t = 1) = \alpha + \beta_1 UACC_t + \beta_2 RAM1_t + \varepsilon_t$

Variables	Pred Sign	Parameter Est.	*t-stat*
Intercept	?	-0.634	-3.61***
UACC	+	5.053	3.21***
RAM1	+	0.156	1.43*

Panel C:

$Prob\ (\text{MEET}_t = 1) = \alpha + \beta_1 UACC_t + \beta_2 RAM2_t + \varepsilon_t$

Variables	Pred Sign	Parameter Est.	*t-stat*
Intercept	?	-0.176	-2.00**
UACC	+	1.460	1.87**
RAM2	+	0.169	1.29*

The regression is estimated among treatment firms in the post period (after the issuance of cash flow forecasts). Following McInnis and Collins (2011), I cluster standard errors by firms to avoid potential autocorrelation problems. However similar results are derived when using standard logistic regression. All significance levels are based on one-tailed probabilities if a directional prediction is offered, and are based on two trailed probabilities otherwise

*,**,*** indicates significance at 10%,5%, and 1% levels

Table 8: Time series changes in average unexpected accruals of Treatment Firms (Robustness test 1)

$UACC_t = \alpha + \beta_1 POST\_CF_t + \beta_2 ROA_t + \beta_3 SIZE_t + \beta_4 LEV_t + \beta_5 MTB_t + \beta_6 BLOAT_t + \beta_7 SHARES_t + \varepsilon_t$

	Dep. variable: positive unexpected accruals			**Dep. variable: negative unexpected accruals**			**Dep. variable: abs. value of unexpected accruals**		
	Pred.sign	Est.	*t*-stat	Pred.sign	Est.	*t*-stat	Pred.sign	Est.	*t*-stat
α Intercept	?	0.037	1.72*	?	-0.738	-7.85***	?	0.082	2.82***
β_1 POST_CF	?	0.001	0.22	?	0.017	1.04	?	0.003	0.51
β_2 ROA	?	0.015	4.22***	?	0.089	5.85***	?	0.011	2.39**
β_3 SIZE	-	-0.001	-1.30	?	-0.004	-0.87	?	-0.005	-3.42***
β_4 LEV	?	-0.001	-0.20	?	0.212	6.67***	?	0.039	3.97***
β_5 MTB	+	0.001	2.16**	?	-0.001	-0.19	?	0.004	5.93***
β_6 BLOAT	+	0.002	5.22***	+	0.001	3.28***	?	0.001	5.77***
β_7 SHARES	+	0.001	1.35	-	0.001	0.19	?	0.003	2.26***

This table presents differences in the average levels of positive, negative, and absolute unexpected accruals. Unexpected accruals are the residuals from the following regression (estimated by industry and year): $Accruals_t = \alpha + \beta_1((1+k)\Delta Sales_t - \Delta Receivables_t) + \beta_2 PPE_t + \beta_3 Accruals_{t-1} + \beta_4 SalesGrowth_t + \varepsilon_t$. *Treat* is an indicator variable set to 1 if the observation belongs to the treatment sample, *POST_CF* is an indicator variable set to 1 if an observation belongs to the "post" period in either sample, *ROA* is income before extraordinary items scaled by lagged total assets,. All tests are two sided, where directional differences are predicted. See appendix 1 for other variable definitions and measurements.

*,**,*** indicates significance at 10%,5%, and 1% levels

Table 9: Time series changes in average unexpected accruals of Australian Firms (Robustness test 2)

$UACC_t = \alpha + \beta_1 TREAT_t + \beta_2 POST\_CF_t + \beta_3 POST\_CF_t * TREAT_t + \beta_4 ROA_t + \beta_5 ROA_t * TREAT_t + \beta_6 SIZE_t + \beta_7 LEV_t + \beta_8 MTB_t + \beta_9 BLOAT_t + \beta_{10} SHARES_t + \varepsilon_t$

	Dep. variable: positive unexpected accruals			**Dep. variable: negative unexpected accruals**			**Dep. variable: abs. value of unexpected accruals**		
	Pred.sign	Est.	*t*-stat	Pred.sign	Est.	*t*-stat	Pred.sign	Est.	*t*-stat
α Intercept	?	0.055	3.72***	?	-0.807	-12.38***	?	0.087	4.25***
β_1 Treat	?	-0.001	-0.04	?	0.005	0.30	?	0.003	0.54
β_2 POST_CF	?	-0.004	-0.88	?	0.019	0.89	?	0.002	0.22
β_3 POST_CF*Treat	-	0.005	0.90	+	-0.018	-0.74	?	-0.001	-0.14
β_4 ROA	?	0.021	4.57***	?	0.009	0.48	?	-0.001	-0.12
β_5 ROA*Treat	?	-0.008	-1.56	?	0.055	2.41***	?	0.007	1.06
β_6 SIZE	+	-0.003	-3.34***	-	-0.001	-0.38	?	-0.006	-5.20***
β_7 LEV	+	0.008	1.75*	-	0.231	11.19***	?	0.050	7.74***
β_8 MTB	+	0.001	1.93*	?	-0.001	-0.94	?	0.003	5.77***
β_9BLOAT	+	0.001	7.67***	+	0.001	8.89***	?	0.001	9.41***
β_{10} SHARES	+	0.001	1.94*	-	-0.001	0.13	?	0.002	3.57***
Test: $\beta_2 + \beta_3 = 0$	-	0.001	0.77	+	0.001	0.96	-	0.001	0.93

This table presents differences in the average levels of positive, negative, and absolute unexpected accruals. Unexpected accruals are the residuals from the following regression (estimated by industry and year): $Accruals_t = \alpha + \beta_1((1+k)\Delta Sales_t - \Delta Receivables_t) + \beta_2 PPE_t + \beta_3 Accruals_{t-1} + \beta_4 SalesGrowth_t + \varepsilon_t$. *Treat* is an indicator variable set to 1 if the observation belongs to the treatment sample, *POST_CF* is an indicator variable set to 1 if an observation belongs to the "post" period in either sample, *ROA* is income before extraordinary items scaled by lagged total assets,. All tests are two sided, where directional differences are predicted. See appendix 1 for other variable definitions and measurements.

*,**,*** indicates significance at 10%,5%, and 1% levels

Table 10 : Time series changes in average unexpected accruals of Australian Firms (Robustness test 3)

$UACC_t = \alpha + \beta_1 TREAT_t + \beta_2 POST\_CF_t + \beta_3 POST\_CF_t * TREAT_t + \beta_4 ROA_t + \beta_5 ROA_t * TREAT_t + \beta_6 IFRS_t + \beta_7 IFRS_t * TREAT_t + \beta_8 MTB_t + \beta_9 LEV_t + \beta_{10} SIZE_t + \beta_{11} BLOAT_t + \beta_{12} SHARES_t + \varepsilon_t$

	Dep. variable: positive unexpected accruals			**Dep. variable: negative unexpected accruals**			**Dep. variable: abs. value of unexpected accruals**		
	Pred.sign	Est.	*t*-stat	Pred.sign	Est.	*t*-stat	Pred.sign	Est.	*t*-stat
α Intercept	?	0.046	2.56***	?	-0.738	9.74***	?	0.069	2.83***
β_1 Treat	?	-0.001	-0.09	?	0.003	0.15	?	0.004	0.58
β_2 POST_CF	?	-0.007	-1.40	?	0.042	1.94*	?	-0.003	-0.41
β_3 POST_CF*Treat	-	0.006	0.98	+	-0.014	-0.52	?	0.002	0.30
β_4 ROA	?	0.028	4.91***	?	0.002	0.10	?	-0.004	-0.59
β_5 ROA*Treat	?	-0.013	-1.87*	?	0.080	2.82***	?	0.016	1.76*
β_6 IFRS	?	0.012	2.35**	?	-0.092	-4.28***	?	0.015	2.20**
β_7 IFRS*Treat	?	-0.001	-0.09	?	0.016	0.61	?	-0.003	-0.35
B_8 MTB	+	0.001	1.19	-	0.003	1.49	?	0.003	4.88***
B_9 LEV	+	0.012	2.03**	-	0.238	9.90***	?	0.006	7.77***
β_{10} SIZE	-	-0.002	-2.46**	+	-0.007	-1.72*	?	-0.005	-4.10***
β_{11}BLOAT	-	0.001	5.50***	+	0.001	5.99***	?	0.001	6.07***
β_{12} SHARES	+	0.001	1.76*	-	0.002	0.75	?	0.002	3.01***
Test: $\beta_2 + \beta_3 = 0$	-	-0.001	-0.81	+	0.028	0.08	-	-0.001	0.97

This table presents differences in the average levels of positive, negative, and absolute unexpected accruals. Unexpected accruals are the residuals from the following regression (estimated by industry and year): $Accruals_t = \alpha + \beta_1((1+k)\Delta Sales_t - \Delta Receivables_t) + \beta_2 PPE_t + \beta_3 Accruals_{t-1} + \beta_4 SalesGrowth_t + \varepsilon_t$. *Treat* is an indicator variable set to 1 if the observation belongs to the treatment sample, *POST_CF* is an indicator variable set to 1 if an observation belongs to the "post" period in either sample, *ROA* is income before extraordinary items scaled by lagged total assets,. All tests are two sided, where directional differences are predicted. See appendix 1 for other variable definitions and measurements.

*,**,*** indicates significance at 10%,5%, and 1% levels

Appendix 1: Variable Definitions

Unexpected Accruals	UACC	from forward looking modified-Jones model;
Abnormal Cash Flows	ABNCFO	see Roychowdury (2006) for estimation details;
Abnormal Discretionary Expenditure	ABNDISC	see Roychowdury (2006) for estimation details;
Abnormal Production	ABNPROD	see Roychowdury (2006) for estimation details;
Absolute Unexpected Accruals	ABS_UACC	Absolute value of unexpected accruals;
Total Accruals	TACC	Total Accruals is calculated as income before extraordinary items (Aspect#8020) less Operating cash flow (Aspect #9100) less, scaled by lagged total assets;
Altman Z-score	ALTMAN_Z	Following Altman (1968), the *Z*-score equals 1.2(Net working capital[Aspect#5020-Aspect#6010]/Total assets[Aspect#5090])+1.4(Retained earnings[Aspect#7005]/Total assets)+3.3(EBIT[Aspect#8012]/Total assets)+0.6(market value of equity[Aspect#9500* Price]/book value of liabilities[Aspect#7010])+1.0(Sales[Aspect#7070]/Total assets);
Net Asset Bloat	BLOAT	Defined as lagged value of book equity (Aspect #7010) plus debt (Aspect#6000 + Aspect#6020),minus cash (Aspect#4990), scaled by sales (Aspect#7070);
Capital Intensity	CAPINT	Gross PPE (Aspect#5030) divided by total net sales (Aspect#7070);
Cash Flow from Operations	CFO	Net Cash flow from Operations (Aspect#9100);
Cut Accruals	CUTACRR	Equal to 1 if a treatment firms reduces its average level of positive UACC in the POST-CF period;
Earnings Growth	EARNGROW	Dummy variable set to 1 if change in income (Aspect#8020) is positive and zero otherwise;
Analyst Following	FOLLOW	Number of individual analyst per I/B/E/S issuing earnings forecast;
Loss Incidence	LOSS	Dummy variable set to 1 if income (Aspect#8020) is negative and 0 otherwise;
Meet or Beat	MEET	1 if the observation is on the "meet" side of the earnings distribution and 0 otherwise. Earnings surprise are measured as the difference between reported EPS on I/B/E/S and the last available forecast in I/B/E/S;
Market to Book	MTB	Market value of equity (Aspect#9500*Price) divided by book value of equity (Aspect #7010);
Prior Meet or Beat	PMB	1 if the firm year in question reported a positive earnings surprise in the previous year and 0 otherwise;
Post Cash Flow Forecast	POST_CF	Equal to 1 if an observation is in or after the first year of cash flow provision. For control firms, this variable is measured in reference to the matching treatment firm;
Downward Revision	REVDOWN	1 if the last available forecast of current EPS per I/B/E/S was less than the first forecast of current year EPS and 0 otherwise;
Return on Assets	ROA	Income before extraordinary items (Aspect#8020) divided by lagged total assets (Aspect#5090);
# of Shares O/S	SHARES	# of shares used to calculate EPS (Aspect # 9500);

Size	SIZE	LOG of Total Assets (Aspect # 5090);
Treatment	REAT	Equal to 1 if a firm has a cash flow forecast and 0 otherwise;
Asset Write-off	WRITE	This is a dummy variable set to 1 if special items (Aspect#8025) is negative and zero otherwise;
IFRS	IFRS	Equal to 1 if the firm year in question is >= 2005 and 0 otherwise;
Aggregate Real Earnings Management measure 1	RAM1	Following Zang (2006), RAM1 is calculated as (ABNDISC*-1) + ABNPROD;
Aggregate Real Earnings Management measure 2	RAM2	Following Zang (2006), RAM2 is calculated as (ABNCFO*-1) + (ABNDISC*-1);
Financial Leverage	LEV	1 minus [book value of equity (Aspect #7010) divided by Total Assets (Aspect # 5090)];