Investor reaction to accounting misstatements under IFRS: Australian evidence

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April 2018

Keywords: misstatement news; investor reaction; stealth misstatements

JEL descriptors: M41, M42, M51

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We thank the workshop participants at the Budapest Business School, LaTrobe University, the University Tunku Abdul Rahman, Sabancı University, Victoria University of Wellington, the 2016 AFAANZ Conference - Gold Coast, the 2017 EBES conference - Budapest, and the Editor, Deputy Editor and two anonymous reviewers for their comments. We also thank Elnur Aliyev, A. Doruk Gunaydin, Saad Hasan, Jingwen Hu, Maria Naveed, Sumair Saleem and Syed Zaidi for research assistance and The Chinese University of Hong Kong and Sabancı University for providing research funding. Any errors are ours alone.

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Abstract

We examine the investor reaction to misstatement news for Australian listed firms from 2006 to 2013. We find 4.1% of firm-years have a misstatement and 79% of misstatements are disclosed initially only in the periodic filings (stealth misstatements). We find no investor reaction for the average misstatement, reactions of between -2.3% and -2.8% (-1.5% and -1.7%) for misstatements that reduce prior-period earnings or equity (affect revenue), and reactions of between -1.3% and -2.7% for non-stealth misstatements. Investor reactions are more negative for non-stealth misstatements that reduce prior-period earnings or equity than to stealth misstatements.

1. Introduction

In recent years, research on the causes and economic consequences of misstatements of financial reports has assumed significant importance, evidenced by more than 150 studies undertaken in the U.S. (Karpoff *et* al., 2017). News of a misstatement signals that an issued financial report was unreliable. The economic consequences of misstatements are often costly for the firms and their investors, resulting in negative investor reactions at the announcement date and thereafter (Anderson and Yohn, 2002; Files *et* al., 2014)[2]. While there are many U.S. studies, international research on misstatements is rare. In a review of academic research on misstatements, Sellars (2013) notes that most studies use U.S. data, and he calls for extending this research to an international context to understand the causes of and reactions to misstatements in other countries. A broader view is required because firms have become more global and regulators are working to harmonize accounting practices across the world (Sellars, 2013, p.13). In the meantime, the Australian Securities and Investments Commission (ASIC) expressed concern about the financial reporting quality of Australian firms. Beginning from July 1 2014, the ASIC reintroduced a policy that requires firms to make public announcements when they make material changes to information previously provided to the market to improve "…the level of market transparency" (ACCI media release 2016-205MR)[3]. In response to the 2015 audit inspection review, the ASIC found that auditors did not get reasonable assurance that the accounts were free of material misstatement in 19% of audit areas. We examine for the first time, the investor reaction to misstatement news for Australian listed firms, and in so doing, provide new information on the quality of Australian financial reporting.

Shared institutional features in the common-law-based corporate-regulatory systems in Australia and the U.S. suggests that investor reactions to new accounting information could be similar for the two countries. However, other reasons suggest that the reactions might not be similar. First, unlike in the U.S. (where a firm must lodge a Form 8-K within four days of determining that prior accounts cannot be relied upon), there is no specific requirement in Australia to disclose the intention to restate accounts.

[2] Anderson and Yohn (2002) identified other negative consequences including increased cost of capital, litigation, and regulatory enforcements, as well as auditor resignations, executive turnover, reduced investor confidence.

[3] This media release is available at: http://asic.gov.au/about-asic/media-centre/find-a-media-release/2016-releases/16-205mr-asic-review-of-31-december-2015-financial-reports/

Australian firms decide to announce separately misstatement news to the market considering the continuous disclosure provisions of the Australian Securities Exchange (ASX) and the *Corporations Act* 2001. Our data show that Australian firms are usually not forthcoming in this regard. Second, the Australian stock market has a much lower level of institutional ownership than the U.S. (Fereira and Matos, 2008) and it is comprised of smaller firms with fewer analysts following them. Third, the litigation risk in Australia is lower than in the U.S. (Morabito, 2010) and the probability of being sued accounts for approximately half of the investor reaction to misstatement announcements in the U.S. (Bardos *et* al., 2013). These types of reasons could have prompted Sellars (2013) to call for research using non-U.S. data. How investors react to Australian misstatement news is an important and unexplored empirical question.

Recently, Karpoff *et* al. (2017) expressed concern about the extent of investor reactions reported in prior studies because commercially available databases fail to capture important news dates and events for some misstatement cases[4]. Karpoff *et* al. (2017) argue that U.S. studies using the AAER, GAO, Audit Analytics and SCAC databases underestimated the stock market's reaction to misstatement news and they estimate that the mean one-day investor reaction using their hand-collected data is more than double the reaction using the dates from these databases.[5] Our sample construction method, detailed in Appendix 1, seeks to capture unbiasedly the investor reactions to misstatement news, and provide the most accurate measure possible of the wealth effects of misstatements.

From 2006 to 2013, we find a total of 704 firm-years with a misstatement, corresponding to 4.1% of all listed firm-years. The percentage of misstatements that change prior-period earnings or equity is about 60, and the median of the percentage corrections to earnings (equity) is -4.9% (-1.3%). Due to outliers, means are also negative and much larger than the medians. More than 78% of misstatements are disclosed only in the periodic filings, that is, the half-year and annual reports. In the year a firm made

[4] Karpoff *et* al. (2017) highlight four areas of concerns. First, the initial public revelations of financial misconduct occur months before the initial coverage in these databases. Second, these databases collect just one type of event, so they omit other relevant announcements that affect a researcher's use of the events. Third, most of the events captured by these databases are unrelated to financial fraud. Fourth, the databases miss large numbers of events that they were designed to capture.

[5] Using only data from the databases results in underestimates of the mean investor reaction by between 56% and 73% (Karpoff *et* al., 2017). The underestimates using median returns are larger for each of the databases.

an accounting error leading to the misstatement, it was younger, more likely to be audited by a non-Big 4 audit firm or by a small audit office, to have an unclean audit opinion, to be in a technology industry and less likely to be in an extractive industry, compared to other firms. Univariate tests show stock price reactions of -1.5% (-2.3% and -2.5%) for misstatements that change (reduce) prior-period earnings or equity. We also document price reactions between -5.4% and -5.8% for misstatements attributable to fraud, and between -1.3% and -2.7% for non-stealth misstatements, consistent with U.S. studies (Files *et* al., 2009; Scholz, 2013; Adams *et* al., 2015). Multivariate tests show negative (positive) reactions for misstatements that reduce earnings or equity and those that affect revenue (stealth misstatements) with similar magnitudes to the results obtained from univariate tests. Negative reactions to misstatement corrections that reduce earnings or equity are larger for non-stealth disclosures than for stealth ones, consistent with U.S. studies (Files *et* al., 2009 and Myers *et* al., 2013). However, we find no such relations for revenue or core expense corrections. Overall, investor reaction to Australian misstatement news is weaker than in the U.S. but stronger than in China, where a very weak reaction has been reported (Wang and Wu, 2011). Additional tests suggest that the disclosure of more serious misstatement corrections on the same date as the announcement of earnings could contribute to the weaker results. When significant, our results are broadly consistent with U.S. studies, suggesting that investors regard some Australian misstatement news as valuable.

This paper makes three contributions to the misstatements literature. First, we show that in Australia, the investor reaction to misstatement news is weak and negative both for revenue corrections and for corrections that reduce earnings or equity. These results are consistent with a lower-litigation environment, less salient misstatement disclosure rules and lower institutional ownership than in the U.S. where reactions are generally stronger. They are also consistent with a stronger financial reporting regime than in China where reactions are weaker. We show that the negative investor reactions for corrections that reduce earnings or equity are larger for disclosures that are more salient. We also show that disclosure of large negative corrections to earnings and corrections to core expenses and revenues are more likely to be on an earnings announcement date, than other corrections. These findings suggest that if disclosure of misstatements is more salient the market could be better informed. Second, we

provide evidence that appears inconsistent with the proper functioning of the continuous disclosure rules because the proportion of salient disclosures of prior-period errors is only 21%, which seems low for such an important corporate event. Finally, we show that accounting misstatements are a good proxy for financial reporting quality in Australia because misstatement errors are associated with established measures of accounting quality proxies in the expected directions. By documenting misstatement incidence using a comprehensive and rigorous data collection method, we are informing the ASIC of the extent of this type of financial reporting quality in Australia.

In the next section, we develop hypotheses for the relations between types of misstatement news and stock returns. Section 3 describes the sample data and descriptive statistics followed by coverage of the research methodology. Empirical results from univariate and multivariate tests are presented in Section 4. Section 5 concludes.

2. Australian GAAP for Misstatements, Literature Review and Hypotheses

2.1 Australian GAAP for Misstatements

Since the introduction of IFRS, a material, prior-period error should be recognized in the comparatives or the opening balances of assets, liabilities or equity for the prior period, if practicable.[6] An accounting standard amendment from 2009 requires firms to disclose a balance sheet at the beginning of the earliest comparative period when it makes a prior-period adjustment (AASB 101, para 10f). In contrast, U.S. GAAP requires all prior periods to be restated. Due to the absence of the "if practicable" condition from U.S. GAAP, misstatement severity is measured more accurately using U.S. data because Australian firms can use the impracticality argument to avoid disclosure of the effects of the error(s) on prior years. Consistent with this contention, the mean number of years restated is 1.1 in our sample (see Table 2, Panel C), compared to 1.7 in the U.S. (see Scholz, 2013, Table 4, p.12).

Under Australian GAAP, the nature of the error, the line items affected by the correction of the error, the amount of the correction at the start of the earliest period corrected and the change to earnings per share must be disclosed (AASB 108, para 49). As noted, Australia has no other specific disclosure

[6] AASB 1004 *Accounting Policies, Changes in Accounting Estimates and Errors* paragraph 42 – 45.

requirement for misstatements. Instead, the requirement to disclose a misstatement can be caught by the Australian Stock Exchange (ASX) Listing Rule 3.1 (continuous disclosure rule): "Once an entity is or becomes aware of any information concerning it that a reasonable person would expect to have a material effect on the price or value of the entity's securities, the entity must immediately tell ASX that information."[7] In contrast, in the U.S., *Final Rule: Additional Form 8-K Disclosure Requirements and Acceleration of Filing Date* requires a firm to lodge a Form 8-K within four days of determining that prior accounts cannot be relied upon.[8]

2.2 Literature Review

Almost all studies examining investor reactions to misstatement news use U.S. data (Sellars, 2013) and they find negative reactions.[9] Anderson and Yohn (2002) report returns of -3.8% around misstatement news, and the most significant negative reaction is for misstatements attributable to fraud (-12.8%) followed by revenue-recognition issues (-7.9%). Owers *et* al. (2002) examine nine categories of misstatements and find that the most negative investor reactions are attributable to accounting issues such as errors and irregularities. Palmrose *et* al. (2004) report an investor reaction to misstatement announcements of -9% and that more negative abnormal returns are associated with more negative misstatements that involve fraud, that decrease earnings and for which the misstatement is not quantified. Hribar and Jenkins (2004) also report an announcement of cumulative abnormal returns (CARs) of -9% and conclude that misstatements reduce perceived earnings quality and increase the cost of capital. Agrawal and Chandha (2005) report returns of -4.2% for their full sample and find that core earnings corrections generate returns that are 4% more negative than non-core earnings corrections. Desai *et* al. (2006) report CARs of -11.1% and state that revenue corrections generate the largest negative reaction, followed by corrections for improper cost recognition.

Recent U.S. studies report less negative CARs perhaps because there are fewer misstatements of revenue and core expenses in recent years (Scholz, 2013). Scholz (2013) reports that over the decade from 2003

[7] Section 674 of the *Corporations Act* makes Listing Rule 3.1 legally binding for listed firms.
[8] Available at https://www.sec.gov/rules/final/33-8400.htm.
[9] Studies using long return windows spanning several months also document market value declines associated with misstatements. See for example, Kinney and McDaniel (1989) and Wallace (2000) for U.S. evidence and Ahmed and Goodwin (2007) for Australian evidence.

to 2012, the average stock price reaction to misstatements in the U.S. is -1.5% (median of -0.01%), but she still finds more negative reactions to misstatements involving fraud, revenue and negative earnings corrections. For the period from 2002 to 2008, Files *et* al. (2014) find CARs of between -1.3% and -1.6% for repeat misstatements. For the 12-year period prior to 2011, Adams *et* al. (2015) report CARs of -0.6% for U.S. real estate investment trusts of and -1.6% for non-REITs around misstatement announcements. To the best of our knowledge, Wang and Wu (2011) is the only non-U.S. study that examines investor reaction to misstatement news. They examine China, a country with similar accounting for misstatements to Australia. They find very weak evidence of a negative reaction and they attribute their results to the inefficiencies of the Chinese market mechanisms (e.g., low-litigation environment and low demand for high-quality auditors), misstatement behaviours of Chinese firms and lower reliance of Chinese investors on accounting data.

Recent U.S. also studies examine the differential investor reaction to various types of salience of misstatement disclosure (Files *et* al. 2009; Myers *et* al. 2013; Scholz 2013).[10] Theory differs as to whether disclosure salience should affect investor reactions. According to the efficient markets hypothesis (EMH), stock prices respond promptly and fully to all publicly available information (Fama, 1970), and it should not matter if misstatement news is disclosed prominently in a press release or less prominently in the notes to the financial statements for example. The EMH ignores investors' abilities to process information, and it assumes that the average investor is rational. The limited attention theory (LAT) argues that when humans devote attention to a particular task, the attention we can devote to other tasks is reduced because of limits in our ability to process information and perform multiple tasks simultaneously (Kahneman, 1973). LAT predicts that the average investor will not process a piece of information as efficiently when it is released at the same time as other information than when that piece of information is released at another time. Files *et* al. (2009) examine disclosure salience when managers exercise considerable discretion over how they announce an accounting misstatement in a press release. Some firms issue a press release that discloses the misstatement in the headline (high salience). Others

[10] Misstatements not only negatively affect shareholder wealth of the restating firms but also adversely affect the wealth of non-restating firms within the same industry (Gleason *et* al., 2008).

provide a press release with a headline on a different subject but describe the misstatement in the body of the release (medium salience). The remaining firms discuss the misstatement at the end of the press release in a footnote to operating results (low salience). They find that three-day returns differ substantially across the three categories of disclosure salience, averaging -8.3%, -4.0%, and -1.5% for high, medium, and low salience, respectively. Files *et* al. (2009) use the LAT to explain their findings, arguing that managers in high-salience firms either seek to lower the firm's cost of capital or are naïve to the stock price consequence of their disclosures. Myers *et* al. (2013) find a similar result to Files *et* al. (2009) by examining all misstatements disclosures rather than only press releases. Myers *et* al. (2013) report that 22% of U.S. firms in their sample disclose the misstatements only in the notes to the accounts and the announcement CARs of these firms are 1.6% higher (less negative) than those firms that highlight the misstatement via a press release. Scholz (2013) also finds that misstatements disclosed more saliently are associated with more negative investor reactions.

2.3 Hypotheses

Investors revise their expectations of a U.S. firm's present value of future net cash flows downward when it announces a misstatement. The changes in their beliefs presumably occur because misstatements increase uncertainty about the quality of a firm's internal control system or its management (Hribar and Jenkins, 2004), signal lower future earnings levels or earnings quality (Anderson and Yohn, 2002; Palmrose and Scholz, 2004) or indicate that the firm faces a higher litigation risk in the future (Bardos *et* al., 2013). Australia is a market-oriented country with a legal system based in common law, strong institutions and a diverse shareholder base similar to the U.S. Thus, financial reporting quality should be higher than in countries such as China, where accounting quality is lower (Ball *et* al., 2003; Fan and Wong, 2002; Wang and Wu, 2011). Consequently, one expects timely releases of misstatement news by Australian firms and prompt processing of them by Australian market participants. In Australia, news of an error in audited financial reports should surprise market participants and investor reactions to that news should be closer to those in the U.S. rather than to those in China, where reactions are negligible (Wang and Wu, 2011).

However, differences in accounting disclosure rules, stock market composition and characteristics, levels of litigiousness and nature of the misstatement errors between Australia and the U.S. could attenuate investor reactions to Australian misstatement news. Approximately 79% of Australian firms (see Table 2, Panel B) disclose misstatement news only in their periodic filings. In contrast, this rate is 22% in the U.S. in recent years (Myers *et* al., 2013). Prior studies report that the investor reaction to misstatement news disclosed only in periodic filings is weaker than when the news is disclosed separately. Furthermore, in Australia, to avoid the requirement to restate several prior years, firms can argue that it would be impracticable to restate prior-period accounts, an option not available to U.S. firms. This suggests that misstatement details such as trends in earnings are made clearer under U.S. GAAP. Table 2, Panel C shows that the mean number of corrected years is 1.1, whereas the analogous figure is 1.7 in the U.S. (Scholz, 2013), which is consistent with Australian firms relying on the impracticable "get-out" clause. This impracticability clause also applies to China (Wang and Wu, 2011). Lower-quality misstatement disclosures could increase uncertainty among investors, resulting in more mixed reactions among them. For these reasons, one expects a weaker investor reaction to misstatement news in Australia than in the U.S.

There are important differences in stock markets' abilities to impound information across developed economies. For instance, Griffin *et* al. (2011) find large differences in investors' response to news announcements across developed countries, primarily caused by differences in insider trading and information dissemination in those countries. The extent to which stock prices impound information is positively related to the level of institutional ownership. This result is observed not only in the U.S. but also in Japan (Luo *et* al., 2014) and Australia (Gallagher *et* al., 2013). Since Australia's stock market composition differs markedly from that of the U.S. with respect to levels of institutional ownership (Fereira and Matos, 2008) and average firm size, the average level of information dissemination (insider trading) could be lower (higher) in Australia. Furthermore, Australia has a much smaller market than the U.S. with fewer actors such as analysts participating in trading, and 'hidden' information may take longer for the market to discover. For these reasons, weaker reactions to misstatement news can be expected for Australia. Finally, despite an increase in shareholder class action lawsuits in Australia in

recent years (Legg, 2008), this increase has been modest and Australia remains a lower-litigation environment than the U.S. (Morabito, 2010; Murphy, 2013). Approximately half of the magnitude of the investor reaction to U.S. misstatements is explained by litigation risk (Bardos *et* al., 2013). Thus, weaker investor reactions than in the U.S. can be expected to the extent that the results of Bardos *et* al. (2013) also apply in Australia.

With respect to the types of accounting issues associated with misstatements, Australia has a much higher proportion of note-disclosures than the U.S. Note-disclosures make up 21% of our sample (see *FNOTEDIR* in Table 2, Panel A) whereas Scholz (2013) reports about 3% for the U.S. over a similar period. Common among these notes are corrections in the directors' remuneration note, which we do not expect to impact investors' expectations of the firm's earnings. Misclassifications in the cash-flow statement, income statement and balance sheet have little effect on future earnings, and these issues comprise approximately 26% of all misstatements (see *CFMISS, ISMISSEPS, DEQMISS* and *ASSETMISS* in Table 2, Panel A). There are about 21% of these types of misclassifications in the U.S. according to Scholz (2013). About 33% (17%) of Australian misstatements negatively (positively) affect prior-period earnings and the median change to those earnings is about -14% (14%) (untabulated). Scholz (2013) reports that about 53% (14%) of misstatements negatively (positively) affect prior-period U.S. firms' earnings and the median change in earnings is about -15% (14%). The percentage of negative earnings corrections is much lower in Australia than in the U.S., suggesting a weaker investor reaction in Australia. Differences in the types of accounting issues also suggest a weaker investor reaction in Australia than in the U.S. We are unable to make a directional prediction for the average misstatement, so our first hypothesis is:

H1: There is no relation between misstatement news and abnormal stock returns.

Our next set of hypotheses concerns differential investor reactions to partitions of misstatement corrections. Since the average misstatement seems to cause downward revisions in the firm's future earnings (Hribar and Jenkins, 2004), one expects some accounting issues associated with misstatements to be weaker signals for the firm's future earnings. The market could view corrections to recognised numbers positively or negatively, depending on whether earnings or equity is increased or decreased.

Thus, our first partition is for misstatement corrections that change earnings or equity and other corrections and the hypothesis is in the null form:

H2A: There is no difference between the CARs of misstatement corrections that change prior-period earnings or equity and other misstatement corrections.

One expects investors to regard downward earnings corrections more negatively than upward ones. We expect a differential reaction in Australia because accounting quality is high, unlike in China (Wang and Wu, 2011). However, as in China, Australian firms are not required to restate earnings before the start of the comparative year if that is impracticable. Following Wang and Wu (2011), to ensure that we capture all prior-period earnings corrections, we also examine equity corrections. Moreover, to ensure that the directional effect of the correction is unambiguous, in this analysis, we exclude cases where either earnings or equity takes the opposite sign. For example, we exclude a correction that reduces (increases) prior-period earnings and increases (reduces) prior-period equity from this analysis.

H2B: Misstatement corrections that reduce prior-period earnings or equity have lower CARs than misstatement corrections that increase prior-period earnings or equity.

Investors react more strongly to permanent income components than to one-time items (Elliott and Hanna, 1996). Prior U.S. research finds that negative earnings corrections and those affecting revenue and core earnings have lower CARs than other recognized misstatements (Anderson and Yohn, 2002; Palmrose *et* al., 2004; Scholz, 2008, 2013). Since corrections to revenue and core expenses can be upward or downward and since Australia has important differences in its litigation level, institutional ownership and size composition that could diminish the impact of misstatements, our next hypothesis is in the null form:

H2C: There is no difference between the CARs for misstatement corrections that change revenue or core expenses and other misstatement corrections.

Our final hypothesis concerns the level of salience of misstatement disclosure. The theory of investors' limited attention (Hirschleifer and Teoh, 2003) predicts a positive relation between the disclosure saliency of misstatement disclosures and the absolute magnitude of the investor reaction to their

announcements. As noted, most Australian misstatements are only disclosed in the firms' periodic filings. Files *et* al. (2009) and Scholz (2013) find that non-stealth misstatements have more negative CARs than stealth misstatements in the U.S. Conversely, if markets are efficient, there should be no difference in the investor reaction for stealth and non-stealth disclosures. Since we have no directional expectation, our third hypothesis is as follows:

H3: There is no difference in investor reaction to stealth misstatements versus non-stealth misstatements.

3. Empirical Tests

3.1 Sample selection

A misstatement is defined as a "difference between the amount, classification, presentation, or disclosure of a reported financial report item and the amount, classification, presentation, or disclosure that is required for the item to be in accordance with the applicable financial reporting framework. Misstatements can arise from error or fraud." (ASA200, para 13.4(i)). In the interest of consistency with Australian auditing standards, we use this definition to identify a misstatement for inclusion in our dataset. Prior U.S. studies report negative investor reactions to misstatement news (Palmrose *et* al., 2004; Adams *et* al., 2015) and differential investor reactions to misstatement characteristics, such as whether a correction affects core or non-core earnings (Palmrose *et* al., 2004; Scholz, 2013). Due to the absence of an Australian classification of misstatement data and for comparability, we follow key U.S. studies for our classification scheme of misstatement issues in our tests.

We hand-collect our data from all publicly available potential sources of misstatements, namely, the websites of the Australian Stock Exchange (ASX), the Australian Securities and Investments Commission (ASIC), and the Australian Financial Review. Additionally, we complement our data collection using a Factiva search. Appendix 1 shows the details of the sample-collection method. Our final sample comprises 704 firm-years (540 different firms) for the period 2006-2013, within which 415 firms had one misstatement, 97 had two, 18 had three, 9 had four and 1 had five (untabulated).[11] Our

[11] In our sample, the percentage of firms that are repeat misstaters is 23, which is lower than the 38% reported in Files *et* al. (2009) for their sample of U.S. firms for the 7-year period prior to 2008.

sample percentage, which is 4.1% of all listed firm-years, is quite close to the 4% reported by ASIC for the period from 2010 to 2015 (16-205MR ASIC review of 31 December 2015 financial reports).

Table 1 about here

Table 1 shows the descriptive statistics. Panel A shows that the number of misstatements increased monotonically from 63 in 2006 to 122 in 2009 and then decreased monotonically thereafter to 65 in 2013. Increases in the number of listed firms do not explain this trend because the percentages of listed firms with misstatements also increased monotonically from 3.8 in 2006 to 6.3 in 2009. Although it is outside the scope of this paper to explain these trends, the 2007 uptick could be due to the identification of GAAP differences by scrutinizing prior-period accounting practices around the initial use of IFRS. The continued upticks through 2009 could be due to the impending introduction of the amendments to the accounting standard, AASB101. More specifically, for fiscal years beginning 1 January 2009, the new AASB101 requires a third balance sheet for the earliest restated period to be prepared, seemingly causing some firms to re-evaluate their accounting policies. To avoid this costly requirement, a firm can restate on June 30, 2009. Changes in the state of the economy may also explain the trends, especially for the years leading to the global financial crisis.[12] There are 607 (546) error years from 2006 to 2013 (2006 to 2011) or 4.1% (4.9%) of firm fiscal years. The Error Years variable's statistics are understated the most for the 2013 year, because that is the most recent year for which we collected data and the mean reporting lag is 1.2 years (see Table 2, Panel C).[13] We show the earliest error year in the two columns at the far right of Panel A of Table 1, that is, only one error year for each misstatement year. In our examination of misstating firms' characteristics set forth below, we use the earliest error year to identify the firms because 70 of the sample firms have more than one error year for a misstatement year. In that examination, we use only the data through 2011 to ensure that the majority of errors are within the period used for our analyses, following prior studies (Francis *et* al. 2013). Panel B of Table 1 shows

[12] We thank an anonymous reviewer for this suggestion. Xu *et* al. (2011) find similar upward trends in going concern reporting.

[13] We do not tabulate error years before 2006 because Australian GAAP was different then and we have not gathered data for all prior error years indicating that the error year numbers will be understated. The error year frequencies prior to 2006 are in parentheses: 2005 (65), 2004 (25), 2003 (3), 2002 (4), 2001 (3) and 1998 (1).

the percentage of misstating firms by industry.[14] The percentages are generally in line with the overall industry percentages, except for the Basic Resources industry, which is under-represented in our sample compared to its weight in the Australian market, and the Industrial Goods & Services, Retail, Technology industries, which are overrepresented in our sample compared to their weights in the Australian market.

Table 2 Panel A shows frequencies of the accounting issues underlying misstatements. In the absence of an Australian classification scheme, we use Scholz's (2013) scheme for U.S. firms, modified for Australian GAAP. The accounting issues' variable names and definitions appear in Appendix 2. We include corrections for misstatements of upward noncurrent asset revaluations (17 observations) in the *INVESTING* category. U.S. GAAP does not allow these revaluations. As in Scholz (2013), the percentages of misstatements do not total 100 because a misstatement case can have more than one accounting issue. The most common accounting issue involves corrections to footnotes (including segment notes) or Directors' Reports (denoted *FNOTEDIR*), at 20.6% of total misstatements. In contrast, Scholz (2013) reports a percentage of 3% for footnote-disclosure issues. Much of this difference in percentages is likely attributable to our inclusion of corrections to the Directors' Report (which became more common after 2008) within our dataset. The second most-common issue is tax-related corrections (*TAX*) at 15.3%, followed by revenue-recognition corrections (*REV*) at 13.1%.

Table 2, Panel B shows that the initial disclosure of the error occurs within the half-year and financial-year report filings for 625 (89%) misstatement years, but only 70 of them are accompanied by a separate announcement highlighting the misstatement, such as a press release or an ASX announcement. Thus, for 555 of our misstatement years, or 79% of our sample, misstatement errors are disclosed initially within the periodic filings. We use the term 'stealth misstatement' to describe such errors. Untabulated statistics show that there are 356 (85%) corrections that change earnings or equity that are stealth misstatements, whereas there are 199 (70%) corrections that do not change earnings or equity that are stealth misstatements. The difference is statistically significant, with a *Chi-square* statistic equal to 23.8

[14] We use Datastream industry classifications.

(p<0.01). Since corrections that change recognized information are regarded as more severe than corrections that do not change recognized information (Anderson and Yohn, 2002; Palmrose *et* al., 2004), this evidence is consistent with less disclosure saliency for more severe misstatements, and supports the ASIC's recent concerns about financial reporting quality.

Table 2 about here

Panel C of Table 2 shows descriptive statistics of the misstatement variables. *MISSTATEMENTLAG* is the number of years from the misstatement year to the earliest year of an error. We find that the earliest error year is 1.2 years before the misstatement year, on average. The maximum statistic shows that the earliest error year is at most seven years before a firm's misstatement year. Similar to Hirschey *et* al. (2015), we measure disclosure timeliness (Error lag) by the number of days from the lodging of the most recent incorrect audited financial report to the earliest date of disclosing the error. Error Lag is equal to one day when an ASX announcement about the error occurs on the same day as the lodgement of the incorrect financial report. The table shows that the mean (median) of the error lag is approximately 228 (239) days and the 20th percentile is 120 days (untabulated), indicating that misstatement disclosures are not timely for most firms. In contrast, Hirschey *et* al. (2015) report a mean (median) of 175 (139) days for a sample of U.S. firms. As noted, the U.S. requires disclosure within four days of the error identification, which could explain these differences in disclosure timeliness. The large maximum error lag of 1,789 days is a case where a financially distressed firm restated its accounts after a long period without lodging any accounts. Most firms restate only one year, indicated by the mean (median) of 1.1 (1) for the Number years restated variable. The mean of 1.6 for the Number accounting issues variable is lower than the mean of 2.2 reported in Scholz (2013), probably due to the larger proportion of disclosure-only misstatements in our sample, namely, the *FNOTEDIR* variable as shown in Panel A. The mean of 0.6 for Earnings or Equity change variable indicates that the percentage of misstatements that increase or decrease earnings or equity is 60 (N=418, untabulated)[15]. Some corrections change only earnings or only equity. This occurs most commonly because of errors that affect only earnings earlier than the prior year and the firms not disclosing the effect on earnings for those periods but instead

[15] References to earnings or equity are to consolidated net income or consolidated equity in this paper.

disclosing the effect on equity. There are also share-based payment accounting errors, whose correction changes earnings but not equity. The mean (median) percentage change to earnings is - 39.2% (-4.9%) and for equity, it is -8.3% (-1.3%). These values indicate the presence of some very large percentage decreases for earnıngs and equity. The maximum percentage decrease for earnings of 4,719.8 occurred for the correction of an asset-impairment error for a disposal group held for resale, changing a firm's loss from $5.77 million to $278.33 million. The maximum percentage decrease for equity of 469.3 occurred for the correction of a consolidation error, changing a sample firm's equity from $0.71 million to -$2.62 million.[16] Other untabulated data show that 83% of firms do not disclose the initiator of the misstatement and of the remainder, 11% of misstatements are by management, 4% are by the ASIC and 2% are by auditors. The number of misstatement years associated with fraud is 21 (2%). We exclude a variable measuring the initiator of the misstatement from our models because of significant data error in its measurement. To avoid a look-ahead bias in our analyses, we code a disclosure as "fraud" when the words "fraud" or "irregularity" appear in the disclosure.

Table 3 about here

Prior to undertaking investor reaction tests, it is important to examine the suitability of Australian misstatement data as a financial reporting quality proxy for two reasons. First, one expects the investor reaction to be weak if misstatements are a poor indicator of financial reporting quality (Wang and Wu, 2011). Second, differences in misstating firms' characteristics between Australia and other countries could explain differences in investor reactions between them. Firm size is a risk proxy (Fama and French, 1993), and there is an inverse relation between firm size and the strength (Freeman, 1987) and variability (Atiase, 1985) of the market's reaction to news. We perform univariate comparisons of means and distributions and estimate logit models explaining misstatement events based on prior research. We use the earliest year of the error to identify misstatement firms, and we eliminate misstating firms' data from any other of their error years and from the sample of control firms for valid comparisons. Otherwise, we use all ASX-listed firms in our control sample. The mean of the misstatement lag is 1.2 years (see Table 2, Panel C), thus, in these analyses, we use 2011 as our final year to allow enough time

[16] The companies are Australasian Resources Limited and Ausmani Limited, respectively.

after the initial error year for most errors to be disclosed in our sample period. Panel A of Table 3 shows means and medians of misstatement and control firm-years for various firm characteristics. Variable definitions appear in Appendix 3. In addition, the statistics in Table 1 suggest dummy variables for the IFRS year and the year thereafter, namely, 2006 and 2007,[17] and for Basic Resources (*MINE*) and Technology and Telecommunications (*TECH*) industries.

Univariate test results are shown in Panel A of Table 3. Firm size (*SIZE*) and profitability (*ROA*, *LOSS*) variables show that firms that subsequently have a misstatement are larger and more profitable in their earliest error year. They also have higher leverage, pay higher audit fees and are clients of smaller audit offices. Moreover, they are more likely to be in a technology industry and have misstated in 2006 or 2007 (*IFRS*). Furthermore, they are less likely to be audited by a Big 4 audit firm or be in the extractive industries (*MINE*). To examine the relationships between firm characteristics and the incidence of errors subsequently corrected more formally, we estimate the following logistic regression:

$$ERRORYEAR = \alpha+\gamma X^F+\delta X^O+\kappa_j+\lambda_t+\varepsilon \quad (1)$$

where *ERRORYEAR* equals unity if the firm had an error that fiscal year which was subsequently corrected and zero otherwise. X^F are the firm-specific attribute variables and X^O are other attribute variables that may affect *ERRORYEAR*. Appendix 3 provides these variables' definitions, the signs of their expected coefficients and references to supporting literature. We estimate model (1) with and without firm-fixed effects to control for firm-specific variables that are stable over time such as governance mechanisms. The model without firm fixed effects is denoted by Model 1A and the model with firm fixed effects is denoted by Model 1B. The industry group and year group indicator variables, denoted by κ_j and λ_t, respectively, are included to control for industry and time effects on estimated *ERRORYEAR*. Throughout this paper, regression standard errors are clustered by firm and year following Gow *et* al. (2010), and two-tailed *p*-values are presented. Regression results are shown in Panel B of Table 3. We find consistent evidence across both models that misstatement firms are less likely to be audited by a Big 4 audit firm and more likely to receive an unclean audit opinion, to be

[17] The first fiscal year of IFRS was 2005 only for firms with a 31 December fiscal year end, which is approximately 10% of listed firms.

younger and to be audited by a smaller audit office, consistent with prior studies. We also find that misstatement firms are more likely to be in the Telecommunications or Technology (*TECH*) industry. These results suggest that misstatement data are a good indicator of financial reporting quality in Australia because clients of Big 4 audit firms and large audit offices have higher financial reporting quality (DeFond and Zhang 2014, Francis and Yu 2009). Moreover, younger firms and those with unclean audit opinions are more likely to have weaker internal control systems (Doyle et al., 2007). Furthermore, firms in technology industries have more complex accounting (Francis and Gunn, 2015). We also find that *LEV, LAF, NEW* and *IFRS* load positively in the cross-sectional model. We do find some inconsistent evidence: the *SIZE* coefficient is positive and significant, but only in the fixed-effects model, and the *ROA* coefficient is positive and significant, but only in the cross-sectional model. Since Australian GAAP permits firms to avoid disclosing the effects of errors on reporting periods earlier than the prior period for reasons of "impracticability", measurement error in the earliest year variable is an unavoidable problem. To reduce this error, we examine the notes about the misstatements and remove the cases in which the firms disclose that it is impracticable to restate earlier years. We are certain of the error year for 437 cases. Untabulated results give the same inferences.[18] One concludes that Australian misstatement data are a solid indicator of financial reporting quality for that country.

3.2 Measurement of variables

We employ a one-factor event study model to estimate firms' abnormal returns around misstatement announcements. First, for each firm, we estimate market model parameters by running an ordinary least squares regression in the estimation period.

$$R_{i,t} = \alpha_i + \beta_i R_{m,t} + \varepsilon_{i,t} \quad (2)$$

where $R_{i,t}$ is the return to firm i at day t, $R_{m,t}$ is the return to the market portfolio at day t, and $\varepsilon_{i,t}$ is the zero-mean constant variance error term. We set the estimation period as (-126, -6) trading days relative

[18] In other untabulated tests, we estimated model 1A including 12-month abnormal stock returns as an additional explanatory variable following Francis *et* al. (2013) and found its coefficient to be insignificant (coeff.=0.04, *p*=0.57), inconsistent with Francis *et* al. (2013). We also included the square of *SIZE* in the model, and its coefficient was insignificant. Inferences about other coefficients are the same as in Table 3.

to the first announcement of the misstatement event (day 0)[19]. As discussed above, a misstatement event could be revealed to the market at different times through multiple channels. Therefore, by using the earliest of all such dates (if any) as our event date, we ensure that the market model parameters are estimated without any bias. We do not estimate market model parameters if the total number of observations in the estimation period is less than 50.

The abnormal returns in the event period are calculated and accumulated as

$$AR_{i,t} = R_{i,t} - (\widehat{\alpha_i} + \widehat{\beta_i} R_{m,t}) \quad (3)$$

$$CAR_i^k = \sum_{t=-k}^{k} AR_{i,t} \quad (4)$$

where 2k+1 is the event window size, $AR_{i,t}$ is the abnormal returns to firm i on day t and CAR_i^k is the cumulative abnormal returns to firm i in the event window.

As we explain in more detail in Appendix 1, we use two different methods to estimate the CARs. Under the first method, the event date is defined as the earliest date of publicly released information about the misstatement. As Table 2, Panel B shows, this date is the lodging date of company financials in most cases. Under the second method, we follow Karpoff *et* al. (2017) and examine the cumulative stock investor reaction to all relevant announcements about the misstatement event. To capture the wealth effects of these multiple announcements, we sum the firm's abnormal returns around all these event dates (if any). The CAR estimates under the second method aim to capture the cumulative reaction to the entire information flow regarding the misstatement event. For both methods, we choose k=1 and accumulate abnormal returns over (-1, +1).

To assess the robustness of our results to the choice of the econometric model, we also estimate a simple market-adjusted model in which daily abnormal returns are calculated as daily stock returns minus daily market returns. The abnormal returns are then accumulated over the same event windows as in the one-factor market model. To estimate the daily market returns, we use Datastream's value-weighted market index returns that reflect redistribution events. Finally, the existence of small or large outliers could

[19] We find similar results if we set the estimation period as (-252, -6) trading days relative to the first announcement of the misstatement event.

affect results significantly, especially in small samples. To address this possibility, we winsorize all CAR variables at their 2.5th and 97.5th percentiles.

We expect the announcement CARs to be lower for misstatement corrections that reduce prior-period earnings or equity than for those that do not. We therefore include an indicator variable, *NEGEARNEQ*, which equals unity if the net effect of the correction on prior-period earnings or equity is negative and zero otherwise. A negative relation between CARs and a negative earnings impact indicator is usually reported by U.S. studies (Files *et* al. 2009, Myers *et* al. 2013). We include variables that control for the severity of the misstatement, namely, *CONSOL_EQ_TA* measured as the net effect of the misstatement on shareholders' equity scaled by the total assets of the firm at the end of the year prior to the misstatement year; *REV,* which is an indicator equal to unity if recognized revenue is corrected and zero otherwise; *COREEXPENSES,* which is an indicator equal to unity if operating expenses are corrected and zero otherwise; *NUMERRORS,* which is the number of errors associated with a misstatement; and *FRAUD,* which is an indicator equal to unity if the words "fraud" or "irregularity" appear in the disclosure and zero otherwise. Prior U.S. research generally finds negative coefficients for these variables. Stealth and non-stealth misstatements may affect abnormal returns differently around announcement dates. Therefore, we include an indicator, *STEALTH*, equal to unity for misstatements initially disclosed only in the periodic filing and zero otherwise.

We include *SIZE* (the natural logarithm of total assets), because investor reactions to announcements by large firms may be weaker than the reactions by small firms due to differences in their information environments (Freeman, 1987). We include *LEV* (total liabilities divided by total assets) to control for the firm's financial risk and *ROA* (earnings divided by total assets) to control for the firm's profitability. *EARNINGS_SURPRISE* measures the information content associated with earnings for misstatements that are released simultaneously with earnings announcements and is equal to the difference in net profits between the most recent and prior financial statements scaled by the total assets at the end of the previous fiscal year. Some earnings and misstatements' announcements are not released simultaneously, thus, *EARNINGS_SURPRISE* measured at the most recent and prior financial statements should not be an

important explanatory variable for them.[20] In untabulated tests, we estimate the models without *EARNINGS_SURPRISE* with no change in inferences for the test variables.[21] Finally, abnormal returns are likely to behave differently during recessionary periods, so we include indicator variables for misstatements in 2008 and 2009. All variables, except for indicator and log-transformed variables, are winsorized at their 2.5th and 97.5th percentiles.

To examine the relationship between misstatement characteristics[22] and CARs, we estimate the following OLS "cross-sectional" model (firm and year subscripts are omitted):

$$CAR = \alpha + \beta X^R + \gamma X^C + \delta_t + \varepsilon \quad (5)$$

where X^R are the misstatement characteristics, X^C are the firm-level control variables mentioned above, and indicator variables denoted by δ_t are included to control for industry and year fixed effects.

4. Results

4.1 Univariate tests

Table 4 presents results from one-sample mean *t*-tests for CARs calculated using various methods around misstatement announcements for the full sample and for partitions of misstatement characteristics. We conduct these univariate tests for the same sample of 594 misstatements used for our multivariate tests for comparability.

Table 4 about here

Panel A of Table 4 shows that the average three-day investor reaction to the full sample of misstatements varies between -0.9% and -0.1% depending on the method used to calculate CARs, and none of these means differ significantly from zero. Hypothesis 1 is not rejected. In Panel B of Table 4, we partition the sample based on each misstatement correction's effect on earnings or equity. We find that for misstatements that change earnings or equity, the mean abnormal returns differ insignificantly from zero

[20] We thank the reviewer for pointing out this issue.
[21] In other untabulated tests, we also add market-to-book ratio of equity to our specifications and obtain similar results, albeit for a smaller sample.
[22] Appendix 4 shows definitions of those misstatement characteristics used as control variables not explained in Appendices 2 and 3.

for CARs calculated only on the initial announcement date of the misstatements (Method 1). However, for Method 2 where we sum CARs across all event dates, the mean CAR is -1.5% for both the market beta adjustment and for the simple market adjustment, and both means are significant. For misstatement corrections that do not affect earnings or equity, none of the mean CARs is significantly different from zero. For the market-adjusted CAR means under Method 2, we find that corrections changing earnings or equity differ significantly from corrections that do not, as the two columns on the far-right show (mean diff. = -0.019, $p = 0.094$). Hypothesis 2A is rejected. These findings highlight the importance of accumulating abnormal returns over multiple event dates, as Karpoff *et* al. (2017) suggest. Mean CARs for misstatements that reduce earnings or equity (*NEGEARNEQ*) are negative for all calculation methods and significant for Method 2, with abnormal returns of -2.3% ($p = 0.032$) and -2.5% ($p = 0.024$) for the beta adjustment and market adjustment models, respectively. Mean CARs for *POSEARNEQ* are insignificant, indicating that investors react to misstatements with unfavourable information content more strongly, consistent with U.S. studies. Both the beta-adjusted and market-adjusted mean CARs for Method 1 are significantly lower for *NEGEARNEQ* than for *POSEARNEQ*. Hypothesis 2B is not rejected using a one-tailed test.

Panel C of Table 4 shows mean CARs for the subsample of accounting issues shown in Panel A of Table 2. No issue has an investor reaction significantly different from zero except for *REORG,* which has positive mean CARs of 3.3% and 3.9% under Method 2 for the beta adjustment and market adjustment models, respectively. Since accounting for reorganizations is complex and can affect many parts of the firm's financial statements, investors may perceive that misstatement corrections in accounting for reorganizations is accompanied by more internal control improvements than for other misstatement corrections. One can observe a positive reaction if these improvements have benefits beyond the costs of the misstatement error. The lack of significant CARs for the other accounting issues could be due to the heterogeneous information within each issue reducing the power of the tests. For example, although one expects *REV* corrections to attract investor attention, mean CARs are insignificant for all measures. However, if we examine those 46 *REV* corrections that also reduce either earnings or equity, we find negative and significant mean CARs, with one as low as -5.16% (untabulated). These results suggest

that whether a misstatement correction reduces earnings or equity is most important for Australian investors. Panel D of Table 4 shows two severity measures of misstatements often examined in U.S. studies, namely, whether the misstatement relates to fraud, and the number of errors associated with the misstatement. For misstatements related to fraud, the three-day average abnormal returns range from -5.4% to -8.7% and despite the small number observations, two of the CAR metrics are statistically significant, consistent with U.S. studies. We do not find significant abnormal returns for misstatements with multiple errors. Panel E of Table 4 shows mean CARs partitioned by whether the misstatement is disclosed only in the periodic filings (stealth misstatements), or otherwise (non-stealth misstatements). Consistent with the LAT, investors react more negatively to non-stealth misstatements than to stealth ones. For the 117 non-stealth misstatements in our sample, the average CARs vary between -1.3% and -2.7% and all differ significantly from zero. In contrast, none of the means for stealth CARs is significant. The bottom row of Panel E shows that three of the four pairs of mean CARs differ significantly from one another. We reject Hypothesis 3. The multivariate regression tests covered in the next section, provide more robust evidence on the investor reaction to misstatement news.

4.2 Multivariate tests

Before discussing the results of the multivariate regression tests, we present descriptive statistics of the variables used in the models. As noted, we use four CAR measures to assess the reaction around misstatement news dates, and the first four rows of Table 5 shows statistics for these variables. The standard deviations of the CARs estimated using Method 2 are higher than those estimated using Method 1. Thus, accumulating abnormal returns over multiple event dates results in more volatile CAR estimates. The mean CARs for both methods are close to zero although Method 2 yields slightly more negative CARs than Method 1 does. We do not find meaningful differences between the market model and simple market-adjusted model estimates, and the distribution of beta- and simple market-adjusted CARs seem to be comparable to each other under their respective methods.

Table 5 about here

The other rows of Table 5 show the statistics for the independent variables. The misstatement announcements in our regression sample contain information about a variety of error types made in

earlier financial reports, such as those having a negative impact on the prior period's earnings or equity (38.9% of the sample), those having an error for revenue recognition (13.3%), for core expenses (27.8%) and those associated with corporate fraud (2%). The percentage of stealth misstatements is 80.3%, meaning that fewer than 20% of the misstatement years were highlighted to the market, by, for example, a separate announcement, an ASX headline, or a re-issue of the financial report.

Table 6 shows the results from estimating model (5). The coefficients of the *NEGEARNEQ* dummy shown in the first row of the table indicate that the three-day abnormal returns associated with misstatements that reduce earnings or equity vary between -1.1% and -2.8%. These coefficients are statistically significant when abnormal returns are cumulated over multiple event dates (Method 2), implying that unfavourable misstatements are penalized by the market around dates other than the initial revelation date. These results are consistent with the univariate results in Table 4. The magnitude of the misstatement correction, namely *CONSOL_EQ_TA*, has positive coefficients across all specifications, but no coefficient is significant. *REV* has a negative coefficient in all specifications that ranges from -0.005 to -0.017 and the coefficients estimated using Method 1 are significantly different from zero and consistent with expectations. This result leads us to reject Hypothesis 2C. The coefficient estimate for *COREEXPENSES* is insignificant, inconsistent with U.S. studies.

Table 6 about here

Although the coefficient estimates for *FRAUD* are high and a misstatement that is associated with fraud has an average incremental abnormal return of between -3.3% and -4.7%, none of these coefficients are significant, potentially due to the lack of statistical power driven by the small number of observations for *FRAUD*. However, the coefficient estimates for the *STEALTH* dummy are reliably positive in all specifications. They range from 0.013 to 0.025 and indicate that misstatement firms that do not draw attention to their errors experience CARs between 1.3% and 2.5% higher than misstatement firms that highlight their errors. Managers who highlight the error may believe that their firms' cost of capital will be lower as a result or are naïve to the consequences (Files *et* al. 2009). The number of errors in a misstatement has no relation with abnormal returns. Regarding the control variables, *ROA* loads

positively under Method 2 for the simple market adjustment and *EARNINGS_SURPRISE* loads positively under Method 1.

The insignificance of the misstatement characteristics' coefficients could be due to the assumption in model (5) that the characteristics' effects are the same across all observations. Prior research has shown that misstatements disclosed 'stealthily' are associated with less pronounced negative investor reactions on announcement dates (Files *et* al., 2009; Myers *et* al., 2013). We examine whether the level of 'stealth' of misstatement disclosures moderates the relation between CARs and misstatement characteristics by interacting the *STEALTH* dummy with misstatement characteristics.

Table 7 about here

Table 7 shows the results of estimating Model 5 including the *STEALTH* indicator and its interaction with misstatement characteristics. This new model is denoted Model (6). *NEGEARNEQ* has a significantly negative coefficient in all specifications with values between -0.028 and -0.064, indicating that when misstatements that reduce earnings or equity are disclosed more saliently (non-stealth ones), abnormal returns of between -2.8% and -6.4% are observed for them. On the other hand, the coefficients on the interactions of *NEGEARNEQ* with the stealth dummy, denoted by *NEGEARNEQ_INT*, have positive coefficients that are significant when measured by accumulating across all relevant misstatement events. For these models, misstatements that reduce earnings or equity and are not disclosed saliently (stealth misstatements) have abnormal returns of -2.1% (-0.064 +0.043 or -0.063 +0.041), or approximately 4 percentage points less negative than non-stealth misstatements. In other words, investors penalize highlighted bad news more than bad news disclosed stealthily, a result that is consistent with the LAT and U.S. research (Files *et* al. 2009, Myers *et* al. 2013). We reject Hypothesis 3. *CONSOL_EQ_TA* and its interaction with the stealth dummy (*CONSOL_EQ_TA_INT*) have insignificant coefficients and *REV* also loses its significant coefficient in Table 6 when the interaction term is introduced. It seems that disclosure saliency does not affect investors' perceptions of revenue corrections, which is inconsistent with the LAT. However, of the 79 revenue adjustments in this sample, only 19 are non-stealth ones, suggesting that low power could explain the insignificance of *REV_INT*. Under Method 2, *COREEXPENSES* has a significantly positive coefficient, and its interaction

with the stealth dummy has a significantly negative coefficient, which is very similar in absolute magnitude to that of *COREEXPENSES*. In other words, non-stealth misstatements that are core expenses have positive reactions, but when the same news is disclosed stealthily, the reaction vanishes. Although this result is inconsistent with our expectations, we believe it is likely to be a statistical artefact given that it appears only in one of the four model estimations. Among the other misstatement characteristics and firm-level control variables, the *STEALTH* and *EARNINGS_SURPRISE* variables have significantly positive coefficients, but only when beta-adjusted CAR variables estimated with Model 1 are used as dependent variables.

4.3 Additional tests

Untabulated statistics show that for 525 of 703 firm-years[23], disclosure of the misstatement news occurs on the earnings announcement date, suggesting that earnings news could attenuate the reaction to misstatement news.[24] We conduct additional tests to shed light on this potential explanation for our results. Most of these additional test results are not tabulated for brevity. First, we examine if the *EARNINGS_SURPRISE* control variable affects the inferences about our test variables. We estimated Models 5 and 6 without *EARNINGS_SURPRISE*. We then re-measured earnings surprise by creating dummies equal to unity if the magnitude of earnings surprise is in the bottom or top 5th, 10th and 25th percentiles, and if the earnings surprise is positive and then by scaling the change in earnings by the beginning of fiscal year market value of equity instead of total assets. We also ran our tests on a smaller sample totalling 90 observations, by using the mean/median consensus analysts' earnings estimate minus the actual earnings standardized by the absolute value of the mean/median consensus analysts' earnings estimate (Duru and Reeb, 2002) instead of *EARNINGS_SURPRISE*. Estimates for the test variables from all these regressions are similar to those in Tables 6 and 7, although we do observe a negative coefficient for *STEALTH* coefficient when we used the analysts' forecasts to measure earnings surprise.[25]

[23] One firm did not disclose its current-year earnings, but it did disclose sufficient information about its error for inclusion in our dataset totalling 704 firm years.
[24] We are grateful to an anonymous reviewer for this suggestion.
[25] We were able to match 167 observations with the IBES database but there were many stale-date forecasts. When

Second, we split the sample based on whether disclosure of the misstatement news occurred on the same date as the earnings announcement or not, and estimated the model for each group.[26] Results showed that *NEGEARNEQ* and *REV* were generally negative and significant for the group where disclosure of misstatement news occurred on the same date as the earnings announcement; and *REV* was generally negative and significant for the other group. We further examined the weak results for the test variables for the sample where disclosure of the misstatement news occurred on a different date than earnings, by removing *STEALTH*, outliers greater than 5% of the regression residuals and then the dummy controls.[27] These extra tests did not change our inferences about the test variables. To formally test for differences between these two groups, we interacted the misstatement test variables with a dummy equal to unity when disclosure of the misstatement news occurred on the same date as the earnings announcement and zero otherwise (*NEWS_SAME_EARN*), and included these variables in the model. Results, using the full sample, showed that the coefficients for the interactions with *REV* and with *COREEXPENSES* are significant and positive for two of the regressions; indicating that returns are weaker for revenue and core expenses adjustments when they are disclosed on the earnings announcement date. This finding is consistent with the idea that earnings news attenuates the investor reaction to misstatement news. A possible reason for the insignificance of the coefficient on the *NEWS_SAME_EARN* and *NEGEARNEQ* interaction is, that the magnitudes of the earnings' corrections could be smaller when disclosed on a different date to the earnings announcement, than when they are not; and that the market regards small magnitudes of *NEGEARNEQ* as less important than large magnitudes. Therefore, as our final test, we explored the effect of differences in magnitude of error corrections on these results for *NEGEARNEQ*. We compared the means and medians of the percentage changes in earnings for *NEGEARNEQ* between the two groups.[28] Results showed that the *NEGEARNEQ* variable's means and medians are significantly lower for the group whose misstatement news is released on the earnings announcement date. We then estimated a logit regression where the dependent variable is *NEWS_SAME_EARN*. Given the univariate

we limit the sample to those forecasts within 31 days before the earnings announcement date, our sample size fell to 90 observations. The coefficient estimate for earnings surprise was generally insignificant in these regressions.

[26] The sample size for misstatements news released on the same (different) date as earnings totals 452 (142).

[27] We thank the reviewer for suggesting these tests.

[28] We use earnings here rather than equity because a large portion of earnings corrections are due to share-based payment errors, which have no effect on equity. Using equity would eliminate these corrections from this analysis.

results, we included the following variables in this regression: *NEGNI_EFFECT_BIG* measured as unity if the correction to earnings is negative and large (defined as less than the median of negative earnings corrections) and zero otherwise; *NEGNI_EFFECT_SMALL* measured as unity if the correction to earnings is negative and it is small and zero otherwise; and *POSNI_EFFECT* measured as unity if the correction to earnings is positive and zero otherwise. Misstatement error corrections that do not change earnings are the reference group. The percentages of sample observations are 16, 16, 17 and 51 for each of these four groups, respectively. We included *REV*, *COREEXPENSES*, *FRAUD*, *NUMERRORS* and *MISSTATEMENTLAG* in the model because each of these variables measures attributes of more serious misstatements. *STEALTH* is included because firms that disclose misstatement news only in a periodic filing may also release that news on the earnings announcement date.[29] The other control variables are *SIZE*, *LEV*, *ROA*, *BIG4* and *AGE*. The results in the first two columns of Table 8, show that *NEGNI_EFFECT_BIG*, *REV* and *COREEXPENSES* have higher odds of disclosure on the earnings announcement date than non-core earnings corrections and those that do not affect earnings. Corrections for older errors and errors reported only in periodic filings are more likely to be disclosed on the earnings announcement date, as the positive coefficients for *MISSTATEMENTLAG* and *STEALTH* indicate. We find that the odds are higher for fraud-related misstatement news to be disclosed on a date other than the earnings announcement date. No control coefficient is significant except for *SIZE* and *AGE*. Larger (older) clients have higher (lower) odds of disclosing misstatement news on the earnings announcement date. To further explore the relations between *NEWS_SAME_EARN*, *STEALTH* and the misstatement variables, we interacted the misstatement variables with *STEALTH*. Results in the last two columns of Table 8 show that all interaction coefficients are insignificant; indicating no difference in the saliency of these corrections. Results (untabulated) from t-tests and Wilcoxon tests of differences in the percentage change in earnings for the stealth versus non-stealth groups for the sample where misstatement news is disclosed on the earnings announcement date; are insignificant, consistent with these regression results. We also estimated the model on the sample of firms that announce their earnings on the same date as the release of misstatement news (N = 452), and the coefficient for the interaction

[29] The correlation coefficient between *STEALTH* and *NEWS_SAME_EARN* is +0.57, suggesting that multicollinearity is unlikely to cause problems with the estimates.

term between *STEALTH* and *NEGEARNEQ* is highly significant and positive. This finding is consistent with the results in Table 7 and the argument that disclosure saliency improves the impounding of misstatement information into prices.[30] Taken together, these additional test results suggest that the weaker investor reactions for negative earnings or equity corrections and for core expenses, reported in Tables 6 and 7, are due to the more important types of earnings corrections disclosed on the same date as earnings is announced, and that investor attention is limited.

5. Summary and conclusions

This paper provides evidence on the quality of Australia's financial reporting, recently been called into question by the ASIC. For ASX-listed firms over an eight-year period through 2013, we document accounting misstatement frequency, misstatement severity and the timeliness of disclosures about misstatements. We examine investor reaction to the announcement of misstatement news and to various accounting issues associated with misstatements. Our tests shed light on whether Australian stock market participants treat misstatements as 'bad news', speaking to the quality of financial reporting in Australia. In a test of the limited attention theory (LAT) and following recent U.S. research, we also examine whether misstatement disclosure salience is an important moderator in the relation between misstatement announcement returns and misstatement issues.

We find 4.1% of firm-years with a misstatement. The percentages vary widely by year, with the peak of 6.3% in the 2009 year and the minimum of 3.4% in the 2013 year. We find that for 79% of misstatement firm years, firms do not highlight their errors by disclosing them, for example, in a press release, in a separate note, or in the ASX announcement heading. Instead, these errors are disclosed only in the half-year or annual financial reports. Consequently, investors seem to wait for almost 8 months (the median is 239 days) for news about most misstatements. Consistent with prior U.S. evidence, most misstatements that correct prior-period earnings or equity are negative – the median percentage

[30] For the sample where *NEGEARNEQ* = 1, we performed t-tests and Wilcoxon tests of the difference in the percentage change in earnings and of the difference in the percentage change in equity, between the stealth and non-stealth groups for the sub-sample that released misstatement news on the same date as earnings news. All *p*-values (two-tailed) from these tests were above 0.3. Given that the mean/median differences for the percentage change in earnings for *NEGEARNEQ* are insignificant, magnitudes of this type of misstatement correction across the stealth and non-stealth categories are not likely to explain the results.

decreases are 4.9 and 1.3, respectively. We find that large negative earnings, revenue, and core expenses corrections, are more likely to be disclosed on the same date as earnings is announced, than other types of misstatement corrections. This evidence is consistent with ASIC's recent concerns about financial reporting quality in Australia. We acknowledge an unavoidable limitation common in this research stream, namely, that unreported errors may affect our inferences.[31]

Regarding investor response to misstatement news, univariate tests show that CARs centred on the announcement date are insignificant for the full sample, but are equal to -1.5% for misstatements that change earnings or equity and -2.4% for those that reduce earnings or equity. In multivariate tests, misstatements that reduce earnings or equity have a coefficient estimate of -2.8%, and misstatements that affect revenue have a coefficient estimate of -1.7%. We find that firms that disclose misstatements less saliently experience CARs of between 1.3% and 2.7% higher than the firms that highlight them. Higher disclosure saliency increases the strength of the negative reaction to misstatements that reduce earnings or equity, consistent with the LAT and U.S. evidence. We find little evidence of reactions for most accounting issues associated with misstatements.

Collectively, our evidence indicates that investors generally react to the more serious accounting misstatements and the reactions are less negative and weaker for misstatements disclosed stealthily. For policymakers, our study has two takeaway messages. First, conditional on detected misstatements being disclosed, accounting quality in Australia seems to have improved in recent years using misstatement frequency as the quality proxy, suggesting that major changes to current oversight work are not required. Finally, while the frequency of misstatements has fallen, the majority of misstatement disclosures have low saliency, possibly contributing to a sluggish impounding of that information into prices. Pronouncements that improve disclosure saliency could be beneficial to market pricing.

[31] We thank an anonymous reviewer for noting this.

Appendix 1 – Sample construction method

A.1 Identification of a misstatement

We use the definition from Auditing Standard ASA 200, *Overall Objectives of the Independent Auditor and the Conduct of an Audit in Accordance with Australian Auditing Standards*, to identify a misstatement for inclusion in our dataset, namely, "…a difference between the amount, classification, presentation, or disclosure of a reported financial report item and the amount, classification, presentation, or disclosure that is required for the item to be in accordance with the applicable financial reporting framework. Misstatements can arise from error or fraud." (ASA200, para 13.4(i)). We further refine our scope by including only misstatements of audited accounting information. Thus, we exclude misstatements of items in interim financial reports of other unaudited accounting information, such as unaudited preliminary reports. We exclude firms that do not comply with Australian GAAP, such as foreign firms and entities that prepare special-purpose financial reports, in the interest of consistency in financial reporting regulatory requirements. We also exclude firms that misstated a reporting period prior to listing but disclosed the error after listing. For these firms, it is unclear if the misstated accounts had to be audited. We exclude re-issuances of financial reports for administrative reasons, such as cases in which the wrong reports were lodged or typographical errors were made. Consequently, our reported error frequencies are less than the total frequency of errors in accounting information lodged with the ASX.[32] Misstatements caused by accounting policy and accounting standard changes, tax rate changes, revisions of acquisition accounting attributable to new information, misstatements caused by discontinued operations and capitalization changes (e.g., bonus share issues) are excluded because they do not meet the definition above.[33] Thus, our dataset includes both errors in audited financial statements (see AASB 108, para 5) and errors in and omissions from remuneration information in the directors'

[32] In recent years, the re-issuance of audited accounts has become more common. Often, a firm provides no information about the reason for the re-issuance. As noted, we only included these firms when earnings or equity changed and it was clear that the reason for the re-issuance was an error. This aspect of our data-collection method understates the quantity of misstatements at a further extent in more recent times.

[33] Some misstatements disclosed as accounting policy changes could be errors. As an example, Medtech Global Limited preliminary financial report for 2010 disclosed the reason for its 2009 financial report misstatement as an error, but its audited financial report disclosed the reason as an accounting policy change.

report for firms listed on the ASX that comply with Australian GAAP and prepare general-purpose financial reports.

A.2 Information Sources for Misstatements

The first source of information is half-year and annual audited financial reports lodged with the ASX for all listed and delisted firms from January 2006 through April 2014. Since our final sample financial year is 2013, we search until 30 April 2014 to allow sufficient time for December-year-end firms to lodge their annual accounts. These reports were searched for the following keywords: “amend” or "restate" or "correct" or "prior period" or "prior-period" or "prior year" or "prior-year" or “error” or “revise” or “investigat” or “errat” or “replace” or “irregular” or re-issue” or “reissue” to provide a list of possible misstatements. Two research assistants independently read each case of a potential misstatement and coded them as a “misstatement” or “unknown”. The percentage of agreement between them for “misstatement” was 65%. An author of this paper checked the coding and corrected it where necessary.

Our second source of information is the *content* of ASX announcements. Specifically, for each misstatement identified in the financial report, we search the content of all ASX announcements lodged in the period since the previous audited annual financial report, a period up to nine months, for the abovementioned keywords. We read each announcement and recorded the dates of announcements about the misstatement. For misstatements disclosed in the annual reports, we found only a small number of announcements outside half-year financial reports indicating that most misstatements are stealth (see Table 2, Panel B). When we locate news about a misstatement in a transcript, we use the date of the podcast, because transcripts are usually lodged after the podcast (see, for example, KMD’s transcript of 16 November 2012 lodged on the ASX website on 19 November 2012). For misstatements that change recognized information, we also examined the previously-lodged financial reports within this period. We found several cases were firms changed comparatives in line with the correction of the error, but gave no other information about the misstatement at that time. We recorded the dates and relevant information for these observations. These observations raise an issue about event dates, which we

discuss below. We did not search the content of all ASX announcements for all listed firms because of the large size of that task and we acknowledge this limitation in our data-collection method.

Our third information source is the ASX announcement headlines. We searched for the abovementioned keywords in these headlines for all listed and delisted firms from January 2006 through April 2014. We identified several misstatements disclosed by re-issuing a financial report or portions thereof were in this search. We found a number of cases where amended audited financial reports were reissued on the same day or shortly after the original audited financial reports' releases, but with no information about the reason for the re-issuances. We yielded to the size of the task of comparing all the information across both financial reports and compared only the two sets of financial statements for evidence of a misstatement. In this manner, we found one misstatement case. We acknowledge this limitation in our data-collection method.

Our fourth source of misstatement information is action against the companies or their directors. We read all ASIC media releases[34] from the ASIC website from 2006 to 2013 and recorded dates for which we found information about a misstatement case. Most of these dates are stale; that is, they were released after other releases.

Our fifth source of information is press releases. We searched *Factiva* and *Google News* for all Australian publications from 2006 to 2013 for the abovementioned keywords and then for the names of all ASX-listed companies in a second search. We used the current names for each financial year since some Australian firms change their names. Most of the data obtained from these sources were for firms already identified using the above sources and were stale. However, we did identify a small number of extra cases using this second search, such as Westpac's 2006 misstatement, described as an "over-accrual".

We recorded the date of public release for each misstatement event for each of these sources.

[34] ASIC releases information about its investigations, including those under s13 of the ASIC Act 2001, and regulatory actions such as enforceable undertakings. ASIC's policy statement is available at: http://download.asic.gov.au/media/1339124/INFO_152_Public_Comment.pdf

A.3 Identification of misstatement event dates

We list all dates about the misstatement from the sources mentioned above.

As noted, in examining the ASX announcements, we examined the comparatives of the financial reports lodged prior to the misstatement financial report to determine whether they were changed in line with what was disclosed in the misstatement financial report. We found some firms did so for no stated reason, a situation that occurred most often in unaudited preliminary reports and sometimes in other reports such as half-year reports. One example is World Titanium Resources Limited's (previously Bondi Mining Limited) reclassification of its cash and accounts payable balances on 30 June 2010. The reclassification occurred first in its 31 December 2010 half-year report, lodged with the ASX on 15 March 2011. An explanation for this reclassification occurred first in its June 2011 annual financial report, lodged with the ASX on 27 September 2011. Since the reason for the change was known at its half-year lodgement date but not explained to the market at that time, we record the date of 15 March 2011. It is arguable whether dates such as 15 March 2011 for World Titanium Resources Limited are the "earliest release dates" in our study because firms can change recognized information for accounting policy changes, for example. In our main tests, we do not use these dates as the earliest release date; rather, we use the earliest date when the information about an error was released.

As in Karpoff *et* al. (2017), we sum the abnormal returns over all unique event dates in our Method 2. Specifically, we examine each disclosure of error information and identify those disclosures that are materially different from the previously disclosed information. Some judgement is used. For example, if a firm changed the amount of the correction to the prior period but that change is less than 5% of the previous amount, we exclude it. If a firm provided only the restated prior-period half-year earnings in the initial disclosure, perhaps because its initial disclosure was included in the half-year accounts, and provided the restated annual earnings in its annual accounts, then we include it. We also include cases in which the comparatives were changed in line with the restated accounts, with no other information

about the error. In other cases, it is clear that the information is "new". For example, a new error may be disclosed in subsequent releases and cause material changes to the number of existing errors.

A.4 Classification of Accounting Issues

Our research assistants classified the errors into accounting issues following the Audit Analytics method in Scholz (2013), in the absence of an Australian classification scheme and for comparability with similar studies. Appendix 2 shows the accounting issue definitions and descriptions for this scheme. Because U.S. GAAP differs from Australian GAAP, we modified the classification scheme by including misstatements of upward noncurrent asset revaluations in the *INVESTING* category and misstatements of audited information in director's reports in the *FNOTEDIR* category. An author of this paper checked the coding and made necessary changes.

A.5 Identification of date of most recent incorrect accounts

The variable Error lag is measured as the number of days since the last lodging of an audited annual financial report with no information about the misstatement. In most cases, this date is the most recent lodging date of the prior year's annual financial report. In some cases, we use the preliminary report for the misstatement year when it is audited, provided that the error relates to a disclosure contained therein. For example, some disclosures, such as detailed executive remuneration disclosures, are not required in the preliminary report, thus, assigning the date of the preliminary report to an error would be inappropriate. In such cases, we use the previous year's annual report lodging date instead.

Appendix 2 – Variable Names and Variable Definitions for Accounting Issues

Variable Name	Variable Definition
Accounting Issues: Business activities	
REV	The error is associated with revenue recognition.
EXPACCRESEST	The error is associated with the expensing of assets or understatement of liabilities, the accrual or identification of liabilities on the balance sheet, or with cash, accounts receivable, loans collectible, investments allowance for uncollectables, notes receivable, or related reserves.
EXPSTOCK	The error is associated with the recording of deferred, stock based or executive compensation.
EXPCOS	The error is associated with transactions affecting inventory, vendor relationships or cost of sales.
EXPCAPDEPAM	The error is associated with the capitalization of expenditures or depreciation of assets, amortization of assets or amortization of debt premiums or discounts.
EXPPENCONLEA	The error is associated with pensions or other post-retirement plans or benefits or leases.
TAX	The error is associated with various forms of tax obligations or benefits.
INVESTING	The error is associated with the recording of assets, goodwill, intangible or contra liabilities that are required to be valued or assessed for diminution in value on a periodic basis, the recording of gains or losses from the sales of assets, interests, entities or liabilities, or upward revaluations of non-current assets.
FINANCING	The error is associated with the recording of debt or equity accounts or derivative instruments.
Accounting Issues: Financial statement presentation	
CFMISS	The error is associated with the cash-flow statement classification errors.
ISMISSEPS	The error is associated with the disclosure of financial/operational ratios or margins and earnings per share calculation issues or where income statement items are misclassified instruments.
DEQMISS	The error is associated with the proper classification of a debt instrument as short term or long term or between debt and equity accounts.
FNOTEDIR	The error is associated with a financial statement, footnote or segment reporting information or the director's report.
ASSETMISS	The error is associated with how assets were classified on the balance sheet.
COMPINC	The error is associated with comprehensive income.
Accounting Issues: Subsidiary accounting and atypical transactions	
SUBSID	The error is associated with intercompany or associate balances, investment valuations or transactions, disclosures about related, alliance, affiliated or subsidiary entities.
CONSOL	The error is associated with the consolidation of subsidiaries, off balance sheet arrangements and joint ventures.
REORG	The error is associated with mergers, acquisitions, disposals, reorganizations or discontinued operation accounting issues.

Accounting issues in Panel A are adapted from Audit Analytics as in Scholz (2013).

Appendix 3 – Variables Used in Regression Models Explaining Misstatement Characteristics

Variable Definition			Expected sign and supporting literature
ERRORYEAR	=	unity if the firm had an error that fiscal year that was subsequently corrected and zero otherwise.	
SIZE	=	The natural logarithm of total assets at year-end plus one dollar.	(–) Francis *et* al. (2013), (+) Agrawal and Chandha 2005, (–) Blankley *et* al. (2012), (–) Srinavasan *et* al. (2015), (–) Sue *et* al. (2013)
LEV	=	Total liabilities divided by total assets at year-end, with the extreme values winsorized at their 2.5th and 97.5th percentiles.	(+) Wang and Wu (2011), (–) McGuire *et* al. (2012), (+) Blankley *et* al. (2012), (+) Sue *et* al. (2013)
ROA	=	Earnings divided by total assets at year-end, with the extreme values winsorized at their 2.5th and 97.5th percentiles.	(–) Wang and Wu (2011), (–) McGuire *et* al. (2012)
LOSS	=	An indicator variable that equals to one if earnings is negative and zero otherwise.	(+) Hennes *et* al. (2008), (+) Francis *et* al. (2013), (+) McGuire *et* al. (2012)
BIG4	=	An indicator variable that equals to one if the firm's auditor is Deloitte, Touche Tohmatsu, Ernst and Young, KPMG or PwC and zero otherwise.	(–) McGuire *et* al. (2012)
UNOP	=	An indicator variable that equals to one if the firm's audit opinion in its audit report is unclean, and zero otherwise.	(+) Sue *et* al. (2013)
AGE	=	The natural logarithm of the number of years since listing on the ASX to the misstatement year plus 1.	(+) Wang and Wu (2011)
LAF	=	The natural logarithm of the total of the client's audit fees.	(+) Francis *et* al. (2013)
OFF	=	The natural logarithm of the number of firms audited by the firm's audit office in the current year.	(–) Francis *et* al. (2013)
NEW	=	An indicator variable that equals to one if the firm's auditor is new in the current year and zero otherwise.	(+) Francis *et* al. (2013)
MINE	=	An indicator variable that equals to one if the firm's industry is Basic Resources and zero otherwise.	(–)
TECH	=	An indicator variable that equals to one if the firm's industry is Technology and zero otherwise.	(+)
IFRS	=	An indicator variable that equals to one if the fiscal year is 2006 or 2007 and zero otherwise.	(+) Goodwin *et* al. (2008)

Appendix 4 – Extra Variable Names and Variable Definitions for Variables used in Tests

Variable Name	Variable Definition
COREEXPENSES	Unity if an accounting issue is for *EXPACCRESEST*, *EXPSTOCK*, *EXPCOS*, *EXPCAPDEPAM* or *EXPPENCONLEA* and zero otherwise.
CONSOL_EQ_TA	The amount of the correction to opening equity divided by total assets at the end of the prior financial year.
EARNINGS_SURPRISE	The change in earnings scaled by beginning of period total assets. When a misstatement is initially disclosed in half-year accounts, we measure change in earnings as half-year earnings less the previous corresponding half-year earnings as disclosed in those half-year accounts. Otherwise we measure change in earnings as annual earnings less the previous years' annual earnings as disclosed in those annual accounts.
FRAUD	Unity if the words "fraud" or "irregularity" appear in the disclosure and zero otherwise.
MISSTATEMENTLAG	The number of years from the misstatement year to the earliest error year.
NEGEARNEQ	Unity if the net effect on prior period's consolidated earnings or equity is negative and zero otherwise.
NEGNI_EFFECT_BIG	Unity if the percentage change to earnings is negative and is less than the median of all negative percentage changes to earnings and zero otherwise.
NEGNI_EFFECT_SMALL	Unity if the percentage change to earnings is negative and is greater than or equal to the median of all negative percentage changes to earnings and less than zero and zero otherwise.
NEWS_SAME_EARN	Unity if the initial disclosure about the misstatement error is on the same date as the earnings announcement date and zero otherwise.
NONSTEALTH	Unity if there is disclosure about the misstatement error other than in the Half-Year Report or the Financial Year Report and zero otherwise.
NUMERRORS	The number of errors associated with a misstatement.
POSEARNEQ	Unity if the net effect on prior period's consolidated earnings or equity is positive and zero otherwise.
POSNI_EFFECT	Unity if the percentage change to earnings is positive and zero otherwise.
STEALTH	Unity if the error is disclosed in the Half-Year Report or the Financial Year Report and there is no additional disclosure about the misstatement and zero otherwise.

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TABLE 1 – Descriptive Statistics of Misstatement Firms

Panel A – Frequency of Misstatements by Fiscal Year and by Error Year

Fiscal Years			Error Years			
			All		Earliest	
Year	N	Listed firms %	N	Listed firms %	N	Listed firms %
2006	63	3.8	94	5.5	94	5.5
2007	95	5.3	111	6.1	103	5.7
2008	110	5.6	116	6.0	100	5.2
2009	122	6.3	86	4.5	82	4.4
2010	99	5.1	75	3.8	70	3.7
2011	79	4.0	64	3.5	61	3.3
2012	71	3.7	52	2.8	46	2.4
2013	65	3.4	9	0.5	9	0.5
Totals:						
2006-2011	568	4.3	546	4.9	510	4.6
2006-2013	704	4.1	607	4.1	565	3.8

Panel B – Percentage of Misstating Firms by Industry

Industry Name	Misstating firms %	Listed firms %
Automobiles & Parts	0.9	0.5
Banks	0.4	0.6
Basic Resources	26.3	38.1
Chemicals	1.0	0.9
Construction & Materials	2.8	2.5
Financial Services	8.4	9.0
Food & Beverage	3.8	2.8
Health Care	6.0	6.5
Industrial Goods & Services	12.8	8.6
Insurance	0.1	0.4
Media	2.0	2.0
Oil & Gas	8.5	8.1
Personal & Household Goods	1.6	1.8
Real Estate	6.4	5.2
Retail	4.5	2.6
Technology	7.2	4.3
Telecommunications	2.4	1.3
Travel & Leisure	2.7	2.1
Utilities	1.4	1.6
Unclassified	0.7	1.0
Total	100.0	100.0

In Panel A, error years are understated more in recent sample years due to the misstatement lag - see Table 2, Panel C. Some firms disclose more than one error year in a misstatement year, causing the totals for Error Years All to be larger than the totals for Error Years Earliest. Ten earliest Error Years occur before the ASX listing and these cases are excluded from the Error Years data on the right side of Panel A. Datastream industry classifications are used in Panel B.

TABLE 2 – Accounting Issues, Location of Initial Disclosure and Descriptive Statistics of Misstatements

Panel A – Accounting issues

	N	%
REV	92	13.1
EXPACCRESEST	84	11.9
EXPSTOCK	41	5.8
EXPCOS	50	7.1
EXPCAPDEPAM	54	7.7
EXPPENCONLEA	13	1.8
TAX	108	15.3
INVESTING	71	10.1
FINANCING	38	5.4
CFMISS	15	2.1
ISMISSEPS	35	5.0
DEQMISS	50	7.1
FNOTEDIR	145	20.6
ASSETMISS	82	11.6
COMPINC	25	3.6
SUBSID	38	5.4
CONSOL	61	8.7
REORG	87	12.4
Unspecified	11	1.6

Panel B – Location of initial disclosure

Half-year report	216	30.7
Half-year report and Press	1	0.1
Half-year report and Announcement	11	1.6
Half-year report and Financial-year report	1	0.1
Financial-year report	338	48.0
Financial-year report and Press	1	0.1
Financial-year report and Announcement	56	8.0
Financial-year report, Press and Announcement	1	0.1
Announcement	79	11.2

Panel C – Descriptive statistics of misstatement variables

	Min	Median	Mean	Max	Std dev	N
MISSTATEMENTLAG	0	1	1.2	7	0.8	704
Error lag	1	239	227.5	1,789	140.4	704
NUMERRORS	1	1	1.4	8	0.8	704
Number years restated	1	1	1.1	5	0.4	704
Number accounting issues	1	1	1.6	10	0.9	704
Earnings or equity change	0	1	0.6	1	0.5	704
Earnings change (%)	- 4,719.8	- 4.9	- 39.2	670.8	292.6	347
Equity change (%)	- 469.3	- 1.3	- 8.3	119.2	43.4	362

In Panels A and B, % is the percentage of all misstatements. Percentages in Panel A do not total 100 because firms can have more than one accounting issue per misstatement. Percentages in Panel B do not total 100 due to rounding. Variable descriptions for Panel A are shown in Appendix 2. *MISSTATEMENTLAG* is the number of years from the misstatement year to the earliest year when an error was made. Error lag is the number of days from the lodgement date of the most recent previous incorrect audited financial report to the earliest date of the misstatement. *NUMERRORS* is the number of accounting errors identified in a misstatement. Number years restated is the number of financial years where the impact of the error is disclosed. When no data are provided, we set the value to one year. Number accounting issues is the number of issues from Panel A of this table. Earnings or equity change equals unity if the firm's earnings or its equity decreased or increased and zero otherwise. Earnings change (%) is the cumulative correction to earnings divided by the sum of the absolute values of prior year's reporting earnings(s). Equity change (%) is the correction to equity divided by prior-period equity.

Table 3 – Tests of Differences in Characteristics between Misstatement Firms and Control Firms

Panel A - Univariate Tests of Differences in Characteristics

	Mean			Median		
	Misstatement Firms	Control Firms	*p*-value	Misstatement Firms	Control Firms	*p*-value
SIZE	17.794	17.362	<0.01	17.580	17.072	<0.01
LEV	0.464	0.407	0.01	0.388	0.240	<0.01
ROA	- 0.192	- 0.323	<0.01	- 0.014	- 0.054	<0.01
LOSS	0.533	0.603	<0.01	1	1	
BIG4	0.410	0.458	0.04	0	0	
UNOP	0.233	0.208	0.15	0	0	
AGE	2.040	2.074	0.47	2.073	2.067	0.66
LAF	11.616	11.196	<0.01	11.482	11.035	<0.01
OFF	3.277	3.400	<0.01	3.526	3.689	<0.01
NEW	0.125	0.105	0.11	0	0	
MINE	0.265	0.375	<0.01	0	0	
TECH	0.106	0.055	<0.01	0	0	
IFRS	0.386	0.317	<0.01	0	0	
N	510	10,578		510	10,578	

Panel B - Results from Logistic Regression for Predicting Errors that Result in Misstatements (*ERRORYEAR*=1)

	Cross-sectional (Model 1A)		Fixed-Effect (Model 1B)	
	Coeff	*p*-value	Coeff	*p*-value
SIZE	- 0.004	0.947	0.197	0.016
LEV	0.148	0.077	0.063	0.683
ROA	0.286	0.001	0.006	0.959
LOSS	0.082	0.435	- 0.026	0.860
BIG4	- 0.615	0.001	- 0.478	0.080
UNOP	0.291	0.059	0.315	0.061
AGE	- 0.140	0.088	- 0.662	0.001
LAF	0.304	0.001	0.140	0.161
OFF	- 0.058	0.001	- 0.188	0.080
NEW	0.211	0.017	- 0.072	0.637
MINE	- 0.273	0.047	-	-
TECH	0.518	0.001	-	-
IFRS	0.337	0.007	0.088	0.528
Constant	- 5.894	0.001	-	-
Firm-fixed Effects	No		Yes	
Nagelkerke R^2	0.037		0.004	
Wald Chi sq	119.329	<0.01	38.511	<0.01
N	11,088		2,313	

On the left side of Panel A, two-tailed *p* -values from *t*-tests for continuous variables and from *Z*-tests for categorical variables are shown in the comparisons of means. On the right side of Panel A, two-tailed *p*-values for continuous variables from the Wilcoxon-Mann-Whitney test are shown in the comparisons of distributions. Continuous variables except for *SIZE* and *OFF* are winsorized at the 1st and 99th percentiles. Panel B presents logistic regression results for errors that are subsequently corrected. The two-tailed *p*-values are shown. Coefficients and *p*-values less than 0.001 are shown as 0.001. Regressions are estimated with robust standard errors clustered by firm and year as per Gow *et* al. (2010). See Appendix 3 for the definitions of the independent variables and for studies justifying the expected signs for the coefficients.

TABLE 4 – Abnormal Returns around Misstatement Announcements for All Firms and for Various Misstatement Partitions

		METHOD 1				METHOD 2			
		BETA ADJ.		MARKET ADJ.		BETA ADJ.		MARKET ADJ.	
	N	Mean	p-value	Mean	p-value	Mean	p-value	Mean	p-value
Panel A - Full Sample									
Full Sample	594	-0.001	0.744	0.001	0.839	-0.009	0.152	-0.007	0.227
Panel B - Effects on Earnings/Equity									
Earnings or Equity Change	362	-0.003	0.608	-0.001	0.798	-0.015	0.068	-0.015	0.080
No Earnings or Equity Change	232	0.001	0.879	0.004	0.482	0.002	0.820	0.005	0.565
Test of CAR Difference		-0.004	0.650	-0.006	0.486	-0.017	0.141	-0.019	0.094
NEGEARNEQ	231	-0.010	0.123	-0.010	0.130	-0.023	0.032	-0.025	0.024
POSEARNEQ	102	0.011	0.292	0.015	0.139	-0.009	0.565	-0.001	0.939
Test of CAR Difference		-0.021	0.090	-0.025	0.039	-0.015	0.433	-0.024	0.183
Panel C - Accounting Issue									
REV	79	-0.016	0.212	-0.017	0.184	-0.014	0.506	-0.021	0.310
EXPACCRESEST	64	0.009	0.463	0.011	0.399	-0.001	0.938	-0.009	0.612
EXPSTOCK	36	0.010	0.411	0.014	0.234	-0.005	0.792	0.008	0.716
EXPCOS	40	-0.008	0.705	-0.019	0.360	0.012	0.718	-0.008	0.817
EXPCAPDEPAM	44	0.001	0.996	-0.004	0.833	-0.002	0.943	-0.015	0.646
EXPPENCONLEA	4	-0.009	0.858	-0.018	0.764	0.007	0.778	-0.011	0.809
TAX	98	-0.003	0.731	-0.004	0.639	-0.022	0.140	-0.024	0.109
INVESTING	58	0.006	0.607	0.009	0.459	0.005	0.817	0.007	0.751
FINANCING	27	-0.015	0.311	-0.012	0.415	-0.002	0.948	-0.009	0.740
CFMISS	13	0.016	0.422	0.016	0.392	0.013	0.677	0.004	0.900
ISMISSEPS	29	-0.005	0.722	-0.005	0.771	-0.029	0.246	-0.032	0.246
DEQMISS	38	-0.025	0.214	-0.022	0.296	-0.010	0.745	-0.001	0.988
FNOTEDIR	115	0.004	0.555	0.010	0.129	0.000	0.973	0.004	0.649
ASSETMISS	64	0.001	0.890	0.002	0.870	0.003	0.857	0.004	0.769
COMPINC	22	-0.008	0.692	-0.001	0.969	-0.054	0.110	-0.050	0.152
SUBSID	31	0.011	0.597	0.021	0.279	-0.002	0.955	0.012	0.649
CONSOL	48	0.001	0.981	-0.001	0.949	-0.016	0.542	-0.018	0.498
REORG	76	0.011	0.279	0.014	0.166	0.033	0.036	0.039	0.009
UNSPECIFIED	11	-0.006	0.713	-0.008	0.618	-0.021	0.705	-0.024	0.687
Panel D - Returns by Other Types of Severity									
FRAUD	12	-0.058	0.035	-0.054	0.067	-0.068	0.273	-0.087	0.215
Number of Errors>1	139	-0.004	0.580	-0.003	0.698	-0.005	0.671	-0.007	0.568
Panel E - Returns by Disclosure Salience									
STEALTH	477	0.002	0.665	0.004	0.372	-0.005	0.504	-0.003	0.718
NONSTEALTH	117	-0.015	0.039	-0.013	0.087	-0.025	0.028	-0.027	0.023
Test of CAR Difference		0.017	0.048	0.017	0.054	0.020	0.126	0.024	0.075

Abnormal returns are computed either using a one-factor event study model or a simple market adjustment as described in Section 3.2. The results in this table use event date Method 1, which is the earliest date of information about the misstatement error, or Method 2, which uses all relevant dates for the misstatement case (see Appendix 1). *p*-values are from two-tailed *t*-tests.

TABLE 5 – Descriptive Statistics for Variables used in Regressions of Abnormal Returns

	MIN	P1	P5	P50	P95	P99	MAX	MEAN	SD
CAR_MET1_BETAADJ	-0.301	-0.301	-0.175	0.001	0.154	0.359	0.359	-0.001	0.097
CAR_ MET1_MKTADJ	-0.315	-0.315	-0.163	0	0.157	0.344	0.344	0.001	0.096
CAR_MET2_BETAADJ	-0.506	-0.506	-0.275	-0.004	0.211	0.516	0.516	-0.009	0.147
CAR1_ MET2_MKTADJ	-0.522	-0.522	-0.276	-0.003	0.218	0.507	0.507	-0.007	0.146
NEGEARNEQ	0	0	0	0	1	1	1	0.389	0.488
CONSOL_EQ_TA	-1.138	-0.587	-0.102	0	0.039	0.237	0.771	-0.013	0.108
REV	0	0	0	0	1	1	1	0.133	0.340
COREEXPENSES	0	0	0	0	1	1	1	0.278	0.448
FRAUD	0	0	0	0	0	1	1	0.020	0.141
STEALTH	0	0	0	1	1	1	1	0.803	0.398
NUMERRORS	1	1	1	1	3	5	6	1.333	0.723
SIZE	0	13.559	14.937	17.648	21.932	23.250	26.426	17.952	2.280
ROA	-10.099	-3.864	-1.303	-0.025	0.180	0.316	0.553	-0.244	0.916
LEV	0.003	0.006	0.020	0.391	0.937	1.903	8.507	0.448	0.608
EARNINGS_SURPRISE	-1.800	-1.800	-0.560	-0.001	0.433	4.133	4.133	0.011	0.571

This table presents extreme values, various percentiles and mean and standard deviation statistics for the dependent and independent variables used in the abnormal return regressions in Tables 6 and 7. Variable definitions are shown in Appendices 3 and 4.

TABLE 6 – OLS Regression Results for Cumulative Abnormal Returns around Misstatement Announcements

	METHOD 1				METHOD 2			
	BETA ADJ.		MARKET ADJ.		BETA ADJ.		MARKET ADJ.	
	Coef	p-value	Coef	p-value	Coef	p-value	Coef	p-value
NEGEARNEQ	-0.011	0.170	-0.013	0.166	-0.027	0.025	-0.028	0.028
CONSOL_EQ_TA	0.043	0.342	0.037	0.384	0.022	0.818	0.021	0.801
REV	-0.015	0.030	-0.017	0.001	-0.005	0.687	-0.012	0.184
COREEXPENSES	0.007	0.404	0.002	0.857	0.011	0.410	0.003	0.828
FRAUD	-0.040	0.203	-0.035	0.283	-0.033	0.612	-0.047	0.459
STEALTH	0.014	0.026	0.013	0.045	0.024	0.077	0.025	0.040
NUMERRORS	0.001	0.705	0.001	0.709	0.006	0.517	0.004	0.591
SIZE	-0.001	0.723	-0.002	0.270	0.005	0.126	0.003	0.268
ROA	0.003	0.439	0.006	0.155	0.005	0.485	0.009	0.029
LEV	0.001	0.951	-0.001	0.931	0.020	0.104	0.016	0.132
EARNINGS_SURPRISE	0.006	0.030	0.006	0.095	0.007	0.464	0.010	0.255
INTERCEPT	0.011	0.746	0.044	0.195	-0.121	0.048	-0.080	0.146
Industry and Year dummies	Yes		Yes		Yes		Yes	
Adj R-squared	3.27%		4.06%		3.10%		3.85%	
N	594		594		594		594	

This table presents OLS regression results for CARs that use event date Method 1, which is the earliest date of information about the misstatement and Method 2, which combines all relevant dates for the misstatement (see Appendix 1). Abnormal returns are computed either using a one-factor event study model or a simple market adjustment as described in Section 3. *p*-values are from two-tailed *t*-tests. Regressions are estimated with clustered standard errors by firm and year as per Gow *et* al. (2010). CARs are winsorized at their 2.5th and 97.5th percentiles. Variable definitions are shown in Appendices 3 and 4.

TABLE 7 – OLS Regression Results for Cumulative Abnormal Returns around Misstatement Announcements: Interactions of Key Variables with Stealth Indicator

	METHOD 1				METHOD 2			
	BETA ADJ.		MARKET ADJ.		BETA ADJ.		MARKET ADJ.	
	Coef	p-value	Coef	p-value	Coef	p-value	Coef	p-value
NEGEARNEQ	-0.028	0.058	-0.034	0.051	-0.064	0.001	-0.063	0.003
NEGEARNEQ_INT	0.021	0.191	0.025	0.119	0.043	0.003	0.042	0.018
CONSOL_EQ_TA	0.023	0.425	0.011	0.699	0.020	0.512	-0.004	0.943
CONSOL_EQ_TA_INT	0.033	0.371	0.040	0.320	0.015	0.886	0.041	0.737
REV	-0.001	0.963	-0.008	0.737	-0.019	0.711	-0.032	0.450
REV_INT	-0.017	0.463	-0.011	0.591	0.022	0.659	0.029	0.502
COREEXPENSES	0.018	0.100	0.008	0.514	0.063	0.000	0.028	0.099
COREEXPENSES_INT	-0.012	0.495	-0.006	0.733	-0.061	0.002	-0.028	0.211
FRAUD	-0.037	0.276	-0.030	0.408	-0.030	0.645	-0.037	0.561
STEALTH	0.013	0.070	0.008	0.275	0.019	0.250	0.014	0.307
NUMERRORS	0.001	0.722	0.001	0.749	0.005	0.543	0.003	0.662
SIZE	-0.001	0.793	-0.002	0.352	0.005	0.120	0.004	0.233
ROA	0.002	0.602	0.006	0.230	0.004	0.651	0.007	0.141
LEV	0.001	0.963	-0.001	0.929	0.020	0.129	0.016	0.146
EARNINGS_SURPRISE	0.006	0.048	0.006	0.126	0.008	0.409	0.010	0.258
INTERCEPT	0.009	0.800	0.043	0.227	-0.120	0.037	-0.078	0.131
Industry and Year dummies	Yes		Yes		Yes		Yes	
R-squared	3.43%		4.25%		3.64%		4.24%	
N	594		594		594		594	

This table presents OLS regressions results for CARs, which use event date Method 1, which is the earliest date of any information about the misstatement and Method 2, which combines all relevant dates for the misstatement (see Appendix 1). Abnormal returns are computed either using a one-factor event study model or a simple market adjustment as described in Section 3. *p*-values are from two-tailed *t*-tests. The interaction terms, indicated by the variable names followed by an "*_INT*" represent misstatement characteristics multiplied by the stealth indicator, which takes the value of unity if the misstatement disclosure was only in the Half-year or Financial-year report without separate disclosure and zero otherwise. Regressions are estimated with clustered standard errors by firm and year as per Gow *et* al. (2010). CARs are winsorized at their 2.5th and 97.5th percentiles. Variable definitions are shown in Appendices 3 and 4.

TABLE 8 – Results from Logistic Regressions for Predicting Announcement of Misstatement News on the Same Date as Earnings (NEWS_SAME_EARN=1), with and without STEALTH interactions

	No interactions		Including stealth interactions	
	Coeff	*p*-value	Coeff	*p*-value
NEGNI_EFFECT_BIG	1.437	0.001	0.950	0.139
NEGNI_EFFECT_BIG × STEALTH			1.734	0.152
NEGNI_EFFECT_SMALL	0.354	0.329	0.701	0.331
NEGNI_EFFECT_SMALL × STEALTH			-0.479	0.559
POSNI_EFFECT	0.581	0.105	1.220	0.090
POSNI_EFFECT × STEALTH			-0.849	0.292
REV	1.035	0.014	1.143	0.036
REV × STEALTH			-0.378	0.648
COREEXPENSES	0.762	0.019	0.749	0.172
COREEXPENSES × STEALTH			0.056	0.935
FRAUD	-2.403	0.001	-1.352	0.039
NUMERRORS	-0.016	0.904	0.062	0.721
MISSTATEMENTLAG	0.311	0.010	0.168	0.155
STEALTH	3.511	0.001	3.570	0.001
SIZE	0.111	0.088	0.112	0.092
LEV	0.084	0.646	0.045	0.812
ROA	-0.150	0.333	-0.187	0.236
BIG4	0.120	0.664	0.121	0.662
AGE	-0.280	0.046	-0.298	0.035
Constant	-3.771	0.002	-3.771	0.003
Nagelkerke R^2	0.502		0.509	
Wald Chi sq	171.278		164.591	
N	703		703	

Logistic regression results for predicting misstatement news released on the earnings announcement date. The two-tailed *p*-values are shown. Coefficients and *p*-values less than 0.001 are shown as 0.001. Regressions are estimated with robust standard errors clustered by firm and year as in Gow *et* al. (2010). Variable definitions are shown in Appendices 3 and 4.