

Non-GAAP earnings disclosures and IFRS

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Abstract

We investigate the disclosure of non-GAAP earnings by companies reporting under IFRS and the usefulness of these disclosures for analysts. Examining Australian listed (ASX 200) companies in the three year period 2008-2010 (576 firm-years), we find that companies disclosing non-GAAP earnings are more likely to have a higher incidence and magnitude of profit or loss items that reflect remeasured items (asset remeasurements and impairment) in their financial statements. We find non-GAAP disclosing companies are more likely to have analyst adjustments to earnings for these items and lower forecast error and dispersion in the following year, suggesting usefulness rather than opportunism in the adjustments.

Keywords: IFRS, Non-GAAP, voluntary disclosure, fair value measurement, analyst forecasts.
JEL Codes: M40, M41

Non-GAAP earnings disclosures and IFRS (10219/8000)

1. Introduction

This study investigates the use of non-GAAP earnings in IFRS¹ financial reporting. Non-GAAP earnings are figures reported by management and analysts that exclude items required to be recognised under accounting standards. For example, non-GAAP earnings may be GAAP earnings before deducting particular items such as interest and tax (EBIT) or GAAP earnings before deducting non-recurring items, sometimes called core, underlying or future maintainable earnings. In the US, non-GAAP earnings are commonly referred to as operating, proforma or street earnings, the latter being analyst-adjusted earnings. The reporting of non-GAAP earnings has increased following adoption of IFRS, leading to questions by regulators and extensive discussion within the financial reporting community about the purpose and usefulness of non-GAAP reporting (International Organization of Securities Commissions 2002; The Committee of European Securities Regulators 2005; PricewaterhouseCoopers 2007; Australian Securities and Investments Commission 2005, 2011b, 2011a; FINSIA and AICD 2008, 2009; KPMG 2010; International Organization of Securities Commissions 2014; International Federation of Accountants (IFAC) 2014).

Prior studies investigate many aspects of non-GAAP reporting, particularly with regard to whether non-GAAP earnings provide useful information for evaluating companies' performance and predicting earnings (Venter, Emanuel, and Cahan 2014; Bhattacharya et al. 2003; Bradshaw and Sloan 2002; Landsman, Miller, and Yeh 2007). Other studies have focused on the opportunistic use of non-GAAP reporting to influence analysts' forecasts and investors' decision making (Bhattacharya et al. 2003; Black and Christensen 2009; Doyle, Jennings, and Soliman 2013; Guillamon, Isidro, and Marques 2013) and the effect of requirements to reconcile GAAP and adjusted earnings (Heflin and Hsu 2008; Marques 2006; Zhang and Zheng 2011).² While many studies explore aspects of non-GAAP reporting, ours is the first to explore the link

¹ International Financial Reporting Standards, issued by the International Accounting Standards Board (IASB).

² The SEC's Regulation G requires companies disclosing non-GAAP earnings to label the disclosure as non-GAAP and to reconcile it to GAAP earnings..

between non-GAAP reporting and the specific measurement requirements of IFRS. We examine whether non-GAAP disclosure³ is linked to the incidence and magnitude of items remeasured through profit or loss (financial and other assets, investment properties and impairment expense) commonly adjusted by managers and analysts. We also explore the relationship between the adjustments to earnings made by managers and those made by analysts. We further consider whether analysts benefit from non-GAAP disclosure by investigating the association of non-GAAP earnings and properties of analysts' forecasts (error and dispersion). Our underlying research questions are: (1) To what extent is the release of non-GAAP earnings associated with IFRS remeasurements? and (2) To what extent are non-GAAP adjustments for IFRS remeasurements useful for analysts?

Our study is based on Australian listed (ASX 200) companies in the three year period 2008-2010 (576 company-years) for which we could obtain data about managers' and analysts' non-GAAP earnings adjustments. We focus on three groups of profit or loss items commonly adjusted under IFRS that reflect measurement uncertainty because they involve fair value remeasurements and preparers' judgements and estimates (gains and losses on financial instruments; revaluation of investment property and agricultural, pension and insurance assets; and impairment) and are sometimes argued to not reflect company performance or future earnings (KPMG 2010).

Australia provides an excellent setting for our investigation, beyond the fact of the availability of the managers' non-GAAP earnings disclosures and analysts' data about their adjustments to IFRS earnings. The Australian market, although small by world standards, has a key role in providing finance to Australian listed companies, all of which are required by the *Corporations Act* to use IFRS-equivalent standards. Security market analysts have an important role as users and disseminators of company information. During our study period, the disclosure of non-GAAP earnings was widely practiced and discussed but not formally regulated, in contrast to other jurisdictions such as the US where non-GAAP reporting follows directions of the Securities and Exchange Commission (SEC) (Heflin and Hsu 2008; Marques 2006; Zhang and Zheng 2011).

³ We use the terms non-GAAP reporting and non-GAAP disclosure interchangeably.

In addition, our study period includes the 2008 financial crisis period, when market and asset price volatility could lead to more sensitivity about IFRS remeasurements and potentially increase the usefulness of non-GAAP disclosures, assuming they provide insights into managers' private information. Thus the Australian setting allows for the investigation of incentives for, and consequences of, voluntary non-GAAP disclosures linked with adoption of IFRS. In many jurisdictions including Australia, adoption of IFRS required greater use of fair value measurement than prior national GAAPs and thus introduced more judgement and estimates into financial reporting numbers.⁴

In relation to the first research question, we expect and find companies with a higher incidence of the IFRS profit or loss remeasurement items in their financial statements are more likely to provide non-GAAP disclosures. The occurrence of items in the financial statements and in analyst adjustments is also positively associated with release of non-GAAP earnings, although the importance of individual items varies. Non-GAAP disclosure is more likely among profit-making companies, those with more variability in cash flows over time, and companies from sectors other than mining. The release of non-GAAP earnings is not particularly related, on average, to size, change in earnings, analyst following, prior year properties of analyst forecasts (error and dispersion) or time period.

In relation to the second research question about the usefulness of remeasured items in non-GAAP earnings, we find companies reporting non-GAAP items are more likely to have analyst adjustments for these items. There are significant positive correlations between managers' and analysts' adjustments for items relating to impairment, financial instruments and asset revaluations as well as mergers and restructuring expenses. For many items, analysts on average make larger adjustments than those presented by managers suggesting the companies' adjustments are only part of the information used by analysts in adjusting earnings. However,

⁴ The Australian Securities and Investment Commission (ASIC), the security market regulator, released Regulatory Guide 230 Disclosing non-IFRS Financial Information in December 2011. The aim of the regulatory guide is to give guidance to regulated entities by explaining the relevant legislation and how ASIC interprets the law (Australian Securities and Investments Commission 2011b: 2). The issue of non-IFRS reporting was under discussion for several years. ASIC released a consultation paper in 2005 (Australian Securities and Investments Commission 2005), a discussion paper in 2009 (Australian Securities and Investment Commission 2009) and professional bodies representing security market analysts and company directors also released a discussion paper and provided guidance about non-statutory reporting (FINSIA and AICD 2008, 2009).

both managers and analysts demonstrate asymmetry in the adjustments made: losses (or expenses) are more likely to be removed than gains. We also find less error in forecasts and lower disagreement among analysts in the following year for companies disclosing non-GAAP earnings. The effect is observed throughout the year in relation to forecasts error (i.e., at nine, six and three months prior to year-end) and at three months prior to year-end for forecast dispersion.

Our paper makes several contributions to the literature. To the best of our knowledge, our study is the first to explore the managers' and analysts' adjustments for IFRS remeasured items, some of which are controversial items because they relate to fair value measurement in IFRS. Our study contributes to literature reviewing the impact of IFRS. The increase in non-GAAP reporting was an unexpected consequence of IFRS adoption. It has created debate in countries where IFRS are used and drawn commentary from the IASB and regulators who are concerned about the potential for non-GAAP reporting to detract from the quality of financial reporting (European Securities and Markets Authority (ESMA) 2014; International Accounting Standards Board (IASB) 2015; Ontario Securities Commission (OSC) 2013). Our findings show the incidence and magnitude of items being adjusted in one jurisdiction. This evidence may be useful for the regulators and the IASB as it develops disclosure and performance measurement principles and works on the financial statement presentation project.

We add to prior studies of the relationship of managers' and analysts' non-GAAP adjustments (Black et al. 2013; Gu and Chen 2004). We show that non-GAAP disclosures for remeasured items have a role in communicating information that is useful for analysts, thus providing empirical evidence in support of practitioner claims about the need for non-GAAP disclosures (FINSIA and AICD 2008). Prior studies have considered arguments about managerial opportunism and efficient contracting when examining non-GAAP reporting (Brown et al. 2010; Black and Christensen 2009). We add to these studies by showing that analysts appear to make use of, and benefit from, the additional disclosures managers make about remeasured and other non-recurring items. The findings are important because of the prevalence of non-GAAP reporting under IFRS and concerns about its potential to mislead users. On balance, our evidence points more to non-GAAP disclosure having a role in communicating information to analysts than suggesting they are misled by possible opportunism in the presentation of adjusted earnings.

The remainder of the paper is organised as follows. Section 2 presents background and research predictions, section 3 outlines data sources and statistical models, section 4 presents results and section 5 concludes.

2. Background and hypotheses

2.1 Accounting standards and non-GAAP earnings

The disclosure of adjusted IFRS earnings is observed in many countries (Isidro and Marques 2014). Theory suggests preparers have many incentives for making additional earnings disclosures. For example, voluntary disclosures may reduce the information asymmetry between companies and capital providers, thus reducing the agency problem (Jensen and Meckling 1976). Additional disclosures may improve the credibility of information provided and help to mitigate the ‘lemons’ problem (Akerlof 1970). Preparers may disclose additional earnings measures to assist investors to better understand the entity’s performance (International Federation of Accountants (IFAC) 2014). Investors have indicated they find additional earnings measures useful for investment decisions, particularly the non-GAAP measures management uses to run the business (PricewaterhouseCoopers 2007). Some analysts and companies maintain that adjustments to GAAP earnings are necessary to modify the effects of accounting entries (required by accounting standards) that do not relate to business operations or accurately reflect the underlying business reality, and are therefore less relevant to investors (FINSIA and AICD 2008, 2009).

There is some academic evidence to support these claims. In the US, Brown and Sivakumar (2003) find operating earnings presented by analysts (for example, in I/B/E/S) are more strongly associated with share price than GAAP net income. Analysts’ and managers’ earnings commonly exclude non-recurring or non-operating items such as restructuring and acquisition charges and gains/losses on sales of assets. Brown and Sivakumar (2003) conclude that GAAP net income contains many non-operating items that reduce its value relevance compared to operating earnings. Bhattacharya et al. (2003) find pro forma earnings are more informative and more permanent than GAAP earnings. Using data for 2003 provided by managers in press releases,

they report that pro forma earnings are usually larger and reported before GAAP earnings (for 70% and 87% of firms, respectively). Pro forma adjustments commonly relate to depreciation/amortisation, mergers, stock compensation and gains/losses on asset sales.

However, there is also evidence that companies exclude standard recurring items, such as depreciation, research and development and stock based compensation to meet strategic earnings targets (Black and Christensen 2009). Doyle, Lundholm, and Soliman (2003) find that some excluded items are predictive of future cash flows and abnormal returns, raising questions about their classification as non-recurring. Marques (2010) points to opportunism in non-GAAP reporting. She finds managers give prominence to non-GAAP earnings when GAAP earnings falls short of benchmarks but not when GAAP earnings meets or exceeds benchmarks.

Consistent with US studies, so-called ‘non-recurring’ items (costs associated with redundancies, restructuring, mergers, integration and divestments of business operations) are adjusted in financial reporting under IFRS in Australia (KPMG 2010). However, other items relating to fair value remeasurements and items involving judgements and estimates in their measurement, such as impairment, are also adjusted. Prior studies have not investigated non-GAAP adjustments for current value remeasurements, specifically gains and losses on remeasurement of financial, investment, agricultural and pension assets and impairment expenses. We propose that these items are of particular interest because they involve unrealised gains or losses and possible measurement error and uncertainty. To the extent that these transactions in IFRS financial statements are uninformative or misleading for the purposes of predicting future earnings, we posit that their exclusion can generate benefits for users of financial information (particularly analysts), and hence a company’s exposure to these items provides an incentive for the disclosure of adjusted earnings that has not been explored in prior studies. Thus we propose that companies with higher incidence and magnitude of fair value remeasurement gains and losses and impairment expenses are more likely to release non-GAAP earnings. The hypothesis can be formally stated as follows:

H1 Disclosure of non-GAAP earnings is more likely for companies with higher (a) incidence and (b) magnitude of financial statement items reflecting gains and losses on fair value measurements and impairment expenses.

2.2 Analysts and non-GAAP earnings

For many years analysts have adjusted GAAP earnings in their income prediction models to account for non-recurring items. A number of US studies conclude non-GAAP earnings are useful for investors, because non-GAAP earnings are more strongly associated with returns, share price and future earnings than GAAP earnings (Bradshaw and Sloan 2002). Gu and Chen (2004) investigate the items excluded by managers and analysts (using data from First Call footnotes files for the latter). They find the most common items excluded by analysts relate to restructuring (22%), acquisitions (14%) asset sales (11%) and realised investment gains (8%). They find items excluded by managers and analysts have predictive ability and that managers' exclusions provide information for analysts. Christensen et al. (2011) also find that analysts influence managers' exclusions. In cases where managers provide guidance about pro forma earnings during the year, analysts are more likely to exclude special and other items.

We add to this literature by examining the relationship of adjustments for fair value remeasurement gains and losses and impairment expenses made by managers and analysts. Consistent with prior studies we propose that companies disclosing non-GAAP adjustments for these items are more likely to have their earnings adjusted by analysts. If companies' non-GAAP disclosures serve to highlight relevant items to analysts and provide additional information, we would expect to observe an association between companies' non-GAAP earnings disclosures and analyst adjustments. Our hypothesis can be formally stated as:

H2 Companies disclosing non-GAAP earnings are more likely to have a higher (a) incidence and (b) magnitude of analyst adjustments for financial statement items reflecting gains and losses on fair value measurements and impairment.

2.3 Usefulness of non-GAAP information

Studies suggest non-GAAP disclosures are used opportunistically by some managers to meet earnings targets and to shape investors' perceptions (Bhattacharya et al. 2007; Black and Christensen 2009). Considering both informative and strategic motives for non-GAAP disclosures, Choi and Young (2015) conclude the exclusion of transitory items by UK companies is linked to providing information when consensus earnings are achievable, but are linked to strategic motives when GAAP earnings fall below expectations. Isidro and Marques (2014) find that managers in countries in Europe with developed institutional and economic conditions are more likely to adjust non-GAAP earnings such as research and development, depreciation and stock-based compensation expenses than managers in other countries. In the Australian setting, companies seldom release earnings guidance thus reducing the importance of this factor as a motivation for managers. Further, reports suggest that the items commonly adjusted include others not referred in prior studies such as Isidro and Marques (2014) including those relating to fair value measurement (KPMG 2010).

Some studies suggest non-GAAP earnings may be 'noisy' information and difficult for market participants to interpret. Burgstahler, Jiambalvo, and Shevlin (2002) find that prices do not fully reflect the implications of excluded items (Compustat's special items) for future earnings. Doyle, Lundholm, and Soliman (2003) also conclude investors underreact to the excluded components, indicating market mispricing. Landsman, Miller, and Yeh (2007) examine both forecasting and value relevance implications of excluded items (Compustat's total items, special items and other exclusions). They find the items are relevant for forecasting but significant coefficients without the predicted sign for the excluded items lead the authors to conclude the items are mispriced.

Zhang and Zheng (2011) extend this line of research and show that mispricing is less for companies with higher quality reconciliation statements. Marques (2006) also concludes that the non-GAAP income statement and associated reconciliation statement contain information useful for users. Elliott (2006) reports that emphasis on pro forma earnings by managers influences investors but this is mitigated by the presence of a quantitative reconciliation. Aubert and

Grudnitski (2014) study EURO STOXX companies and conclude market mispricing is only prevalent when non-GAAP reconciliations are of poor quality.

Considering the importance of specific adjusted items, Barth, Gow, and Taylor (2012) explore adjustments for share-based payment expense. They conclude companies are more likely to exclude share-based payment expense from their non-GAAP earnings to manage investor perceptions while analysts are more likely to exclude the expense when the exclusion results in a measure of earnings that has greater predictive ability for companies' future performance.

Studies to date have explored whether non-GAAP earnings are opportunistic or useful for investors. In particular, they have focused on the persistence, predictive ability and value relevance of summary metrics (managers' adjusted earnings, analysts' adjusted earnings and GAAP earnings). We take a different approach and investigate whether analysts' forecasts are more accurate and have less disagreement for companies releasing non-GAAP earnings. If the release of non-GAAP information is useful to analysts, we would expect lower forecast error and less dispersion in forecasts for companies releasing non-GAAP earnings. On the other hand, if non-GAAP earnings serve to mislead users or to reduce the quality of information provided, a benefit for analysts (measured by lower forecast error and less disagreement in forecasts) may not be observed. Our hypothesis can be formally stated as:

H3 Companies releasing non-GAAP earnings are more likely to have lower forecast error and less forecast dispersion in the following year.

In addition, we focus on specific items adjusted by managers and analysts (namely, fair value remeasurements and impairment) because these items are controversial in financial reporting. Users point to the usefulness of current value measurements for decision making and standard setters have responded to calls for more relevant financial information through standards such as IAS 39 *Financial Instruments: Recognition and Measurement* and IAS 36 *Impairment*. Studies provide evidence that fair value measurements (Barth and Clinch 1996; Landsman, Miller, and Yeh 2007) and impairments (AbuGhazaleh, Al-Hares, and Roberts 2011; Amel-Zadeh et al. 2013; Laghi, Mattei, and di Marcantonio 2013) have information content. It is therefore a

conundrum as to why managers and analysts are adjusting for fair value remeasurements, which has important implications for performance reporting and the quality and usefulness of financial reporting (Young 2014). We seek evidence about the question of whether the adjustments are useful for analysts by exploring their association with properties of analyst forecasts.

3. Data and method

3.1 Sample selection and data collection

We study large Australian companies (from the ASX 200, the share market index comprising the largest 200 Australian companies by market capitalisation) because they are the most economically important and are more likely to have diverse shareholders, substantial financing needs and to be followed by security analysts.⁵ We hand-collect data about disclosure of non-GAAP earnings from companies' annual reports, earnings announcements (i.e., 4E preliminary financial statements) and investor presentations lodged with the ASX (accessed through the Securities Industry Research Centre of Asia-Pacific (SIRCA) *Australian Company Announcement* database and company websites). We found 371 firm-years reported non-GAAP earnings. Of these companies, 330 (89%) reported non-GAAP earnings in their annual report, 270 (73%) reported non-GAAP earnings in their earnings announcement and 284 (76%) included non-GAAP earnings in their investor relations presentation for the year. We found a majority of companies presented the same non-GAAP earnings amount across different forms of media: 188 (51%) reported non-GAAP earnings in all three media, 138 (37%) reported in two and 44 (12%) disclosed only in one.

We follow ASIC's (2011: 7) definition of non-IFRS financial information (i.e., any financial information that is presented other than in accordance with accounting standards).⁶ We searched for non-GAAP earnings using Adobe Acrobat Pro text search software and terms such as

⁵ The ASX 200 represents approximately 80% of the market capitalisation of the Australian Securities Exchange (ASX).

⁶ Therefore we do not include companies reporting EBIT and EBITDA in the non-GAAP sample. Although some of the literature refers to these metrics as non-GAAP, they are not prohibited under IFRS.

‘underlying earnings’ and ‘normalised profit’.⁷ The total sample comprises 576 firm-years from 2008 to 2010, of which 371 firm-years (64%) released non-GAAP earnings information (Table 1). Among the companies disclosing non-GAAP earnings, 296 firm-years (80%) give non-GAAP earnings prominence by reporting this number before IFRS earnings.⁸

We identified the items expected to be associated with the release of non-GAAP earnings based on practitioner studies (Ernst&Young 2007; KPMG 2010) and observed that they are related to both remeasured and non-recurring items. Our first source of data is extracted from the Aspect FinAnalysis database of profit or loss items. For each company, we record the amounts for remeasured and non-recurring items shown in profit or loss in the annual company accounts.⁹ The second source of data is the companies’ adjustments to earnings, shown in their annual report (usually in a reconciliation statement between IFRS profit or loss and non-GAAP earnings).¹⁰ The third source is the list of analysts’ adjustments for each company-year compiled by the Aspect Huntley analysts following the company.¹¹ The analyst adjustments are defined as: items which are part of the organisation’s operations but are considered abnormal (Aspect Huntley 2011) and reflect analysts’ views of the items not forming part of maintainable or underlying earnings to be used to predict future earnings. In this study, we refer to these items as analyst adjusted amounts.¹²

⁷ We determined the search terms from a review of the literature about non-GAAP earnings and a pilot study of the largest 20 companies, which confirmed the most commonly used terms. KPMG (2010) gave a list of key words commonly used in reporting non-GAAP information, specifically: ‘underlying earnings’, ‘normalised profit’ and ‘cash earnings’. Using these words, we examined the Annual Report, Preliminary Final Report and Investor Relations slide show presentation of the sample companies. A pilot study confirmed the use of these words and revealed use of the terms: ‘before significant items’ and ‘core earnings’ which were then added to our word search list.

⁸ For example, the Rio Tinto Annual Report (2009, page 2) shows Performance Highlights with underlying earnings US\$6.3 billion as the first dot point and net earnings US\$4.9 billion as the second dot point.

⁹ Note that all adjusting items we examine are through profit or loss. For example, fair value adjustments on trading securities (IAS 39/AASB 139) and revaluation of investment properties (IAS 40/AASB 140). Fair value adjustments that are taken directly to equity (i.e. do not go through profit or loss) such as gains or losses on available for sale securities (IAS39/AASB 139) and revaluation of property, plant and equipment (IAS16/AASB 116) are not included in the adjusting items we examine because an essential part of our study design is that items are taken through profit or loss, hence permitting them to be added back by companies and analysts as a non-IFRS earnings adjustment.

¹⁰ Of the 371 firm-years disclosing non-IFRS earnings, 329 firm-years (89%) provided a reconciliation table between IFRS earnings and non-IFRS earnings as recommended by FINSIA and AICD (2009).

¹¹ Aspect Huntley analysts are part of the Morningstar organisation, a highly rated investment research house that reports on a broad range of Australian securities (Morningstar 2014).

¹² The classification of items to the groups was completed by one researcher then checked by a second researcher to ensure accuracy. Although companies use different account names for items, all items are clearly labeled in the Aspect Huntley database allowing us to accurately code items to the relevant group.

Our coding identified six groups of items from the companies' statutory profit or loss accounts, the company adjustments in annual reports and the analyst adjustments file. There are three groups of IFRS remeasurement items namely (i) gains or losses on the remeasurement of financial instruments to fair value through profit and loss under (IAS 39) AASB 139 *Financial Instruments: Recognition and Measurement*, (ii) impairment expenses under (IAS 36) AASB 136 *Impairment of Asset* and (iii) revaluation of investment property under (IAS 40) AASB 140 *Investment Property*, agricultural assets under (IAS 41) AASB 141 *Agriculture*, pension assets under (IAS 19) AASB 119 *Employee Benefits* and insurance assets under (IFRS 4) AASB 4 *Insurance Contracts*. We also collect data for amortisation expense under (IAS 38) AASB 138 *Intangible Assets*¹³ and two groups of non-recurring items. The first includes gains or losses associated with mergers, integrations, divestment of business operations, redundancies and restructuring costs. The second is a catch-all category for any remaining items, called other. This group contains the items that have not been classified as belonging to any of the previous five categories, such as tax effects, litigation expense, donations and losses from natural disasters. Because of the heterogeneous nature of this group, we do not analyse it in detail in the paper.

To determine the association of companies' and analysts' adjustments with properties of analyst forecasts, we include companies with two or more analysts. Data to calculate analyst forecast error and dispersion at three, six and nine months following company financial year end are obtained from the I/B/E/S database. Share prices are obtained from the SPPR database provided by SIRCA and other financial data are obtained from the Aspect Huntley database.

3.2 Data analysis

We provide a descriptive analysis of the managers' and analysts' adjustments that comprise non-GAAP earnings. We report on the incidence, magnitude and timing of disclosure of adjusted earnings. We also examine the relationship between specific items adjusted by both managers

¹³ Amortisation is not a 'remeasurement' consistent with AASB 139, 140 or 141 (IAS 39, IAS 40, IAS 41). However, we include amortisation expense in our tests because it is an item that reflects management's judgement and estimates and it has been commonly adjusted in the past (e.g. in the pre-IFRS period, analysts added back amortisation of goodwill (Cotter, Tarca, and Wee 2012).

and analysts. In multivariate tests, we first run binary logistic regression models to explore whether the release of non-GAAP earnings is associated with the extent of IFRS remeasurements in companies' financial statements. The models are as follows:

$$prob(NONGAAP_{i,t}) = \beta_0 + \beta_1 COUNT_{i,t} + controls + \varepsilon_{i,t} \quad (1)$$

$$prob(NONGAAP_{i,t}) = \gamma_0 + \gamma_1 MAGNIT_{i,t} + controls + \varepsilon_{i,t} \quad (2)$$

$$\begin{aligned} prob(NONGAAP_{i,t}) = & \alpha_0 + \alpha_1 FININST_{i,t} + \alpha_2 REVAL_{i,t} + \alpha_3 IMPAIR_{i,t} + \alpha_4 AMORT_{i,t} \\ & + \alpha_5 MERGER_{i,t} + \alpha_6 OTHER_{i,t} + \alpha_7 FIN_{i,t} + \alpha_8 MINING_{i,t} \\ & + \alpha_9 LOSS_{i,t} + \alpha_{10} ACHEARN_{i,t} + \alpha_{11} SIZE_{i,t} + \alpha_{12} NUMEST_{i,t} \\ & + \alpha_{13} VARCFO_{i,t} + \alpha_{14} PRE_CRISIS_{i,t} + \alpha_{15} POST_CRISIS_{i,t} \\ & + \alpha_{16} PREVAFE + \alpha_{17} PREVFD_{i,t} + \varepsilon_{i,t} \end{aligned} \quad (3)$$

Where:

- NONGAAP*_{*i,t*} Dummy variable equal to 1 for companies that have released non-GAAP earnings, zero otherwise.
- FININST*_{*i,t*} (a) Dummy variable equal to 1 if the current year's net gain or loss taken to profit and loss for the fair value remeasurement of financial instruments for company *i* for the year is non-zero; or (b) Net sum of the current year's total value (in dollars) of non-zero values for company *i*.
- REVAL*_{*t,t*} (a) Dummy variable equal to 1 if the current year's net gain or loss on revaluation of investment property, agricultural, pension and insurance assets for company *i* for the year is non-zero; or (b) Net sum of the current year's total value (in dollars) of non-zero values for company *i*.
- IMPAIR*_{*i,t*} (a) Dummy variable equal to 1 if the current year's impairment expense or reversal for company *i* for the year is non-zero; or (b) Net sum of the current year's total value (in dollars) of non-zero values for company *i*.
- AMORT*_{*i,t*} (a) Dummy variable equal to 1 if the current year's amortisation expense or reversal for company *i* for the year is non-zero; or (b) Net sum of the current year's total value (in dollars) of non-zero values for company *i*.

<i>MERGER</i> _{<i>i,t</i>}	(a) Dummy variable equal to 1 if the current year's gains or losses associated with mergers, integrations, divestments of business operations, redundancies and restructuring for company <i>i</i> for the year is non-zero; or (b) Net sum of the current year's total value (in dollars) of non-zero values for company <i>i</i> .
<i>OTHER</i> _{<i>i,t</i>}	(a) Dummy variable equal to 1 if the current year's items in the Aspect Huntley database or company reconciliation statement are not included in any of the five variables above for company <i>i</i> for the year is non-zero; or (b) Net sum of the current year's total value (in dollars) of non-zero values for company <i>i</i> .
<i>COUNT</i> _{<i>i,t</i>}	Count of the current year's total number of non-zero items for non-GAAP variables (<i>FININST</i> , <i>REVAL</i> , <i>IMPAIR</i>) from 0 to 3 for company <i>i</i> .
<i>MAGNIT</i> _{<i>i,t</i>}	Net sum of the current year's total value (in dollars) of non-zero values for non-GAAP variables (<i>FININST</i> , <i>REVAL</i> , <i>IMPAIR</i>) for company <i>i</i> .

Other control variables:

<i>FIN</i> _{<i>i,t</i>}	Dummy variable equal to 1 for companies in the GICS Financials Industry Group, zero otherwise.
<i>MINING</i> _{<i>i,t</i>}	Dummy variable equal to 1 for companies in the GICS Metals and Mining industry, zero otherwise.
<i>LOSS</i> _{<i>i,t</i>}	Dummy variable equal to 1 if the current year's earnings per share is negative, zero otherwise.
<i>ACHEARN</i> _{<i>i,t</i>}	The absolute value of the difference between the current year's actual earnings per share and last year's actual earnings per share, deflated by the share price at the end of the current year.
<i>SIZE</i> _{<i>i,t</i>}	The natural log of the company's market capitalisation at the beginning of the year.
<i>NUMEST</i> _{<i>i,t</i>}	The number of analyst earnings forecasts included in the consensus forecast.
<i>VARCFO</i> _{<i>i,t</i>}	Standard deviation of cash flows from operations over the previous 10 years at financial year end.

$PRE_CRISIS_{i,t}$	Dummy variable equal to one for observations with financial year end prior to 1 July 2008.
$POST_CRISIS_{i,t}$	Dummy variable equal to one for observations with financial year end post 30 June 2009.
$PREVAFE_{i,t}$	Absolute forecast error (<i>AFE</i>) for company <i>i</i> from the previous corresponding financial year.
$PREVFD_{i,t}$	Forecast dispersion (<i>FD</i>) for company <i>i</i> from the previous corresponding financial year.

In Equation 1 we include *COUNT*, recorded as 0 (none of the three items) to 3 (the company has a non-zero value for all three items). In Equation 2 we replace *COUNT* with *MAGNIT*, which is the sum of the dollar value of all three items, to test the impact of the net value of the items. In Equation 3 we include the three variables for the item-groups relating to remeasurements and non-recurring items (*FININST*, *IMPAIR*, *REVAL*). Three other variables (*AMORT*, *MERGER* and *OTHER*) are included as control variables. In the tables of results, Model 3a includes six dummy variables and Model 3b includes the magnitude of each of the item-groups (as defined above). In robustness tests, we also calculate the current year's total value (in dollars) of non-zero *POSITIVE* values for each of the item-groups and the current year's total value (in dollars) of non-zero *NEGATIVE* values for *MAGNIT* and for each of item-groups, to better investigate the data without the averaging effect of examining both negative and positive values together.

Prior studies on non-GAAP earnings have controlled for industry sector. Some find the service and information technology sectors more likely to release non-GAAP earnings (Bhattacharya et al. 2003; Brown and Sivakumar 2003). In contrast to prior studies, our focus is on fair value remeasurements. Thus we include industry dummy variables (*FIN* and *MINING*) because we expect companies in the financial sector and mining sector to be affected by fair value measurement, through their exposure to financial instruments. We include *SIZE* and *NUMEST* to control for differences between companies in the number of analysts following the company, which may relate to the non-GAAP disclosure. Non-GAAP disclosure may be more likely when companies experience losses or have variability in earnings (Lougee and Marquardt 2004) so we

include variables for incurring a loss (*LOSS*), change in earnings from last year (*ACHEARN*) and variability of earnings over time (*VARCFO*).¹⁴ The incentives to provide non-GAAP disclosures (particularly remeasurements, which are sensitive to economic conditions) may change over time (Bradshaw and Sloan 2002) so we include dummy variables (*PRE_CRISIS* and *POST_CRISIS*) to capture the effects of the uncertainty associated with the global financial crisis period (mainly reflected in financial reports for 1 July 2008 - 30 June 2009).

Since the analyst forecast error (*AFE*) and forecast dispersion (*FD*) may affect the release of non-GAAP earnings disclosures, endogeneity may lead to biased and inconsistent estimators when modelling the relationships using OLS. Consequently, we use two-stage least squares (2SLS) regression models to explore the relationship of *AFE* and *FD* and release of non-GAAP earnings disclosures (Equations 4 and 5). In the first stage, we model the association of release of non-GAAP earnings with occurrence of non-zero values for any of the six item-groups in companies' financial statements (*FININST*, *REVAL*, *IMPAIR*, *AMORT*, *MERGER* and *OTHER*) to reflect our arguments in section 2 that release of non-GAAP earnings is linked to these particular accounting items. We use the AA items as instruments. In alternative first stage models, we include *RECON* (= 1 if the company provides a reconciliation between non-GAAP and IFRS earnings) and *ALLMEDIA* (= 1 if the company makes non-GAAP disclosure in three media – earnings announcement, investor presentation and annual report). Building on prior literature (Elliott 2006; Marques 2010; Zhang and Zheng 2011) we expect provision of a reconciliation to improve the quality of information provided. We also posit that consistent presentation of non-GAAP earnings figures in three media increases the credibility of the disclosures and brings them more to the attention of analysts.

We check the validity of using the 2SLS regression methods by performing the Hausman test. The *p*-values of the Hausman tests are less than 5%, across all model specifications including *NONGAAP* and *RECON*, suggesting the use of the 2SLS regression is more appropriate than using ordinary least squares regression models. The only exceptions are the *FD* models with

¹⁴ We use variability of cash flows rather than net income as the control because net income includes the remeasurements, which are our experimental variables.

ALLMEDIA. Therefore we also ran the model using OLS when *ALLMEDIA* is included. Results are consistent with the 2SLS models.

In the second stage, we model *AFE* and *FD* as dependent variables and use the predicted value of non-GAAP earnings from stage one as the experimental variable. We expect that companies providing non-GAAP earnings disclosures at year t are more likely to have lower error and less dispersion in forecasts for earnings in year $t+1$. We also include several control variables as described below:

$$\begin{aligned}
 AFE_{i,t+1} = & \delta_0 + \delta_1 NONGAAP_{i,t} + \delta_2 LOSS_{i,t+1} + \delta_3 VARCF_{i,t+1} + \delta_4 ACHEARN_{i,t+1} \\
 & + \delta_5 PREVAFE_{i,t+1} + \delta_6 NUMEST_{i,t+1} + \delta_7 SIZE_{i,t+1} + \delta_8 ADR_{i,t+1} + \delta_9 PRE_CRISIS_{i,t} \\
 & + \delta_{10} POST_CRISIS_{i,t} + \varepsilon_{i,t}
 \end{aligned} \tag{4}$$

$$\begin{aligned}
 FD_{i,t+1} = & \varphi_0 + \varphi_1 NONGAAP_{i,t} + \varphi_2 LOSS_{i,t+1} + \varphi_3 VARCF_{i,t+1} + \varphi_4 ACHEARN_{i,t+1} \\
 & + \varphi_5 PREVAFE_{i,t+1} + \varphi_6 NUMEST_{i,t+1} + \varphi_7 SIZE_{i,t+1} + \varphi_8 ADR_{i,t+1} + \varphi_9 PRE_CRISIS_{i,t} \\
 & + \varphi_{10} POST_CRISIS_{i,t} + e_{i,t}
 \end{aligned} \tag{5}$$

Where¹⁵:

$AFE_{i,t}$ Absolute forecast error measured as $| (A_{i,t} - F_{i,t-j}) / P_{i,t-j} |$ where $A_{i,t}$ is company i 's actual EPS for the financial year ended t ; $F_{i,t-j}$ is company i 's median consensus forecast for EPS for the financial year ended t , measured j months prior to time t , where j is 3, 6 and 9 months; and $P_{i,t-j}$ is company i 's price per share j months prior to time t .

$FD_{i,t}$ Forecast dispersion measured at j months prior to the end of the financial year t , where j is 3, 6 and 9 months; captured by the standard deviation of company i 's EPS forecast, scaled by $P_{i,t-j}$.

$ADR_{i,t}$ Dummy variable equal to 1 for observations for companies cross-listed in the United States as American Depository Receipts, zero otherwise.

¹⁵ Other variables as defined in Equation 1.

AFE and *FD* are measured consistently with prior studies (Lang and Lundholm 1996; Hope 2003). We measure both at three, six and nine months before the financial year end. Additional variables are included in Equations 1-5 to control for factors that may be associated with non-GAAP disclosure and properties of analyst forecasts. We include size (*SIZE*) as larger companies provide more disclosure and are followed by more analysts (*FOLLOW*) (Lang and Lundholm 1996; Hope 2003). Changes in expected earnings, volatility in earnings and incurring losses require explanation to market participants and thus may encourage release of non-GAAP earnings. We include *ACHEARN* (change in EPS in current year compared to prior year), *VARCFO* (standard deviation in cash flows over the previous ten years)¹⁶ and, *LOSS* (dummy variable = 1 if company incurs a loss in the current year) to control for these factors. We include industry dummy variables (*FIN* and *MINING*) to control for difficulty of forecasting in these sectors (Chalmers, Clinch, and Godfrey 2011; Barth et al. 2014). The economic turmoil of the financial crisis may also impact on analysts' forecasts so we include time period dummy variables to distinguish the years before (*PRE_CRISIS*) and after (*POST_CRISIS*) the financial crisis period.

In Equations 4 and 5 we add variables to capture the level of error and dispersion in the previous year (*PREVAFE* and *PREVFD*) and the number of forecasts (*NUMEST*) as studies suggest these are explanatory factors for current year error and dispersion (Brown, Taylor, and Walter 1999). The variable *ADR* is included to control for any effects of cross listing in the US since the US environment may encourage provision of more information for analysts or, alternatively, discourage provision of non-GAAP earnings disclosures (Barth et al. 2014).

4. Results

4.1 Descriptive statistics

Companies disclosed non-GAAP earnings in 371 out of 576 company-years (64%) (Table 1, Panel A). For these companies, the mean (median) IFRS net profit after tax (*NPAT*) was \$420.8

¹⁶ We use cash flows rather than *NPAT* to proxy for variability of earnings because *NPAT* is affected by non-cash remeasurements while cash flow from operations is not.

(\$78.9) million, compared with mean (median) non-GAAP earnings (*NonGAAP_FS*) of \$653.2 (\$151.2) million and analysts' mean (median) adjusted earnings (*NonGAAP_AA*) of \$588.6 (\$130.5) million (Table 1, Panel B). On average, companies' and analysts' non-GAAP earnings are higher than *NPAT*. This result is not surprising, as the most frequent adjustments are to add back expenses and losses thus increasing profit. On average, companies record a larger maximum non-GAAP earnings and smaller minimum non-GAAP earnings than analysts, that is, companies are more optimistic in their estimates of non-GAAP earnings than are analysts. Not surprisingly, the three measures of earnings are highly correlated: *NPAT* is correlated with *NonGAAP_FS* and *NonGAAP_AA* at 0.888 and 0.890 respectively; and *NonGAAP_FS* and *NonGAAP_AA* are correlated at 0.925 (Pearson correlations, based on all firm-years, untabulated).¹⁷

<Insert Table 1 about here>

On average, *NPAT*, companies' non-GAAP earnings (*NonGAAP_FS*) and analysts' adjusted earnings (*NonGAAP_AA*) are highest in the later period (i.e., *POST_CRISIS*) at \$561.9 million, \$706.4 million and \$660.4 million, respectively. The difference between companies' non-GAAP and GAAP earnings (*NG_DIFF*) is largest during the *CRISIS* year (\$372.2 million). Median *NPAT* varies significantly over the period ($Z=1.59$, $p<0.10$) while companies' and analysts' non-GAAP earnings (*NonGAAP_FS*, *NonGAAP_AA*) do not, indicating that non-GAAP earnings provide a more stable, and thus potentially more useful, measure for analysts.

Table 2 presents descriptive statistics for the six groups of items included in non-GAAP earnings. Panel A shows the amounts for the six groups in profit or loss in the statutory financial statements for the full sample ($n=576$). Companies have an average incidence (*COUNT*) of item-groups of 1.57 (with a median of 2 and a maximum of 3). The mean (median) of the total of the three item-groups (*MAGNIT*) is -\$114 million (-\$4.28 million). The largest item-group is *IMPAIR* (mean -\$97.05 million, median -\$0.30 million) and the smallest is *FININST* (mean -

¹⁷ The correlations for firm-years when a company disclosed non-GAAP earnings are very similar. *NPAT* is correlated with *NonGAAP_FS* and *NonGAAP_AA* at 0.879 and 0.878 respectively; and *NonGAAP_FS* and *NonGAAP_AA* are correlated at 0.920.

\$4.45 million, median zero). There is considerable variation between companies (considering standard deviations in Panel A) and many companies do not record the item in their accounts – median values for *FININST* and *REVAL* are zero (Panel A).

<Insert Table 2 about here>

In our sample, analysts adjusted earnings for 371 firm-years (Panel B, n=371).¹⁸ The profit or loss item-groups in the financial statements (Panel B, B1) show companies have an average incidence (*COUNT*) of 1.75 item-groups and the mean of the total of the three item-groups (*MAGNIT*) is -\$173.73 million. The largest item-group is *IMPAIR* (mean -\$140.26 million, median -\$4.40 million), consistent with companies flagging this item as a non-recurring expense. The smallest item-group is *REVAL* (mean -\$22.07 million, median zero). For company adjustments (Panel B, B2), the average number (*COUNT*) of adjusting item-groups is 0.8 and the mean of the total of the three item-groups (*MAGNIT*) is -\$149 million. For analyst adjustments (Panel B, B3), the average number of adjusting item-groups is 1.11 and the mean of the total of the three item-groups (*MAGNIT*) is -\$189.26 million.¹⁹

On average, companies record net losses (or net expenses) for the three items (*FININST*, *IMPAIR*, *REVAL*) and the control items (*AMORT*, *MERGER*, *OTHER*) in the financial statements. Company and analyst adjustments are negative for all item-groups (except for *OTHER* (other non-recurring items) for analysts. A negative item (i.e., an expense or loss) increases profit when it is ‘added back’ by companies and analysts while a positive item (i.e., a revenue or gain) decreases profit when it is removed. Thus, on average, the companies’ and analysts’ adjustments for remeasurement items and the non-recurring item *MERGER* increase profit. Stated another way, companies and analysts considered the downward remeasurement

¹⁸ We report descriptive statistics for companies with analyst adjustments because these companies are included in models in Table 6 Panel B. However, these firm-years are not the same 371 firm-years relating to companies that released non-GAAP earnings. Considering the intersection of the two groups of 371 firm-years, there were 292 (79%) companies that disclosed non-GAAP earnings and showed analyst adjustments,

¹⁹ We also calculated these descriptive statistics based on the firm-years with non-GAAP disclosure (n=371), the companies providing a reconciliation statement in their annual report (n=329) and the companies providing a reconciliation table and which also had analyst adjustments (n=264). The patterns shown by the descriptive statistics are largely similar for all subsamples.

items (expenses and losses) in the accounts were not part of underlying or future earnings and some portion of them was added back, increasing profit.

4.2 Company and analyst adjustments

Table 3 provides descriptive statistics for the remeasured and non-recurring items based on positive and negative values for the items in the financial statements, the company adjustments and the analyst adjustments. For both the positive and negative values for *FININST*, *IMPAIR* and *REVAL*, Table 3 (Panels A and B) shows the analysts usually made more adjustments than companies, that is, the incidence of adjustments (n) is almost always higher for analysts than for companies. For example, for *FININST* the adjustments are: positive items analysts n=54 compared to companies n=48; negative items analysts n=106 compared to companies n=79. This suggests that while company adjustments may be informative for analysts, they appear to use other information as well to make their adjustments.

<Insert Table 3 about here>

The mean and median amounts adjusted by analysts are in most cases greater than the amounts adjusted by companies for *FININST*, *IMPAIR* and *REVAL* (Table 3, Panels A and B). Analysts are less conservative than companies about adjusting earnings (both upwards and downwards). For example, in relation to *REVAL* mean (median) positive adjustments are \$129.48 million (\$46.14 million) for analysts and \$65.25 million (\$27.9 million) for companies. The mean (median) negative adjustments are \$386.37 million (\$196.65 million) for analysts and \$352.77 million (\$125.5 million) for companies. This does not point to excess opportunism in company adjustments.

Overall, both companies and analysts are far more likely to add back losses and expenses (negative items) with the effect of increasing earnings. For example, for *FININST* the incidence of adjusting items for negative values is greater than that for positive items for company and analysts adjustments (positive items for analysts n=54 compared to companies n=48; negative items for analysts n=106 compared to companies n=79). At first glance, this reflects the greater

incidence of negative items than positive items. It may also be the case that both companies and analysts prefer higher earnings, that is, they both exhibit a systematic bias in favour of reporting higher underlying earnings. Another plausible explanation is that the study period (2008-2010) included the financial crisis and many asset writedowns occurred in the period and were not expected to recur in the future, so future earnings were predicted to be higher. The adjustments by analysts support the claim that companies' adjustments are informative rather than merely opportunistic (i.e. earnings increasing).

Panel C reports the correlations between amounts in the financial statements, company and analyst adjustments.²⁰ Considering the companies reporting non-GAAP earnings (n=371), correlations between company and analyst adjustments are highest for *IMPAIR* (0.95), followed by *REVAL* (0.57) and *FININST* (0.42). The variation in correlations for *IMPAIR*, *REVAL* and *FININST* may reflect the quality of additional information available to analysts. For items in the *REVAL* and *FININST* groups analysts may have access to prices in active markets that could assist them in determining the assets' values. For the *IMPAIR* group, analysts may be more dependent on information provided by the company leading to the higher correlation for this item-group.

Considering the control variable for amortisation expense, we find companies make more adjustments to *AMORT* than do analysts. *AMORT* items are all negative in the financial statements (n=408). Of these companies, 68 add back amortisation expense (mean -\$80.79 million, median -\$14.88 million). Analysts are less likely to add back amortisation expense (n=34, mean -\$12.10 million, median -\$9.68 million). For this item, some companies may be opportunistic in increasing earnings or may not communicate sufficiently with analysts the reasons for the adjustments. A company's amortisation adjustment does not lead to a corresponding analyst adjustment for many of these companies. Not surprisingly, the correlation of company and analyst adjustments is close to zero (-0.01).

²⁰ The correlations in Table 3 Panel C are based on n=371, that is, firm-years where the company reported non-GAAP earnings. Panel C also provides correlations for the pooled sample (n=576), which includes all firm-years and therefore some items where all values of FS, COY and AA are zero. These correlations are usually weaker than those in the n=371 subsample but the same patterns between item-groups and for FS, COY and AA are generally observed.

4.3 Comparing non-GAAP companies and others

Table 4 shows the mean values for the six item-groups for non-GAAP earnings companies and other companies (i.e., those that do not disclose non-GAAP earnings) based on financial statement items (Panel A) and analyst adjustments (Panel B). Means generally are not significantly different except for *MERGER* in Panel A and *FININST* and *AMORT* in Panel B. That is, although the non-GAAP disclosing companies generally have larger average amounts of the items in their financial statements and larger average analyst adjustments for the items, there are few significant differences between the two groups of companies in the average amounts of the remeasured and non-recurring items (Panel A) and in the average analysts' adjustments for the items when all companies are included in the analysis. However, considering only companies with a non-zero balance for an item, Table 4 shows that the non-GAAP companies are significantly more likely to have a non-zero item in their financial statements (Panel A) and to have an analyst adjustment for the item (Panel B).

Table 4 (Panel C) shows that of the 143 companies that were included in the sample in each of the three years, 72 companies (50%) disclosed non-GAAP earnings in all three years and 30 (21%) companies made this disclosure in two of the three years. Considering the 371 companies disclosing non-GAAP earnings, adjusted earnings was profit enhancing for 299 (81%) of companies. Similarly, the net effects of analyst adjustments were profit enhancing for 280 (75%) companies. Panel C also shows that of the 371 companies that disclose non-GAAP earnings, 292 (79%) have analyst adjusted earnings.

<Insert Table 4 about here >

4.4 Factors associated with non-GAAP earnings disclosure

Table 5 reports descriptive statistics for the other explanatory and control variables used in the regression models. Mean and median values show that non-GAAP companies are significantly larger (*SIZE*), have higher analyst following (*FOLLOW*) and greater variability in cash flows from operations (*VARCFO*) and are more profitable (*NI*) on average. They include a higher

proportion of *LOSS* companies although the difference is not statistically significant. The non-GAAP earnings disclosure group includes a higher proportion of financial industry companies and a lower portion of mining sector companies. Somewhat surprisingly, companies releasing non-GAAP earnings have a lower mean change in earnings (*ACHEARN*).

<Insert Table 5 about here >

Table 6 presents results for Equation 1, which tests the relationship of non-GAAP earnings disclosure and profit or loss items relating to remeasurement (*FININST*, *REVAL* and *IMPAIR*). We predicted greater incidence (H1a) and larger magnitude (H1b) of these three items would be associated with the disclosure of non-GAAP earnings.

<Insert Table 6>

Panel A presents results for incidence and magnitude of the items in companies' financial statements. Model 1 shows companies with a great incidence of the item-groups (*COUNT*) are more likely to disclose non-GAAP earnings, providing support for H1a. In relation to the individual items, Model 3a shows that dummy variables for incidence of *REVAL* and *IMPAIR* are positively associated with non-GAAP earnings disclosure. Consistent with the reports of KPMG (2010) and Ernst & Young (2007) we find non-GAAP earnings disclosure is more likely for companies with more remeasured items. As expected control variables, *MERGER* and *OTHER*, are also positive and significant.

Panel A Model 2 substitutes *MAGNIT* for *COUNT*. Hypothesis 1b is also supported: total amount of the three items (*MAGNIT*) is associated with non-GAAP earnings disclosure. Model 3b provides further support for the conjecture that magnitude of the items is related to non-GAAP disclosure. Variables based on total magnitude²¹ show *IMPAIR* ($p < 0.10$), is positively associated with non-GAAP earnings disclosure. Additional models (untabulated) based on

²¹ Variables for total *MAGNIT* and for magnitude of item-groups are based on all values, that is, they include positive and negative values which offset each other. Table 2 Panel B shows that all variables (except *AMORT* in financial statements) contain both positive and negative values. Table 3 provides the breakdown of positive and negative values. In the robustness tests we fit models with only negative values for *MAGNIT* and for each item-group because negative items are more common.

magnitude of negative items only show that *MAGNIT* is positive and significant ($p < 0.10$). Considering negative values for item-groups (see Table 3), *FININST* is positive and significant (untabulated). These additional analyses provide support for H1b, in particular that companies with more losses on financial instruments and higher impairment expenses are more likely to provide non-GAAP earnings disclosure.

Panel B provides similar results for analyst adjustments. The number of analyst adjustments (*COUNT*) is higher for companies disclosing non-GAAP earnings (Model 1). Based on dummy variables recording incidence of the item-groups, Model 3a shows that companies with analyst adjustments for *REVAL* are more likely to disclose non-GAAP earnings, providing support for H2a. *AMORT*, *MERGER* and *OTHER* are also positive and significant.

Panel B Model 2 shows the net size of analyst adjustments for the three items (*MAGNIT*) is associated with companies' non-GAAP earnings disclosure. Model 3b includes variables based on magnitude. It shows *FININST* is positively associated with non-GAAP earnings disclosure. *AMORT*, *MERGER* and *OTHER* are also positive and significant. Additional models (untabulated) based on magnitude of negative items only show that *MAGNIT* is positive and significant ($p < 0.05$). Considering negative values only in item-groups, *FININST* is positive and significant (at $p < 0.05$ or lower, untabulated). *AMORT*, *MERGER* and *OTHER* are also positive and significant. Based on these additional analyses, we conclude that companies' non-GAAP disclosures are associated with the size of analyst adjustments and that H2b is supported.

The results are observed after controlling for factors that could also explain the release of non-GAAP earnings. The significance of these control variables is similar for the eight models in Table 6 and for the financial statement items analysis (Panel A) and the analyst adjustments analysis (Panel B). The main pattern observed is that non-GAAP earnings release is more likely for companies with more variable cash flows from operations (*VARCFO*) and less likely for loss companies (*LOSS*) and those from the mining sector (*MINING*). The disclosure is generally not associated with the other control variables. Industry and time period do not appear to affect the dependent variables as might be expected. Disclosure of non-GAAP earnings is not more likely for financial sector companies.

The release of non-GAAP earnings is usually not associated with the time period (pre- or post-financial crisis). However Model 2 and 3b (Panel A) and Model 2 (Panel B) point to some effect of magnitude in the pre-crisis period. The negative and significant coefficients on *PRE_CRISIS* in magnitude models suggest non-GAAP disclosure was less likely for companies with lower magnitude of items in the pre-crisis period compared to the crisis period, consistent with companies affected by remeasurements making more use of non-GAAP earnings disclosure in the volatile crisis period. Release of non-GAAP earnings is not associated with company size, having a larger change in earnings, the number of analysts following a company, or the error or dispersion in prior analyst forecasts. We further examine usefulness of non-GAAP earnings for analysts in the next section.

4.4 Forecast accuracy and dispersion

Table 7 reports descriptive statistics for sample companies with available data (n=477) for analyst forecast error (AFE_{t+1}) and forecast dispersion (FD_{t+1}) in the year following the release of the non-GAAP earnings (year t).²² As expected, mean (median) AFE of 0.031 (0.009) is higher at nine months before year end $t+1$, compared to three months. The amounts are significantly different between the periods ($F=2.86, p<0.10$; $Z=30.68, p<0.01$) for the pooled sample. Mean FD of 0.013 at nine months is lower than at three and six months (0.015 and 0.016). Amounts are not significantly different between the periods. At nine months, mean AFE (FD) is 0.051 (0.02) in the *PRE-CRISIS* period, 0.027 (0.007) in the *CRISIS* year and 0.023 (0.008) in the *POST-CRISIS* period suggesting it was more difficult to forecast earnings for the 2008-2009 financial year, following the October 2008 financial crisis.

<Insert Table 7 about here >

We consider the usefulness of non-GAAP earnings for analysts by considering the properties of analyst forecasts (error and disagreement) in the year following the release of the non-GAAP

²² Analyst data is available for 477 firms in the sample. Of these firms, 326 disclose non-GAAP earnings, 298 provided a reconciliation between non-GAAP earnings and IFRS earnings and 172 report non-GAAP earnings in three media (earnings announcement, investor presentation and annual report).

earnings, using 2SLS analysis and models based on Equations 4 and 5. Table 8 shows that firms providing non-GAAP earnings disclosure (326 out of 477 firms) have lower forecast error (*AFE*) and lower forecast dispersion (*FD*). *NONGAAP* is negative and significant in Models 1 and 5. Similarly, firms providing a reconciliation statement (298 out of 326 firms) have lower forecast error and dispersion. *RECON* is negative and significant in Models 2 and 6. Coefficients and standard errors are similar for *NONGAAP* and *RECON* (*AFE* Models 1 and 2; *FD* Models 5 and 6). Because of the similarity in these measures we are unable to conclude that the reconciliation adds to the usefulness of the non-GAAP disclosure.²³

We also find firms providing non-GAAP earnings in three media (172 out of 326 firms) have lower error and dispersion. *ALLMEDIA* is negative and significant Models 3 and 7. We proposed that providing non-GAAP disclosure in multiple releases (earnings announcement, investor presentation and annual report) could increase the credibility and visibility of the disclosures. Our evidence does not support this conjecture. While *ALLMEDIA* is negative and significant in Models 3 and 7 it is not significant in models when *NONGAAP* is included (Models 4 and 8). That is, *ALLMEDIA* does not have incremental explanatory power over *NONGAAP*.

Overall, the results support H3a and H3b because we find that non-GAAP earnings disclosure is associated with lower forecast error and less forecast dispersion three months subsequent to year-end. We observe that the benefit of the non-GAAP information is present over the year following its release for forecast accuracy but not for disagreement. $NONGAAP_t$ is significant and positive in models using AFE_{t+1} nine months and six months after financial year-end but not in the FD_{t+1} models for the same periods (untabulated). The results provide evidence in support of claims by some that disclosure of non-GAAP earnings is useful for analysts (International Federation of Accountants (IFAC) 2014).

<Insert Table 8 about here >

²³ *NONGAAP* and *RECON* are highly correlated and cannot be both included in the models.

5. Summary and conclusions

The aim of our study is to investigate the extent to which IFRS remeasurements are associated with the voluntary disclosure of non-GAAP earnings and whether these disclosures are useful for security market analysts. We find that companies providing non-GAAP earnings disclosures are more likely to have greater incidence and/or magnitude of several remeasured items in profit or loss, pointing to an explanation for the release of non-GAAP earnings that is linked to measurement of IFRS earnings that has not been identified in prior studies. We observe that companies are highlighting items that are unrealised or have measurement uncertainty (e.g., remeasurement of financial and other assets; impairment expense) along with other items deemed non-recurring (e.g., mergers and restructuring expenses). The latter have been commonly adjusted by analysts although for some companies merger and corporate reorganisations are ongoing. Practitioners provide commentary suggesting analysts are active in adjusting IFRS earnings to arrive at a number that is more useful for assessing current performance and predicting future earnings, and that companies assist in this process by their estimation of the adjustments required. We provide empirical evidence consistent with this view.

Analyst adjustments of the remeasured items raise questions about the requirements of accounting standards. Managers' and analysts' adjustments for IFRS remeasured items suggest that they do not see these items as part of underlying earnings. This evidence is relevant to standards setters' considerations about financial statement presentation and disclosure principles (International Accounting Standards Board 2015) and thus may assist them in their future deliberations about how income is to be defined and what income totals and subtotals should be required to be disclosed in accounting standards.

We also observe that companies disclosing non-GAAP earnings are more likely to have a higher incidence and magnitude of analyst adjustments for the remeasured items. We conclude that companies' adjustments to earnings represent a process of communicating with analysts and users of financial reports, consistent with arguments of practitioners (FINSIA and AICD 2008, 2009; KPMG 2010). Although we cannot identify which comes first (the analyst demand for information on these items, or the company's decision to provide the information to guide

analysts in the forecast models) it is likely that non-GAAP disclosures reflect both demand for information and its supply.

Prior research suggests non-GAAP earnings are useful, while recognising that their disclosure may reflect managers' strategic motivations such as influencing investors' and analysts' views about the company. We add to this literature by considering remeasurement items that are adjusted. Despite the possible opportunism in non-GAAP disclosures, we find some consistencies between managers' and analysts' adjustments. For remeasurement of assets, analyst adjustments may not be the same as company adjustments, suggesting analysts make use of the company information as well as other market information (e.g., for financial instruments or investment properties with observable market prices). For impairment, adjustments are highly correlated suggesting analysts follow the companies' adjustments closely, possibly because they lack superior alternative sources of information for this item. For adjustments to amortisation expense, analysts are unlikely to follow companies in removing this item from earnings. Overall, the findings suggest that analysts appear able to cope with the potential opportunism in non-GAAP reporting.

We also find analysts' forecast error and dispersion are lower in the following year for companies releasing non-GAAP earnings, pointing to the usefulness of the non-GAAP disclosures. ASIC has expressed concerns about non-GAAP earnings over many years (Australian Securities and Investments Commission 2011b). However, our evidence suggests that the information content of non-GAAP earnings disclosures assists analysts in their forecasting tasks. Therefore we provide some comfort to the regulator that non-GAAP is more likely, on average, to be helpful rather than misleading, at least for sophisticated investors (Australian Securities and Investments Commission 2013).

Our study contributes to the ongoing review of application of IFRS and the assessment of the associated costs and benefits (Brown 2011; Pope and McLeay 2011). While we study only Australian companies during a three-year period, the questions we address are equally relevant in other developed capital markets and jurisdictions that have adopted IFRS. Accordingly, our findings may prompt investigations in other countries which are experiencing widespread use of

non-GAAP earnings measures. Future research could extend our study into other IFRS jurisdictions and time periods. It would also be fruitful to explore non-GAAP earnings using other databases of analyst adjustments to extend the findings of our paper, which are based on the work of Aspect Huntley analysts.

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Table 1 Sample selection and descriptive statistics for the non-GAAP sample

Panel A					
Sample selection					
		Total			
	Initial Sample	655			
Less:	Delistments	-42			
	Missing Data	-37			
		576			
	Releasing Non-GAAP	371			
	Proportion	64.41%			
Panel B					
Managers' and analysts' adjustments					
		<i>NonGAAP_ FS</i>	<i>NonGAAP_ AA</i>	<i>NPAT</i>	<i>NG_DIFF</i> \$
		(\$m)	(\$m)	(\$m)	(\$m)
All Years (n=371)					
	Mean	653.2	588.6	420.8	232.4
	Median	151.2	130.5	78.9	43.1
	Maximum	24,282.0	17,643.3	16,582.2	7,699.8
	Minimum	-87.0	-2,312.3	-5,000.3	-6,468.0
	Std Deviation	2,023.9	2,022.4	1,851.3	972.5
Pre-Crisis (n=74)					
	Mean	657.0	495.0	480.7	176.3
	Median	168.9	121.8	96.3	38.7
Crisis (n=133)					
	Mean	585.6	552.2	213.4	372.2
	Median	150.3	130.5	55.3	59.1
Post-Crisis (n=164)					
	Mean	706.4	660.4	561.9	144.5
	Median	151.2	134.4	88.5	34.5
	F-stat	0.178	0.209	1.590	2.051
	KW	0.629	0.899	5.493*	4.533

Panel A shows sample selection and number and proportion of companies releasing non-GAAP financial information in the sample period 1 January 2008 to 31 December 2010. Panel B shows descriptive statistics for the sub-sample of non-GAAP disclosing companies. *NonGAAP_FS* = the non-GAAP earnings figure, as reported by the company. *NonGAAP_AA* = the non-GAAP earnings figure being NPAT after Aspect Huntley analyst adjustments. *NPAT* = reported Net Profit after Tax prepared in accordance with accounting standards. *NG_DIFF\$* = *NonGAAP_FS* less *NPAT*. ANOVA F-Statistics (Kruskal-Wallis) test the equality of the means (medians) across the three periods (i.e., Pre-Crisis, Crisis and Post-Crisis). Crisis period is defined as 1 July 2008 to 30 June 2009. ** and *** indicate significance at the 5 and 1 per cent levels, respectively.

Table 2 Summary statistics: Profit and loss items (company financial statements, managers' and analysts' adjustments)

Panel A Full sample (n=576)					
	Mean	Max	Min	Median	Stdev
A1 Financial statements					
<i>FININST (\$m)</i>	-4.45	1,307.00	-5,189.00	0.00	297.57
<i>REVAL (\$m)</i>	-12.78	14,914.00	-5,653.00	0.00	740.92
<i>IMPAIR (\$m)</i>	-97.05	1,220.23	-11,333.72	-0.30	578.73
<i>AMORT (\$m)</i>	-33.40	0.00	-717.64	-4.98	90.10
<i>MERGER (\$m)</i>	-9.44	770.20	-1,067.30	0.00	66.10
<i>OTHER (\$m)</i>	-46.04	219.00	-8,266.15	0.00	441.00
<i>MAGNIT (\$m)</i>	-114.29	14,672.00	-11,755.20	-4.28	936.60
<i>COUNT</i>	1.57	3.00	0.00	2.00	0.78
A2 Managers' adjustments					
<i>FININST (\$m)</i>	-10.0	843.0	-1,450.9	0.0	104.5
<i>REVAL (\$m)</i>	-30.1	334.9	-2,070.4	0.0	184.8
<i>IMPAIR (\$m)</i>	-60.3	201.1	-8,406.0	0.0	401.0
<i>AMORT (\$m)</i>	-9.5	27.0	-2,489.0	0.0	106.8
<i>MERGER (\$m)</i>	-4.6	793.8	-480.0	0.0	60.8
<i>OTHER (\$m)</i>	-39.9	6,743.0	-8,320.0	0.0	584.5
<i>MAGNIT (\$m)</i>	-100.4	441.0	-7,563.0	0.0	460.4
<i>COUNT</i>	0.6	3.0	0.0	0.0	0.9
A3 Analysts' adjustments					
<i>FININST (\$m)</i>	-10.9	827.0	-1,392.0	0.0	110.8
<i>REVAL (\$m)</i>	-28.6	1,135.2	-3,905.1	0.0	221.7
<i>IMPAIR (\$m)</i>	-82.4	236.0	-12,764.5	0.0	567.3
<i>AMORT (\$m)</i>	-0.7	3.3	-36.3	0.0	3.5
<i>MERGER (\$m)</i>	-3.6	5,088.1	-1,084.4	0.0	239.0
<i>OTHER (\$m)</i>	6.1	7,537.0	-7,084.1	0.0	473.6
<i>MAGNIT (\$m)</i>	-121.9	835.5	-13,239.4	0.0	650.2
<i>COUNT</i>	0.7	3.0	0.0	0.0	0.9

Panel B Subsample with analyst adjustments (n=371)	Mean	Max	Min	Median	Stdev
B1 Financial statements					
<i>FININST</i> (\$m)	-11.40	1,307.00	-5,189.00	0.00	361.11
<i>REVAL</i> (\$m)	-22.07	14,914.00	-5,653.00	0.00	922.66
<i>IMPAIR</i> (\$m)	-140.26	1,220.23	-11,333.72	-4.40	714.89
<i>AMORT</i> (\$m)	-33.27	0.00	-709.11	-6.81	83.34
<i>MERGER</i> (\$m)	-14.53	770.20	-1,067.30	0.00	81.96
<i>OTHER</i> (\$m)	-46.00	219.00	-8,266.15	0.00	444.45
<i>MAGNIT</i> (\$m)	-173.73	14,672.00	-11,755.20	-16.99	1,157.17
<i>COUNT</i>	1.75	3.00	0.00	2.00	0.73
B2 Managers' adjustments					
<i>FININST</i> (\$m)	-14.5	843.0	-1,450.9	0.0	129.1
<i>REVAL</i> (\$m)	-46.2	334.9	-2,070.4	0.0	228.6
<i>IMPAIR</i> (\$m)	-88.3	163.0	-8,406.0	0.0	495.2
<i>AMORT</i> (\$m)	-4.6	27.0	-242.6	0.0	22.5
<i>MERGER</i> (\$m)	-6.3	793.8	-480.0	0.0	74.8
<i>OTHER</i> (\$m)	-22.7	6,743.0	-8,320.0	0.0	631.6
<i>MAGNIT</i> (\$m)	-149.0	441.0	-7,563.0	0.0	564.7
<i>COUNT</i>	0.8	3.0	0.0	1.0	0.9
B3 Analysts' adjustments					
<i>FININST</i> (\$m)	-16.96	827.00	-1,392.00	0.00	137.81
<i>REVAL</i> (\$m)	-44.39	1,135.20	-3,905.09	0.00	275.04
<i>IMPAIR</i> (\$m)	-127.90	236.00	-12,764.51	0.00	703.12
<i>AMORT</i> (\$m)	-1.10	3.30	-36.30	0.00	4.32
<i>MERGER</i> (\$m)	-5.60	5,088.15	-1,084.40	0.00	297.96
<i>OTHER</i> (\$m)	9.41	7,537.00	-7,084.05	0.00	590.37
<i>MAGNIT</i> (\$m)	-189.26	835.50	-13,239.39	-12.29	802.60
<i>COUNT</i>	1.11	3.00	0.00	1.00	0.85

Panel A shows financial statement amounts, the amounts of adjustments in the reconciliation table, and the amounts of analyst adjustments for the full sample (\$ million). Panel B shows the amounts for the sample of companies with analyst adjustments. *FININST* = net gain or loss taken to profit and loss for the fair value remeasurement of financial instruments for company *i*. *REVAL* = net gain or loss of revaluation of investment properties and agricultural, insurance and pension assets. *IMPAIR* = impairment loss (or reversal). *AMORT* = amortisation expense. *MERGER* = gains or losses associated with mergers, integrations, divestments, redundancies and restructuring of business operations. *OTHER* = all other non-recurring (non-operating) remeasurements not included in the previous five items for company *i*. All variables are presented for the pooled sample (2008-2010). *COUNT* is the incidence of one or more non-zero items for any of *FININST*, *REVAL* and *IMPAIR*, scored as 0 to 3 for company *i*. *MAGNIT* is the sum of the current year's total value (in dollars) of non-zero values for any of *FININST*, *REVAL* and *IMPAIR* for company *i*.

Table 3 Summary statistics for the remeasured and non-recurring items based on positive and negative amounts

Adjustments		Panel A Positive Adjustments			Panel B Negative Adjustments		
		Mean	Median	n	Mean	Median	n
<i>FININST</i> (\$m)	FS	102.52	9.10	211	-97.57	-10.01	248
	COY	77.37	17.34	48	-119.79	-46.00	79
	AA	107.62	22.10	54	-114.20	-47.47	106
<i>REVAL</i> (\$m)	FS	671.94	62.30	35	-447.55	-142.04	69
	COY	65.25	27.90	21	-352.77	-125.50	53
	AA	129.48	46.14	22	-386.37	-196.65	50
<i>IMPAIR</i> (\$m)	FS	101.31	23.26	40	-197.87	-21.00	303
	COY	62.83	4.89	10	-260.20	-57.60	136
	AA	28.63	6.59	15	-291.96	-75.15	164
<i>AMORT</i> (\$m)	FS	0.00	0.00	0	-47.15	-12.00	408
	COY	14.83	16.40	3	-80.79	-14.88	68
	AA	2.25	2.25	2	-12.10	-9.68	34
<i>MERGER</i> (\$m)	FS	268.49	34.16	3	-48.75	-13.80	128
	COY	180.47	27.35	12	-46.94	-15.90	103
	AA	446.46	32.13	18	-79.63	-19.60	127

Panel C Correlation between amounts of the adjustments reported

	All firm-year observations (n=576)			Firm-year observations where a non- GAAP earnings is reported (n=371)		
	FS/AA	FS/COY	AA/COY	FS/AA	FS/COY	AA/COY
<i>FININST</i> (\$m)	0.363	0.232	0.393	0.324	0.242	0.417
<i>REVAL</i> (\$m)	0.262	0.125	0.389	-0.016	0.469	0.574
<i>IMPAIR</i> (\$m)	0.883	0.847	0.932	0.884	0.861	0.947
<i>AMORT</i> (\$m)	0.004	0.125	-0.004	-0.021	0.160	-0.012
<i>MERGER</i> (\$m)	0.240	0.370	0.213	0.240	0.368	0.213

Panel A shows the summary statistics for the remeasured and non-recurring items in the financial statement (FS), the managers' adjustments (COY), and the analysts' adjustments (AA) with positive values (\$ million). Panel B shows the summary statistics for the items with negative values. Panel C reports the correlations between amounts in the financial statements, managers' and analysts' adjustments for the pooled sample and sample comprising companies reporting non-GAAP earnings. *FININST* = net gain or loss taken to profit and loss for the fair value remeasurement of financial instruments for company *i*. *REVAL* = net gain or loss of revaluation of investment properties and agricultural, insurance and pension assets. *IMPAIR* = impairment loss (or reversal). *AMORT* = amortisation expense. *MERGER* = gains or losses associated with mergers, integrations, divestments, redundancies and restructuring of business operations. All variables are presented for the pooled sample (2008-2010).

Table 4 Magnitude and occurrence profit and loss items (company financial statements and analyst adjustments) for non-GAAP and other companies

	Mean			Number with non-zero items		
	Non-GAAP (n=371)	Other (n=205)	<i>t</i> -stat	Non-GAAP (n=371)	Other (n=205)	χ^2
Panel A Financial statements						
<i>FININST</i> (\$m)	-17.52	19.20	1.419	298	161	0.260
<i>REVAL</i> (\$m)	-15.62	-7.65	0.123	85	19	16.610***
<i>IMPAIR</i> (\$m)	-125.89	-44.86	1.611	250	93	26.578***
<i>AMORT</i> (\$m)	-34.74	-30.96	0.483	276	133	5.807**
<i>MERGER</i> (\$m)	-14.03	-1.11	2.254**	111	21	28.936***
<i>OTHER</i> (\$m)	-60.75	-19.41	1.077	99	28	13.036***
Panel B Analysts' adjustments						
<i>FININST</i> (\$m)	-19.86	5.24	2.615***	124	36	16.560***
<i>REVAL</i> (\$m)	-39.35	-9.12	1.569	63	9	19.138***
<i>IMPAIR</i> (\$m)	-109.12	-34.00	1.523	144	35	29.138***
<i>AMORT</i> (\$m)	-1.00	-0.17	2.738***	33	3	12.445***
<i>MERGER</i> (\$m)	-4.56	-1.88	0.129	124	21	37.662***
<i>OTHER</i> (\$m)	6.05	6.09	0.001	206	32	86.766***
Panel C Frequency of reporting						
Years appeared in sample	Non-GAAP disclosure	Unique firm (Number)	Subtotal			
3	3	72	143			
	2	30				
	1	19				
	0	22				
2	2	19	51			
	1	14				
	0	18				
1	1	24	45			
	0	21				
			249			
	(i) Non- GAAP earnings (FS)	(ii) Non- GAAP earnings (AA)	(iii) Companies with both AA and non- GAAP disclosure			
	371	371	292 (79%)			
Profit enhancing	299 (81%)	280 (75%)				
Profit reducing	72 (19%)	91 (25%)				

This table presents descriptive statistics for six item-groups predicted to be related to the release of non-GAAP earnings. *FININST*, *REVAL*, *IMPAIR*, *AMORT*, *MERGER*, and *OTHER* are defined in Table 2. Panel A shows financial statement amounts and Panel B shows amounts of analysts' adjustments (\$ million). Non-GAAP = company releases non-GAAP earnings. Other = company does not release non-GAAP earnings. *t*-stat is the test of equality for the means between the two groups of companies. Chi-square statistics show the equality of the proportion of non-zero values across the two groups. ** and *** indicate significance at the 5 and 1 per cent levels, respectively. Panel C shows the number of companies providing non-GAAP disclosure in three or fewer sample years; for the non-GAAP disclosing companies (n=371), the number and proportion of companies with profit enhancing and profit reducing (i) analyst adjusted (AA) earnings and (ii) non-GAAP (FS) earnings. Item (iii) shows the number and proportion of non-GAAP disclosing companies with analyst adjusted earnings.

Table 5 Descriptive statistics: Other explanatory and control variables

	Mean/Number	Median	Min	Max	Stdev
Panel A Companies without non-GAAP earnings (n=205)					
<i>VARCFO</i> (\$m)	187***	51***	2	5,890	509
<i>SIZE</i> (\$m)	4,830*	1,340**	60	77,300	10,200
<i>BVE</i> (\$m)	2,410**	667***	-1,640	30,800	5,020
<i>NI</i> (\$m)	182*	57	-4,079	5,732	885
<i>ACHEARN</i>	0.078	0.023*	0.000	1.563	0.181
<i>PREVAFE</i>	0.032**	0.008**	0.000	0.427	0.063
<i>PREVFD</i>	0.012	0.005	0.000	0.147	0.019
<i>NUMEST</i>	7.810***	8.000***	0.000	18.000	4.330
<i>LOSS</i>	60				
<i>FIN</i>	23***				
<i>MINING</i>	49***				
Panel B Companies with non-GAAP earnings (n=371)					
<i>VARCFO</i> (\$m)	460	97	2	6,780	1,250
<i>SIZE</i> (\$m)	8,190	1,750	26	244,000	24,800
<i>BVE</i> (\$m)	3,940	1,320	-199	46,900	8,050
<i>NI</i> (\$m)	421	79	-5,000	16,582	1,851
<i>NG_DIFF</i> (\$m)	232	43	-6,468	7,700	972
<i>ACHEARN</i>	0.062	0.016	0.000	1.563	0.158
<i>PREVAFE</i>	0.022	0.006	0.000	0.427	0.052
<i>PREVFD</i>	0.012	0.006	0.000	0.147	0.021
<i>NUMEST</i>	9.609	10.000	0.000	19.000	3.936
<i>LOSS</i>	99				
<i>FIN</i>	90				
<i>MINING</i>	39				

This table reports the descriptive statistics for the control variables pooled across all years. Significant differences ($p = 0.01, 0.05, 0.10$) between observations in Panel A and B are shown with ***, **, and * respectively. We report t-tests of differences in means, Mann-Whitney tests of differences in medians and chi-square tests of differences between proportions for dummy variables. *VARCFO* = the standard deviation of cash flow from operations over ten years. *SIZE* = the company's market capitalisation at the beginning of the year expressed in millions. *BVE* = book value of equity. *NI* = net income. *NG_DIFF* = non-GAAP earnings less *NI*. *ACHEARN* = absolute change in earnings equal to the difference between the current year's EPS and last year's EPS, deflated by price. *PREVAFE* = absolute forecast error (*AFE*) for company *i* from the previous corresponding financial year. *AFE* = analyst forecast error measured as $AFE_{i,t} = |(A_{i,t} - F_{i,t-j}) / P_{i,t-j}|$ where $A_{i,t}$ is company *i*'s actual EPS for the financial year ended *t*; $F_{i,t-j}$ is company *i*'s median consensus forecast for EPS for the financial year ended *t*, measured *j* months prior to time *t*, where *j* is 3 months; and $P_{i,t-j}$ is company *i*'s price per share *j* months prior to time *t*, where *j* is 3 months. *PREVFD* = forecast dispersion (*FD*) for company *i* from the previous corresponding financial year. *FD* = forecast dispersion measured at *j* months prior to the end of the financial year *t*, where *j* is 3 months; captured by the standard deviation of company *i*'s EPS forecast, scaled by $P_{i,t-j}$, where *j* is 3 months. *LOSS* = 1 if the current year's earnings per share is negative, zero otherwise. *NUMEST* = number of analyst forecasts for analysts following the company three months before the financial year end *t*, being the year end when the non-GAAP earnings is released. *FIN* = 1 for companies in the GICS Financials Industry group, zero otherwise. *MINING* = 1 for companies in the GICS Metals and Mining industry, zero otherwise.

Table 6 Regression models: Non-GAAP release and profit and loss items

Panel A Items in financial statements								
Dependent variable = release of non-GAAP	(1)		(2)		(3a)		(3b)	
	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat
<i>Intercept</i>	1.189	0.573	2.191	1.071	0.879	0.421	2.058	1.013
<i>COUNT</i> ^{FS}	0.565	4.209***						
<i>MAGNIT</i> ^{FS}			0.706	1.853*				
<i>FININST</i> ^{FS}					-0.149	-0.584	0.001	0.002
<i>REVAL</i> ^{FS}					1.220	3.292***	0.796	1.007
<i>IMPAIR</i> ^{FS}					0.741	3.625***	1.181	1.906*
<i>AMORT</i> ^{FS}					0.254	1.091	-2.220	-1.535
<i>MERGER</i> ^{FS}					1.233	4.494***	55.997	3.176***
<i>OTHER</i> ^{FS}					0.469	1.696*	0.227	0.596
<i>MINING</i>	-0.856	-3.316***	-0.747	-2.920***	-0.581	-2.035**	-0.720	-2.629***
<i>FIN</i>	0.226	0.797	0.381	1.378	0.018	0.054	0.392	1.355
<i>LOSS</i>	-1.094	-3.464***	-1.208	-3.830***	-1.203	-3.550***	-1.176	-3.499***
<i>ACHEARN</i>	0.009	0.014	-0.238	-0.387	-0.091	-0.136	-0.444	-0.604
<i>SIZE</i>	-0.072	-0.712	-0.081	-0.821	-0.060	-0.580	-0.080	-0.811
<i>NUMEST</i>	0.017	1.065	0.014	0.859	0.009	0.541	0.008	0.491
<i>VARCFO</i> (×10 ²)	0.032	2.026**	0.021	1.390	0.033	2.465**	0.032	1.683*
<i>PRE- CRISIS</i>	-0.390	-1.498	-0.435	-1.684*	-0.383	-1.400	-0.431	-1.646*
<i>POST- CRISIS</i>	0.052	0.236	0.047	0.216	0.026	0.110	0.110	0.475
<i>PREVAFE</i>	-1.922	-0.838	-1.592	-0.780	-1.915	-0.765	-1.619	-0.747
<i>PREVFD</i>	4.888	0.884	5.286	0.921	10.242	1.607	7.881	1.286
McFadden <i>R</i> ²	0.110		0.093		0.167		0.145	
LR statistic	82.405		70.110		124.981		108.465	
Prob(LR statistic)	0.000		0.000		0.000		0.000	
Obs with Dep=0	205		205		205		205	
Obs with Dep=1	371		371		371		371	
N	576		576		576		576	

Table 6 (continued)

Panel B Items with analysts' adjustments								
Dependent variable = release of non-GAAP	(1)		(2)		(3a)		(3b)	
	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat	Coeff.	z stat
<i>Intercept</i>	2.159	1.034	2.374	1.219	2.908	1.420	4.487	2.149**
<i>COUNT</i> ^{AA}	0.887	5.496***						
<i>MAGNIT</i> ^{AA}			1.257	2.562**				
<i>FININST</i> ^{AA}					0.438	1.583	3.826	2.121**
<i>REVAL</i> ^{AA}					1.005	2.182**	0.644	0.604
<i>IMPAIR</i> ^{AA}					0.196	0.722	0.412	0.633
<i>AMORT</i> ^{AA}					1.279	1.865*	117.231	2.009**
<i>MERGER</i> ^{AA}					1.119	3.581***	18.977	2.726***
<i>OTHER</i> ^{AA}					1.368	5.329***	6.737	3.049***
<i>MINING</i>	-0.932	-3.514***	-0.743	-2.836***	-0.559	-1.863*	-0.680	-2.431**
<i>FIN</i>	-0.165	-0.546	0.378	1.368	-0.141	-0.396	0.405	1.395
<i>LOSS</i>	-1.179	-3.703***	-1.132	-3.572***	-1.263	-3.555***	-1.221	-3.556***
<i>ACHEARN</i>	-0.217	-0.354	-0.422	-0.617	-0.684	-1.053	-2.056	-1.883*
<i>SIZE</i>	-0.111	-1.081	-0.094	-0.990	-0.158	-1.585	-0.201	-1.964**
<i>NUMEST</i>	0.027	1.585	0.017	1.068	0.014	0.775	0.008	0.453
<i>VARCFO</i> (×10 ²)	0.042	2.790***	0.032	1.924*	0.042	2.609***	0.028	1.546
<i>PRE- CRISIS</i>	-0.211	-0.795	-0.395	-1.555	-0.311	-1.062	-0.414	-1.555
<i>POST- CRISIS</i>	0.068	0.303	0.063	0.281	0.067	0.279	0.149	0.636
<i>PREVAFE</i>	-1.099	-0.542	-1.574	-0.752	-1.039	-0.473	-1.740	-0.752
<i>PREVFD</i>	5.838	1.055	5.110	0.857	8.810	1.595	8.115	1.314
McFadden <i>R</i> ²	0.140		0.097		0.226		0.164	
	105.21							
LR statistic	2		72.383		169.349		122.866	
Prob(LR statistic)	0.000		0.000		0.000		0.000	
Obs with Dep=0	205		205		205			
Obs with Dep=1	371		371		371		371	
N	576		576		576		576	

This table reports the results of the logistical regression models of the dummy variable for non-GAAP earnings release and financial statement items (Panel A) and analyst adjustments (Panel B). In Model 1 *COUNT* is the incidence of one or more non-zero items for any of the variables *FININST*, *IMPAIR*, *REVAL* scored as 0 to 3 for firm *i*. In Model 2 *MAGNIT* is the sum of the current year's total value (in dollars) of non-zero values for these variables. The variables *FININST*,

REVAL, *IMPAIR*, *AMORT*, *MERGER* and *OTHER* are defined in Table 2. In Model 3a the variables are dummy variables that indicate if these items are non-zero. In Model 3b the variables are the absolute value of the sum of the current year's total value (in dollars) of non-zero values for each variable. *ACHEARN* = absolute change in earnings equal to the difference between the current year's EPS and last year's EPS, deflated by price. *NUMEST* = number of analysts following the company during the year. *VARCFO* = the standard deviation of cash flow from operations over ten years. *SIZE* = the natural log of the company's market capitalisation at the beginning of the year. *PREVAFE* = absolute forecast error (AFE) for firm *i* from the previous corresponding financial year. *AFE* = analyst forecast error measured as $AFE_{i,t} = |(A_{i,t} - F_{i,t-j}) / P_{i,t-j}|$ where $A_{i,t}$ is firm *i*'s actual EPS for the financial year ended *t*; $F_{i,t-j}$ is firm *i*'s median consensus forecast for EPS for the financial year ended *t*, measured *j* months prior to time *t*, where *j* is 3 months; and $P_{i,t-j}$ is firm *i*'s price per share *j* months prior to time *t*, where *j* is 3 months. *PREVFD* = forecast dispersion (*FD*) for firm *i* from the previous corresponding financial year. *FD* = forecast dispersion measured at *j* months prior to the end of the financial year *t*, where *j* is 3 months; captured by the standard deviation of firm *i*'s EPS forecast, scaled by $P_{i,t-j}$, where *j* is 3 months. *LOSS* = 1 if the current year's earnings per share is negative, zero otherwise. *FIN* = 1 for companies in the GICS Financials Industry group, zero otherwise. *MINING* = 1 for companies in the GICS Metals and Mining industry, zero otherwise. *PRE-CRISIS* = 1 if the observation is in the period prior to 1 July 2008, zero otherwise. *POST-CRISIS* = 1 if the observation is in the period post to 30 June 2009, zero otherwise. *, ** and *** indicate significance at the 10, 5 and 1 per cent levels, respectively.

Table 7 Descriptive statistics: Analyst forecast error (AFE_{t+1}) and forecast dispersion (FD_{t+1})

	AFE_{t+1}				FD_{t+1}			
	3 months	6 months	9 months	Equality	3 months	6 months	9 months	Equality
Panel A All years (n=477)								
Mean	0.024	0.035	0.031	2.86*	0.015	0.016	0.013	2.11
Median	0.009	0.012	0.009	30.68***	0.007	0.007	0.006	2.35
Panel B Pre-Crisis (n=117)								
Mean	0.055	0.086	0.051	1.82	0.033	0.032	0.013	10.47***
Median	0.022	0.020	0.020	0.44	0.011	0.006	0.009	12.61***
Panel C Crisis (n=158)								
Mean	0.011	0.018	0.027	6.46***	0.009	0.011	0.015	3.01*
Median	0.008	0.011	0.007	19.11***	0.006	0.008	0.006	11.66***
Panel D Post-Crisis (n=202)								
Mean	0.016	0.019	0.023	2.39*	0.010	0.011	0.011	0.21
Median	0.008	0.010	0.008	9.12**	0.006	0.006	0.006	2.15

This table reports descriptive statistics. $AFE =$ Analyst forecast error measured as $AFE_{i,t+1} = |A_{i,t+1} - F_{i,t+1,j}| / P_{i,t+1,j}$ where $A_{i,t+1}$ is company i 's actual EPS for the financial year ended $t+1$; $F_{i,t+1,j}$ is company i 's median consensus forecast for EPS for the financial year ended $t+1$, measured j months prior to time $t+1$, where j is 3, 6 and 9 months; and $P_{i,t+1,j}$ is company i 's price per share j months prior to time $t+1$, where j is 3, 6 and 9 months. $FD =$ Forecast dispersion measured at j months prior to the end of the financial year $t+1$, where j is 3, 6 and 9 months; captured by the standard deviation of company i 's EPS forecast, scaled by $P_{i,t+1,j}$, where j is 3, 6 and 9 months. The results are presented pooled across all years and on an individual year-by-year basis. The ANOVA F-Statistic (Kruskall-Wallis) statistics test the equality of means (medians) across horizons (3, 6 and 9 months) and across the three periods (i.e., Pre-Crisis, Crisis and Post-Crisis) is reported. *, ** and *** indicate significance at the 10, 5 and 1 per cent levels, respectively.

Table 8 2SLS Regression models: Analyst forecast error and dispersion three months prior to next financial year end

Dependent variable	(1) <i>AFE_{t+1}</i>	(2) <i>AFE_{t+1}</i>	(3) <i>AFE_{t+1}</i>	(4) <i>AFE_{t+1}</i>	(5) <i>FD_{t+1}</i>	(6) <i>FD_{t+1}</i>	(7) <i>FD_{t+1}</i>	(8) <i>FD_{t+1}</i>
<i>NONGAAP</i>	-0.035*** (0.009)			-0.055*** (0.020)	-0.012** (0.005)			-0.013 (0.009)
<i>RECON</i>		-0.037*** (0.010)				-0.012** (0.005)		
<i>ALLMEDIA</i>			-0.031*** (0.010)	0.027 (0.022)			-0.012** (0.006)	0.002 (0.010)
<i>LOSS_{t+1}</i>	0.020** (0.008)	0.020** (0.008)	0.017** (0.008)	0.021*** (0.008)	0.012*** (0.004)	0.0135*** (0.004)	0.012*** (0.004)	0.013*** (0.004)
<i>VARCFO_{t+1}</i>	0.004** (0.002)	0.005*** (0.002)	0.002 (0.001)	0.005** (0.002)	0.003*** (0.001)	0.003*** (0.001)	0.002** (0.001)	0.003*** (0.001)
<i>ACHEARN_{t+1}</i>	0.025*** (0.008)	0.025*** (0.008)	0.025*** (0.008)	0.024*** (0.008)	0.012*** (0.003)	0.013*** (0.004)	0.013*** (0.003)	0.013*** (0.003)
<i>PREVAFE_{t+1}</i>	0.106 (0.097)	0.120 (0.098)	0.070 (0.097)	0.142 (0.111)				
<i>PREVFD_{t+1}</i>					0.285* (0.156)	0.273* (0.154)	0.227 (0.165)	0.293 (0.181)
<i>NUMEST_{t+1} (×10²)</i>	-0.059 (0.073)	-0.053 (0.074)	-0.086 (0.072)	-0.046 (0.076)	-0.035 (0.039)	-0.035 (0.039)	-0.044 (0.039)	-0.034 (0.039)
<i>SIZE_{t+1}</i>	-0.003 (0.002)	-0.003 (0.002)	-0.002 (0.002)	-0.003 (0.002)	-0.002* (0.001)	-0.003* (0.001)	-0.002 (0.001)	-0.002* (0.001)
<i>ADR_{t+1}</i>	0.001 (0.006)	0.003 (0.007)	-0.011 (0.008)	0.008 (0.010)	-0.003 (0.004)	-0.002 (0.004)	-0.006 (0.004)	-0.002 (0.004)
<i>PRE- CRISIS</i>	0.026*** (0.009)	0.026*** (0.009)	0.029*** (0.008)	0.026*** (0.009)	0.016*** (0.004)	0.016*** (0.004)	0.017*** (0.004)	0.016*** (0.004)
<i>POST- CRISIS</i>	0.013*** (0.004)	0.014*** (0.004)	0.015*** (0.004)	0.011*** (0.004)	0.00424*** (0.002)	0.005*** (0.002)	0.005*** (0.002)	0.004** (0.002)
<i>Intercept</i>	0.081* (0.045)	0.086* (0.046)	0.058 (0.043)	0.091* (0.048)	0.063** (0.028)	0.066** (0.028)	0.0544* (0.028)	0.064** (0.028)
Observations	477	477	477	477	477	477	477	477
R-squared	0.306	0.292	0.323	0.240	0.362	0.357	0.367	0.359
Hausman Test <i>p</i> -value	0.001	0.000	0.012	0.006	0.026	0.017	0.100	0.115

This table reports the results of the two stage least squares regression models with robust standard errors. In the first stage models, we model *NONGAAP* as the association between the disclosure of non-GAAP earnings and the occurrence of non-zero values for any of the six item-groups in companies' financial statements (*FININST*, *REVAL*, *IMPAIR*, *AMORT*, *MERGER* and *OTHER*). Alternative first stage models include *RECON* (= 1 if the company provides a reconciliation between non-GAAP and IFRS earnings) and *ALLMEDIA* (= 1 if the company makes non-GAAP disclosure in three media – earnings

announcement, investor presentation and annual report). In the 2SLS models dependent variables are analyst forecast error (*AFE*) and forecast dispersion (*FD*) nine months prior to next financial year end. $AFE_{i,t+1} = |(A_{i,t+1} - F_{i,t+1-j}) / P_{i,t+1-j}|$ where $A_{i,t+1}$ is firm i 's actual EPS for the next financial year ended $t+1$; $F_{i,t+1-j}$ is firm i 's median consensus forecast for EPS for the financial year ended $t+1$, measured j months prior to time $t+1$, where j is 3 months; and $P_{i,t+1-j}$ is firm i 's price per share j months prior to time $t+1$, where j is 3 months. $FD_{i,t+1}$ = Forecast dispersion measured at j months prior to the end of the financial year $t+1$, where j is 3 months; captured by the standard deviation of firm i 's EPS forecast, scaled by $P_{i,t+1-j}$, where j is 3 months. $LOSS = 1$ if the next year's earnings per share is negative, zero otherwise. $VARCFO$ = the standard deviation of cash flow from operations over ten years. $ACHEARN$ = absolute change in earnings equal to the difference between the next year's EPS and current year's EPS, deflated by price. $PREVAFE$ = Absolute forecast error (*AFE*) for firm i from the current financial year. $PREVFD$ = Forecast dispersion (*FD*) for firm i from the current financial year. $NUMEST$ = number of analyst earnings forecasts included in the consensus forecast. $ADR = 1$ for observations for companies cross-listed in the US as American Depository Receipts, zero otherwise. $SIZE$ = the natural log of the company's market capitalisation at the beginning of the year. $PRE_CRISIS = 1$ if the observation is in the period prior to 1 July 2009, zero otherwise. $POST_CRISIS = 1$ if the observation is in the period post to 30 June 2010, zero otherwise. *, ** and *** indicate significance at the 10, 5 and 1 per cent levels, respectively.