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The Role of the Board of Directors in Non-GAAP Earnings Disclosures

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Does better governance improve the quality of non-GAAP earnings disclosures?

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Abstract

Managers claim to use unaudited non-GAAP earnings disclosures to communicate private information to the market. Although capital markets expect reliability in earnings disclosures, empirical evidence has suggested that managers sometimes disclose these with opportunistic intentions, leading to concerns about their consistency, comparability and transparency. In this study, we examine whether better-structured boards of directors are able to constrain the opportunistic use of non-GAAP disclosures, and promote informative disclosures. We find that better boards are effective at ensuring consistency and comparability of non-GAAP earnings disclosures, and at decreasing aggressive non-GAAP reporting.

Keywords: Non-GAAP Earnings; Board Quality; Consistency; Comparability; Reconciliation.

JEL classification: G34; M41

Non-GAAP earnings tend to be much worse than GAAP earnings when it comes to accurately reporting profits. GAAP standards at least hold companies to a common set of rules. Companies that report non-GAAP earnings can make up whatever rules they want, and they almost always use those rules to inflate their reported growth and profitability.
(Forbes, 2016)

We have no problem with companies providing additional non-GAAP measures to enrich the IFRS data in financial statements. Yet some basic ground rules should be respected. First of all, these measures should not present information that is misleading.
(Hoogervorst, 2015)

1. Introduction

Managers often supplement their GAAP financial reporting with additional voluntary disclosures to provide investors with more tailored and sometimes alternative insights into a firm's performance and financial position. These are called non-GAAP disclosures, resulting in alternative earnings figures that are known as proforma earnings or street earnings. By whatever name, they are not regulated and, for more than a decade, scholars have debated whether stringent regulations should be imposed on them to avoid opportunism, or whether managers should be allowed the opportunity to convey important signals to the market (Black and Christensen, 2018; Black *et al.*, 2017; Marques, 2010; Entwistle *et al.*, 2006). Theory predicts that opportunistic disclosure incentives can be constrained not only by regulation but also by the economic and institutional environment in which the firm operates (Healy and Palepu, 2001). One important environmental element that may constrain managerial disclosures is the monitoring embedded in a firm's governance structure. In particular, monitoring by boards of directors may serve as a substitute for stringent regulation of managerial choices around voluntary disclosures. This paper investigates whether better-structured boards encourage the disclosure of informative non-GAAP measures as well as constraining opportunistic disclosures. We find support for associations between board quality and the consistency, comparability and transparency of non-GAAP disclosures in a lightly regulated but developed capital market, Australia. Our results indicate that better

governance may provide sufficient monitoring to improve the quality of non-GAAP disclosures.

Reporting consistency across time, comparability across firms and overall transparency are important properties of quality reported earnings figures (Black *et al.*, 2018a) that can enhance the information set available to investors. Using these three properties as measures of reporting quality, we examine whether there is an association between the quality of the board of directors and managers' voluntary disclosures choices. Our research builds on the European findings of Isidro and Marques (2013) who examine incentives to engage in non-GAAP reporting that are provided by linking board of directors' compensation to market performance. Isidro and Marques show that opportunistic disclosures can be restrained by better governance. Several US papers also examine the impact of internal governance mechanisms on non-GAAP disclosures that mislead investors (Frankel *et al.*, 2011; Jennings and Marques, 2011). Our contribution to this literature is to measure the information content of disclosures rather than just the act of disclosing, and to consider non-GAAP disclosures as potentially informative as well as potentially opportunistic. We also finesse the use of a board quality score (e.g. Isidro and Marques, 2013) by including continuous measures of individual governance factors in a principal components analysis to derive our score, rather than just summing indicator variables for each factor. Our results are robust to rigorous tests for endogeneity concerns that pervade corporate governance research.

In comparison to the US, the Australian capital market is more loosely regulated. It also differs from other loosely-regulated environments such as Europe and the UK in two ways that make non-GAAP earnings more prominent in this jurisdiction. First, compared to Europe and the UK markets, the Australian capital market has a higher proportion of individual

investors who are likely to be misled by non-GAAP reporting. Individual share ownership in Australia is about 31% (Deloitte Access Economics, 2017), compared to 18% in the UK and 13% in Germany (Financial Times, 2015). Less than 20% of Australian investors rely on a full-service broker for financial advice, and up to 70% rely on their own research (Deloitte Access Economics, 2017). Secondly, corporate disclosures are timed and provided differently in Australia compared to Europe and the UK. Access to timely information is made available by Continuous Disclosure (Australian Securities Exchange Listing Rule 3.1) rather than quarterly reporting. Australian companies have never been required to report on a quarterly basis as they were in Europe until 2015 and the UK until 2014. These differences confirm the suitability of Australia as a setting for this research, given the relative looseness of its regulations and the likely high regard given to non-GAAP disclosures.

Using a sample of the Australian Securities Exchange (ASX) top 200 companies from 2013 to 2015, we find that non-GAAP disclosures are high and are increasing at a steady rate across the three years. Our multivariate analysis suggests that when firms have better quality boards, their non-GAAP disclosures are more consistent, more comparable and more transparent. We also find that when board quality is high, firms are less likely to make aggressive non-GAAP earnings disclosures that exclude one-time losses but not one-time gains. Our additional analysis on recurring and non-recurring exclusions also supports the conclusion that better quality boards elicit informative and high quality disclosures.

This research makes several contributions. First, we contribute to the global debate between regulators and academics about standardised non-GAAP disclosures, with results that may be useful for other IFRS¹ countries with similar regulatory reporting environments. We show

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

that well-structured boards are able to effectively monitor non-GAAP reporting in a loosely-regulated IFRS regime where non-GAAP reporting is subject only to non-mandatory guidelines and recommendations. A high quality board is a suitable alternative to prevent the over-regulation of voluntary disclosures by management. Secondly, by using a more comprehensive measure of the characteristics of the board of directors, we extend the existing literature and advise practitioners on the types of boards of directors that are associated with better practice, such as limiting opportunistic non-GAAP disclosures. Thirdly, this study provides an understanding of the importance of consistency, comparability and transparency of non-GAAP reporting for capital markets that will inform standard setters. For example, changes to IFRS, which require specific expense disclosure by either nature or function, increased transparency but also led to an increase in the use of unregulated non-GAAP disclosures (Crowley *et al.*, 2017). However, by emphasising consistency, comparability and transparency of non-GAAP disclosures, the disparity between GAAP and non-GAAP measures is minimised, thus providing better information to the market. Finally, our results suggest that regulators should consider explicitly prescribing to directors responsibility for monitoring non-GAAP disclosures in corporate governance guidelines about the role of the board.

The remainder of the paper is organised as follows. Section 2 provides background and the development of our hypothesis. Section 3 describes the research design and method, including the empirical model and variable definitions. Section 4 presents the results of the analyses, and the study concludes in Section 5 with an outline of its main policy implications.

2. Background and hypothesis development

2.1 Background setting

Managerial incentives for voluntary disclosure include capital market transactions, corporate control contests, stock compensation, shareholder litigation, proprietary costs and management talent signalling (Healy and Palepu, 2001). Voluntary disclosures such as non-GAAP measures could be motivated by any of these determinants (see review by Black *et al.*, 2018b). Consistent with agency theory, managers can reduce information asymmetry by communicating their informed views through non-GAAP disclosures. Managers and others who support non-GAAP disclosures argue that non-GAAP disclosures generally exclude from GAAP earnings those non-recurring items that are less likely to be mapped into future performance, providing issuers with flexibility in communicating useful, entity-specific information. They enable managers to signal sustainable performance to investors beyond that which can be reflected through GAAP earnings.

On the other hand, regulators and practitioners value across-firm comparability in non-GAAP reporting (Cohn, 2016; PwC, 2014), and therefore oppose non-GAAP disclosures that are inconsistent. The Securities and Exchange Commission (SEC) in the US considers inconsistency in non-GAAP measures to be misleading (SEC, 2016). Managers who issue opaque non-GAAP disclosures may mislead investors by providing over-optimistic disclosures (Black *et al.*, 2018a). For example, non-GAAP figures can be disclosed when the GAAP earnings fall short of earnings benchmarks. They can exclude recurring expenses (for example, research and development, amortisation and depreciation, stock-based compensation, interest, and tax expenses), with the effect of opportunistically managing earnings to mislead investors (Black and Christensen, 2009; Bowen *et al.*, 2005; Doyle *et al.*, 2003). Christensen *et al.* (2011) show that managers play an active role in influencing the composition of street earnings by means of earnings guidance. Libby *et al.* (2015) draw on various studies to explain the challenge faced by the board of balancing desires to avoid

conflict with management against litigation and regulatory enforcement costs, as well as long-term reputational damage.

Regulators have expressed growing concerns over the credibility of non-GAAP measures (Hoogervorst, 2015), motivated by their aims of protecting investors' interests and maintaining the credibility of the financial reporting system. The role of regulation in harmonising and securing the quality of voluntary disclosures to protect investor interests is established in the literature. Jennings and Marques (2011) found that regulatory intervention over non-GAAP disclosures in the US significantly reduced the extent to which investors were misled. In countries like Australia that have a principles-based regulatory environment, what can substitute for the black letter law of regulation? If only guidelines are available to direct non-GAAP disclosures, can managerial moral hazard behaviour be monitored and constrained by elements of the economic and institutional environment? The board of directors is accountable for reducing agency costs and organisational inefficiencies arising from moral hazard and adverse selection, so they ought to play a role in monitoring non-GAAP reporting. They ought to ensure that alternative performance disclosures are credible and reliable signals of future performance.

2.2 Regulatory environment

The regulatory environment of non-GAAP reporting has changed significantly in the 21st century (Black & Christensen, 2018). In part, this has been a response to the proliferation of non-GAAP earnings disclosures that has captured the attention of both standard setters and regulators. In the US, for instance, the SEC has regulated the non-GAAP reporting of US firms since 2003 by means of Regulation G, which restricts certain types of non-GAAP disclosures. In 2010, specific Compliance and Disclosure Interpretations (C&DIs) of the SEC

were introduced to further improve the quality of non-GAAP disclosures. In a recent study, however, Black and Christensen (2018) advocate for a relaxation in the current enforcement of Regulation G, in conjunction with more disaggregated reporting and an enhanced role for auditors. Outside the US, regulators seem to be more accepting of non-GAAP performance measures. Other jurisdictions do not have specific restrictions on non-GAAP disclosures that are presented in communications with investors, and firms can discuss non-GAAP earnings without the need for accompanying definitions or reconciliations (Young, 2014).

In Australia, regulators have been cautious about imposing rigid and mandatory disclosure regulations in the interest of avoiding excessive costs arising from the different sizes and natures of firms (Lim *et al.*, 2007). Non-GAAP earnings disclosures are voluntary and lightly regulated. The Australian security market regulator, the Australian Securities and Investment Commission (ASIC), provides recommendations and guidelines on non-IFRS disclosures in Australia for directors and preparers of financial information by means of its Regulatory Guide 230, *Disclosing Non-IFRS Financial Information*, which was released in December 2011. Regulatory Guide 230 contains three key areas of concern: a) the prominence and terminology applied to non-GAAP earnings; b) the reconciliation disclosure requirement between GAAP and non-GAAP earnings; and c) the consistency across financial periods of adjustments made to GAAP earnings to reach the corresponding non-GAAP earnings. Other guidelines and regulations applying to non-GAAP (non-IFRS) disclosures in Australia are AASB13 Earnings Per Share, which allows the disclosure of non-GAAP earnings in a similar way to IAS133, and the general statutory obligations of the Corporations Act 2001, which prohibit Australian companies from disclosing misleading information. Managers are liable under the Corporations Act for any misleading non-GAAP information that is included in media releases and/or annual reports.

The Australian Securities Exchange (ASX) has released corporate governance guidelines to ensure effective monitoring over managerial behaviour (ASX Corporate Governance Council, 2014). ASX Corporate Governance Guidelines issued in 2003 (amended in 2014) suggest that boards should consist of a majority of independent directors, display a diverse range of skills and expertise, include both men and women and be an appropriate size. In addition, Principle 4 of the ASX Corporate Governance Guidelines recommends that an audit committee² should be formed to oversee the reliability of the corporate reporting process. Together, these guidelines indicate that the board of directors is responsible for minimising the possibility of users of financial information being misled. In this principles-based environment for non-GAAP disclosures, internal governance such as board monitoring may be an important mechanism to ensure the quality of voluntary disclosures.

2.3 Qualities of non-GAAP disclosures

The literature has identified four key elements of reporting quality that have been the basis of authority in accounting standards over the years: relevance, reliability, comparability and understandability (Cheung *et al.*, 2010). Our three-stage analysis draws on all four elements to assess reporting quality. In our primary analysis, we follow Black *et al.* (2018a) and the International Accounting Standards Board's (IASB) financial reporting framework by focusing on the quality of comparability, which includes comparability between firms and consistency over time (Cohn, 2016; PwC, 2014). Secondly, we evaluate the transparency of non-GAAP disclosures by their use of reconciliations, which relate to the qualitative characteristics of reliability and understandability. In our final analysis, we assess the relevance of non-GAAP disclosures.

² Note that although the ASX corporate governance guidelines recommendation includes forming an audit committee, it is based on an *if not why not approach*, which means that if a listed entity decides not to have an audit committee, the reasons for this should be disclosed.

Consistency

Firms can make different adjustments when calculating non-GAAP earnings for each period, with effects on reporting consistency over time (Grant & Parker, 2001). With the exception of Black *et al.* (2018a)'s finding that managers typically exclude the same items year upon year, regardless of whether the excluded items are traditionally identified as 'nonrecurring' or 'recurring', the literature generally shows that inconsistency in non-GAAP disclosures is associated with lower reporting quality. Managers with opportunistic intentions are more likely to exclude one-time gains versus one-time losses to convey an impression of better performance (Bhattacharya *et al.*, 2003; Entwistle *et al.*, 2006; Lougee & Marquardt, 2004). This opportunism is also likely to be inconsistent in respect of the types of exclusions made by managers across time that, in turn, makes them less informative and can hinder the credibility of non-GAAP earnings reports. On the other hand, managers with altruistic motivations are more likely to exclude non-recurring items that are not expected to map into future operating performance (Black *et al.*, 2018a; Kolev *et al.*, 2008; Whipple, 2016). Black *et al.* (2018a) find that when the managers make new adjustments relative to the prior year, these new adjustments are generally of higher quality than their year-upon-year adjustments.

Comparability

Managerial discretion in non-GAAP disclosures affects across-firm comparability. It is expected that industry peers will treat similar transactions in a similar manner when the motive of non-GAAP disclosures is to reduce information asymmetry. However, opportunistic motives may drive managers to depart from sector norms of what to exclude from non-GAAP earnings, resulting in less comparability between firms. It is hard to determine, based on forecasts, whether different exclusions hinder or enhance disclosure

quality. For example, the exclusion from non-GAAP earnings of idiosyncratic events that are mandatorily included in GAAP earnings may increase or decrease across-firm comparability. Black *et al.* (2018a) find evidence that firms that deviate from sector norms in excluding items have higher quality non-GAAP disclosures. The authors also posit that, despite these competing arguments regarding exclusions, regulators, practitioners and investors are of the view that across-firm comparability needs to be maintained by adhering to sector norms for exclusions.

Reconciliations

The appropriate extent and nature of reconciliations provided with non-GAAP numbers is being debated in the literature and in practice. Marques (2010) provides evidence to suggest that reconciliations have information content. Zhang and Zheng (2011) find that, prior to Regulation G, mispricing of non-GAAP measures occurs in firms with poor quality reconciliations. Non-professional investors are likely to be misguided by non-GAAP disclosures that are not supplemented by quantitative reconciliation (Elliot, 2006). Although analysts and non-professional investors receive the same information, they may make differing decisions due to differences in their levels of cognition about the disclosed information. To address this disparity between non-professional and professional investors, regulators have increased their requirements regarding the provision of reconciliation. Although reconciliation guidelines are provided in Regulatory Guide 230 in Australia, sufficient flexibility remains available to managers to disclose non-GAAP figures with or without a reconciliation to the most comparable GAAP figure.

2.4 Board quality

Agency theory suggests that the board of directors should act in the interest of shareholders by overseeing managerial behaviour around voluntary disclosures (Fama & Jensen, 1983). Reputation risk and litigation risk drive independent board members to be more vigilant in ensuring that managerial reporting behaviour deters opportunism. The literature identifies characteristics of the board of directors that are likely to enhance its effectiveness for monitoring and oversight of voluntary disclosures: its independence, its financial expertise, the frequency of its meetings, and the diversity of its members. The importance of board independence is identified in Frankel *et al.* (2011), who find that it is positively associated with the persistence of non-GAAP earnings exclusions, and Mbagwu (2007), who finds that the price reaction to non-GAAP earnings is more positive when the board is independent. The voluntary disclosure and disclosure quality literatures suggest that board and audit committee members with financial expertise tend to have a positive impact on the extent and reliability of corporate reporting (Be'dard *et al.*, 2004; Hoitash & Hoitash, 2009; Karamanou & Vafeas, 2005). In a study of non-GAAP earnings exclusions, Seetharaman *et al.* (2014) find that the appointment of accounting (rather than non-accounting) experts to audit committees is associated with higher quality non-GAAP disclosures. Financial experts bear the greater responsibility and legal liability in assuring disclosure quality. The number of board meetings increases the quality of voluntary disclosures because board members have increased opportunities to discuss matters in detail and pool their knowledge for better oversight and counsel. It is suggested that the number of board meetings might also be a measure of diligence and, therefore, board effectiveness (Lee *et al.*, 2004). Kent and Stewart (2008) indicate that the frequency of board meetings is positively related to voluntary disclosure. Finally, gender diversity on the board improves effective monitoring of financial reporting due to the increase in the diversity of viewpoints and critical discussions in the boardroom. Women bring different viewpoints to the boardroom and facilitate more informed decisions

(Daily *et al.*, 2000), and provide better oversight of managers' reporting (Adams & Ferreira, 2009; Gul *et al.*, 2011).

2.5 Hypothesis development

Strong, well-structured boards that are likely to be more proficient at efficient contracting and to understand the benefits of informative non-GAAP disclosures will demand high quality reporting of alternative performance measures because it lowers agency costs arising from asymmetric information between managers and investors. In contrast, weak boards that are dominated by insiders, with no financial experts, a lack of board meetings, and a lack of female presence are likely to provide managers with greater opportunity to use aggressive and lower quality non-GAAP figures. Just making information available is not sufficient to reduce information asymmetry. Information needs to be available in a complete and consistent format to be easily understandable and increase investor confidence. Following Bhattacharya *et al.* (2003), Elliott (2006) and Black and Christensen (2009), we expect that high-quality boards will drive managers to apply similar exclusions over time and compared to industry peers, and to disclose reconciliations between closely-related non-GAAP figures and GAAP figures.

However, there are a number of reasons why this expectation may not be supported, and why there can be variations in non-GAAP earnings calculations across time and firms. Black and Christensen (2018) document findings in the recent literature contrary to the above arguments. Black *et al.* (2018a) find higher earnings quality from non-GAAP earnings are not consistent and/or comparable. For example, exclusions may relate to one-time items and therefore only some years or some firms may have something to exclude. Moreover, firms may have items that managers could exclude, but different managers might make different choices about

excluding them. In this scenario, the board relies on managers' abilities in deciding the items that need to be excluded to reflect persistent future core operating performance. Firms that systematically make the same adjustments year-over-year can actually have *lower* quality non-GAAP exclusions (Black et al., 2018a). In these situations, we expect strong boards to support managers' incomparable and/or inconsistent exclusions given that they provide signals for future operating performance.

However, in formulating the following hypothesis, we follow the dominant opportunism perspective in the literature and among regulators. We take the view that strong boards constrain managers' inconsistent non-GAAP disclosures. The alternative hypothesis is in parentheses:

H1: Managers are more likely (less likely) to disclose informative non-GAAP disclosures that are consistent, comparable and with reconciliations when the board quality is higher (lower).

3. Data and research method

3.1 Sample selection and data collection

This study examines non-GAAP disclosures of Australian listed companies to gain a systematic understanding of the role of directors in assuring the quality of these disclosures. Our sample period of 2013 to 2015 was influenced by the introduction of Regulatory Guide 230 in Australia in December 2011. We allow one year for this guidance to take effect on the disclosure of non-GAAP earnings of ASX companies. The sample firms are drawn from the largest 200 firms listed on the Australian Securities Exchange (ASX) based on market capitalisation because, as the most economically important firms, they are more likely to have diverse shareholders and to be followed by security analysts. We restrict the analysis to firms that disclose non-GAAP earnings. Non-GAAP disclosures identified in the firms'

announcements, including annual reports, earnings announcements and investor presentations, were accessed through the Securities Industry Research Centre of Asia Pacific (SIRCA) database. All these non-GAAP disclosures were hand-collected. Following Malone *et al.* (2016), we searched for non-GAAP earnings disclosures using Adobe Acrobat Pro text search software, using the search terms ‘underlying earnings’, ‘normalised profit’, ‘cash earnings’, ‘adjusted profit’, ‘adjusted EBIT’ and ‘adjusted EBITDA’. We hand-collected each item reported by the firm to better understand the frequency of adjustments made to calculate pro forma earnings measures. We also hand-collected the reconciliation items from the GAAP to non-GAAP earnings. This hand-collection process results in a unique and comprehensive dataset as it not only identifies the existence and value of non-GAAP earnings, but includes the specific exclusions and their dollar values. This sample was then merged with other databases to include corporate governance and control variables. In particular, board variables were extracted from SIRCA; financial variables from DatAnalysis Premium; and analysts forecast from IBES. The final sample comprises 544 firm-years from 2013 to 2015.³

3.2 *Research models*

In our primary analysis, we examine whether board quality reinforces informative non-GAAP disclosures or constrains opportunistic non-GAAP disclosures. We argue that consistent (inconsistent), comparable (incomparable), and reconcilable (irreconcilable) non-GAAP disclosures are informative (opportunistic); and, therefore, strong board quality supports (constrains) disclosures with these informative (opportunistic) attributes.

³ We removed banking and financial services (20 firms) and utilities (6 firms) as these tend to operate under different regulations and in different settings. These sectors have unique working capital structures, which may affect cash flows and consequently earnings figures. Further, these firms have an extra layer of governance imposed by regulation. These characteristics may create bias in the sample if banking and financial service firms were not excluded. Therefore, following most prior capital market research, firms in these sectors were removed from the sample.

The following model is used to test H1:

$$NON-GAAP_1 (i,t) = \alpha + \beta_1 BOARDQUALITY_{i,t} + \beta_2 SIZE_{i,t} + \beta_3 BTM_{i,t} + \beta_4 INTANG_{i,t} + \beta_5 LEVERAGE_{i,t} + \beta_6 BIG4_{i,t} + Industry_{i,t} + Year_{i,t} + \varepsilon_{i,t} \quad (1)$$

where *NON-GAAP₁* measures informative (or opportunistic) non-GAAP disclosures. We employ three relevant measures for non-GAAP disclosures: consistency, comparability and transparency. *Consistency* of non-GAAP earnings is calculated by excluding items used to reconcile the GAAP and non-GAAP earnings. We construct consistency scores based on how consistently a firm excludes specific items year by year. Following Black *et al.* (2018a), for each exclusion type in year *t* (e.g., amortisation, equity accounting, interest expense), we examine whether the firm has excluded the same item in year *t-1*. If the firm has not excluded the same item, we label this exclusion as inconsistent; otherwise it is a consistent exclusion. We construct an *INCONSISTENCY* score as the number of inconsistent exclusions scaled by the total number of adjustments made by firm *i* in year *t*. We estimate the model with inconsistency as the dependent variable using ordinary least-squares regression. See Appendix 1 (Panel A) for an example of the inconsistency score.

Our second measure for non-GAAP disclosures is within-sector *comparability* in non-GAAP reporting. We calculate an incomparability score based on Black *et al.* (2018a), defining an exclusion as incomparable when the exclusions made by firm *i* in year *t* are made by less than 50% of firms in the same sector during that year. Similar to the inconsistency score, we construct an *INCOMPARABILITY* measure by dividing the firm's sum of incomparable exclusions by the number of exclusions in a given year to obtain a firm-year measure of incomparability. We estimate the model using ordinary least-squares regression

with incomparability as the dependent variable. See Appendix 1 (Panel B) for an example of the incomparability measure.

Our third measure, *reconciliation* between GAAP and non-GAAP earnings, is based on Crowley *et al.* (2016) as follows. We define *RECON* as equal to 1 if the reporting firm provides a reconciliation of non-GAAP earnings in the form of a table or explanation, and 0 otherwise. We use logistic regression to estimate the model when *RECON* is the dependent variable.

The main independent variables measure the effectiveness of the board and audit committees. In contrast to the use of indicator variables in the prior literature, we use principal component analysis (PCA) to construct a *BOARD QUALITY* score based on six critical governance characteristics proposed by regulators and tested in prior research. Our board variables are the proportion of independent directors on the board (*BINDEP*), the proportion of financial/accounting experts on the board (*BEXP*), the number of board meetings (*BMEET*), the proportion of female directors on the board (*BFEM*), the proportion of independent directors on the audit committee (*ACINDEP*) and the proportion of financial/accounting experts on the audit committee (*ACEXP*). The use of scores is common practice in the corporate governance literature (Aggarwal *et al.*, 2009; Isidro & Marques, 2013), allowing the researcher to include multiple measures of the strength of governance mechanisms that may be highly correlated but that capture different aspects of board quality. Larcker *et al.* (2007) claim that the mixed findings in the literature on associations between various corporate governance attributes and earnings quality may be the result of poor reliability and construct validity in the governance measures used. They argue that PCA can be used to find

factors that retain most of the variance in the original board structure indicators, and so characterise the dimensionality of the individual governance indicators.

We include control variables for firm-specific characteristics identified in prior studies (Black *et al.*, 2018a; Frankel *et al.*, 2011; Isidro & Marques, 2013) as factors that may affect non-GAAP earnings disclosures. We include firm size (*SIZE*), measured by the natural logarithm of total assets, as larger firms tend to provide more disclosures. We also include the book value of equity divided by the market capitalisation (*BTM*), the proportion of intangibles to total assets (*INTANG*), and leverage (*LEVERAGE*), measured by debt to total assets. Finally, we use a measure of auditor reputation and external monitoring. *BIG4* equals 1 if the firm is audited by a Big4 audit firm and 0 otherwise. While auditors do not have responsibility for non-GAAP performance metrics, there have been recent calls for auditors to take a more direct and prominent role in verifying non-GAAP calculations (Black & Christensen, 2018). Prior studies on non-GAAP earnings control for industry sector. For instance, some studies find that service and information technology sectors are more likely to release non-GAAP earnings (Bhattacharya *et al.*, 2003; Brown & Sivakumar, 2003). Thus, we include industry dummy variables as well as time dummy variables in our analyses.

Table 1 provides a summary of our variable definitions.

[Insert Table 1 about here]

4. Empirical findings

4.1 Descriptive results

We report the non-GAAP earnings disclosures of our sample firms in Table 2 to provide a better understanding of these disclosures. Panel A shows the percentage of firms making 1 to

4 disclosures of non-GAAP figures, or 0. Non-GAAP disclosures are very common in Australia. The majority of the firms (85% of the sample) disclose at least one non-GAAP measure. The percentage of firms disclosing more non-GAAP figures increases over the sample period. For example, in 2013 46% of the firms disclosed two to three non-GAAP figures while in 2015 this percentage increased to 64%. Panel B shows the percentage of firms that provide reconciliations for non-GAAP earnings. In 2013, 54% of firms that disclosed a non-GAAP measure provided reconciliations in tabular form. The provision of a reconciliation with a written explanation increased notably over the period. For example, in 2013 only 8% of the firms provided an explanation of the non-GAAP earnings reconciliation, while in 2015 26% of the firms provided this reconciliation. Similarly, there was an increase in the tabular presentation of the reconciliation as recommended by non-GAAP regulatory disclosure guidelines.

Panel C shows the percentage of firms disclosing non-GAAP earnings based on the different types of adjustments they made. We follow Black *et al.* (2018b) in classifying the exclusion items as recurring or non-recurring. Recurring exclusions include Amortisation, Equity Accounting, Interest Expense, Exchange Gain/Loss, Cash Flow, and Tax. Non-recurring exclusions include Restructuring, Acquisition/Disposal, Impairment of Assets, Legal, Fair Value Adjustments, Discontinued Operations, Natural Disaster, and One-Off Abnormal Costs. We also account for uncommon exclusions, which include items not previously classified in other categories; and any unknown adjustments made to calculate a non-GAAP earnings measure. GAAP earnings are often adjusted for items that are considered non-recurring. The most used adjustments are *RESTRUCTURING*, *UNCOMMON* and *IMPAIRMENT OF ASSETS*. The practice is common across all industries.

[Insert Table 2 about here]

Table 3 reports descriptive statistics for the variables employed in the study. For the *informative* non-GAAP disclosures, 45% of the firms' overall exclusions in year t were not also excluded in year $t-1$ (*INCONSISTENCY*). Across our sample period, we find that the overall inconsistency score decreased by 47%, from 65.9% in 2013 to 34.8% in 2015, indicating that non-GAAP calculations have become more consistent over our sample period. Furthermore, we find that 34% of a firm's overall exclusions (*INCOMPARABILITY*) are not excluded by the majority of its peers. For the reconciliation measure (*RECON*), Table 3 shows that, on average, 92% of the firms that disclose non-GAAP measures provide some form of reconciliation to justify any differences between non-GAAP earnings and the corresponding GAAP measure. Regarding the board variables, Table 3 indicates that a majority of independent directors sits on both the board and audit committee, while the financial expertise of board members is higher at the audit committee level. For the control variables, Australian firms have on average 29% of their assets classified as intangibles, and 94% of the firms are audited by the Big4. Table 4 presents the Pearson correlation matrix for the variables included in our multivariate analysis. *BOARD QUALITY* is negatively correlated with the inconsistency and incomparability scores, and positively correlated with the reconciliation measure.

[Insert Table 3 about here]

[Insert Table 4 about here]

4.2 *Multivariate regressions*

Table 5 presents the empirical results from estimating Equation (1). For the inconsistency regression model, we find that the *INCONSISTENCY* score of non-GAAP earnings is negatively and significantly associated with *BOARD QUALITY* (coefficient = -0.0374,

p<0.000). This finding suggests that Australian firms, with high board quality, are more likely to decrease deviations from consistency in their non-GAAP earnings calculations. Thus, higher board quality is associated with year-on-year consistency in non-GAAP reporting. For the incomparability regression model, we find a negative and significant association between *BOARD QUALITY* and the *INCOMPARABILITY* score (coefficient = -0.0432, p<0.000), indicating that firms with higher board quality exhibit lower incomparability of non-GAAP earnings across peer firms. This finding suggests that high board quality is associated with more comparable non-GAAP earnings across sector peers. For the reconciliation regression model, we find a positive and significant association between non-GAAP reconciliation (*RECON*) and *BOARD QUALITY* (coefficient = 0.0160, p<0.05). Taken together, these findings support our hypothesis that managers are more likely to disclose informative (consistent, comparable and well-reconciled) non-GAAP disclosures when board quality is higher. These results also indicate that well-structured boards are effective at constraining inconsistent, incomparable and irreconcilable non-GAAP earnings disclosures. Thus, strong boards are associated with more informative or less opportunistic non-GAAP reporting.

For the control variables, we find that *INTANG* is positively associated with two inconsistency measures, suggesting that firms with more intangible assets are more likely to have variations in their non-GAAP earnings exclusions and higher incomparability of non-GAAP earnings. Our results show that firm size (*SIZE*) is negatively and significantly associated with reconciliation of non-GAAP earnings, while book-to-market ratio (*BTM*) and leverage (*LEVERAGE*) are positively and significantly associated with reconciliation.

[Insert Table 5 about here]

4.3 Additional tests

Aggressive non-GAAP disclosures

We further examine whether board quality constrains opportunistic non-GAAP disclosures by using measures of the opportunism behind non-GAAP earnings disclosures that is aggressive in nature and more likely to mislead investors. We use three aggressive non-GAAP measures. First, following Curtis *et al.* (2014), aggressive non-GAAP reporting refers to non-GAAP earnings that exclude one-time losses but not one-time gains. We define *NEGEXCL* as equal to 1 if the net figure of overall non-GAAP earnings exclusions is negative, and 0 otherwise. We find that on average, 27% of the firms make aggressive exclusions. Following Black *et al.* (2017), our second aggressive non-GAAP measure is managers' incremental exclusions beyond those made by analysts. We define *INCREXCL* as equal to 1 if the managers exclude items not excluded by analysts, and 0 otherwise. We find that 41% of our sample firms exclude items beyond those made by analysts. Similarly, following Black *et al.* (2017), our third aggressive non-GAAP measure, *ANALYSTBEAT* is defined as a dummy variable equal to 1 if non-GAAP earnings per share meet or beat the consensus forecast. We find that only 7% of our sample firms disclose non-GAAP measures that meet or beat the consensus forecast. We use a logit regression to test model 1 using this measure of opportunistic non-GAAP disclosures as the dependant variable. Table 6 presents the empirical results. We find evidence that the coefficient of *BOARD QUALITY* is negatively and significantly associated with all three measures of aggressive non-GAAP reporting. This indicates that the aggressive exclusion of items is less pronounced when there is high board quality. This confirms our previous findings and indicates that the probability of managers using aggressive exclusion items in non-GAAP reporting is lower when the firm has a strong and well-structured board. Hence, effective governance is able to discourage non-GAAP disclosures that attempt to mislead financial statement users.

[Insert Table 6 about here]

Addressing endogeneity

As previously mentioned, the relation between board quality and non-GAAP disclosures is confounded by the endogenous nature of corporate governance. Board quality, measured by various board characteristics, can be jointly determined by certain firm characteristics. We attempt to address the endogeneity issue by using a two-stage, least-squares (2SLS) procedure. In the first stage regression, we model *BOARD QUALITY* as a function of one instrumental variable (IV), *HEADQUARTER* (a dummy variable equal to 1 if the firm's headquarters is in Sydney or Melbourne; and 0 otherwise) and other explanatory variables. This is a similar independent variable to the one employed by Fields *et al.* (2012) which takes into account the distance (in kilometres) between the corporate headquarters and a large airport hub, as a measure of the time and effort required to travel to board meetings. Fields *et al.* (2012) argue that having a headquarters located relatively closer to an airport hub has a positive effect on board quality. We apply this reasoning to airports in Sydney and Melbourne compared to other cities in Australia, arguing that it is easier to attract quality directors if a firm's headquarters is in Sydney or Melbourne.

In the second stage regression, we re-estimate Equation (1) using the predicted value of *BOARD QUALITY* (*BQ_predicted*) from the first stage regression. Ideally the instrument (*HEADQUARTER*) will be correlated with the endogenous variable, *BOARD QUALITY*, and uncorrelated with the error term. Recognising potential problems with the use of instruments, we conduct a number of tests to evaluate the appropriateness of instrumental variable following Larcker and Rusticus (2010).

Table 7 Panel A reports the first-stage model. The coefficient of *HEADQUARTER* is positive and significant, as expected. In Table 8 Panel B, we report the second-stage model, showing that board quality is associated with lower inconsistency of exclusion items (*INCONSISTENCY*). This supports the argument that strong boards are more likely to contribute to non-GAAP reporting consistency. In addition, consistently with our previous finding, high board quality is associated with lower incomparability (*INCOMPARABILITY*) of non-GAAP earnings across firm peers. Finally, we find that board quality is significantly and positively associated with the reconciliation of GAAP and non-GAAP earnings (*RECON*). While it is impossible to rule out endogeneity issues, the results of our 2SLS analyses confirm the main findings of the study, as reported in Table 5, that managers are more likely to disclose informative non-GAAP earnings in firms with high board quality. High quality boards are associated with consistent, comparable and transparent non-GAAP reporting. In view of this, we conclude that in less regulated non-GAAP environments, corporate governance may act as an effective internal regulatory mechanism to promote informative non-GAAP disclosures.

[Insert Table 7 about here]

We run two additional tests to check the endogeneity problem. First, following Jennings and Marques (2011), we consider the effect of amendments to the ASX corporate governance guidelines in 2014 as an exogenous shock that may have affected board quality in the Australian firms in our sample. These governance guidelines were aimed at increasing board independence, board expertise, and board gender diversity, the three board characteristics which are included in the construction of our board quality score. Although released on 27 March 2014 and effective for the first full year commencing 1 July 2014, the amendment was the culmination of a public consultation process that began on 16 August 2013 with the release of a draft of the proposed change. Hence we have assumed that the year of change in

board quality is 2014. To test the validity of this assumption, we repeat our analysis without including firm-year observations for the year 2014. The results (untabulated) are qualitatively the same as those reported in Table 5. Board quality is negatively associated with both the inconsistency and incomparability scores, indicating that strong boards help to ensure that non-GAAP disclosures are informative. To further explore the variation in governance variables as a result of the 2014 changes to corporate governance guidelines, we conduct a pre/post analysis. We re-run our regressions using observations for 2013 only (before governance amendments) and for 2015 only (after governance amendments). We find that the effect of board quality on informative non-GAAP disclosures (inconsistency and incomparability scores) is more pronounced in the 2015 sample, suggesting that the amendments to the corporate governance guidelines enhanced the board's monitoring of voluntary disclosures. Taken together these results indicate that high board quality reinforces (constrains) informative (opportunistic) non-GAAP disclosures.

Secondly, to address concerns about selection bias, we employ the two-stage Heckman (1979) procedure. We first compute the inverse Mills ratio from a regression model that predicts the factors associated with the presence of board quality. These factors include multiple directorships, firm headquarters and audit fees. We then use the inverse Mills ratio estimated in the first stage as a control variable in the second-stage model to determine the association between non-GAAP disclosures and board quality. In untabulated results, we confirm our main findings and reject the null hypothesis that the models have a selection bias problem.

Non-GAAP disclosures and future performance

As a further line of analysis and following prior studies (Black *et al.*, 2018a; Kolev *et al.*, 2008; Whipple, 2016), we measure the informativeness of non-GAAP disclosures by

examining the extent to which non-GAAP exclusions map into future operating performance, and how this is associated with effective corporate governance. Following Black *et al.* (2018a), future performance (EPS_{t+1}) is measured by the future earnings per share from operations scaled by total assets. The informativeness of non-GAAP exclusions is captured by our inconsistency and incomparability scores. We regress *BOARD QUALITY*, *INCONSISTENCY* and *INCOMPARABILITY* variables on EPS_{t+1} . We also include interaction terms between the inconsistency/incomparability scores and board quality. The results are presented in Table 8. For the consistency analysis, we find a negative and significant association between *BOARD QUALITY*INCONSISTENCY* and future EPS. This suggests that when the inconsistencies in the non-GAAP disclosures are higher, they are less likely to be reflected in permanent core performance. This negative association is significant and more pronounced when the board quality is higher (coefficient = -0.399, $p < 0.10$). With respect to the reconciliation analysis, the interaction term *BOARD QUALITY*RECON* is significantly and positively associated with EPS_{t+1} , indicating that when non-GAAP disclosures are reconcilable they are reflected in future performance and the effect is more pronounced when board quality is higher (0.8412, $p < 0.05$). These overall findings of informativeness, future performance and board quality suggest that when board quality is higher it is more likely that high quality non-GAAP measures are mapped into future performance.

[Insert Table 8 about here]

Individual board variables

A board quality score has the advantage of considering many interactions across board characteristics, but it may mask which characteristics are the main drivers of the results. To further understand the effects of individual board variables on non-GAAP earnings disclosure, we repeat the empirical tests using each board factor individually. The

(untabulated) results are relatively weak for all of the individual characteristics except board independence and audit committee independence. For these variables, we find a negative and significant coefficient for the inconsistent and incomparable non-GAAP disclosures; and a positive and significant coefficient for the reconciliation of non-GAAP earnings. Thus, board/audit committee independence enhances informative non-GAAP disclosures and constrains opportunistic non-GAAP disclosures. These findings highlight the importance of board independence as a corporate governance mechanism, one which has been found to be positively associated with the quality of non-GAAP earnings (Frankel *et al.*, 2011). We also find some evidence indicating that board expertise contributes to more comparable non-GAAP earnings across sector peers and higher reconciliation of non-GAAP earnings, and that board gender diversity is associated with less inconsistent and less incomparable non-GAAP reporting.⁴

Additionally, we have re-calculated the board quality score excluding two characteristics of the audit committee: audit committee independence (*ACINDEP*) and audit committee expertise (*ACEXP*). The formation of an audit committee is not mandatory for all ASX listed companies. Therefore, we examine whether strong boards, even without attributes of audit committees, can constrain opportunistic non-GAAP disclosures. The results remain similar to the ones reported for all the informative and opportunistic non-GAAP earnings disclosures, supporting the notion that strong boards reinforce informative and constrain opportunistic non-GAAP earnings disclosures. In our primary analysis, board quality score was determined by combining all the board structure variables into one factor. However,

⁴ We re-run our regressions adding a new variable, the proportion of female directors on the audit committee. We are not able to find any significant association between this variable and our informative or opportunistic non-GAAP measures. While female representation on the audit committee has been found to influence the quality of external audit (Aldamen *et al.*, 2018), there is no evidence as to whether it influences non-GAAP earnings disclosures. Our focus, in this study, remains on examining the effect of gender diversity of the board as a whole.

board structure has been proxied by three main factors in the literature: board independence, board expertise and board diversity. In this additional analysis, we examine how these three proxies for board structure constrain opportunistic non-GAAP disclosures. We re-run the PCA and extract three components which explain the variances of board and audit committee independence (component 1), board and audit committee expertise (component 2), and board gender diversity and meetings (component 3). Our results remain similar to those reported in Tables 5 and 6.

Industry effects

We run a sensitivity test which takes into account the non-GAAP reporting by sample firms in the same industry. Non-GAAP disclosures are quite frequent in sectors such as Health Care, Information Technology, and Materials. In particular, Black *et al.* (2018a) report that the highest percentage (over 70%) of firms reporting non-GAAP earnings is found in the Health Care, Information Technology, Materials, and Utilities sectors. In this robustness test, we examine whether strong boards can constrain opportunistic non-GAAP disclosures in the industry sectors in which non-GAAP disclosures are quite common. Thus, we re-run our regression models using a dummy variable for health and materials sectors separately.⁵ Our (untabulated) results mainly hold for the informative non-GAAP disclosures. We find that higher board quality enhances the consistency and comparability of non-GAAP reporting in the both sectors.

5. Conclusion

In this study, we examine the role of the board of directors in non-GAAP earning disclosures. We predict a positive relation between board quality and informative non-GAAP disclosures,

⁵ We use the Global Industry Classification Standard (GICS) employed by the ASX, which consists of 11 sectors, 24 industry groups and 68 industries.

and a negative relation between board quality and opportunistic non-GAAP disclosures. Our findings support these predictions. We provide evidence that board quality reinforces informative non-GAAP earnings, both in terms of their consistency and their comparability. Our results also indicate that effective boards of directors that are capable of monitoring managerial opportunistic behaviour around voluntary disclosures can help to counteract aggressive non-GAAP reporting. With high board quality, firms are less likely to use aggressive non-GAAP earnings disclosures. The exclusion of recurring items from GAAP earnings seems to be influenced by the quality of the board, suggesting that the board might recognise the persistence of some adjustments. Even inconsistent/incomparable disclosures have greater predictability of earnings when the board is strong.

Our results demonstrate that in a lightly-regulated but developed market, good governance can succeed as a substitute for further regulation of non-GAAP reporting. Our evidence shows that strong boards encourage the provision of informative non-GAAP disclosures to capital markets. We provide insights about non-GAAP reporting that are useful to regulators for confirming the importance of internal control mechanisms like the board of directors and the board audit committee. Current corporate governance guidelines in many countries, including Australia, do not explicitly prescribe any directors' monitoring duties over non-GAAP disclosures. We provide insights for regulators that the extension of guidelines in this way may enhance the usefulness of the governance role. Our findings will be of relevance to other IFRS countries with similar economies and legal frameworks.

We acknowledge that our sample of the top ASX200 companies, the most economically important in the Australian economy, may limit the generalisability of our results. We impose this restriction because our research design involves in-depth hand collection of data for these

200 firms over a three-year period. To improve the generalisability of knowledge about non-GAAP reporting, an extension to our research could examine a larger sample.

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Table 1. Variables Definition

Variable Name	Description
<i>Panel A: Non-GAAP earnings disclosure variables</i>	
<i>INCONSISTENCY</i>	Firm-year measure of inconsistency of non-GAAP adjustments in year <i>t</i> relatively to adjustments in year <i>t-1</i>
<i>INCOMPARABILITY</i>	Firm-year measure of incomparability of non-GAAP adjustments in year <i>t</i> relatively to adjustments in year <i>t-1</i>
<i>RECON</i>	Dummy variable equals to 1 if the reporting firm provides a reconciliation of non-GAAP earnings in the form of a table or explanation, and 0 otherwise.
<i>NEGEXCL</i>	Dummy variable equals to 1 if the net figure of overall exclusions is negative, and 0 otherwise
<i>INCRESCL</i>	Dummy variable equals to 1 if managers exclude any recurring items beyond what analysts exclude, and 0 otherwise
<i>ANALYSTBEAT</i>	Dummy variable equal to 1 if non-GAAP earnings per share meets or beats the consensus forecast
<i>Panel B: Board Quality Score variables</i>	
<i>BINDEP</i>	Proportion of independent directors on the board
<i>BEXP</i>	Proportion of accounting/finance experts on the board
<i>BMEET</i>	Number of board meetings
<i>BFEM</i>	Proportion of female directors on the board
<i>ACINDEP</i>	Proportion of independent directors in the audit committee
<i>ACEXP</i>	Proportion of accounting/finance experts in the audit committee
<i>Panel C: Control variables</i>	
<i>SIZE</i>	Natural log of total assets
<i>BTM</i>	Book value of equity divided by the market capitalisation
<i>INTANG</i>	Intangibles divided by total assets
<i>LEVERAGE</i>	Total debt divided by total assets
<i>BIG4</i>	Dummy variable equals 1 if the firm is audited by a Big4, and 0 otherwise
<i>Type of adjustment dummy variables</i>	
<i>AMORTISATION</i>	Amortisation of intangibles
<i>EQUITY ACCOUNTING</i>	Equity accounting adjustments
<i>INTEREST EXPENSE</i>	Interest-related revenues or costs
<i>EXCHANGE GAIN/LOSS</i>	Foreign currency exchange gains or losses
<i>CASH FLOW</i>	Cash flow related adjustments
<i>TAX</i>	Tax adjustments
<i>RESTRUCTURING</i>	Restructuring items
<i>ACQUISITION/DISPOSAL</i>	Acquisition or disposal related gains or losses
<i>IMPAIRMENT OF ASSETS</i>	Impairment-related costs of assets, including goodwill
<i>LEGAL</i>	Legal-related revenues or costs
<i>FAIR VALUE ADJUSTMENTS</i>	Fair value adjustments
<i>DISCONTINUED OPERATIONS</i>	Adjustments to discontinued operations
<i>NATURAL DISASTER</i>	Natural disaster or insurance related costs
<i>ONE-OFF ABNORMAL COSTS</i>	One-off or non-recurring adjustments
<i>UNCOMMON</i>	Other items not previously classified in other categories

Table 2. Non-GAAP Reporting

Panel A: Percentage of firms disclosing non-GAAP measures

Percentage of firms disclosing different numbers of non-GAAP measures					
Year	Number of non-GAAP disclosures				
	Zero	One	Two	Three	Four
2013	12%	30%	26%	20%	12%
2014	18%	12%	27%	36%	7%
2015	16%	14%	31%	33%	6%

Panel B: Percentage of firms providing reconciliation of non-GAAP measures

Year	Percentage of firms providing different levels of reconciliation		
	With an explanation	With a table	Non-GAAP first
2013	8%	54%	38%
2014	15%	60%	25%
2015	26%	48%	26%

Panel C: Percentage of firms disclosing non-GAAP measures according to adjustments types

Year	Percentage of firms disclosing non-GAAP measures according to types of adjustments															
	Recurring items						Non-recurring items									
	AMORTISATION	EQUITY ACCOUNTING	INTEREST EXPENSE	EXCHANGE GAIN/LOSS	CASH FLOW	TAX	RESTRUCTURING	ACQUISITION / DISPOSAL	IMPAIRMENT OF ASSETS	LEGAL	FAIR VALUE ADJUSTMENTS	DISCONTINUED OPERATIONS	NATURAL DISASTER	ONE-OFF ABNORMAL COSTS	UNCOMMON	UNKNOWN
2013	11%	11%	10%	7%	4%	21%	27%	17%	19%	7%	18%	14%	1%	3%	21%	26%
2014	10%	15%	13%	7%	3%	20%	27%	13%	18%	8%	15%	11%	1%	2%	24%	30%
2015	12%	11%	12%	9%	3%	20%	31%	13%	20%	8%	15%	13%	1%	4%	24%	27%

Table 3. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Median	Min	Max
<i>Non-GAAP measures</i>						
<i>INCONSISTENCY</i>	546	0.46	0.47	0.20	0	1
<i>INCOMPARABILITY</i>	546	0.34	0.43	0.00	0	1
<i>RECON</i>	546	0.93	0.25	1	0	1
<i>NEGEXCL</i>	546	0.27	0.44	0	0	1
<i>INCREXCL</i>	453	0.41	0.49	0	0	1
<i>ANALYSTBEAT</i>	453	0.07	0.25	0	0	1
<i>Board variables</i>						
<i>BINDEP</i>	546	0.63	0.22	0.67	0	0.93
<i>BEXP</i>	546	0.21	0.14	0.22	0	0.75
<i>BMEET</i>	546	11.3	3.81	10	0	27
<i>BFEM</i>	546	0.15	0.11	0.17	0	0.43
<i>ACINDEP</i>	546	0.83	0.26	1	0	1
<i>ACEXP</i>	546	0.32	0.21	0.33	0	1
<i>BOARD QUALITY</i>	546	2.81E-09	1.37	0.33	-4.75	2.34
<i>Control variables</i>						
<i>SIZE (in million)</i>	546	8,010	24,000	2,090	5.01	162,000
<i>BTM</i>	544	0.69	0.53	0.52	0.29	2.83
<i>INTANG</i>	546	0.29	0.26	0.23	0.00	0.88
<i>LEVERAGE</i>	546	0.47	0.15	0.46	0.47	0.89
<i>BIG4</i>	546	0.94	0.23	1	0	1
		Frequency		Percentage (of full sample)		
<i>AMORTISATION</i>		88		13.1%		
<i>EQUITY ACCOUNTING</i>		98		14.6%		
<i>INTEREST EXPENSE</i>		91		13.6%		
<i>EXCHANGE GAIN/LOSS</i>		60		9.0%		
<i>CASH FLOW</i>		27		4.0%		
<i>TAX</i>		157		23.4%		
<i>RESTRUCTURING</i>		224		33.4%		
<i>ACQUISITION/DISPOSAL</i>		111		16.6%		
<i>IMPAIRMENT OF ASSETS</i>		152		22.7%		
<i>LEGAL</i>		60		9.0%		
<i>FAIR VALUE ADJUSTMENTS</i>		126		18.8%		
<i>DISCONTINUED OPERATIONS</i>		99		14.8%		
<i>NATURAL DISASTER</i>		6		0.9%		
<i>ONE-OFF ABNORMAL COSTS</i>		23		3.4%		
<i>UNCOMMON</i>		183		27.3%		
<i>UNKNOWN</i>		219		32.7%		

Variable definitions are shown in Table 1.

Table 4. Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12
<i>INCONSISTENCY</i>	1											
<i>INCOMPATIBILITY</i>	0.797***	1										
<i>RECON</i>	0.0669	0.0184	1									
<i>NEGEXCL</i>	0.0527	0.0724	0.0127	1								
<i>INCREXCL</i>	-0.0168	-0.0167	0.0701	-0.0381	1							
<i>ANALYSTBEAT</i>	0.0418	0.0491	-0.0302	0.173***	0.287***	1						
<i>BOARD QUALITY</i>	-0.112*	-0.117*	-0.0316	0.0318	-0.172***	-0.0519	1					
<i>SIZE</i>	-0.165***	-0.144**	-0.0245	-0.465***	-0.116*	-0.207***	0.104*	1				
<i>BTM</i>	0.0885	0.105*	0.0184	0.695***	-0.0551	0.250***	0.0460	-0.674***	1			
<i>INTANG</i>	0.182***	0.148**	0.0126	-0.0535	-0.140**	-0.112*	0.0436	-0.140**	-0.0786	1		
<i>LEVERAGE</i>	-0.0221	-0.0158	-0.0158	-0.144**	0.0239	-0.0992*	0.0701	0.222***	-0.209***	0.111*	1	
<i>BIG4</i>	0.00776	0.0628	-0.0626	0.0104	-0.0225	0.0605	-0.0184	0.0681	0.0151	-0.0533	-0.0444	1

This table shows the Pearson pair-wise sample correlations. Bold text indicates significant at the 1% level. See Table 1 for variable definitions

Table 5. Results on the relation between boards and informative non-GAAP disclosures

	<i>INCONSISTENCY</i>	<i>INCOMPARABILITY</i>	<i>RECON</i>
<i>BOARD QUALITY</i>	-0.0374*** (-2.66)	-0.0432*** (-3.26)	0.0160** (2.02)
<i>SIZE</i>	-0.0286* (-1.84)	-0.0113 (-0.77)	-0.0710*** (-8.05)
<i>BTM</i>	0.0369 (0.89)	0.0946** (2.43)	0.0915*** (3.94)
<i>INTANG</i>	0.3891*** (4.41)	0.3798*** (4.57)	-0.0231 (-0.46)
<i>LEVERAGE</i>	0.0592 (0.42)	0.1414 (1.07)	0.2043*** (2.60)
<i>BIG4</i>	-0.0215 (-0.25)	-0.0535 (-0.66)	(0.02) (-0.42)
<i>Constant</i>	1.2430*** (3.74)	0.1382 (0.44)	0.2439*** (30.93)
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
R2	0.18	0.11	0.45 (Pseudo R2)
Adj R2	0.16	0.08	
F	7.79	4.34	
N	544	544	544

This table presents the results of informative non-GAAP disclosures, measured by inconsistency and incomparability scores and reconciliation, on board quality. This table reports the regression coefficients, t-statistics (in parentheses), number of observations (N) and R². See Table 1 for variable definitions.

* Statistical significance at the 10% level. ** Statistical significance at the 5% level. *** Statistical significance at the 1% level.

Table 6. Results on the relation between boards and opportunistic non-GAAP disclosures

	<i>NEGEXCL</i>	<i>INCREXCL</i>	<i>ANALYSTBEAT</i>
<i>BOARD QUALITY</i>	-0.1209** (-2.24)	-0.198** (-0.08)	-0.307* (-0.17)
<i>SIZE</i>	0.1773*** (3.21)	-0.381*** (0.08)	-0.291* (-0.17)
<i>BTM</i>	-0.2949* (-1.90)	-0.000 (-0.00)	1.115*** (0.35)
<i>INTANG</i>	-0.8226*** (-2.63)	-1.921*** (-0.46)	-1.072 (-1.03)
<i>LEVERAGE</i>	-1.9536*** (-3.83)	1.182* (-0.71)	1.168 (1.42)
<i>BIG4</i>	0.5433 (1.53)	-0.012 (-0.49)	0.000 (1.63)
<i>Constant</i>	-2.9110** (-2.48)	7.428*** (1.81)	3.229 (3.63)
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
Pseudo R2	0.06	0.10	0.25
Log likelihood	-419.81	-274.11	-79.88
N	544	451	451

This table presents the results of opportunistic non-GAAP disclosures, measured by *NEGEXCL*, *INCREXCL* and *ANALYSTBEAT* on board quality. All models are estimated using logistic regression. This table reports the regression coefficients, t-statistics (in parentheses), number of observations (N) and R². See Table 1 for variable definitions.

* Statistical significance at the 10% level. ** Statistical significance at the 5% level. *** Statistical significance at the 1% level.

Table 7. Results on the relation between boards and non-GAAP disclosures: 2SLS models

<i>Panel A: First Stage Model</i>		<i>Panel B: Second Stage Models</i>		
	<i>BOARD QUALITY</i>	<i>INCONSISTENCY</i>	<i>INCOMPARABILITY</i>	<i>RECON</i>
<i>HEADQUARTER</i>	0.2143* (1.71)			
<i>BOARD QUALITY</i> (Predicted value)		-0.4831*** (-2.72)	-0.5957*** (-3.45)	0.3122*** (2.92)
<i>SIZE</i>	0.1547*** (3.67)	-0.0212 (-1.55)	-0.0071 (-0.54)	-0.0043 (-0.52)
<i>BTM</i>	0.0000*** (3.07)	0.00 (0.00)	0.00 (0.00)	0.00 (0.04)
<i>INTANG</i>	0.0516 (0.22)	0.3203*** (4.13)	0.2776*** (3.59)	0.0272 (0.60)
<i>LEVERAGE</i>	-0.147 (-0.37)	0.0104 (0.07)	0.0027 (0.02)	-0.0398 (-0.51)
<i>BIG4</i>	0.0021 (0.01)	0.0894 (0.93)	0.1825** (2.36)	(0.07) (-1.44)
<i>Constant</i>	-3.6637*** (-3.72)	0.7089** (2.13)	0.17 (0.55)	0.6437*** (3.23)
Year fixed effects	Yes	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes	Yes
R2	0.05	0.08	0.09	0.19 (Pseudo R2)
N	542	542	542	542

This table presents the results of informative non-GAAP disclosures on predicted board quality, using the 2SLS regression. Panel A presents the results of the first stage model and Panel B presents the results of the second stage model. The instrument variable is *HEADQUARTER*, dummy variable equals to 1 if the firm headquarter is in Sydney/Melbourne, and 0 otherwise. This table reports the regression coefficients, t-statistics (in parentheses), number of observations (N) and R². See Table 1 for variable definitions.

* Statistical significance at the 10% level. ** Statistical significance at the 5% level. *** Statistical significance at the 1% level.

Table 8: Results on the relation between future performance, non-GAAP informativeness and board quality

	EPS_{t+1}	EPS_{t+1}	EPS_{t+1}
	(1)	(2)	(3)
<i>BOARD QUALITY</i>	0.1672**	0.1480*	0.6912**
	(2.01)	(1.94)	(2.29)
<i>INCONSISTENCY</i>	-0.1662		
	(-0.99)		
<i>BOARD QUALITY*INCONSISTENCY</i>	-0.2328*		
	(-1.90)		
<i>INCOMPARABILITY</i>		-0.17	
		(-0.91)	
<i>BOARD QUALITY*INCOMPARABILITY</i>		-0.2598*	
		(-1.92)	
<i>RECON</i>			0.18
			(0.54)
<i>BOARD QUALITY*RECON</i>			0.6612**
			(2.15)
<i>SIZE</i>	0.2058***	0.2068***	0.2214***
	(3.52)	(3.54)	(3.81)
<i>BTM</i>	0.0000***	0.0000***	0.0000***
	(2.68)	(2.69)	(2.74)
<i>INTANG</i>	0.1677	0.1723	0.1993
	(0.51)	(0.53)	(0.62)
<i>LEVERAGE</i>	-0.1783	-0.1517	-0.2763
	(-0.32)	(-0.27)	(-0.50)
<i>BIG4</i>	0.0513	0.0695	0.0374
	(0.15)	(0.20)	(0.11)
<i>Constant</i>	-3.9468***	-4.7759***	-3.6634***
	(-2.92)	(-2.69)	(-2.68)
Year fixed effects	Yes	Yes	Yes
Industry fixed effects	Yes	Yes	Yes
R2	0.06	0.06	0.07
Adj R2	0.03	0.03	0.03
N	441	441	441

This table presents the regression estimates when non-GAAP informativeness measures and board quality are regressed on future performance. This table reports the regression coefficients, t-statistics (in parentheses), number of observations (N) and R2. See Table 1 for variable definitions. * Statistical significance at the 10% level. ** Statistical significance at the 5% level. *** Statistical significance at the 1% level.

Appendix 1. Inconsistency and Incomparability Measures – Examples

Panel A: Inconsistency Calculation of non-GAAP earnings disclosures

Exclusion Type	Exclusion Indicators		Exclusion Inconsistency Indicators
	Year <i>t</i>	Year <i>t-1</i>	Year <i>t</i>
Tax	1	0	1
Amortisation	0	1	0
Interest expense	0	1	0
Legal	1	0	1
Impairment	1	1	0
Restructuring	1	1	0
<u>Inconsistency Score</u>	Sum of Inconsistency Indicators in Year <i>t</i> (A)	Sum of Exclusion Indicators in Year <i>t</i> (B)	Inconsistency Scores (A/B)
INCONSISTENCY	2	4	0.50

Panel B: Incomparability Calculation of non-GAAP earnings disclosures

Firm	Exclusion Indicators				Exclusion Incomparability Indicators			
	Tax	Amortisation	Legal	Impairment	Tax	Amortisation	Legal	Impairment
Firm 1	1	1	1	0	1	1	0	0
Firm 2	1	0	0	0	1	0	0	0
Firm 3	1	1	0	1	1	1	0	0
Firm 4	1	0	0	0	1	0	0	0
Firm 5	1	0	0	0	1	0	0	0
Firm 6	1	1	0	1	1	1	0	0
Firm 7	1	1	1	1	1	1	0	0
Firm 8	0	0	0	0	0	0	0	0
Exclusion Comparability:	0.9	0.5	0.3	0.4				

-	Sum of Incomparability Indicators (A)	Sum of Exclusion Indicators (B)	INCOMPARABILITY Score (A/B)
Firm 1	2.000	3.000	0.667
Firm 2	1.000	1.000	1.000
Firm 3	2.000	3.000	0.667
Firm 4	1.000	1.000	1.000
Firm 5	1.000	1.000	1.000
Firm 6	2.000	3.000	0.667
Firm 7	2.000	4.000	0.500
Firm 8	0.000	0.000	0.000