

Non-GAAP Reporting in Australia

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Certificate of Original Authorship

I certify that the work in this thesis has not previously been submitted for a degree nor has it been submitted as part of requirements for a degree except as fully acknowledged within the text.

I also certify that the thesis has been written by me. Any help that I have received in my research work and the preparation of the thesis itself has been acknowledged. In addition, I certify that all information sources and literature used are indicated in the thesis.

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Table of Contents

Certificate of Original Authorship	ii
Acknowledgements	iii
List of Tables.....	vii
Abstract.....	ix
Chapter One: Introduction	10
Chapter Two: Background and Prior Evidence on Non-GAAP Reporting.....	15
2.1. Introduction	15
2.2. Prevalence of non-GAAP reporting	19
2.3. Evidence on motives of non-GAAP reporting.....	25
2.3.1. Opportunistic motives for non-GAAP reporting: Earnings management and benchmark beating.....	25
2.3.2. Informative motives of non-GAAP reporting	29
2.4. The role of internal governance, executive compensation and external auditors	34
2.5. Perceptions of market participants and non-GAAP disclosures	38
2.6. Regulation and non-GAAP reporting.....	45
2.7. Conclusion.....	52
Chapter Three: Non-GAAP Reporting in Australia.....	82
3.1. Introduction	82
3.2. Regulatory influences.....	84
3.2. Descriptive evidence	90
3.3. Conclusion.....	98
Chapter Four: The Quality of Non-GAAP Reporting in Australia	112
4.1. Introduction	112
4.2. Background and prior literature	118
4.2.1. Regulatory changes and non-GAAP reporting.....	118
4.2.2. Earnings quality and non-GAAP reporting.....	125
4.3. Hypothesis development	132
4.3.1. Conservatism.....	133
4.3.2. Value relevance	135
4.3.2. Earnings persistence, predictability and smoothness	138
4.3.3. Benchmark beating.....	143
4.4. Research design	146
4.4.1. Sample selection.....	146

4.4.2. Empirical models.....	147
4.5. Descriptive statistics and correlation analysis	155
4.6. Results.....	156
4.6.1. Conservatism.....	156
4.6.2. Value relevance	159
4.6.3. Earnings persistence, predictability and smoothness	160
4.6.4. Benchmark beating.....	163
4.7. Conclusion.....	164
Chapter Five: Conclusion.....	112
Appendices	190
Appendix A: Definition of variables used in Chapter 4	190
References.....	192

List of Tables

Chapter Two

Table 2.1: Summary of preliminary evidence on non-GAAP disclosures in the US	54
Table 2.2: Summary of preliminary evidence on non-GAAP disclosures in countries outside the US	56
Table 2.3: Summary of the literature on opportunistic motives for non-GAAP disclosures	60
Table 2.4: Summary of the literature on informative motives for non-GAAP disclosures	63
Table 2.5: Summary of the literature on the role of corporate governance, executive compensation and external auditors in influencing non-GAAP disclosures	67
Table 2.6: Summary of the literature on market perceptions of non-GAAP reporting	70
Table 2.7: Summary of the literature on how regulation impacts non-GAAP disclosures	77

Chapter Three

Appendix 3.1: Regulatory changes and guidance in relation to the disclosures of corporate earnings and non-GAAP information	100
Figure 3.1: The frequency of ASX 500 listed firms reporting non-GAAP earnings	102
Figure 3.2: The frequency with which non-GAAP earnings announcements are reconciled to their statutory equivalent	103
Figure 3.3: The frequency of non-GAAP disclosures by industry.....	104
Figure 3.4: The percentage of ASX 500 firms disclosing non-GAAP earnings that exceed their GAAP equivalent	105
Figure 3.5: Dollar value of non-GAAP exclusions	106
Figure 3.6: The absolute value of non-GAAP exclusions in relation to the equivalent GAAP earnings result	107
Figure 3.7: The distribution of changes in GAAP earnings and changes in non-GAAP earnings for ASX 500 listed firms	108
Figure 3.8: The frequency with which firms disclose a non-GAAP earnings with an opposite sign to the GAAP equivalent	109

Figure 3.9: Terminology used by non-GAAP reporters	110
--	-----

Figure 3.10: Source documents where non-GAAP earnings are identified	111
--	-----

Chapter Four

Figure 4.1: Non-GAAP and GAAP earnings distributions	167
--	-----

Figure 4.2: Non-GAAP earnings change distributions	168
--	-----

Figure 4.3: Non-GAAP Earnings vs. last year's GAAP Earnings	169
---	-----

Table 4.1: Summary statistics	170
-------------------------------------	-----

Table 4.2: Correlation analysis	171
---------------------------------------	-----

Table 4.3: Results on timeliness and conservatism	172
---	-----

Table 4.4: Results on Value Relevance	176
---	-----

Table 4.5: Results on earnings persistence	178
--	-----

Table 4.6: Results on earnings predictability	180
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Table 4.7: Results on earnings smoothness	182
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Abstract

This thesis provides evidence on non-GAAP reporting by ASX 500 listed companies and the influence of regulatory changes. I provide a detailed review of the extant literature of non-GAAP reporting by firms globally, emphasising the prevalence, causes and consequences. Firms tend to voluntarily disclose these additional performance metrics in order to convey information that cannot be translated by current accounting standards. Firstly, I find that regulatory changes have influenced non-GAAP reporting in Australia. As a consequence of the increase in this behaviour, government bodies and professional associations have issued guidelines on how to disclose non-GAAP metrics alongside GAAP metrics in the earnings press release. Secondly, I investigate the quality of non-GAAP earnings and find that they are overall of higher quality than GAAP earnings, which is broadly consistent with the informative disclosure explanation for non-GAAP reporting. In addition, I find that the introduction of A-IFRS in 2005 has affected some of the assessed earnings metrics quality. Marginal differences also suggest that A-IFRS is associated with an increase in the degree of transitory items in bottom-line earnings, reducing some earnings quality properties. The overall results of this thesis suggest that regulators, standard setters and other financial statement users can benefit from additional research addresses the voluntary disclosure of “adjusted” earnings metrics.

Chapter One: Introduction

The aim of this thesis is to provide evidence on Australian publicly listed companies' earnings disclosures, especially with respect to non-GAAP reporting¹. My main focus is to provide a detailed overview of the non-GAAP reporting behaviour by ASX 500 companies. To understand the nature of the nature of this behaviour, I investigate the following:

- (1) The prevalence of non-GAAP reporting around the world and the relevant regulatory background
- (2) The prevalence of non-GAAP reporting in Australia and the regulatory background
- (3) The quality of non-GAAP earnings in Australia

Australia represents a unique institutional setting relative to others such as the U.S. The provision of non-GAAP earnings measures has been largely unregulated up until 2011, and in addition, the introduction of international accounting standards (A-IFRS) in 2005 had significant impact on statutory earnings measures. I constructed a comprehensive database for the ASX 500 covering the period 2000-2014. This dataset presents an opportunity to provide more generalisable evidence and open numerous avenues to future research.

Chapter 2 of this thesis provides a comprehensive summary of the extant literature on non-GAAP reporting around the globe. By summarising and comparing existing US-based and global evidence on the tendency, trend

¹ Non-GAAP reporting is defined as managers' voluntary disclosures of adjusted metrics of performance other than allowed by GAAP.

and industry concentration of non-GAAP disclosures, the relative difference between the disclosed non-GAAP and GAAP (Generally Accepted Accounting Standards) figures, and the specific items excluded from GAAP earnings to derive non-GAAP numbers, I establish a solid background to develop the framework of this thesis. In addition, I conduct a comprehensive review of the extant non-GAAP literature that aims to increase understanding of the causes and consequences of non-GAAP measures of income around the globe. Overall, the information collected and analysed in this chapter shows that non-GAAP reporting, part of firms' voluntary disclosure, is a growing trend. Managers argue that non-GAAP disclosures convey operational performance more effectively to financial statement users than GAAP equivalents, which are constrained by accounting standards. This claim has been supported by extant research, although another stream of literature finds that firms could be reporting non-GAAP in order to inflate earnings, especially to beat strategic benchmarks (i.e., Bhattacharya et al. 2003; Black and Christensen, 2009; Bradshaw and Sloan, 2002; Walker and Louvary, 2003; Aubert, 2010). This underlying tension has attracted the attention of financial reporting users, as misleading disclosures can dampen the quality of the financial reporting environment. In most environments, regulators have successfully implemented guidelines that have reduced the propensity of disclosing non-GAAP earnings in an opportunistic manner (Marques, 2006; Heflin and Hsu, 2008).

Chapter 3 of this thesis provides an overview of the regulation of non-GAAP reporting in Australia, and its correlation with firms' propensity to

report non-GAAP earnings alongside GAAP earnings in their earnings press release or equivalent. Furthermore I provide a detailed descriptive analysis of non-GAAP disclosures in Australia using a comprehensive database of actual non-GAAP disclosures from 2000 to 2014 inclusive.

I find that changes in the regulatory background, such as the convergence from a disaggregated definition of earnings to an all-inclusive definition of earnings, have possibly triggered an increase in the number of firms reporting non-GAAP earnings over the sample period studied (2000-2014). Another regulatory change during the sample period studied, the adoption of Australian equivalents to International Financial Reporting Standards (A-IFRS) from 1 January 2005 by all publicly listed Australian companies, may have accentuated the prevalence of non-GAAP reporting in Australia. A consequence of this increase in reporting non-standardised metrics of performance by Australian firms, has also contributed to the issuance of a few reports by regulators and other professional bodies. However, this is the most comprehensive review of non-GAAP reporting by Australian firms undertaken so far, and provides evidence of a persistent overall increase in non-GAAP income disclosures, as well as an increase in the rate at which such disclosures are accompanied by substantive reconciliations with the equivalent GAAP definition of income. Lastly, there is evidence of marked convergence in the terminology, with more companies favouring the use of terms such as “underlying profit” or “underlying earnings”.

Chapter 4 of this thesis provides a comprehensive study on the quality of non-GAAP earnings in Australia. The pervasiveness of the non-GAAP reporting in Australia and the fact it is somewhat unregulated, raise the question as to whether these non-standardised metrics of performance have contributed to an increase in the quality of the financial reports. I provide a direct comparison of the quality of GAAP earnings and non-GAAP earnings disclosed by Australian firms over the period of 2000-2014. Prior research suggests that the quality of financial statement information is jointly driven by a firm's underlying business model and business environments, and reporting incentives (Dechow et al. 2010).

Since firms disclose GAAP and non-GAAP earnings for the same financial period simultaneously, my tests of the quality of GAAP and non-GAAP earnings are able to directly examine financial reporting incentives by holding a firm's business environment and uncertainty constant. My results show that, after the adoption of IFRS, non-GAAP earnings has become more persistent and more value-relevant, while there is a marginally significant and decreasing trend in the smoothness of non-GAAP earnings. In addition, non-GAAP earnings have higher predictive ability than GAAP earnings in the periods before and after the IFRS implementation.

In summary, the results provided in this thesis enrich the literature on non-GAAP reporting, and provide a comprehensive study of the reporting behaviour in Australia from 2000 to 2014 inclusive. I find strong evidence of the superiority of non-GAAP earnings, which is broadly consistent with prior literature (mostly U.S. based). Despite claims of managerial

opportunism in disclosing non-GAAP earnings alongside GAAP earnings,
my results do not provide support for these claims.

Chapter Two: Background and Prior Evidence on Non-GAAP Reporting

2.1.Introduction

It has long been recognized that periodic financial reports, while not especially timely, nevertheless represent an important source of information to capital market participants (Ball and Brown 1968, Ball and Shivakumar 2008). The regulation of accounting information via accounting standards and enforcement agencies, along with the role of external auditors, is largely assumed to result in financial reporting which is comparable between firms (i.e., similar economic transactions are accounted for in the same manner). Temporal variation in the way a given transaction is recorded is assumed largely attributable to changes in the accounting standards, or possibly a substantial change in the underlying business model. However, recent years have seen a marked rise in the frequency with which firms prominently report alternative financial performance metrics (“non GAAP” metrics)² such as “underlying profit”, “cash profit”, “recurring earnings” and the like.³

A fundamental role of accounting standards is to provide a relatively uniform basis on which specific transactions are accounted for, and the resulting measures of performance computed. This is commonly referred to

² Throughout the paper, I use the term “non-GAAP earnings” for performance measures disclosed by management that do not directly conform with applicable accounting standards. In contrast, I use the term “street earnings” specifically for income measures reported by analysts forecast services such as I/B/E/S and Thomson Datastream.

³ There are many terms used to describe non-GAAP definitions of earnings. These include (among other terms) cash earnings, underlying profit, recurring profits, pro-forma earnings and normalized earnings. For the purpose of our discussion, I define all such metrics as non-GAAP earnings.

as comparability. However, the increasing propensity and attention given to firm-specific (or even firm-year-specific) performance measures surely represents something of a challenge to accounting standard setters and associated enforcement agencies. While standard setters argue that standards are set on the basis of broad-based principles (i.e., “top down” approach), observation of non-GAAP reporting potentially provides another perspective on desirable attributes of financial reporting. It potentially provides a “bottom up” view of what managers and directors perceive to be an “appropriate” measure of periodic performance, and is potentially informative of which properties preparers think are desirable.

A detailed understanding of the practice of non-GAAP reporting directly addresses the call by CFOs to allow reporting choices (i.e., accounting standards) to evolve from practice (Dichev et al. 2013). Dichev (2015) argues that “bottom up” reporting is desirable because it incorporates “the critical unseen factor of context”. Non-GAAP reporting potentially provides such an insight into the measurement and reporting of periodic performance.

The disclosure of non-GAAP measures of income initially became popular in the US in the late 1990s, but has subsequently been subject to relatively strict regulation. In contrast, this practice has been relatively unregulated in markets outside the US even after the adoption of International Financial Accounting Standards (IFRS).

However, consistent growth in the reporting of non-GAAP earnings metrics raises serious questions about the underlying motives for their promulgation. On the one hand, managers may believe that non-GAAP

measures can provide a better indication of the company's underlying performance, and thereby better inform investors about the "true" performance and/or economic position of the firm. Such reasoning may be exacerbated by changes in accounting standards, whereby GAAP-based measures become more volatile and/or an increasing degree of unrealised gains or losses are included in the GAAP definition of income. The change in accounting standards from Australian GAAP (A-GAAP) to Australian equivalents to IFRS (A-IFRS) accounting standards is sometimes characterised as imposing these types of changes. However, it is also possible that managers may be acting opportunistically, attempting to mislead investors by drawing their attention away from the "true" position by selectively excluding certain components, which are integral to the calculation of the statutory definition of income (i.e., income as defined by GAAP).

The main objective of this chapter is two-fold. First, I present evidence on the characteristics of non-GAAP disclosures around the world. I start by summarising and comparing existing US-based and global evidence on the tendency, trend and industry concentration of non-GAAP disclosures, the relative difference between the disclosed non-GAAP and GAAP figures, and the specific items excluded from GAAP earnings to derive non-GAAP numbers.

Second, I conduct a comprehensive review of the extant non-GAAP literature that aims to increase understanding of the causes and consequences of non-GAAP measures of income around the globe. My

primary focus is on gaining a better understanding of the following specific questions: (1) What is the key motive of non-GAAP reporting? Is it the provision of useful information to external stakeholders, or is it simply opportunistic? (2) What are the roles of internal governance, executive compensation and external auditors in shaping non-GAAP reporting practice? (3) Can professional and non-professional investors fully understand the information contained in non-GAAP disclosures? Are their trading behaviours systematically influenced by the presence and/or the emphasis of non-GAAP figures? (4) What can we learn from the evolving regulation of non-GAAP disclosures in the US? Have regulatory changes in the US led to the disclosure of higher quality non-GAAP information?

The remainder of this chapter is organized as follows. Section 2 compares and summarizes the prevalence and the time-series trend of non-GAAP disclosures. Section 3 explores the causes and consequences of non-GAAP disclosures by conducting a comprehensive review of the non-GAAP disclosure literature. Section 3.1 and Section 3.2 discuss the two contrasting motivations for non-GAAP reporting (i.e., opportunistic vs. informative motives) respectively. Section 4 considers the role of governance mechanisms within the entity, performance-based compensation plans, and external auditors in disciplining and influencing non-GAAP disclosures. Section 5 considers the extent to which professional investors and intermediaries such as financial analysts and short sellers, as well as non-professional individual investors, understand the information contained in non-GAAP disclosures in different circumstances, especially when the

presentation and the relative emphasis of non-GAAP disclosures varies across firms. Section 6 discusses the intended and unintended consequences of regulatory interventions and industry guidance on non-GAAP disclosures and the perception of market participants. Section 7 concludes.

2.2.Prevalence of non-GAAP reporting

Generally Accepted Accounting Principles (GAAP) reflects rules, standards and regulations promulgated by standard setters to govern accounting practice and the preparation of financial statements. GAAP, as a set of common rules for financial reporting, thus ensures a certain level of transparency, reliability, and consistency with respect to a firm's financial reporting outputs, and also allows stakeholders to compare financial statements across corporations and over time. Indeed, comparability is presented as a basic property of financial information that is fundamental to achieving decision usefulness (IASB 2010), and its fundamental nature as a desirable attribute has not been questioned in a recent review of the conceptual framework (IASB 2015). However, since GAAP imposes a degree of uniformity in financial reporting practices, especially on corporations with substantial heterogeneity of business operation and economic activities, the reported earnings from the accounting system may fail to provide a timely reflection of the firm's underlying operating performance. For example, Lev and Zarowin (1999) document a steady decline in the value-relevance of earnings from 1977 to 1997. Collins et al. (1997) confirm the decline and show that GAAP earnings numbers became a relatively noisy measure of a firm's underlying performance in the 1990s

largely due to the increasing frequency and magnitude of one-off items. Therefore, demand potentially arises for adjusted GAAP earnings that exclude non-cash and one-off items required under GAAP so as to provide a more informative periodic measure of corporate performance.

Extant literature in the US shows that the prevalence of non-GAAP reporting increased substantially from the early 1980s until the adoption of Regulation G in 2003. Table 2.1 summarizes the preliminary evidence on non-GAAP disclosures among US firms presented in selected large-sample US studies.⁴ For example, Entwistle et al. (2005) show that 77% of the S&P 500 US firms reported non-GAAP earnings figures in 2001, while Bhattacharya et al. (2004) show that from 1998 to 2000 there was a very substantial increase in such non-GAAP disclosures. Similarly, Zhang and Zheng (2011) find the frequency of non-GAAP reporting increased significantly over the period 1998-2001. Black et al. (2012) likewise document an increase in non-GAAP reporting frequency over the period 1998-2006.

Consequently, the literature has also documented consistent evidence of a decrease in the propensity of non-GAAP reporting in the US after the adoption of Regulation G in 2003 (Entwistle et al. 2006; Marques 2006; Heflin and Hsu 2008). For example, Entwistle et al. (2006) document that the likelihood of reporting non-GAAP earnings declined from 77% of S&P 500 firms in 2001 to 54% in 2003.

⁴ My review of existing research, while comprehensive, is still selective to the extent that I focus on studies published in leading research journals, recent working papers and other evidence (typically from countries other than the US) that is incrementally relevant to my discussion.

Table 2.2 summarizes preliminary evidence on non-GAAP reporting in countries outside the US. Evidence outside the US also supports the view that non-GAAP disclosure is an increasingly common global phenomenon, especially among large listed companies. Entwistle et al. (2005) show that 42% of the S&P 300 Canadian firms reported non-GAAP numbers in 2001. Choi et al. (2007) and Choi and Young (2015) study the largest 500 non-financial companies listed on the London Stock Exchange. They report that 39% of sample firms disclosed non-GAAP EPS in 1994, increasing to 53% in 1996 and 76% by 2001. Hitz (2010) surveys German listed firms on the Frankfurt Stock Exchange DAX (30 largest) and MDAX (50 second largest) indices, and documents 86% of firms report at least one non-GAAP measure. Isidro and Marques (2015) examine the 500 largest European companies based on a Financial Times 2006 classification, and find that the frequency of non-GAAP disclosure ranges from 55% to 67%. However, only 30.3% of the firms were consistently reporting non-GAAP earnings over the entire period examined (2003-2007). In addition, Rainsbury et al. (2013) report that the frequency of non-GAAP reporting in New Zealand firms on the NZT Top 50 Index increased from 10% in 2004 to 40% in 2011.⁵

Non-GAAP disclosures have also been shown to cluster in certain industries and firms with specific characteristics. In the US, Bhattacharya et al. (2004) report a high concentration of non-GAAP reporting among firms

⁵ It is noteworthy that South African companies are actually required to disclose “headline earnings” information (i.e., non-GAAP) in the financial statements, which are subject to audit (Venter et al. 2014).

classified as business services, and especially technology-related services (49.9%) and manufacturing (30.7%). Similarly, Zhang and Zheng (2011) show that high-tech firms comprise 59.10% of the non-GAAP reporters in their sample and 84% of the non-GAAP disclosing firms that are listed on the NASDAQ. Aubert and Grudnitski (2014) examine 314 European firms from 12 Eurozone countries over 2008-2011. They show that out of the 989 firm-years in the sample, Finance and Manufacturing are the two major industry sectors, comprising 18.40% and 9% respectively. Isidro and Marques (2014) find that non-GAAP reporters among the 500 largest European companies (based on Financial Times 2006) classification tend to concentrate among Manufacturing (29%), Materials and Electronics (19%), and Transportation and Communication (17%).

Clustering of non-GAAP disclosers among certain industry groups could occur for a number of reasons. Lougee and Marquardt (2004) document that non-GAAP disclosers in the US are more likely to be firms with low GAAP earnings informativeness, greater sales growth and greater earnings variability. Bowen *et al.* (2005) also find that greater emphasis is placed on non-GAAP earnings when GAAP earnings are less value relevant, such as in high tech industries and where there is a history of prior losses.

While non-GAAP earnings figures are typically derived from GAAP earnings by excluding items argued to be one-off, non-operating or non-cash (or any combination of these), the documented difference between non-GAAP and GAAP earnings differs substantially across countries and over time. Bhattacharya *et al.* (2004) document that the average GAAP EPS is a

net loss of 14.7 cents per share (1998-2000), while the corresponding non-GAAP average for the same set of observations is a net income of 8.5 cents per share. Zhang and Zheng (2011) find that the mean difference between non-GAAP and GAAP earnings per share is 5.6% of total assets (1998-2001), while Entwistle et al. (2005) show that the mean difference in 2001 is 190% of the relative GAAP earnings. For the largest 500 non-financial UK firms, Choi et al. (2007) show that the average difference between non-GAAP and GAAP EPS is around 7 cents per share, representing an increase of about 54% over the corresponding GAAP EPS. Aubert (2010) studies NYSE-Euronext Paris listed firms and reports a mean increase of about 13% over the equivalent GAAP earnings figure.

With respect to the specific expense items excluded from non-GAAP earnings figures, there is consistent evidence that firms tend to exclude both transitory and recurring items. Bhattacharya et al. (2004) document that the most commonly excluded expense item is depreciation and amortization (21%), followed by stock-based compensation costs (29%), M&A costs (15%) and R&D costs (7%). Zhang and Zheng (2011) show that 46.3% of non-GAAP earnings releases have intangible amortization as a non-GAAP adjustment, followed by stock compensation with 37.1%. While Bhattacharya et al. (2004) and Zhang and Zheng (2011) indicate that US firms tend to exclude recurring items from non-GAAP figures, Entwistle et al. (2005) document some conflicting evidence, finding that the most common adjustments in 2001 were “business re-organization costs”, followed by “special, one-time, or nonrecurring items”, respectively

accounting for 37% and 25% of the adjustments in the US, and 38% and 23% in Canada.

Turning to non-US evidence, Choi et al. (2007) find that adjustments related to non-operating activities comprise almost 100% of the exclusions reported by the non-GAAP disclosers. Hitz (2010) reports that restructuring-type expenditures, consolidation/acquisition/divestment and write-offs (impairments) comprise respectively 21.1%, 16.7% and 14.3% of the adjustments made to GAAP earnings. In contrast, Isidro and Marques (2015) study the largest 500 European firms and suggest that adjustments are often items of a recurring nature.

Overall, the empirical evidence suggests that non-GAAP income measures have become an increasingly common part of the global financial reporting landscape. While the propensity of non-GAAP reporting has reduced since the adoption of Regulation G in the US, there is consistent evidence on the increasing prevalence of non-GAAP disclosures around the world. Non-GAAP disclosures tend to be clustered among certain industries, such as Technology and Manufacturing. The non-GAAP earnings figures are systematically and economically higher than the corresponding GAAP earnings number. Perhaps of some concern though, there is some evidence that non-GAAP measures exclude not only transitory expense items but also recurring items.

2.3.Evidence on motives of non-GAAP reporting

2.3.1. *Opportunistic motives for non-GAAP reporting: Earnings management and benchmark beating*

Due to the separation of management and control, managers can have incentives to engage in earnings management so as to maximize personal utility and extract self-benefits, usually at the expense of shareholders and other stakeholders. In addition, firms meeting or beating earnings benchmarks and/or analysts' forecasts are rewarded with higher returns and stock prices (e.g., Kasznik and McNichols 2002; Fischer et al. 2014). However, earnings management, especially through accrual-based transactions, is largely constrained by the underlying accounting relation presumed in financial statements and will be reversed in future periods. In addition, accrual-based earnings management is susceptible to the scrutiny of auditors and regulators. Therefore, the disclosure of additional earnings metrics other than GAAP earnings in the press release (i.e., non-GAAP metrics) can be used as an alternative tool for earnings management. Table 2.3 summarizes the US-based evidence on opportunistic motives for non-GAAP reporting, the key findings of which are discussed below.

Using a sample of non-GAAP disclosures in actual press releases from *Newswire* and *Business Wire* on Lexis-Nexis, Bhattacharya et al. (2003) report consistent evidence that managers use non-GAAP earnings as a tool for beating strategic earnings benchmarks. They find that non-GAAP earnings tend to exceed GAAP earnings. Moreover, while most non-GAAP earnings meet or beat analyst forecasts, GAAP earnings beat analysts'

forecasts less than 50% of the time. Bhattacharya et al. (2004) use a similar sample and find that 13% of firms in the sample used non-GAAP reporting to convert a GAAP loss into a non-GAAP profit, 41% make use of non-GAAP earnings to meet or beat analysts' forecasts, and 35% of the firms in the sample use non-GAAP disclosures to avoid reporting a decrease in earnings compared to the previous period.

Doyle et al. (2013) further suggest the use of non-GAAP exclusions as an additional tool to meet analyst expectations incremental to the other well-documented earnings management tools (accrual-based management, real activities management and expectations management). They find that managers use non-GAAP exclusions as substitutes for both accrual-based management and real activities management via operating cash flows. Non-GAAP exclusions are more likely when accrual-based earnings management is highly constrained by the firm's balance sheet, or subject to high expected costs.

Recent studies attempt to provide more direct evidence and examine exclusion items that distinguish non-GAAP earnings from GAAP earnings. Using a large sample of hand-collected non-GAAP earnings data, Black and Christensen (2009) document that managers frequently exclude items that are not "one-off" in nature, since three of the most frequently-used exclusions are recurring items, namely research and development expenses, depreciation and amortization, and share-based compensation. In fact, these adjustments are significantly associated with firms' ability to achieve strategic earnings benchmarks that they would otherwise have missed based

on GAAP earnings. Hsu and Kross (2011) study special items included in (excluded from) analysts' earnings forecasts (sometimes referred to as "street earnings") and demonstrate that the decision depends on the consequences of inclusion (exclusion) that would increase street earnings; smooth the earnings series; or meet or beat earnings benchmarks. They conclude that the results imply managers include and/or exclude special items in an opportunistic manner to mask lower earnings and to smooth earnings patterns. Barth et al. (2012) examine the differences between analysts' and managers' reasons for such exclusions, specifically focusing on SFAS 123R's requirement that firms recognize share-based compensation expense. They find that incentives to increase earnings, meet earnings benchmarks and to smooth earnings explain non-GAAP exclusions of share-based compensation expense, but the exclusions have no predictive power for the firm's future performance (as measured by GAAP earnings).

Brown et al. (2012b) examine the influence of investor sentiment on voluntary disclosures of non-GAAP information, and suggest that the association between investor sentiment and non-GAAP disclosure is at least partly attributable to opportunistic motives. They find that as the level of investor sentiment increases, managers are more likely to disclose non-GAAP earnings figures that exceed GAAP earnings, exclude higher levels of both recurring and nonrecurring expense items from GAAP earnings to

derive non-GAAP figures, and place non-GAAP earnings numbers more prominently within the press release.⁶

Conversely, Brown et al. (2012a) explore the timing of quarterly earnings announcements with non-GAAP earnings releases. They find that when non-GAAP earnings are disclosed within the earnings press release, the timing of quarterly earnings announcements is accelerated. They also find the acceleration increases with the extent to which recurring items are excluded, as well as the use of less transparent reconciliation formats.

Overall, this literature provides some evidence that non-GAAP reporting can be used to mislead rather than inform investors. Prior studies have found evidence of non-GAAP figures being used to beat strategic earnings benchmarks, such as positive earnings (i.e., avoiding reporting a loss), or beating analysts' forecasts and/or the previous period's result (e.g., Bhattacharya et al. 2004; Black and Christensen 2009). There is also some evidence that managers remove items with predictive ability, suggesting they are not transient items (Bhattacharya et al. 2003; Doyle et al. 2003). Finally, there is evidence of inconsistencies in the definition of non-GAAP earnings across years and between firms (Bradshaw and Sloan 2002; Bhattacharya et al. 2004).

⁶ Brown et al. (2012b) also present and examine a managerial sentiment view of non-GAAP disclosures. They argue that, during optimistic (pessimistic) periods, sentiment-driven managers could choose to disclose non-GAAP earnings figures as a reflection of their own overly optimistic (pessimistic) perceptions of the firm's underlying performance, even if such disclosures are not driven by either information or opportunistic motives. Brown et al. find that the likelihood of reporting non-GAAP earnings figures is positively associated with the degree of managerial sentiment, suggesting that managerial sentiment plays a role in voluntary non-GAAP disclosures. However, there is no evidence that managerial sentiment is associated with aggressive exclusions in non-GAAP earnings.

2.3.2. *Informative motives of non-GAAP reporting*

There is considerable debate with respect to whether non-GAAP earnings metrics provide incremental information to the market and/or are more relevant for valuation. To test this argument, prior research typically assesses the value relevance of non-GAAP earnings figures (either adjusted and reported by management or provided by analyst estimate tracking services such as I/B/E/S and Thomson Datastream) in three ways: the ability of earnings and non-GAAP exclusion adjustments to predict future earnings, stock returns, or analyst forecast revisions (i.e., tests of predictability); the association between abnormal stock returns around earnings announcements and earnings surprises (i.e., tests of information content); and the association between earnings levels and contemporary stock prices (i.e., tests of relevance for valuation). Table 2.4 summarizes several of these studies.

Bradshaw and Sloan (2002) are among the first to present large sample evidence on the economic significance of differences between GAAP earnings and street earnings. They document that long-window stock returns are more highly associated with forecast errors based on street earnings than GAAP-based forecast errors, consistent with the view that either investors are misled by street earnings or exclusion items from street earnings are transitory without any implications for future performance. For a random sample of 50 earnings announcements per quarter, they also find that managers emphasize street earnings earlier than GAAP earnings within quarterly earnings press releases. This is consistent with managers proactively promoting the use of street earnings.

While studies using street earnings as proxies for non-GAAP earnings provide important insights, the extent to which street earnings approximate the non-GAAP figures actually reported by managers in press releases is unclear, because the majority of firms that are covered by these forecast tracking services do not report pro forma numbers (Bhattacharya et al. 2003). Bhattacharya et al. also note three additional problems with the use of street earnings as a proxy for non-GAAP disclosures. First, firms disclosing non-GAAP earnings tend to be clustered in the services and high-technology industries, and frequently report losses in GAAP earnings. Second, items excluded to derive non-GAAP earnings are found to be inconsistent across firms, as well as over time. Third, routine expenses such as depreciation and amortization and stock-based compensation tend to be the most common types of exclusions.⁷

Abarbanell and Lehavy (2007) reexamine the robustness and consistency of evidence in the prior literature indicating that market reactions to earnings announcements are more highly correlated with street earnings than GAAP earnings. They suggest that empirical support for such conclusion is attributable to the extreme negative observations of the street earnings difference distribution (i.e., instances where street earnings greatly exceeds GAAP earnings), in conjunction with a regime shift in the early 1990s whereby commercial forecast data providers began adjusting actual

⁷ On the other hand, Christensen et al. (2007) indicate that conversations with Thomson Financial regarding the I/B/E/S database indicate that they do check press releases to ascertain if a manager-disclosed adjusted number is present. Differences between this number and the street earnings are then carefully checked to determine which number is finally included in the database.

street earnings to exclude items not forecasted by financial analysts (Cohen et al. 2007).

Bradshaw (2003) and Cohen et al. (2007) identify another source of measurement error in tests of the value relevance of non-GAAP earnings and street earnings due to the unavailability of a comparable GAAP earnings expectation. Prior studies using street earnings forecasts as a proxy for GAAP earnings expectations are likely to report results biased in favor of the informativeness of street earnings, and that of non-GAAP earnings to a lesser extent. To quantify such measurement error, Bradshaw et al. (2014) utilize a newly available dataset with GAAP earnings forecasts by financial analysts. They find that GAAP earnings surprises used in the previous literature are on average comprised of 55% measurement error, and the measurement error biases the GAAP earnings response coefficient downward by 12%, along with the corresponding explanatory power for returns. Notably, after correcting measurement error, Bradshaw et al. (2014) confirm that both non-GAAP earnings and street earnings are more informative to investors than GAAP earnings.

Given concerns about the use of street earnings as a proxy for non-GAAP earnings disclosure, some studies have used hand-collected, manager-disclosed non-GAAP earnings figures. Bhattacharya et al. (2003) study a large sample of actual non-GAAP press releases to assess the relative informativeness of non-GAAP earnings (and street earnings) vis-à-vis GAAP earnings. Their results indicate that non-GAAP-based forecast errors are more highly correlated to abnormal returns around earnings

announcement dates and analyst forecast revisions than the equivalent GAAP earnings, as are street-based forecast errors. In addition, Bhattacharya et al. evaluate the relative informativeness of non-GAAP earnings and street earnings, and find that non-GAAP earnings are less informative to investors, having lower explanatory power for abnormal returns around earnings announcements. In contrast, Entwistle et al. (2010) find that non-GAAP earnings have more information content and a more significant valuation role than street earnings.

Several studies using other data resources also confirm the superior informativeness of non-GAAP earnings figures. For example, Brown and Sivakumar (2003) argue that comparisons of the value relevance of GAAP earnings with non-GAAP earnings unduly favors non-GAAP earnings, because GAAP earnings include many non-operating and one-off items that by definition reduces value relevance. They thus assess the relative value relevance of non-GAAP earnings, street earnings and an operating earnings measure reported by Standard and Poor's, which is derived from firms' financial statements after excluding non-operating items. Their results confirm that non-GAAP earnings contain value relevant information beyond that of operating earnings.

Choi et al. (2007) use a sample of non-GAAP disclosures in the UK from 1993 to 2001, and identify disagreement between management and Thomson Datastream over the adjustment items of earnings components. The use of Thomson Datastream facilitates item-by-item reconciliation from street earnings to GAAP earnings, which is not feasible using I/B/E/S.

Comparing the relative value and forecasting relevance of management adjustments and street adjustments by Thomson, their results indicate that items excluded from earnings by management, but not by Thomson, are not value relevant. This suggests that managers exclude additional one-off earnings components overlooked by Thomson. On the other hand, items included by management but not by Thomson are incrementally value relevant, indicating managers correctly identify and keep recurring earnings components misclassified by Thomson as transitory.

Since it is likely that both informative and opportunistic motives influence non-GAAP disclosure, research has focused on identifying instances where these contrasting motives for non-GAAP reporting have different empirical predictions. For example, Lougee and Marquardt (2004) find that non-GAAP earnings numbers have incremental information content when the informativeness of GAAP earnings is low, or when strategic disclosure considerations are absent (i.e., when GAAP earnings are lower than the benchmarks). However, tests on the predictability of non-GAAP earnings for future earnings and returns show mixed evidence in these two scenarios.

Curtis et al. (2014) focus on a setting where GAAP earnings contain transitory gains to assess whether the primary motive of non-GAAP disclosure is to inform or to mislead. To inform investors of permanent earnings, managers would exclude the transitory gain and report a lower value for non-GAAP earnings than the GAAP equivalent. In contrast, managers with opportunistic motives would emphasize GAAP earnings and

obscure the transitory gain. They conclude that the information motive is the dominant reason for non-GAAP disclosures in the presence of transitory gains within GAAP earnings.

In summary, the literature discussed above (and summarized in Table 2.4) generally supports the view that non-GAAP disclosures are incrementally informative relative to their GAAP equivalents. However, tests based on street earnings supplied by analyst forecast services suffer from biases arising from extreme values in the sample distribution and structural changes in the way analyst forecast services formulate and adjust the data. On the other hand, tests of the information content of non-GAAP disclosures suffer from measurement errors that bias the results in favour of street or non-GAAP earnings. Recent research that examines instances where the information and opportunism motives can be separated empirically provides further support for the information motive.

2.4.The role of internal governance, executive compensation and external auditors

An extensive body of accounting research considers how contracting and political aspects influence management's motives when making accounting choices (Watts and Zimmerman, 1986). Agency theory suggests the use of performance-based compensation contracts to align the interests of insiders and outsiders (e.g., Jensen and Murphy 1990). Performance-based compensation can encourage managers to maximize the net expected economic value to shareholders, but can also create opportunistic incentives to manage earnings figures (Armstrong et al. 2012). While compensation

contracts are not usually tied to non-GAAP earnings figures, non-GAAP exclusions can be used as an additional tool besides other earnings management techniques to increase performance-based pay (Doyle et al. 2013).

Research on the properties of non-GAAP earnings disclosures and compensation contracts is relatively limited. Table 2.5 presents a summary of the studies discussed below. Isidro and Marques (2010) study the 500 largest European firms over 2003-2005 and report a positive association between performance-based compensation and managers' propensity to engage in aggressive non-GAAP reporting, as evidenced by emphasizing non-GAAP figures in the title of the press release, making more adjustments for recurring items, and avoiding disclosure of a reconciliation to GAAP earnings equivalents. Grey et al. (2013) examine a sample of UK firms from 2001 to 2003 (i.e., before the implementation of IFRS) and find evidence that companies tend to report alternative EPS metrics when the executive share option scheme is tied to EPS growth.

However, different components of a compensation package may have diverse effects on managerial incentives. Black et al. (2014) explore compensation incentives and non-GAAP disclosures by distinguishing long-term performance-based compensation plans from bonus plans with a short-term focus. While both types of compensation plans are found to be associated with a higher incidence of reporting non-GAAP earnings figures, long-term compensation plans are found to curtail the likelihood of aggressive non-GAAP reporting.

Recent regulatory changes in relation to executive compensation such as clawback provisions may lead to unintended consequences in the presence of non-GAAP reporting. Clawback provisions allow a firm to recover incentive-based compensation from its executive officers on the occurrence of some predefined event (e.g., an earnings misstatement). For US firms, the adoption of clawback provisions became mandatory upon enactment of the Dodd-Frank Act. However, although Chen et al (2012) document improved financial reporting quality of GAAP earnings after the voluntary adoption of clawback provisions, Kyung et al. (2013) find that the adoption of clawback provisions is also associated with an increase in the frequency of non-GAAP earnings disclosures, and a deterioration in the quality of non-GAAP exclusions.

Corporate governance mechanisms are designed to reduce agency costs and organizational inefficiencies arising from moral hazard and adverse selection. Accordingly, effective governance mechanisms reduce information asymmetry and restrict opportunistic behaviour such as aggressive non-GAAP exclusions. To the extent that non-GAAP earnings numbers are disclosed for information purposes, firms with effective corporate governance are expected to increase the frequency and quality of non-GAAP information disclosure.

Empirical evidence appears to support these arguments. Frankel et al. (2011) find that firms with fewer independent directors are more likely to engage in opportunistic exclusions of recurring items from non-GAAP earnings. Jennings and Marques (2011) study the joint effect of the SEC

intervention (Regulation G being effective in March 2003) and corporate governance on non-GAAP disclosures. They report that, prior to the SEC intervention, effective corporate governance (i.e., board independence and institutional ownership) protects investors from misleading non-GAAP adjustments, but investors tend to be misled by adjustments made by firms with weak corporate governance. However, the effect of corporate governance diminishes entirely after the SEC intervention, consistent with corporate governance mechanisms and regulatory requirements being substitutes.

In addition to corporate governance mechanisms, external audit can play a critical role in preventing firms engaging in misleading financial reporting. Acting as monitors, auditors give reasonable assurance to the market that accounting information provided within the financial statements gives a 'true and fair' view of a firm's performance (Becker et al. 1998; Francis et al. 1999). Although auditors generally are not responsible for auditing non-GAAP disclosures (Chen et al. 2012), under the provision of SAS 8, auditors are required to review voluntary disclosures such as non-GAAP reporting and to prevent any overly optimistic or misleading information from being released to investors. Thus, auditors could still be concerned when opportunistic motives underlie the provision of non-GAAP earnings results, due to potential litigation and reputation risks.

However, the empirical evidence is mixed. Chen et al. (2012) find opportunistic non-GAAP disclosures are significantly associated with higher audit fees and a higher probability of auditor resignations, especially in the

pre-SOX period. In contrast, Black et al. (2014) show that audit effort (proxied by higher-than-normal audit fees) is negatively correlated with the likelihood of managers engaging in aggressive non-GAAP reporting, consistent with the auditor's role as a possible deterrent of aggressive non-GAAP reporting.

To sum up, there is some evidence that performance-based compensation plans create opportunistic motives for non-GAAP disclosures, especially when compensation plans have a short-term focus. However, corporate governance mechanisms (e.g., more independent boards, higher institutional ownership and higher auditor effort) are found to be possible deterrents of opportunistic non-GAAP reporting.

2.5.Perceptions of market participants and non-GAAP disclosures

Since empirical evidence lends supports to both the information and opportunism motives for disclosing non-GAAP performance measures, a central question is whether these measures influence investors (sophisticated or otherwise) and/or other information intermediaries such as financial analysts. Table 2.6 summarizes several studies addressing these questions.

Doyle et al. (2003) document that investors underreact to the lower future cash flow implications of street earnings. In particular, one dollar of GAAP expenses excluded from street earnings (i.e., exclusions other than special items) predicts 3.328 fewer dollars of future operating cash flows over the next three years, suggesting that such exclusions are in fact recurring items. More importantly, a hedge portfolio taking a long position

in firms with the lowest decile of exclusions and shorting firms with the highest exclusions yields a significantly positive abnormal return of 29.9% over the three years subsequent to the earnings announcement. While Landsman et al. (2007) adopt a quite different research design, their findings generally confirm those of Doyle et al., except that they find investors overreact to positive exclusions other than special items, and stocks with such exclusions tend to be overpriced.

Chen (2010) and Hsu and Kross (2011) address investors' perceptions of non-GAAP disclosures in settings where there are strong motives for managers to disclose opportunistically. Chen (2010) documents evidence that investors underestimate the persistence of expense items that are included in GAAP earnings but excluded from street earnings to allow firms to meet or beat analyst forecasts, especially in the period before the introduction of Regulation G. In contrast, there is little evidence that financial analysts underestimate the persistence of such exclusions. Hsu and Kross (2011) examine instances where managers strategically include or exclude special items in street earnings. They find that special items included in street earnings are positively associated with three-day abnormal returns around earnings announcements, but special items excluded from street earnings are not. In addition, special items included in street earnings are negatively related to future stock returns, but there is no relationship between future returns and excluded special items. These results suggest that investors overprice included special items around earnings

announcements, which are subsequently corrected in later periods, but excluded special items are appropriately priced.

However, since there is considerable evidence that street earnings differ from non-GAAP earnings, the extent to which the studies discussed above facilitate drawing conclusions about the motives for non-GAAP disclosures is unclear (Easton 2003). In fact, Bhattacharya et al. (2003) find that investors tend to overreact to non-GAAP profits when the GAAP result is a loss, but underreact to (or attach less weight to) non-GAAP earnings announcements that beat analyst forecasts when the GAAP earnings do not. Financial analysts appear to understand strategic disclosures of non-GAAP earnings to beat analyst earnings forecasts, and attach less weight to the disclosure of a non-GAAP profit when the equivalent GAAP figure is a loss.

In contrast, Johnson and Schwartz (2005) use a sample of 433 firms with non-GAAP disclosures in 2000 and compare stock returns and stock price levels of non-GAAP disclosing firms with firms that do not provide non-GAAP disclosures. They find no evidence of a premium in stock returns or prices for non-GAAP disclosers, suggesting that investors can fully understand the information contained in non-GAAP disclosures. However, Berger (2005) argues that the results reported by Johnson and Schwartz (2005) are subject to alternative explanations arising from the research design and self-selection bias.

While many studies examine non-GAAP earnings figures and their deviation from GAAP equivalents, Bowen et al. (2005) focus on the degree

of (relative) emphasis managers' place on non-GAAP measures of performance. They find that firms with lower value relevance of earnings and greater media exposure place higher (lower) levels of emphasis on non-GAAP (GAAP) earnings figures. Firms also tend to emphasize the earnings metric that portrays better firm performance compared to the prior year. More importantly, the stock market reaction to non-GAAP earnings increases with the level of (relative) emphasis, suggesting that investors' perception of non-GAAP disclosures are affected by the extent to which managers emphasize non-GAAP disclosures, and investors tend to overreact to this emphasis.

Instead of examining stock prices and/or stock returns, Bhattacharya et al. (2007) and Christensen et al. (2014) endeavour to provide insights into the debate via evidence of investor trading behaviour. Bhattacharya et al. (2007) suggest that if managers deliberately disclose optimistic earnings results, individual investors with less investment knowledge and wealth are most likely to be misled. Their study utilizes intraday data to examine transactions around earnings announcements, which include non-GAAP disclosures. They report that individual investors' abnormal trading during earnings announcements is significantly positively related to the magnitude and direction of the earnings surprise based on non-GAAP earnings, but there is no relationship between sophisticated investors' trading behaviours and non-GAAP information. The results support their conjecture that the segment of the market that relies on non-GAAP information is populated predominately by less sophisticated individual investors. Christensen et al.

(2014) investigate the trading behaviour of short sellers around earnings announcements, which include a non-GAAP disclosure. They find a significant abnormal increase in short sales, suggesting that short sellers exploit information asymmetries created by non-GAAP disclosures.

Existing studies also identify several instances where investors' perception of non-GAAP disclosures or market pricing varies. Lougee and Marquardt (2004) find that investors tend to ignore (i.e., attach less weight to) non-GAAP earnings around earnings announcement dates when prior GAAP earnings informativeness is high, or when GAAP earnings are less than expectations. Hsu and Kross (2011) show that market mispricing is most prominent when managers suddenly include special items as part of street earnings. Christensen et al. (2014) document that short sellers take greater short positions when the non-GAAP exclusion are more aggressive (i.e., excluding recurring items such as depreciation and share-based compensation).

Prior studies examining judgment and decision making also provide useful insights on how less-sophisticated individual investors process non-GAAP information differently from sophisticated investors. Frederickson and Miller (2004) conduct an experiment that requires participants to develop stock price assessments in response to an earnings press release. They find that when non-GAAP earnings exceed GAAP earnings, less-sophisticated and non-professional investors (i.e., MBAs) receiving a press release including a non-GAAP earnings figure assess a higher stock price than non-professional investors who receive the standard "GAAP only"

disclosures. However, judgements by more sophisticated investors (i.e., financial analysts) are not affected by non-GAAP disclosures. These results indicate non-GAAP disclosures affect non-professional investors' assessments through unintended cognitive effects, where the mere presence of non-GAAP information, regardless of its relevance to decision making and judgment, affects investors' information processing. However, Anderson and Hellman (2007) find that the presence of non-GAAP disclosures does affect financial analysts' judgments, and argue that the results are attributable to positive framing and a higher level of anchoring.

Elliott (2006) extends Frederickson and Miller (2004) by focusing on two underlying characteristics of non-GAAP disclosures, namely the emphasis of non-GAAP earnings and the presence of a quantitative reconciliation. The results suggest that it is the emphasis management places on non-GAAP earnings figures, rather than the mere presence of non-GAAP disclosures, that affects non-professional investors' judgments. This is attributed to cognitive effects such as overweighting salient information, and is largely mitigated by the presence of a reconciliation. While emphasis of non-GAAP disclosures does not affect professional investors' judgments, the presence of a reconciliation increases financial analysts' reliance on non-GAAP information and leads them to view non-GAAP information as more reliable.

Alle et al. (2007) complement experimental results such as those described above by using intraday transaction data to construct trade size-based proxies for investor sophistication. Consistent with Frederickson and

Miller (2004), they find that the existence of non-GAAP disclosures influences the trading behaviour of non-professional investors, while professional investors trade less or even in the opposite direction indicated by the earnings surprise. Similar to Elliott (2006), the experimental results also suggest that the strategic emphasis of non-GAAP information influences non-professional investors' judgments. In contrast, they find the relative placement of non-GAAP earnings versus GAAP earnings has no impact on professional investors.

Collectively, archival and experimental results provide relatively robust evidence on the effects of non-GAAP disclosures and managers' emphasis of non-GAAP earnings figures on non-professional investors' judgments and decisions. Investors tend to overreact to non-GAAP profits or the included one-off items in non-GAAP earnings, particularly when the equivalent GAAP result is a loss, or managers emphasize non-GAAP information. On the other hand, professional investors such as financial analysts and short-sellers appear to understand the strategic disclosure of non-GAAP earnings figures. In addition, experimental studies indicate that non-GAAP disclosures affect non-professional investors' assessments through unintended cognitive effects, as the information processing of non-professional investors is affected by the presence of non-GAAP information (Frederickson and Miller 2004) or the emphasis placed on non-GAAP disclosures (Elliott 2006). Judgments of financial analysts are seemingly not affected by the presence of, or emphasis on non-GAAP information, but

non-GAAP information is considered more reliable in the presence of a reconciliation with the GAAP equivalent.

2.6.Regulation and non-GAAP reporting

Non-GAAP reporting has attracted regulators' concerns. In light of the Enron and WorldCom scandals and other accounting frauds in the US, the SEC issued "Cautionary Advice" regarding the use of non-GAAP financial information in earnings releases in December 2001, arguing that non-GAAP figures with "no defined meaning and no uniform characteristics" could "mislead investors if it obscures GAAP results" and would also violate the anti-fraud provisions of existing securities laws (SEC, 2001). Subsequently, Regulation G, directed by the Sarbanes-Oxley Act (SOX) of 2002 (Section 401(b)), was approved in January 2003 and enacted on 28 March, 2003. Under Regulation G, companies making non-GAAP earnings disclosures are required to present the most directly comparable GAAP financial results along with a reconciliation of the non-GAAP figure with the GAAP equivalent.

More recently, the SEC has expressed concern that the previous guidance on Regulation G was more restrictive than what Regulation G originally intended, possibly precluding companies from providing meaningful information in financial statements. In January 2010, the SEC Division of Corporate Finance issued Compliance & Disclosure Interpretations (C&DIs) about non-GAAP financial measures that update and replace the previous guidance. The objectives of the new C&DIs, as indicated by Wayne Carnall, the Chief Accountant in the Division, were to

“(i) eliminate any actual or perceived restrictions in the FAQs on the disclosure of non-GAAP information that were not consistent with the actual rules; (ii) clarify the SEC’s interpretations; and (iii) centralize in one location the SEC’s interpretations.” However, Mr. Carnall also stated that SEC staffs were not encouraging the disclosure of non-GAAP information, or requiring firms to include non-GAAP information in SEC filings if non-GAAP figures are used elsewhere.

US-based studies typically use the issuance of “Cautionary Advice” in 2001, the adoption of Regulation G in 2003, and/or the issuance of C&DIs in 2010 to examine how the use, calculation, presentation and market perceptions of non-GAAP earnings figures have changed in response to regulatory change(s). There is consistent evidence that the propensity of companies to disclose non-GAAP figures declines after Regulation G, as indicated from the studies summarized in Table 2.7.

Entwistle et al. (2006) document that the likelihood of reporting non-GAAP earnings declined from 77% of S&P 500 firms in 2001 to 54% in 2003. Similar results are also reported by Marques (2006) and Heflin and Hsu (2008). Marques (2006) investigates two interventions (the warning in December 2001 and Regulation G) and shows that the probability of disclosing non-GAAP earnings was stable in 2001 and 2002 (i.e., after the issuance of “Cautionary Advice”), but decreased significantly after the approval of Regulation G. On the other hand, Kyung (2014) document that firms are 8.2% more likely to have disclosed non-GAAP earnings after the issuance of the 2010 C&DIs compared to the pre-C&DIs period, suggesting

that the new C&DIs were associated with an increase in non-GAAP disclosures.

Existing studies also find that non-GAAP earnings are disclosed in a less biased manner after Regulation G. After the adoption of Regulation G, Entwistle et al. (2006) find a substantial reduction in the proportion of firms reporting a higher value of non-GAAP earnings relative to GAAP earnings, and a sharp decline in the average difference between the non-GAAP earnings and the GAAP equivalent. Heflin and Hsu (2008) also document a decline in the magnitude of this difference, and a modest decline in the propensity of non-GAAP earnings to meet or beat analysts' forecasts.

Chen (2010) examines the exclusions from street earnings used to meet or beat analysts' forecasts (MBF exclusions), since MBF exclusions are found to be more persistent than other exclusions. He finds that the difference in persistence between MBF exclusions and non-MBF exclusions reduced after Regulation G, suggesting that there were fewer recurring items in MBF exclusions after Regulation G. Kolev et al. (2008) examine the quality of non-GAAP exclusions (i.e., their transitory nature) and show that exclusion quality improved following the SEC interventions.⁸ Using a similar approach as Kolev et al. (2008), Kyung (2014) reports that non-GAAP exclusions are of higher quality after the issuance of the new C&DIs,

⁸ Kolev et al. (2008) show that, prior to SEC intervention, \$1 of exclusions are associated with 55 cents of expenses over the next four quarters, and the association reduces to only 24 cents after the SEC intervention. They conclude that while exclusions are still not perfectly transitory in the post-regulation period, SEC intervention appears to have had the desired effect of mitigating the opportunistic use of non-GAAP earnings numbers.

suggesting that Regulation G may have precluded some improvement in non-GAAP earnings quality.

The reconciliation requirement of Regulation G is largely supported by experimental studies (e.g., Elliott 2006) that suggest the cognitive bias introduced by emphasizing non-GAAP earnings can be largely mitigated by the presence of a reconciliation. Zhang and Zheng (2011) study the impact of reconciliations on the mispricing of non-GAAP earnings and show that: (1) mispricing of non-GAAP earnings only exists in firms with low reconciliation quality rather than firms with high quality; (2) while mispricing of non-GAAP earnings is found in firms with low reconciliation quality prior to Regulation G, there is no evidence of mispricing after the regulation; (3) there is a reduction in mispricing when firms improve reconciliation quality across Regulation G. The results in Zhang and Zheng (2011) thus support the SEC's claim that reconciliations lead to more accurate security pricing, and suggest that the introduction of Regulation G curbed mispricing, at least to some degree.

Firms have also been found to decrease the degree of emphasis on non-GAAP earnings after the SEC interventions, confirming the effectiveness of SEC regulation. Bowen et al. (2005) find that managers decrease (increase) the level of emphasis on non-GAAP (GAAP) figures subsequent to the SEC "Cautionary Advice" in December 2001, and this effect is more pronounced in firms with greater exposure to media coverage. Entwistle et al. (2006a) report that, after the adoption of Regulation G, non-GAAP disclosures are presented in a much less prominent manner in press releases. There are 44%

fewer firms reporting non-GAAP earnings in the press release headline, while 77% fewer firms discuss non-GAAP figures in a manner that dominates GAAP figures in the full press release. Entwistle et al. (2006b) investigate the propensity of firms to structure their press releases using potentially misleading language (e.g., using the term “net income” to represent non-GAAP earnings in the headline). They find that, prior to Regulation G, over 10% of S&P 500 firms used such misleading language. Following implementation of Regulation G, this percentage reduced to less than 1% of S&P 500 firms. Kyung (2014) also finds the frequency of using non-GAAP numbers to beat analyst forecasts is lower in the post- C&Dis period.

In terms of market perceptions, Marques (2006) finds a positive abnormal return around earnings announcements when non-GAAP figures are reported after Regulation G, but there is no reaction before the regulation. In contrast to the pre-regulation period, the market reacts positively to the exclusions made by I/B/E/S analysts after the SEC intervention, while the reaction is not significant for additional non-GAAP exclusions made by management. Chen (2010) documents strong (weak) evidence that investors underestimate the persistence of exclusions from street earnings in the pre- (post) regulation period, while there is little evidence indicating any underestimation by financial analysts in either period. Black et al. (2012) show that investors rely more on non-GAAP disclosures in the post-SOX period, but they also appear to discount at least

some potentially misleading non-GAAP information to a greater extent than in the pre-SOX period.

While the effectiveness of the SEC interventions is well-documented in the literature, prior studies also present empirical evidence suggesting potential unintended regulatory consequences. Heflin and Hsu (2008) find that the regulations have led to reduced non-GAAP disclosures even when firms experience special items, with a decrease in investor weight on earnings forecast errors. Kolev et al. (2008) document evidence that the quality of special items has decreased following SEC regulation, indicating that firms may adapt to the new disclosure environment and shift recurring items into special items.

However, given the evidence that many companies simply abandoned non-GAAP disclosures after Regulation G, studies measuring regulatory impact potentially suffer from self-selection bias, since firms with high quality non-GAAP disclosures are more likely to have continued the practice. Baik et al. (2008) and Fortin et al. (2008) exploit a unique setting (the real estate investment trust (REIT) industry), where the non-GAAP reporting of Funds from Operations (FFO) had been in existence for more than a decade, in a rule-based self-regulatory environment. While Fortin et al. (2008) find no evidence of a reduction in the frequency of non-GAAP reporting after Regulation G, they find that in the post-regulation period: (1) firms in the REIT industry are more likely to follow industry guidance in defining FFO; (2) exclusions from FFO have become more transitory; and (3) firms are less likely to opportunistically define FFO to beat analyst

forecasts. Baik et al. (2008) show that industry guidance can affect non-GAAP disclosures. The results show that the release of industry guidance is associated with a significant decrease in the frequency of using FFO to avoid loss reporting or beat analyst forecasts and an increase in the information content of FFO, particularly for firms providing a reconciliation. Hence, the results in Baik et al. (2008) and Fortin et al. (2008) support the role of industry guidance in monitoring and influencing non-GAAP disclosures.

Apart from US-based evidence, Walker and Louvari (2003) examine UK firms, where the introduction of FRS3 allowed companies to report additional EPS measures with the objective of providing more useful information about companies' financial performance. They find that the regulatory change triggered both opportunistic and informative behaviours in non-GAAP disclosures. Firms with a higher level of disclosure are more likely to disclose non-GAAP measures, but there is a positive association between the frequency of non-GAAP disclosures and the propensity of these measures to exceed their GAAP equivalent. Malone et al. (2012) examine non-GAAP disclosures among Australian firms in the presence of IFRS re-measurements (related to financial instruments, impairment and revaluation of investment property and agricultural, pension and insurance assets) and non-recurring items. They find that Australian firms with a higher incidence of re-measurements and one-off items are more likely to disclose non-GAAP figures, and these non-GAAP disclosures are associated with lower analyst forecast errors in the subsequent period.

In summary, prior studies provide strong evidence of effects associated with regulatory intervention. After the introduction of Regulation G by the SEC, the frequency of non-GAAP disclosures significantly declined. The presentation of non-GAAP income measures also changed. The SEC interventions are also associated with improved perceptions of non-GAAP disclosures by market participants and appear to have resulted in more accurate security pricing, especially after the provision of a reconciliation between non-GAAP measures and their GAAP equivalent. There is also some evidence that industry guidance has played an important role in influencing non-GAAP disclosures.

2.7. Conclusion

In this chapter I summarise the extant literature on the non-GAAP reporting phenomenon around the world. Firstly, descriptive literature shows an overall increase in the firms' propensity in disclosing non-GAAP earnings. Technology and Manufacturing industries tend to represent the industries where firms are more likely to disclose non-GAAP earnings. Evidence also shows that non-GAAP earnings figures are systematically and economically higher than the corresponding GAAP earnings number. In addition, evidence also shows that exclusions made to GAAP earnings to derive the relative non-GAAP earnings not only include transitory items, but also include recurrent items. By excluding recurrent items, managers could be seen as acting opportunistically when reporting non-GAAP earnings. For example, prior studies have found evidence of non-GAAP figures being used to beat strategic earnings benchmarks, such as positive earnings (i.e.,

avoiding reporting a loss), or beating analysts' forecasts and/or the previous period's result (Bhattacharya et al. 2004; Black and Christensen 2009). On the other hand, a large body of the literature finds that managers could be acting altruistically when reporting additional bottom-line earnings. To corroborate this view, some studies show that managers are not only excluding transitory losses, but also transitory gains. The latter would be income decreasing, thus supporting the view managers are willing to forgo higher earnings in order to produce earnings that are more informative and/or reliable. (i.e. Curtis et al. 2014).

Some mechanisms to counteract possible opportunistic behaviours that are found to be effective are corporate governance mechanisms (e.g., more independent boards, higher institutional ownership and higher auditor effort). On the flip side, performance-based compensation plans, especially compensation plans with a short-term focus are found to create opportunistic incentives for non-GAAP reporting.

Finally, prior studies also find that regulation has played an important role in discouraging misleading non-GAAP reporting. It has not only affected the prevalence of non-GAAP disclosures, but also resulted in the presentation of a detailed reconciliation. Regulation of non-GAAP reporting also appears to have resulted in an improvement in non-GAAP earnings quality.

Table 2.1: Summary of preliminary evidence on non-GAAP disclosures in the US

Author (year)	Sample/Sources	Sample country/period	Frequency of non-GAAP disclosure	Difference between non-GAAP and GAAP	Adjustment items	Informative or opportunistic?
Bhattacharya, N., et al. (2004)	No starting basis. Actual press release from <i>Newswire</i> and <i>Business Wire</i> on Lexis-Nexis	USA, 1,149 quarterly pro forma press releases over 1998-2000.	A high concentration among certain industries: 49.9% in business service (esp. technology-related services), 30.7% in manufacturing. From 1998 to 2000 there was a 417% increase in pro forma reporting (from 47 to 243).	Average GAAP EPS is a net loss of 14.7 cents, while average pro forma EPS is a net income of 8.5 cents.	The most commonly excluded expense item is depreciation and amortization, 21% of all adjustments (410 out of 1,984), followed by stock-based compensation costs (291), M&A costs (142) and R&D costs (133). Except the gain and loss on sales of assets, all the pro forma adjustments have an income-increasing effect. Adjustment items not consistent across years.	Supports opportunistic. 13% of the pro forma announcements turned a GAAP loss into a non-GAAP profit, and over 41% converted a GAAP EPS below analysts' forecast to a non-GAAP figure meeting or beating analysts forecast. Firms reporting non-GAAP earnings tend to have poorer fundamentals and performance than their industry peers, supports that firms could be acting strategically to meet or beat analysts' forecast.
Kolev et al. (2008)	No starting basis. Preliminary History Quarterly Compustat File (financial information) and I/B/E/S Split-Unadjusted File (proxy for non-GAAP earnings)	USA 104,954 firm-quarter observations over 1998-2004	6,135 firms were classified as non-GAAP reporters (non-zero exclusions sample).	For the main sample, the mean (median) magnitude difference between non-GAAP and GAAP earnings per share is 0.039 (0.020) for the full sample, and 0.134 (0.08) for the non-zero exclusion sample.	For the full sample, mean total exclusions were 0.039, being 0.025 from special items and 0.014 from other exclusions. For the non-zero exclusion sample, the mean is 0.134, 0.088 and 0.046 respectively.	Supports opportunistic. Results suggest that SOX implementation impacted non-GAAP reporting by reducing the magnitude of the adjustments, especially for other exclusions (0.017 pre-SOX vs. 0.013 post-SOX). Lower quality of special items in the post-SOX period suggests firms may have shifted the exclusions of recurring expenses to special items.
Black et al. (2012)	No starting basis. Actual press release from <i>Newswire</i> and	USA, 9,663 quarterly earnings	Frequency of non-GAAP disclosure increases from around 50 to 420	N/A	In the pre-SOX period, 79% of the firms excluded recurring items against 78% in the post-	Supports opportunistic. The frequency of firms using non-GAAP earnings as a benchmark

	<i>Business Wire</i> on Lexis-Nexis. Financial information from CRSP and Compustat. Analyst earnings forecast from I/B/E/S	announcement over 2,386 firms from 1998 to 2006.	quarterly earnings announcement over the sample period.		SOX period.	beating tool decreases from 37% in the pre-SOX period to 30% in the post-SOX period. Although, frequency of firms excluding recurring items had decreased by only 1% (79% vs. 78%).
Zhang and Zheng (2011)	No starting basis. Actual press release from <i>NewsWire</i> and <i>Business Wire</i> on Lexis-Nexis. Compustat (financial information)	USA, 2,934 actual press releases from 1,147 firms over 1998-2001.	Frequency of non-GAAP disclosure increased from 282 to 1,623 over the sample period (1998-2001). 84% of the non-GAAP reporters are firms listed on the NASDAQ. High-tech firms comprise 59.10% of the non-GAAP reporter sample.	The mean magnitude difference between non-GAAP and GAAP earnings per share is 5.6% of total assets.	46.3% of the earnings release has intangible amortization as a non-GAAP adjustment, followed by stock compensation with 37.1%.	Supports opportunistic/informative conditional on the reconciliation quality. Results suggest that mispricing exist prior Regulation G only for firms with low reconciliation quality. After Regulation G, results show that non-GAAP earnings are no longer mispriced.
Whipple (2015)	I/B/E/S unadjusted detail history files (proxy for non-GAAP). CRSP and Compustat for financial information. Thomson One and EDGAR (analyst research report)	USA, 44,089 firm-quarters over 2003-2011.	Frequency of non-GAAP reporting (firms where I/B/E/S EPS differs from GAAP EPS) fluctuates between 48% in 2003 to around 42% in 2011.	The mean magnitude difference between non-GAAP and GAAP is 0.051 per share. On average, non-GAAP is higher than GAAP.	On average, non-GAAP earnings exclude 0.026 cents of transitory items (income decreasing) and 0.023 cents of recurring items (income decreasing). 34% are related to stock compensation and 33% related amortization and depreciation.	Supports informative. Evidence indicates that exclusions of recurring items are of informative nature. Firstly, they are non-cash items on average. In addition, they are excluded from analysts' non-GAAP forecasts, and the market assesses these items to be less value-relevant.

Table 2.2: Summary of preliminary evidence on non-GAAP disclosures in countries outside the US

Author (year)	Sample/Sources	Sample country/period	Frequency of non-GAAP disclosure	Difference between non-GAAP and GAAP	Adjustment items	Informative or opportunistic?
Walker and Louvari (2003)	Random sample from London Stock Exchange. Annual reports from PENCOM CD-ROM. EPS from FT Extel or Datastream.	UK, 237 firms actual press release for the 1996 year.	38% of the sample disclosed at least one non-GAAP earnings metric.	N/A	39 out of the 90 non-GAAP disclosures used the terminology earnings before all exceptional items. The paper does not characterize the nature of the adjustments in detail.	Supports informative. The study found strong evidence supporting firms with high level of disclosure are more likely to disclose alternate EPS measures. In addition, firms tend to report non-GAAP EPS when the same exceeds the relative GAAP EPS.
Entwistle et al. (2005)	Standard and Poor's (S&P) 500 in the U.S. and Toronto Stock Exchange (TSX) S&P 300 in Canada	494 USA firms and 290 Canadian firms comprising a total of 784 actual press release over one year period (2001-2001).	77% of U.S. firms reported non-GAAP earnings whilst only 42% of the Canadian firms exhibited the same behaviour.	The mean magnitude difference between non-GAAP and GAAP earnings in the U.S. is 190% of the relative GAAP earnings (\$0.85), and 89% (0.50) for Canada.	For both U.S. and Canada, the adjustments are very similar in nature. The most common adjustments are 'business re-organisation costs', followed by 'special, one-time, or nonrecurring items', accounting for 37% and 25%, respectively, of the adjustments in the U.S., and 38% and 23% in Canada.	Supports opportunistic. U.S. managers tend to report more pro forma earnings, place greater emphasis on pro forma than GAAP earnings, and make more income increasing adjustments to GAAP earnings, with a larger magnitude, than Canadian managers.
Choi et al. (2007)	500 largest London Stock Exchange listed non-financial firms. Thomson Datastream and I/B/E/S for financial information.	UK, 1500 firm-years across three different periods (1994, 1996 and 2001 years).	In 1994, 39% of the sample disclosed a non-GAAP EPS, increasing to 53% in 1996, and 76% in 2001.	The mean magnitude difference between non-GAAP and GAAP EPS is around 7 pence representing an increase of about 54% over the relative GAAP	Adjustments related to non-operating activities (comprises almost 100% of the exclusions reported by the non-GAAP disclosers.	Supports informative. Adjustments related to non-operating activities (comprises almost 100% of the exclusions reported by the non-GAAP disclosers. Findings suggest that adjustments are in general of transitory nature, although, some evidence on the related to the classification of transitory gains may suggest opportunistic behaviour. The

				EPS.		mean magnitude difference between non-GAAP and GAAP EPS is around 7 pence representing an increase of about 54% over the relative GAAP EPS. Results from future operating cash flows and stock price that managers are better in identifying the nature of the expenses (transitory vs. recurrent) than Thomson Datastream.
Aubert (2010)	NYSE-Euronext Paris listed firms. Actual press release extracted from Factiva database.	France, 116 non-GAAP earnings announcement over 1996-2006.		The mean magnitude percentage difference between non-GAAP and GAAP earnings is about 12.61%.	Firms report 'Net profit before goodwill amortisation' as a non-GAAP measure 39% of the times, followed by 'Net profit excluding extraordinary items' representing 16.4% of the sample.	Supports informative and opportunistic. Results suggest that non-GAAP earnings are more value relevant than the relative GAAP earnings. On the flip side, additional evidence supports the opportunistic view where managers tend to use non-GAAP disclosure as a benchmark beating tool (89.4% of the non-GAAP disclosures).
Hitz (2010)	Listed firms on the Frankfurt Stock Exchange, DAX (30 largest) and MDAX (50 second largest) indices. Actual press releases.	Germany, 566 quarterly earnings release over 2005-2006.	The frequency of reporting at least one metric on the earnings release is around 86% for EB (earnings before) metrics, while for 'pure' non-GAAP metrics the frequency is 35.5% of the total sample.	N/A	Restructuring-type expenditures, consolidation/acquisition/divestment and write-offs (impairments) comprise respectively, 21.1%, 16.7% and 14.3% of the adjustments made to GAAP earnings. 73.1% of the adjustments made have an income increasing effect.	Supports opportunistic. Results from emphasis (EB and non-GAAP earnings are emphasised over GAAP earnings in the press release) and transparency of the adjustments (only 32.7% of the firms provide full reconciliation between GAAP and non-GAAP earnings) indicate that managers are using non-GAAP disclosures for strategic reporting.
Venter et al. (2014)	Firms listed on the main board of JSE. McGregor BFA database.	South Africa, 2,042 firm-years from 424 firms over 2002-2009.	Mandatory non-GAAP earnings (headline earnings) disclosure alongside GAAP earnings in the press	The mean (median) magnitude difference between non-GAAP and	Adjustments are nil in 17% of the observations and negative in 46% of the observations. Although the adjustments on average increase GAAP	Supports informative. Altogether, the results are consistent with findings from US and around other institutional settings, where non-GAAP earnings are found to be

			release.	GAAP earnings is – 12.9 million (1.2 million).	earnings, non-GAAP earnings are higher than GAAP earnings in the majority of the observations.	more value relevant than GAAP earnings.
Aubert and Grudnitski (2014)	EURO STOXX Fixed Index (FactSet database). Hand collected actual press releases from companies' websites.	Europe (12 Eurozone countries), 989 disclosures from 314 firms over 2008-2011.	Non-GAAP disclosures in Europe grew from 1,331 to 2,249 disclosures (out of 5,896 surviving firms). Out of the 989 firms in the sample Finance and Producer manufacturing are the two major industry sectors, comprising 18.40% and 9% respectively.	The mean magnitude difference between non-GAAP and GAAP earnings is 0.0062 (EPS scaled by lagged fiscal year-end stock price).	N/A	Supports informative and opportunistic depending on the reconciliation quality. Where companies provide low quality reconciliation between GAAP and non-GAAP earnings, non-GAAP earnings is correlated with future abnormal returns. Such mispricing is mitigated in the presence of high quality reconciliation.
Rainsbury et al. (2012)	NZT Top 50 Index. Hand collected data from the annual reports.	New Zealand, 320 firm-years over 2004-2011.	Frequency of non-GAAP reporting by firms in NZ increased from 10% in 2004 to 40% in 2011.	The percentage of firms reporting non-GAAP earnings higher than GAAP earnings increased from 50% to 68.8% over the sample period (2004-2011).	Most of the adjustments made were non-tax related and varied from 4 adjustments in 2004 to 30 adjustments in 2011. Across all adjustments (tax and non-tax related) there was an increase from 1 to 2.625 adjustments per firm over the sample period (2004-2011).	Supports opportunistic. Results weakly indicate use of non-GAAP reporting to mislead the market. There was an overall increase in the number of companies reporting non-GAAP over the sample period, and additional investigation suggests that IFRS implementation contributes to this phenomenon.
Isidro and Marques (2015)	Financial Times 2006 classification of the 500 largest European companies. Actual press release from companies' websites, Regulatory News Service, PR Newswire and	Europe, 1301 press releases from 316 firms over 2003-2007.	Non-GAAP earnings disclosures were present in 79.5% of the earnings announcement (60.8% of these were non-GAAP EPS). Only 30.3% of the firms were consistently reporting non-GAAP earnings over the sample	72.3% of the firms reported non-GAAP earnings higher than GAAP earnings.	Adjustments were found to be of recurring nature and within R&D, amortisation, stock-based compensation, and tax expenses.	Supports opportunistic. Overall, firms miss analysts' consensus benchmark for GAAP earnings (non-GAAP earnings) in 48% (19%) of the observations. Same trend occurs for last year's earnings benchmark and to turn GAAP loss into a non-GAAP profit, 13.5% and 6.5% of the cases respectively. In

	Business Wire. Compustat (financial information). Financial information from Datastream. Analyst data from I/B/E/S. Additional sources for extra country indicators.		period (2003-2007).			addition, firms located in countries with high law enforcement and other strong institutional and economic factors are more likely to make use of non-GAAP reporting as a benchmark beating tool.
Choi and Young (2015)	500 largest non-financial firms listed in the London Stock Exchange. Hand collected data from published financial statements. Forecast data from I/B/E/S and financial data from Datastream.	UK, 3914 firm-years from 727 firms for 1993, 1994, 1996 and 2001 calendar years.	57% of the firms disclose a non-GAAP EPS on the face of the income statement, and 81% of the firms disclose a non-GAAP EPS at least once over the sample period. The frequency of firms reporting non-GAAP EPS increases from 41% in 1993 to 73% in 2001.	The mean (median) magnitude difference between non-GAAP EPS and GAAP EPS is 3 cents (1 cent).	Evidence shows that non-GAAP reporters tend to exclude transitory items (transitory gains and losses) in an attempt to provide a better measure of core earnings.	Supports opportunistic and informative. Non-GAAP reporters failed to meet GAAP EPS consensus forecast in 61% of the cases against only 35% of GAAP-only reporters. These results are consistent with managers using non-GAAP reporting as a benchmark beating tool. On the flip side, additional evidence also shows managers' intention to provide a better measure of core earnings by excluding items deemed to be of transitory nature.

Table 2.3: Summary of the literature on opportunistic motives for non-GAAP disclosures

Author (year)	Sample/Sources	Non-GAAP and/or GAAP measures	Key test variables	Findings
Bhattacharya et al. (2003)	Non-GAAP earnings from actual press release from <i>NewsWire</i> and <i>Business Wire</i> on Lexis-Nexis, 1149 firm-quarters over 1998-2000. Street earnings from I/B/E/S, and financial and other accounting data from Compustat and CRSP.	Forecast errors for non-GAAP, street and GAAP earnings respectively, as the difference between the actual minus the forecasted earnings.	Abnormal returns around earnings announcement, one-quarter-ahead revisions in analysts' earnings forecasts	Some evidence could corroborate the opportunistic view. Specifically, about 80% of non-GAAP earnings release meet or beat the analyst forecast, while the same only happens in 39% of GAAP operating earnings cases. Although, results from the forecast errors show that investors do not discount non-GAAP earnings in these instances, they tend to find non-GAAP earnings more informative. Results from REVISION show the I/B/E/S earnings are slightly more persistent than non-GAAP and GAAP earnings. Overall, the findings support the informative hypothesis. Results from the forecast errors.
Bhattacharya et al. (2004)	Non-GAAP earnings from actual press release from <i>NewsWire</i> and <i>Business Wire</i> on Lexis-Nexis, 1149 firm-quarters over 1998-2000. Street earnings from I/B/E/S, and financial and other accounting data from Compustat and CRSP.	Actual non-GAAP earnings extracted from firms' press release. Street earnings from I/B/E/S.	Various types of adjustments for which the firm disclosed the magnitude of the adjustment, and frequency of various types of adjustments over the sample period.	Supports opportunistic. 13% of the pro forma announcements turned a GAAP loss into a non-GAAP profit, and over 41% converted a GAAP EPS below analyst forecast to a non-GAAP figure meeting or beating analysts forecast. Firms reporting non-GAAP earnings tend to have poorer fundamentals and performance than their industry peers, supports that firms could be acting strategically to meet or beat analysts' forecast.
Black and Christensen (2009)	Non-GAAP earnings from actual press release from <i>NewsWire</i> and <i>Business Wire</i> on Lexis-Nexis, 5,674 firm-quarters from 1,894 firms over 1998-2003. Street earnings from I/B/E/S, and financial and other	Managers' exclusions of recurring items non-GAAP EPS, I/B/E/S Actual EPS and Compustat Operating EPS. Special items and below the line items from Compustat Operating EPS, EPS before extraordinary items and diluted EPS.	MGREXCL _{TOTAL} (managers' total above the line exclusions)/ PROFIT/ CONSENSUS/ Infrequent items/ Recurring items/ TAXCHG	Supports opportunistic. Results show that when a firm exclude only one item, it is likely to be stock related expenses (<i>STOCKCHG</i>). One infrequent item (<i>MERGER</i>) is often used to meet a benchmark. As for recurring items, managers mainly exclude R&D, DEPRAMORT, INTEXP and TAXCHG to convert a GAAP loss to a non-GAAP profit. In sum, the combination of adjustments of recurring items and benchmark beating are indicative of opportunistic behaviour.

	accounting data from Compustat and CRSP.			
Hsu and Kross (2011)	Street earnings obtained from I/B/E/S. Compustat (quarterly) for accounting and financial data. Final sample of 234,461 firm-quarter observations.	Street earnings as proxy for non-GAAP earnings, and EPS from continuing operations as GAAP earnings. Special items on after tax basis as the difference between quarterly EPS from continuing operations and quarterly after tax operating income.	Persistence of special items for future earnings, determinants of the inclusion/exclusion of special items (announcement period returns and future returns), and market pricing of special items.	Supports the opportunistic hypothesis. Results show that managers tend to include special items in street earnings when the same assists income smoothing. Also, positive special items are preferred ones to be included in street earnings, especially if when used as a benchmark beating tool (to avoid loss or meeting the same earnings from the relative previous period. For instances where special items are negative, managers avoid their inclusion in street earnings. Further results find that included special items are overpriced during the announcement period.
Barth et al. (2012)	Non-GAAP earnings from SEC's website, 'street excluders' as those firms from Bear Stearns US Equity Research, analysts' earnings forecast from I/B/E/S, and financial and accounting data from CRSP and Compustat. Final sample of 1,845 firms from 2005 for opportunism tests. For predictive ability tests, 8,406 firm-year observations from 1998 to 2005.	Stock-based compensation expense, actual earnings per I/B/E/S minus the last consensus earnings forecast before the firm's fiscal year-end, and standard deviation of a firm's stock-based compensation expense across sample years.	EX (likelihood of exclusion of stock-based compensation expense) and $EARN_{T+1}$ (future earnings).	Supports opportunistic. Results show that firms with larger expenses, that beat prior's year analyst forecast and avoid a loss, are more likely to exclude stock-based compensation from non-GAAP earnings. The same occurs for firms with historical higher volatility of stock-based compensation expense. With regards to street earnings, exclusion of stock-based compensation, there is a degree of disagreement among individual analysts whether to exclude or include stock-based compensation expense. Underlying motives could be partly attributed to self-serving motive. For the predictive tests, non-GAAP earnings and street earnings have opposite results. Non-GAAP earnings that include stock-based compensation expense have higher predictive ability for future earnings. However, street earnings that exclude stock-based compensation expense have higher predictive ability for future earnings.
Brown et al. (2012b, JAR)	Non-GAAP earnings from actual press release from <i>NewsWire</i> and <i>Business Wire</i> on Lexis-Nexis, 36,672 quarterly	GAAP diluted EPS from operations, the analyst-adjusted street EPS from the I/B/E/S split-unadjusted actual file and	SENTIMENT and MGR_EXC_{TOTAL} (difference between $EPS_{PROFORMA}$ and GAAP diluted EPS after	Supports opportunistic. Firstly, results show that the coefficient on SENTIMENT is positively correlated to the likelihood of disclosing non-GAAP earnings, magnitude of total exclusions, recurring and incremental recurring exclusions. Non-GAAP earnings are also given prominence on the earnings press release as the level of

	earnings press release from 1,954 firms from over 1998-2005. Street earnings from I/B/E/S, and financial and other accounting data from Compustat and CRSP.	the hand-collected non-GAAP diluted EPS from quarterly earnings press release.	extraordinary items), MGR_EXC_{RECUR} , $MGR_EXC_{INC_RECUR}$, NGE , $CONSENSUS$, $PROFIT$.	investor sentiment increases. Lastly, results also evidence managerial use of non-GAAP reporting as a benchmark beating tool, while GAAP earnings fail to meet analysts' forecast.
Brown et al. (2012a, JBFA)	Non-GAAP earnings from actual press release from <i>NewsWire</i> and <i>Business Wire</i> on Lexis-Nexis, 8,127 quarterly earnings press release from 2,134 firms from over 1998-2006. Street earnings from I/B/E/S, and financial and other accounting data from Compustat and CRSP.	Forecast error (FE) as the difference between the mean (consensus) analyst forecast from the actual earnings metric. Dummy variable NEG_FE equals one if GAAP EPS is below or misses analysts' forecast, and zero otherwise. Dummy variable $GAAP_{OP_LOSS}$ equals one if GAAP EPS is a loss, and zero otherwise.	Timing of the earnings announcement ($DELAY$), managers' recurring and nonrecurring exclusions ($TOTAL_EXCL$) and reconciliations transparency (LOW_RECON)	Supports opportunistic. Results on timing of earnings announcements suggest that managers release earnings earlier when they disclose a non-GAAP earnings metric, especially when the same reflect good news. Non-GAAP earnings surprise is also positively associated with acceleration of earnings announcement. With respect to exclusions, for early disclosers, \$1 of recurring exclusions is associated with \$1.36 of expenses over the next four quarters. Combined with the evidence that non-recurring exclusions are predictive of future earnings, results suggest managerial opportunism on the timing of non-GAAP earnings announcement.
Doyle et al. (2013)	Street earnings as a proxy for non-GAAP earnings from I/B/E/S. Other financial and accounting data sourced from CRSP and Compustat. Final sample of 143,462 firm-quarters over 1988-1999.	Cash flow from operations and cash flow from operations less capital expenditure. Total exclusions as the difference between non-GAAP EPS (street earnings) and GAAP EPS.	Future cash flow/Market-adjusted stock return	Supports opportunistic. Results found that total exclusions are negatively related with future CFO and stock returns. Specifically, results show that a dollar of non-GAAP earnings in the current quarter is correlated with 2.698 dollars of future cash flows over the next year. Although, a dollar of Total Exclusions is correlated with 1.120 less dollars of future cash flows over the next year, implying these exclusions (specially 'other exclusions') are of recurrent nature. The same holds for stock returns once 'total exclusions' is broken down into special and other exclusions.

Table 2.4: Summary of the literature on informative motives for non-GAAP disclosures

Author (year)	Sample/Sources	Non-GAAP and/or GAAP measures	Key test variables	Findings
Bradshaw and Sloan (2002)	Street earnings obtained from I/B/E/S. Compustat (quarterly) and CRSP (daily) for accounting and financial data. Final sample of 108,864 firm-quarter observations.	Forecasts errors for street and GAAP earnings calculated as the difference between the reported EPS and the median consensus EPS forecast.	Long window stock return, earnings response coefficient and R squares.	Supports the informative hypothesis. Reporting of Street earnings have increased over the last decade as did the magnitude difference between GAAP and Street earnings. Results found that value relevance of Street earnings increased as they show larger growth in ERC, R^2 and EPS than GAAP earnings. In addition, investors appear to respond more to Street than GAAP earnings.
Bhattacharya et al. (2003)	Non-GAAP earnings from actual press release from <i>NewsWire</i> and <i>Business Wire</i> on Lexis-Nexis, 1149 firm-quarters over 1998-2000. Street earnings from I/B/E/S, and financial and other accounting data from Compustat and CRSP.	Forecasts errors for non-GAAP, street and GAAP earnings respectively, as the difference between the actual minus the forecasted earnings.	Abnormal returns around earnings announcement, one-quarter-ahead revisions in analysts' earnings forecasts	Some evidence could corroborate the opportunistic view. Specifically, about 80% of non-GAAP earnings release meet or beat the analyst forecast, while the same only happens in 39% of GAAP operating earnings cases. Although, results from the forecast errors show that investors do not discount non-GAAP earnings in these instances, they tend to find non-GAAP earnings more informative. Results from REVISION show the I/B/E/S earnings are slightly more persistent than non-GAAP and GAAP earnings. Overall, the findings support the informative hypothesis. Results from the forecast errors.
Brown and Sivakumar (2003)	Street earnings from I/B/E/S, and financial and other accounting data from Compustat, Standard and Poor's (S&P) and CRSP. Final sample of 11,036 firm-quarters over 1989-1997.	GAAP net income EPS, income reported by Thomson Financial I/B/E/S (STREET) and EPS from operations reported by S&P Compustat (EPSOP)	Future earnings, abnormal returns and stock price.	Supports informative. Results show that EPS from operations and street earnings are better in predicting future earnings than S&P measure around 56% of the time. In terms of valuation, street earnings are a superior measure to EPS from operations.
Lougee and Marquardt (2004)	Non-GAAP earnings from actual press releases from Lexis-Nexis	Non-GAAP earnings from actual press release and GAAP earnings before	Probit estimation of non-GAAP reporting on firm characteristics between	Supports the informative and opportunistically. Firstly, results show that firms with less informative GAAP earnings, concentrated in high-technology industries, with significantly greater sales growth

	Academic Universe database. Compustat and CRSP for additional accounting and financial data. Final sample of 249 press releases for 135 firms over 1997-1999.	extraordinary items divided by market capitalisation.	actual sample and matched sample, GAAP earnings informativeness, abnormal returns and predictive ability of future earnings and returns.	and earnings variability are more likely to disclose non-GAAP earnings than other firms (informative). Firms that GAAP earnings fail to meet an earnings benchmark are more likely to report non-GAAP earnings. In addition, in the absence of strategic disclosure, non-GAAP earnings are more value relevant than GAAP earnings.
Abarbanell and Lehavy (2007)	Street earnings obtained from I/B/E/S. Compustat (quarterly) for GAAP earnings. Additional consensus earnings forecasts and reported earnings from First Call. Final sample of 159,220 observations from 8,651 firms over 1985-1998.	I/B/E/S street earnings and Compustat GAAP earnings. Exclusions/inclusions calculated as the difference between street earnings and various definitions of EPS before extraordinary items extracted from Compustat. Forecast errors I/B/E/S and Compustat (forecast errors equal quarterly earnings per share minus quarterly consensus forecasted earnings per share.	Earnings difference, forecast errors I/B/E/S and Compustat, ERC for various variables based on both I/B/E/S and Compustat earnings, and future returns.	Neither informative nor opportunistic. Results suggest that the tails of the distribution drives prior evidence on the relevance and predictive ability of street earnings measures. Specifically, they find evidence of a high incidence of large differences and zero differences. In addition, they suggest that one-time shift in the differences between COMPUSTAT and I/B/E/S earnings in 1990 and the similar shift in earnings surprises in 1991 is associated with the relative infrequency of firms' recognition of the adjusted items embedded in the street earnings calculations.
Choi et al. (2007).	Non-GAAP earnings from actual firms' press release, Thomson Datastream and I/B/E/S for recurring earnings other than the management adjusted earnings metrics. Final sample size of 1301 observations over 1993-2001.	Non-GAAP earnings disclosed by management, street earnings (I/B/E/S), and EPS before all non-recurring items.	Future operating cash flows, informational properties of different measures of 'exclusions', and stock price.	Supports informative. Adjustments related to non-operating activities (comprises almost 100% of the exclusions reported by the non-GAAP disclosers. Findings suggest that adjustments are in general of transitory nature, although, some evidence on the related to the classification of transitory gains may suggest opportunistic behaviour. The mean magnitude difference between non-GAAP and GAAP EPS is around 7 pence representing an increase of about 54% over the relative GAAP EPS. Results from future operating cash flows and stock price that managers are better in identifying the nature of the expenses (transitory vs. recurrent) than Thomson Datastream.

Cohen et al. (2007)	Street earnings obtained from I/B/E/S. Compustat (quarterly) and CRSP (daily) for accounting and financial data. Final sample of 188,732 firm-quarter observations over 1985–2003.	Street earnings from I/B/E/S; Forecast errors FESStreet (FEGAAP) is the difference between I/B/E/S actual EPS (GAAP EPS) and forecasted EPS.	Returns, forecast errors and ERC.	Overall, the results show that measurement error of GAAP earnings expectations and I/B/E/S adjustment error bias previous ERC's results for GAAP and Street earnings. Nevertheless, results reassure previous findings of investors placing more reliance on Street earnings than GAAP earnings.
Entwistle et al. (2010)	Non-GAAP earnings from actual press release from firms' websites, Final sample of 1,486 firm-years over 1998-2000. Street earnings from I/B/E/S, and financial and other accounting data from Compustat and CRSP.	Non-GAAP earnings, GAAP earnings, and I/B/E/S (street) earnings.	Returns and stock prices.	Supports informative. Results from value relevance show that non-GAAP earnings are more value relevant than street and GAAP earnings respectively (adjusted R^2 of 30.52%, 26.02% and 19.13%). Similar results hold for accounting-based valuation models. Lastly, non-GAAP earnings are also a superior measure in predicting future earnings over street and GAAP earnings.
Bradshaw et al. (2014)	I/B/E/S for non-GAAP earnings and GAAP and non-GAAP earnings forecast. CRSP, Compustat for financial information and USA, Final sample of 69,774 firm-quarters over 2003-2012.	Total exclusions; FE non-GAAP as the difference between non-GAAP Earnings and non-GAAP Forecast; FEGAAP-Noisy as the difference between GAAP Earnings and non-GAAP Forecast; FEGAAP-Clean as the difference between GAAP Earnings and GAAP Forecast.	Returns, ERC and R2	Supports informative. 79% of the adjustments (total exclusions) are related to exclusion of an expense item. The mean magnitude difference between non-GAAP and GAAP is 0.043 cents per share. Study shows that despite 55% of the GAAP forecast error being misclassified as earnings surprise (i.e. GAAP forecast error is comprised of 7.1 cents of measurement error and 2.2 cents of true forecast error) and reducing the bias towards investor's response to GAAP metrics, investors are still found to rely more on non-GAAP earnings than the relative GAAP measure.
Curtis et al. (2014)	Non-GAAP earnings from actual firms' press release, street earnings and earnings expectations from I/B/E/S, and financial and other	Operating earnings per share (Compustat OPEPSQ); Analyst Actual equals realized earnings per share (I/B/E/S Actual–EPS); Analyst Forecast	Future operating earnings, announcement return and filling return.	Supports informative. Results show that \$1 dollar of operating earnings (transitory gains) is associated with \$2.46 (\$-0.41) of operating earnings (earnings) over the next four quarters, implying managerial desire to report more informative earnings metrics. ERC's on transitory gains suggests that investors price transitory gain as if they are of transitory nature (results from nearly half of the sample).

	accounting data from Compustat, EDGAR and CRSP. Final sample of 1,920 firm-quarters from 2004 to 2009 with transitory gains (restricted to observations with net income-increasing special items of at least one penny per share).	equals median consensus analyst forecast (I/B/E/S – Medest EPS); Operating Earnings Surprise equals operating Earnings minus Analyst Forecast; Street Earnings Surprise equals Analyst Actual minus Analyst Forecast; Transitory Gain equals after-tax transitory gain per share (Compustat (SPIQ×0.65)/CSHPRQ).		Although, some firms (the other half, considered to be opaque disclosers) may appear to engage in opportunistic reporting as they disclose non- GAAP earnings in transitory loss quarters, but not transitory gain quarters.
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Table 2.5: Summary of the literature on the role of corporate governance, executive compensation and external auditors in influencing non-GAAP disclosures

Author (year)	Sample/Sources	Non-GAAP and/or GAAP measures	Key test variables	Findings
Isidro and Marques (2010)	Sample included firms listed on the Financial Times 2006 of the 500 largest European Firms. Manager-adjusted non-GAAP financial measures from press release extracted from Factiva. Financial data from Worldscope/Datastream/IBES. Final sample of 805 firm-year for 2003, 2004 and 2005 financial years.	Non-GAAP EPS is the first non- GAAP earnings measure disclosed by managers in the annual announcement' press release. GAAP EPS is operating earnings disclosed in the financial reports.	Non-GAAP reporting decision	Support opportunistic. Findings suggest that whenever managers have compensation plans linked to the performance of the firm, managers have higher likelihood of: - Disclosing non-GAAP metrics; - Giving more emphasis to non-GAAP metrics on the earnings press release; - Making more adjustments of recurring nature when deriving the non-GAAP earnings; - Avoiding disclosure of reconciliation between non-GAAP earnings and the relative GAAP earnings.
Frankel et al. (2011)	Non-GAAP earnings from actual press releases. Financial data and analyst forecast from Compustat and I/B/E/S respectively. Board of director independence information is from the Investor Research Responsibility Center's (IRRC) corporate governance dataset, and insider trading data is from Thomson Financial. Final sample size of 4,246 firm-quarter observations over 1998-2005.	Non-GAAP earnings as quarterly non-GAAP EPS; Non-GAAP exclusions (NON-GAAP EXCLUSIONS) as non-GAAP earnings minus GAAP earnings; Future GAAP earnings (FUTURE GAAP EARNINGS) as Earnings per share before extraordinary items summed over quarter q+1 through q+4; Future operating income (FUTURE OPERATING INCOME) as Operating income per diluted	Non-GAAP exclusions/ Board independence/ Future GAAP earnings/Future operating income	Support opportunistic. Findings suggest that non-GAAP exclusions are associated with lower future GAAP earnings of \$0.29 for firms with a fully independent board, whereas for firms with a no independent board the association jumps to \$1.32. Results also indicate this form of aggressive reporting showed an overall decline after Regulation G implementation.

		share summed over quarters q+1 through q+4.		
Jennings and Marques (2011)	Non-GAAP earnings from actual press releases. Financial data, market stock return and analyst forecast from Compustat, CRSP and I/B/E/S respectively. Board of director independence information from the Investor Research Responsibility Center's (IRRC) corporate governance dataset, and institutional holdings data from Thomson Financial. Final sample size of 3,681 observations over 2001-2003.	Non-GAAP EPS disclosed in the firm's press release. GAAP earnings as reported GAAP EPS. Forecasts errors for non-GAAP as the difference between the actual minus the forecasted earnings.	Adjustment made by the firm to GAAP earnings per share ($ADJ_t = GAAP\ Earnings_t - NGE_t$) / Future GAAP earnings / Future cumulative excess return	Supports opportunistic. Results show that prior to SEC intervention, persistence of manager-generated adjustments by firms with relatively weaker corporate governance had the potential to mislead investors, as they could not identify the recurring nature of some of these adjustments. Such persistence disappears after SEC intervention. Same trend occurs when investigating the correlation between future returns and non-GAAP adjustments.
Chen et al. (2012)	Actual non-GAAP earnings hand-collected from press releases. I/B/E/S actual earnings as street earnings. Financial and market data from Compustat and CRSP. Final audit fees sample of 16,495 firm-year observations, and resignation sample of 13,538 firm-years over 2000-2006.	Non-GAAP EPS, I/B/E/S EPS and TOTA_EXCL, as the sum of quarterly differences between the IBES actual EPS and Compustat EPS before extraordinary items and discontinued operations.	Auditor resignation and Audit fees	Supports opportunistic. Results show that more opportunistic non-GAAP earnings exclusions (higher magnitude total exclusions) generate higher audit fees and higher audit resignation. These are similar findings for pre and post-SOX period. Findings from disaggregating 'total exclusions' into 'other exclusions' and 'special items' show on average that audit fees are positively correlated with both components, especially after SOX.
Grey et al. (2013)	The sample comprises the 500 largest London Stock Exchange-listed non-financial firms in 2001. Alternative EPS disclosures along with remuneration data were hand-	Relative uninformateness of EPS^{FRS3} with respect to sustainable earnings (MAGDIFF) as the measure of the price-scaled difference between EPS^{FRS3} and the	Disclosure of adjusted EPS figures/ Presence of an EPS target in ESOs (executive share options plan)	Supports opportunistic. Results show that the inclusion of an EPS target in the executive share options plan do affect positively the likelihood of additional disclosure of alternative EPS figure in the earnings announcement. No robust findings can evidence that the disclosure of an alternative EPS figure is to counteract the lack of informativeness of EPS^{FRS3} .

	collected from firms' published financial statements. I/B/E/S-defined EPS from I/B/E/S. Financial statement, market data and industry classifications from Datastream, and the corporate governance data from by Manifest Information Systems Ltd. Final sample of 960 firm-years over 2001-2003	corresponding EPS ^{I/B/E/S} figure.		
Kyung et al. (2013)	Clawback data extracted from The Corporate Library and I/B/E/S actual earnings. Final sample of 5,208 (38,466) clawback adopters (non-adopters) over 2005-2009.	I/B/E/S to proxy for non-GAAP earnings disclosed by managers. Non-GAAP exclusions as non-GAAP earnings less income before extraordinary items per share.	Prob(non-GAAPq)/ Future operating income	Supports opportunistic. Findings suggest that adopting clawback provision increases the frequency of disclosing non-GAAP earnings figures and deteriorates the quality of non-GAAP exclusions.
Black et al. (2014)	Non-GAAP data from actual press release search on PR Newswire and Business Wire on LexisNexis. Additional data must be available on CRSP, Compustat, I/B/E/S, AuditAnalytics databases. Compensation contract data from proxy statements. Final sample of 8,014 quarterly observations from 1,967 firms over 2000-2006.	GAAP EPS, non-GAAP EPS and I/B/E/S actual EPS.	LTPLAN is a dummy variable coded 1 if the executive compensation contract includes a long-term performance plan and 0 otherwise. HIGHFEES is dummy variable coded 1 if ratio of audit fees as a percentage of sales is higher than the median audit-fees-to-sales ratio for the firm's 4-digit SIC code. Pr(Aggressive Measure = 1)	Supports opportunistic. Results suggest that audit effort (proxied by higher-than-normal audit fees) is negatively correlated with the likelihood of managers engaging in aggressive non-GAAP reporting. Audit effort is also found to minimise the propensity of managers using non-GAAP earnings to achieve strategic earnings target but only in the post-SOX period. Additional findings suggest managers with long-term performance plans engage in less aggressive non-GAAP reporting, however, the same results do not hold in the post-SOX period.

Table 2.6: Summary of the literature on market perceptions of non-GAAP reporting

Author (year)	Sample/Sources	Non-GAAP and/or GAAP measures	Key test variables	Findings
Bhattacharya et al. (2003)	Non-GAAP earnings from actual press release from <i>Newswire</i> and <i>Business Wire</i> on Lexis-Nexis, 1149 firm-quarters over 1998-2000. Street earnings from I/B/E/S, and financial and other accounting data from Compustat and CRSP.	Forecast errors for non-GAAP, street and GAAP earnings respectively, as the difference between the actual minus the forecasted earnings.	Abnormal returns around earnings announcement, one-quarter-ahead revisions in analysts' earnings forecasts	Some evidence could corroborate the opportunistic view. Specifically, about 80% of non-GAAP earnings release meet or beat the analyst forecast, while the same only happens in 39% of GAAP operating earnings cases. Although, results from the forecast errors show that investors do not discount non-GAAP earnings in these instances, they tend to find non-GAAP earnings more informative. Results from REVISION show the I/B/E/S earnings are slightly more persistent than non-GAAP and GAAP earnings. Overall, the findings support the informative hypothesis.
Doyle et al. (2003)	Street earnings as a proxy for non-GAAP earnings from I/B/E/S. Other financial and accounting data sourced from CRSP and Compustat. Final sample of 143,462 firm-quarter observations over 1988-1999.	Non-GAAP earnings as I/B/E/S actual EPS. Operating income per share is defined in Compustat as GAAP EPS given above less special items per share (on an after-tax basis). Total exclusions (EXCLUSIONS) equal to non-GAAP earnings less GAAP earnings. Special Items equals the difference between Operating Income and GAAP Earnings. Other exclusions as the difference between total exclusions and special	Future cash flow/Market-adjusted stock return	Supports opportunistic. The three-year hedge return based on Other Exclusions yields 18.6% more than the hedge return based on Total Exclusions, and it is also greater than the return on a portfolio matched on book-to-market and size, what indicated that the market does not fully unwind the implications of the expenses excluded for future cash flow. Results found that total exclusions are negatively related with future CFO and stock returns. While a dollar of non-GAAP earnings in the current period is associated with \$2.698 of future CFO over the next year equivalent period, a dollar of Total Exclusions is associated with -\$1.12 fewer dollars of future CFO over the following year. These results, more pronounced for 'other exclusions', show that some of the exclusions are of recurring nature indicating possible opportunistic behaviour.

		items.		
Frederickson and Miller (2004)	Experimental setting using nonprofessional investors and financial analysts. M.B.A. students from a U.S. World & News Report top-35 M.B.A. program as proxies for nonprofessional investors. Earnings announcement for a hypothetical company fiscal year 2001 annual and fourth-quarter earnings.	GAAP and non-GAAP earnings as stated in the earnings announcement. Non-GAAP earnings were calculated by excluding goodwill amortisation, litigation settlement, payroll taxes on exercised employee stock options and excess bad debt expense.	Stock Price judgment	Supports opportunistic. The mean M.B.A. stock price judgment is \$28.31 in the pro forma condition and \$25.36 in the GAAP condition, a difference of almost 12 percent. Results suggest that when the non-GAAP earnings in their experiment exceed GAAP earnings, less-sophisticated and non-professional investors (i.e., MBAs) receiving a press release including a non-GAAP earnings figure assess a higher stock price for the firm than do non-professional investors who receive the standard "GAAP only" disclosures. However, more-sophisticated investors' (i.e., financial analysts) judgments are not affected by the non-GAAP disclosures. Their results indicate non-GAAP disclosures affect non-professional investors' favourableness assessments through unintended cognitive effects, where the mere presence of non-GAAP information, regardless of its relevance to decision making and the judgment, affects investors' information processing.
Lougee and Marquardt (2004)	Non-GAAP earnings from actual press releases from Lexis-Nexis Academic Universe database. Compustat and CRSP for additional accounting and financial data. Final sample of 249 press releases for 135 firms over 1997-1999.	Non-GAAP earnings from actual press release and GAAP earnings before extraordinary items divided by market capitalisation.	Probit estimation of non-GAAP reporting on firm characteristics between actual sample and matched sample, GAAP earnings informativeness, abnormal returns and predictive ability of future earnings and returns.	Support the informative. Firstly, results suggest that investors tend to ignore (attach less weight on) non-GAAP earnings around earnings announcement date when prior GAAP earnings informativeness is high or when GAAP earnings are lower than the expectation. Additional results show that firms with less informative GAAP earnings, concentrated in high-technology industries, with significantly greater sales growth and earnings variability are more likely to disclose non-GAAP earnings than other firms (informative). Firms that GAAP earnings fail to meet an earnings benchmark are more likely to report non-GAAP earnings. Overall, in the absence of strategic disclosure, non-GAAP earnings are more value relevant than GAAP earnings.
Bowen et al. (2005)	Non-GAAP earnings from actual press release from PR Newswire and Business Wire on Lexis-Nexis. Number of analyst forecast from I/B/E/S,	Non-GAAP earnings as earnings adjusted by managers (excluding/including items that would be otherwise part of GAAP earnings).	Non-GAAP Emphasis/GAAP Emphasis	Supports opportunistic. Results suggest that firms with lower value relevance of earnings and greater media exposure place higher (lower) levels of emphasis on non-GAAP (GAAP) earnings figures. Firms also tend to emphasize the earnings metric that portrays better firm performance compared to the prior year. More importantly, the stock market reaction to non-GAAP earnings

	and financial and other accounting data from Compustat and CRSP. Final sample of 1,199 firm-quarters from 208 unique firms over 2001-2002.	GAAP earnings as either bottom-line earnings or earnings before discontinued operations or before extraordinary items.		increases with the level of (relative) emphasis, suggesting that investors' perception of non-GAAP disclosures are affected by managers' emphasis decisions and investors tend to overreact to the emphasized non-GAAP information.
Johnson and Schwartz (2005)	Non-GAAP earnings from actual press releases from firms listed on NYSE, AMEX, or NASDAQ. Additional accounting data from Zacks Investment Research. Final sample of 433 firms over June, 2000-August, 2000.	Non-GAAP earnings as actual non-GAAP EPS. GAAP earnings, GAAP operating income, and the adjusted "actual" earnings reported by Zacks Investment Research. Forecast error of the firm for quarter t (UE) as seasonal random walk with trend, scaled by its estimation period standard deviation, or scaled by share price five days prior to the quarterly earnings announcement.	Market multiple/CAR	Supports informative. Results find no evidence of a stock return or price premium for non-GAAP disclosure firms, suggesting that investors can fully understand the information contained in non-GAAP disclosure.
Elliot (2006)	Experimental setting. Earnings press release from a hypothetical firm in the technology sector from the first-quarters ended February 2002 and 2001. 89 first-year M.B.A students as nonprofessional investors and 55 sell-side analysts.	Non-GAAP earnings and GAAP earnings on EPS basis. Items excluded from GAAP earnings: - Stock-based Compensation Charges - Amortization of Purchased Intangibles - Acquired In-Process R&D - Amortization of Goodwill and Other Intangibles	Earnings performance judgement (scale marked in increments of ten with endpoints of 0 and 100 labeled "very weak/very strong").	Supports opportunistic. Evidence shows that the only differential factor was the presence of a quantitative reconciliation. For nonprofessional investors, the presence of reconciliation mitigated any influence caused by the emphasis on pro forma earnings, whereas for analysts, such additional information increased the reliability of pro forma earnings.

		- Restructuring Charges - Gain on Sale of Investments - Equity Investment Losses		
Alle et al. (2007)	Actual non-GAAP press release extracted from PR Newswire and Business Wire on Lexis-Nexis. Additional financial information, stock returns, and analyst forecast data from Compustat, CRSP and I/B/E/S database. Final sample of 4928 observations over 1998-2003.	Non-GAAP and GAAP earnings on EPS basis.	CAR = size-adjusted abnormal returns cumulated over the three-day announcement window, SML NETBUY = small investors' abnormal net buying activities over the three-day announcement window, LRG NETBUY = large investors' abnormal net buying activities over the three-day announcement window, SURPRISE = the I/B/E/S actual EPS minus the mean analyst forecast over the 30-day window preceding the earnings announcement.	Supports opportunistic. As oppose to sophisticated investors, less-sophisticated investors rely more on earnings release when pro forma earnings is emphasized, trading in the same direction as the earnings surprise. Such reliance is also noticed when a quantitative reconciliation is provided, although this effect disappears after Regulation G implementation. The experimental results also suggest that the strategic emphasis of non-GAAP information affect non-professional investors' judgment.
Anderson and Hellman (2007)	Experimental setting consisting of two types of earnings release. One containing both non-GAAP and GAAP reports, while the second only contained GAAP report. A total of thirty-six financial analysts are part of the experiment.	Non-GAAP and GAAP earnings on total basis and EPS basis.	Participants' EPS forecast based on GAAP or GAAP and pro forma information (measured on an 11-point scale ranging from '2 50 SEK' (1) to '50 SEK' (11)). Participants' confidence in EPS forecast (measured on a 6-point scale ranging from 'very unsure' to 'very	The participants who examined the pro forma earnings release predicted EPS (according to GAAP) to be significantly higher than those who received the report based on GAAP information only.

			sure ² .	
Bhattacharya et al. (2007)	Actual non-GAAP press release extracted from PR Newswire and Business Wire on Lexis-Nexis. Additional financial information, stock returns, and analyst forecast data from Compustat, CRSP, I/B/E/S and TAQ databases. Final sample of 5,736 announcements from 2,209 unique firms over 1998 -2003.	- GAAP operating earnings forecast error ($FE_{GAAP-OP}$) Compustat diluted operating EPS minus the I/B/E/S mean forecast, scaled by price on day t-5. - Pro forma forecast error ($FE_{PROFORMA}$) Managers' adjusted-GAAP EPS minus the I/B/E/S mean forecast, scaled by price on day t-5. - I/B/E/S forecast error ($FE_{I/B/E/S}$) I/B/E/S actual EPS minus the I/B/E/S mean forecast, scaled by price on day t-5.	SML_NETBUY (small investors' day t abnormal net-buy volume) MED_NETBUY (abnormal net-buy volume of medium-sized investors) LRG_NETBUY (abnormal net-buy volume of large investors)	Supports opportunistic. Consistent with prior evidence, results show that less-sophisticated investors tend to trade more at the earnings release day, and on the direction of the earnings surprise. Quite the opposite trend is related to sophisticated investors, who both do not trade on the very first days of the earnings release and on managers' adjusted earnings figure.
Landsman et al. (2007)	Data collected from Compustat Primary, Secondary, and Tertiary, Full Coverage, and Research Annual Industrial Files and the 2001 IBES analyst earnings database. Final sample of 21,748 firm-year observations over 1990-2000.	Non-GAAP earnings as the I/B/E/S estimate of operating income by adjusting reported net income using analysts' consensus earnings forecasts. GAAP earnings as operating income, from Compustat. NI as income before extraordinary items and discontinued operations.	Total exclusions (Net income – non-GAAP earnings), special items (Net income - GAAP earnings) or other exclusions (GAAP earnings – non-GAAP earnings) (x_2).	Supports opportunistic. Consistent with Doyle et al. (2003), results show that market misprices both positive and negative total exclusions, special items, and other exclusions. Quantitative reconciliations required under SOX will potentially minimise such mispricing, as investors will be able to assess separately items excluded from pro forma earnings.
Chen (2010)	Data collected from I/B/E/S, CRSP and	- Street earnings (STR) Actual quarterly earnings	Future earnings/Earnings forecast/Forecast	Supports opportunistic. Results show that investors underestimate the persistence of expense items that are included in GAAP

	Compustat. The pre-Reg G final sample of 114,685, 107,444, 100,787, and 95,128 observations in the analysis for quarters $t + 1$ to $t + 4$, respectively. The post-Reg G final sample of 27,420, 23,926, 20,648, and 17,510 observations in the analysis for quarters $t + 1$ to $t + 4$, respectively. Sample period over 1992-2005.	per share reported in the I/B/E/S Unadjusted Summary History File - Street exclusions (EX) GAAP earnings less Street earnings - Analyst earnings forecast (AF) Last median consensus forecast of quarterly earnings per share issued before the earnings announcement date, as reported in the I/B/E/S - Forecast error (FE) Street earnings less the analyst forecast - Accruals (ACC) GAAP earnings per share less the net cash flows from operations per share - Growth (GROW) Growth rate in net sales over the same quarter of the previous year	errors/CAR	earnings but excluded from street earnings to allow firms to meet or beat analyst forecasts, especially in the period before the introduction of Regulation G. In contrast, there is little evidence that financial analysts underestimate such exclusions.
Hsu and Kross (2011)	Street earnings obtained from I/B/E/S. Compustat (quarterly) for accounting and financial data. Final sample of 234,461 firm-quarter observations.	Street earnings as proxy for non-GAAP earnings, and EPS from continuing operations as GAAP earnings. Special items on after tax basis as the difference between quarterly EPS from continuing operations and quarterly after tax	Persistence of special items for future earnings, determinants of the inclusion/exclusion of special items (announcement period returns and future returns), and market pricing of special items.	Supports opportunistic. Results suggest that investors overprice included special items around earnings announcements, which are subsequently corrected in later periods, but excluded special items are appropriately priced. Specifically, results show that managers tend to include special items in street earnings when the same assists income smoothing. Also, positive special items are preferred ones to be included in street earnings, especially if when used as a benchmark beating tool (to avoid loss or meeting the same earnings from the relative previous period. For instances where special items are negative, managers avoid their inclusion in street earnings.

		operating income.		
Christensen et al. (2014)	Actual non-GAAP earnings collected from quarterly earnings press releases searched on PR Newswire and Business Wire on LexisNexis. Additional financial information from COMPUSTAT, stock return and trading volume from CRSP, and analyst earnings forecasts from I/B/E/S. Management guidance data from First Call and institutional holdings data from Thomson Financial. Final sample of 1,908 firm-quarters from 902 firms over 1998-2006.	Non-GAAP earnings per share as reported for the current quarter and its relative GAAP EPS. FERROR = the forecast error calculated as I/B/E/S EPS minus the last mean EPS forecast before the earnings announcement date, scaled by stock price five days before the earnings announcement as reported in CRSP.	- Ratio of short volume to total trading volume (RELSS) - Whether earnings announcements contain pro forma disclosures (PF) - PF x REC_ITEMS - PF x TARGET	Supports opportunistic. Results suggest that short selling is greater around earnings announcement, especially for firms that are non-GAAP disclosers (increases by 5.2 percent of total trading volume). Short sellers exploit market mispricing caused by non-GAAP reporting, targeting especially firms that engage in aggressive non-GAAP exclusions, such as exclusions of recurring items and stock based compensation expense.

Table 2.7: Summary of the literature on how regulation impacts non-GAAP disclosures

Author (year)	Sample/Sources	Non-GAAP and/or GAAP measures	Key test variables	Findings
Walker and Louvari (2003)	Random sample from London Stock Exchange. Annual reports from PENCOR CD-ROM. EPS from FT Extel or Datastream. Final sample of 237 firms press release from 1996.	Non-GAAP earnings and GAAP earnings (FRS3) on EPS basis.	- Disclosure choice (DISCL) - FRS3 EPS - Alternate EPS - Analyst following (NOAF)	Supports both opportunistic and informative. Results suggest that the regulation change has triggered both opportunistic and informative behaviours in non-GAAP disclosures. The study found strong evidence supporting the fact that firms with high level of disclosure are more likely to disclose alternate EPS measures. In addition, firms tend to report alternative EPS when the same exceeds FRS3 EPS. 38 percent of the sample disclosed at least one non-GAAP earnings metric.
Bowen et al. (2005)	Non-GAAP earnings from actual press release from PR Newswire and Business Wire on Lexis-Nexis. Number of analyst forecast from I/B/E/S, and financial and other accounting data from Compustat and CRSP. Final sample of 1,199 firm-quarters from 208 unique firms over 2001-2002.	Non-GAAP earnings as earnings adjusted by managers (excluding/including items that would be otherwise part of GAAP earnings). GAAP earnings as either bottom-line earnings or earnings before discontinued operations or before extraordinary items.	Non-GAAP Emphasis/GAAP Emphasis	Supports opportunistic. Results suggest that managers decrease (increase) the level of emphasis on non-GAAP (GAAP) figures subsequent to the SEC "Cautionary Advice" in December 2001, and such decrease is more pronounced in firms with greater exposure to media coverage. In addition, firms with lower value relevance of earnings and greater media exposure place higher (lower) levels of emphasis on non-GAAP (GAAP) earnings figures. Firms also tend to emphasize the earnings metric that portrays better firm performance compared to the prior year. More importantly, the stock market reaction to non-GAAP earnings increases with the level of (relative) emphasis, suggesting that investors' perception of non-GAAP disclosures are affected by managers' emphasis decisions and investors tend to overreact to the emphasized non-GAAP information.
Entwistle et al. (2006a)	Actual non-GAAP earnings from press release of firms included in the S&P 500. Final sample of 448 observations over 2001-2003.	Non-GAAP earnings and GAAP earnings on EPS basis.	Non-GAAP earnings/GAAP earnings	Supports opportunistic. After the adoption of Regulation G, non-GAAP disclosures are presented in a much less prominent manner in press releases. There are 44% fewer firms reporting non-GAAP earnings in the press release headline, while 77% fewer firms discuss non-GAAP figures in a manner that dominates GAAP figures in the full press release. In addition, the average difference between non-GAAP and GAAP EPS is 116% of the absolute value

				of GAAP earnings in 2001, while in 2003 this number decreases to only 54%.
Entwistle et al. (2006b)	Actual non-GAAP earnings from press release of firms included in the S&P 500. Final sample of 1,477 observations over 2001-2003.	Non-GAAP earnings and GAAP earnings on EPS basis.	Entitled 'GAAP terminology' in the press release but later found to be a non-GAAP earnings amount. Entitled 'claiming achievements' as when firm makes various claims in its press release headline about its performance for the period, but all claims are made based on non-GAAP rather than GAAP results.	Supports opportunistic. 77% of the sample provided a non-GAAP earnings measure in their annual earnings press release. They find that, while over 10% of S&P 500 firms uses misleading languages prior to Regulation G, the percentage reduce to less than 1% in 2003.
Marques (2006)	Actual non-GAAP earnings from press release of firms included in the S&P 500. Additional financial information, and analyst forecast from Compustat, and I/B/E/S. Final sample of 4,234 observations for 361 firms over 2001-2003.	Non-GAAP earnings and GAAP earnings on total and EPS basis.	Disclosure of a non-GAAP earnings measure in the media release (NGE). Disclosure of a non-GAAP financial measures other than earnings (ONG). Calendar quarter (CAL_QRT_X). CAR and Earnings surprises (NI_PS - Consensus = SURP GAAP; INC_B_ADJ - Consensus = Total surprise)	Supports opportunistic. Results shows that the probability of disclosing non-GAAP earnings was stable in 2001 and 2002 (i.e., after the issuance of "Cautionary Advice"), but decreased significantly after the approval of Regulation G. finds a positive abnormal return around earnings announcements when non-GAAP figures are reported after Regulation G, but there is no reaction before the regulation. Different from the pre-regulation period, the market reacts to the exclusions made by I/B/E/S analysts positively after the SEC intervention, while the reaction is not significant for additional non-GAAP exclusions made by management.
Baik et al. (2008)	FFO (non-GAAP earnings) from I/B/E/S. Other accounting data and stock return from	FFO (non-GAAP) and GAAP earnings on EPS basis.	FFO (meet or beat analysts' consensus FFO forecast). CAR	Supports opportunistic. Evidence finds that NAREIT through its National Policy Bulletin that reduces managers' discretion in deriving FFO and increase uniformity related to FFO reduces opportunistic behaviour. Similarly, the requirement of

	Compustat, and CRSP databases. Final sample size of 1,205 firm-year observations over 1995-2003.			reconciliation between FFO and GAAP earnings has improved value relevance and comparability of the FFO measure within the REIT industry.
Fortin et al. (2008)	FFO (non-GAAP earnings) from I/B/E/S. Other accounting data from Compustat. Final sample of 385 observations over 2001-2005.	FFO (non-GAAP) and GAAP earnings on EPS basis.	Disclosure of FFO. Difference between FFO and net income (FFO_NI_DIFF). CFO+1. ADJ_RET.	Supports opportunistic. Despite results not finding evidence of a reduction in the frequency of non-GAAP reporting after Regulation G, they find that in the post-regulation period: (1) firms in the REIT industry are more likely to follow the industry guidance in defining FFO; (2) exclusions from FFO have become more transitory; (3) firms are less likely to opportunistically define FFO to beat analyst forecasts.
Heflin and Hsu (2008)	Actual earnings and analyst forecast data from the unadjusted I/B/E/S Detail History files. GAAP earnings from Compustat. Final sample of 42,760 firm-quarter observations from 2,138 firms over 2000-2005.	Non-GAAP earnings as I/B/E/S actual EPS and GAAP earnings as GAAP EPS from continuing operations.	R (buy-and-hold returns) EXCL (difference between GAAP and non-GAAP earnings) ST_MBF (prob. Of benchmarking beating)	Supports opportunistic. Results shows that after Regulation G, there was an overall decrease in the number of non-GAAP disclosure, a decline on the magnitude difference between GAAP and non-GAAP earnings and the probability of companies making use of the exclusions to meet or beat analyst forecasts. The latter can observed particularly when analysing 'other-item exclusions'.
Kolev et al. (2008)	Non-GAAP earnings from I/B/E/S Split-Unadjusted File. GAAP earnings from Compustat. Final sample of 104,954 firm-quarter observations over 1998-	Non-GAAP earnings as I/B/E/S actual earnings less income before extraordinary items per share. GAAP earnings as GAAP EPS.	Non-GAAP exclusions as non-GAAP earnings less GAAP earnings. Future operating income as operating income summed over four quarters starting with q+1.	Support opportunistic. Results suggest that SOX implementation impacted non-GAAP reporting by reducing the magnitude of the adjustments, especially for other exclusions (0.017 pre-SOX vs. 0.013 post-SOX). Lower quality of special items in the post-SOX period suggests that firms may have shifted the exclusions of recurring expenses to special items.

	2004.			
Chen et al. (2012)	Actual non-GAAP earnings hand-collected from press releases. I/B/E/S actual earnings as street earnings. Financial and market data from Compustat and CRSP. Final audit fees sample of 16,495 firm-year observations, and resignation sample of 13,538 firm-years over 2000-2006.	Non-GAAP EPS, I/B/E/S EPS and TOTA_EXCL, as the sum of quarterly differences between the IBES actual EPS and Compustat EPS before extraordinary items and discontinued operations.	Auditor resignation and Audit fees	Supports opportunistic. Results show that more opportunistic non-GAAP earnings exclusions (higher magnitude total exclusions) generate higher audit fees and higher audit resignation. These are similar findings for pre and post-SOX period. Findings from disaggregating 'total exclusions' into 'other exclusions' and 'special items' show on average that audit fees are positively correlated with both components, especially after SOX.
Zhang and Zheng (2011)	Actual press release from <i>NewsWire</i> and <i>Business Wire</i> on Lexis-Nexis. Compustat (earnings announcement date). Final sample of 2,934 actual press releases from 1,147 firms over 1998-2001.	Non-GAAP earnings and GAAP earnings on EPS basis.	Reconciliation quality (LOGRECONCILE) Non-GAAP exclusions (DIFF) Abnormal returns	Support opportunistic/informative conditional on the reconciliation quality. Results suggest that mispricing exist prior Regulation G only for firms with low reconciliation quality. After Regulation G, overall results show that non-GAAP earnings are no longer mispriced.
Black et al. (2012)	Actual press release from <i>NewsWire</i> and <i>Business Wire</i> on Lexis-Nexis. Financial information from CRSP and Compustat. Analyst earnings forecast from I/B/E/S. Final sample of 9,663 quarterly earnings announcement from 2,386 firms over 1998-2006.	Non-GAAP earnings and GAAP earnings (from operations) on EPS basis.	FE_{GAAP} as GAAP operating earnings minus the mean analysts' earnings forecast scaled by stock price five days before the earnings announcement. FE_{PF} as non-GAAP earnings minus the mean analyst' earnings forecast scaled by stock price five days before the earnings	Support opportunistic. The frequency of firms using non-GAAP earnings as a benchmark beating tool decrease from 37% in the pre-SOX period to 30% in the post-SOX period. Although frequency of firms excluding recurring items had decreased by only 1% (79% vs. 78%).

			announcement.	
Malone et al. (2012)	Actual press release from firms listed on ASX 200 extracted from the Securities Industry Research Centre of Asia-Pacific (SIRCA) database. Data for analyst adjustments from Aspect Huntley FinAnalysis. Final sample size of 613 firm-years over 2008-2010.	Non-GAAP as reported by the firm and GAAP as NPAT (net profit after tax).	Absolute forecast error measured as $ (A_{i,t} - F_{i,t-j}) / P_{i,t-j} $ Forecast dispersion measured at j months prior to the end of the financial year t. PF_DIFF\$ as the difference between non-GAAP and GAAP earnings)	Supports opportunistic. Results suggest that after IFRS implementation in Australia, firms with a higher incidence of remeasurements and one-off items are more likely to disclose non-GAAP figures. The non-GAAP disclosures are found to be associated with lower analyst forecast errors in the subsequent period, suggesting that non-GAAP disclosures are useful for exchange information to financial analysts.
Kyung (2014)	Street earnings obtained from I/B/E/S. Compustat (quarterly) for other accounting and financial data. Final sample of 234,461 firm-quarter observations.	GAAP Earnings as diluted earnings per share including extraordinary items and discontinued operations. Non-GAAP earnings as I/B/E/S reported actual earnings per share.	Non-GAAP exclusions as non-GAAP Earnings minus GAAP Earnings. NewCDI as an indicator variable that equals 1 if quarter q is after the fourth calendar quarter of 2009 and 0 otherwise. Future Operating Income as earnings per share from operations, which is summed over four quarters starting from quarter q+1.	Supports informative. Results show that firms are 8.2% more likely to disclose non-GAAP earnings after the issuance of the new C&DIs compared to the pre-C&DIs period, suggesting that the new C&DIs encourages non-GAAP disclosures. Additional results suggest that non-GAAP exclusions are of higher quality after the issuance of the new C&DIs, suggesting that excessively restrictive enforcement of Regulation G may have precluded improvement of non-GAAP earnings quality.

Chapter Three: Non-GAAP Reporting in Australia

3.1. Introduction

The widespread behaviour of disclosing additional non-standardised metrics of performance alongside the GAAP earnings has become a common practice in Australia. Despite regulators and standard setters efforts to maintain a financial reporting environment free from bias and misleading information, managers benefit from a considerable degree of discretion in deriving non-GAAP earnings that could either enhance or disrupt the financial reporting environment. Australia represents a very fruitful institutional setting for non-GAAP research. Prior research has not only indicated that non-GAAP reporting is pervasive in the Australian market, but also shown that regulation is limited (Sek and Taylor, 2011).

By providing a detailed survey of the development of non-GAAP reporting by publicly traded Australian firms, I hope to gain a better understanding of what periodic financial performance is from a preparer's perspective, and thereby enable a clear contrast between the position taken by firms and that reflected in the GAAP definition of periodic income. This chapter provides an overview of the regulation of non-GAAP reporting in Australia and its correlation with firms' propensity to report non-GAAP earnings alongside GAAP earnings in their earnings press release, and then provide a detailed descriptive analysis of non-GAAP disclosures in Australia using a comprehensive database of actual non-GAAP disclosures over 2000-2014.

I identify two recent developments in accounting standard setting as having impacted the reporting of periodic income. First, the increasing use of market values as a measurement basis (or at least approximations thereof). The increasing reliance on market values is also consistent with a balance sheet perspective on measurement and consequently, reporting of periodic performance. Hence, the second important development I observe is that the income statement (i.e., the reporting of periodic financial performance) is increasingly seen as being subsidiary to the balance sheet, with income increasingly approaching the change in financial position as portrayed by consecutive balance sheets (Dichev, 2015). However, even a casual inspection of the increasing prevalence of non-GAAP reporting among Australian firms suggests that the definition and presentation of income as a measure of periodic financial performance is moving in precisely the opposite direction to these important underlying perspectives reflected in changes to accounting standards. To that extent, a detailed analysis of what firms voluntarily provide, and how it differs from what accounting standards proscribe has potentially important lessons for standard setters and regulatory agencies (Dichev, 2015).

I find that changes in the regulatory background, such as the convergence from a disaggregated definition of earnings to an all-inclusive definition of earnings, have possibly triggered increase in the number of firms reporting non-GAAP earnings over the sample period studied (2000-2014). For example, with the Australian implementation of IFRS in 2005,

anecdotal evidence suggests there has been a marked jump in the frequency and prominence of this type of reporting.⁹

The descriptive section of this chapter provides the most comprehensive review of non-GAAP reporting by Australian firms undertaken so far, and provides evidence of a persistent overall increase in non-GAAP income disclosures, as well as an increase in the rate at which such disclosures are accompanied by substantive reconciliations with the equivalent GAAP definition of income. Finally, I find evidence that firms have switched the terminology used to terms such as “underlying profit” or “underlying earnings”.

The remainder of this chapter is organized as follows. Section 2 summarises the regulatory institutional setting in Australia and its consequences for the non-GAAP reporting behaviour by Australian firms. Section 3 provides as detailed descriptive evidence of the non-GAAP reporting by ASX 500 companies over the period 2000-2014. Section 4 concludes.

3.2. Regulatory influences

The emergence and increasing prevalence of non-GAAP reporting around the world appears to coincide with notable changes in financial reporting requirements and regulations. Accounting standards setters have gradually

⁹ A survey of the largest 100 firms listed on the Australian Stock Exchange (ASX) reveals that during 2008 and 2009, over 80% of these firms reported at least one non-GAAP definition of earnings (KPMG 2010). There is also increasing evidence of explicit industry support for the reporting of non-GAAP earnings results. For example, a publication issued jointly by the Australian Institute of Company Directors and Financial Services Institute of Australia in 2009 argues “Reporting of additional, non-statutory financial information can provide valuable information to shareholders and the wider investment community about the performance of a company” (AICD/FINSIA 2009, p. 7).

switched from the use of operating income (i.e., income deemed to be recurrent in the following period) as representative of underlying operational performance to an all-inclusive approach, where net income includes both permanent and transitory earnings such as one-off costs, gains or losses on sale of assets and unrealized gains or losses.¹⁰ I briefly consider the major regulatory influences on how Australian firms have reported income, and especially the extent to which non-GAAP disclosures have evolved.¹¹

In particular, the operating income concept was widely standardized across the globe since the early 1960s, when it was first required that extraordinary items should be distinguished and reported separately on the income statement.¹² For example, Australian Accounting Standard (AAS) 1, being effective from 1 December 1974, distinguished between operating profit, abnormal items and extraordinary items, and required revenues and expenses to be classified as either ordinary items or extraordinary items, the former of which could be further classified into abnormals or operating items before abnormals.

Since then, there has been considerable regulatory concern about the possible misclassification of operating expenses as extraordinary or abnormal items.¹³ As a result, restrictions on disclosing and measuring

¹⁰ See, for example, the discussion of income presentation in IASB (2015).

¹¹ Appendix 3.1 also contains a detailed summary of key regulatory considerations.

¹² For US standards, see U.S APB Opinion No.9 [No.30] Reporting the Results of Operations, 1966 [1973]. For UK requirements, see SSAP 6: *Accounting for Extraordinary items and prior year adjustments* (issued in 1971 and revised in 1974 and 1986).

¹³ ASIC Surveillance Programs have previously listed AASB 1018 as one of the ten problematic areas in financial reporting.

extraordinary and abnormal items have been introduced since the late 1990s.¹⁴ In 1999, AASB 1018 *Profit and Loss Accounts* was reissued as AASB 1018 *Statement of Financial Performance*. Effective from the 2000/2001 financial year, this restricted the disclosure of results in the statement of financial performance as being before and after abnormal items.¹⁵

Further amendments to AASB 1018 were undertaken in 2002, which restricted the disclosure and measurement of extraordinary items (i.e., items that reflect transactions that are outside the ordinary activities of the entity and are not of a recurring nature). Extraordinary items were required to be disclosed in the statement of financial performance as a separate line item (AASB 1018 para.4.1). The key change was to the definition of extraordinary items, becoming more restrictive because “it is extremely rare for a transaction or other event to give rise to an extraordinary item” (AASB 1018, para.5.5.1).

From 1 January 2005, all publicly listed Australian companies were required to adopt Australian equivalents to International Financial Reporting Standards (A-IFRS). Relatedly, in 2004, a supplementary amendment to AASB 101 *Presentation of Financial Statements* superseded AASB 1018 *Statement of Financial Performance*. It stated “an entity shall not present any items of income and expense as extraordinary items, either on the face

¹⁴ International Accounting Standard 1 (IAS 1 2003) prohibits entities reporting items as extraordinary, stating: “An entity shall not present any items of income and expense as extraordinary items, either on the face of the income statement or in the notes” (para. 85).

¹⁵ However, under the reissued AASB 1018, Australian firms can still disclose some of the abnormal items as “significant items”, which is the most common term used during that period.

of the income statement or in the notes” (AASB 101 para.78). As a result, after the adoption of A-IFRS, Australian reporting entities have been prohibited from separately disclosing either abnormal or extraordinary items.

However, in contrast to GAAP requirements, non-GAAP disclosures in Australia are still largely unregulated. The Corporations Act and accounting standards do not prohibit the presentation of non-GAAP information in corporate disclosures. In fact, AASB 133 *Earnings per Share*, allows the disclosure of non-GAAP earnings information. Paragraph 73 of AASB 133 states that a reporting entity can disclose, in addition to basic and diluted earnings per share, “amounts per share using a reported component of the statement of comprehensive income other than one required by this Standard”, and “if a component of the statement of comprehensive income is used that is not reported as a line item in the statement of comprehensive income, a reconciliation shall be provided”.¹⁶

Shortly after the adoption of IFRS, the prevalence of non-GAAP disclosures among Australian companies attracted attention from regulators and the professional community. In its Regulation Impact Statement on “*Disclosing non-IFRS financial information*”, ASIC (2011c) suggested that presentation of manager’s adjusted profit information other than allowed by the standards had become more prevalent after the implementation of IFRS, and went so far as to attribute at least some of this increase to the

¹⁶ AASB 133 *Earnings per Share* is the Australian equivalent, with some amendments, to IAS 33 *Earnings per Share*.

requirement to include fair value adjustments to assets and liabilities in the statement of comprehensive income.

In 2005, ASIC released Consultation Paper 69 *“Disclosing pro forma financial information”* (ASIC 2005) to set out proposed guidelines for the provision of non-GAAP information in financial reports and other documents, as well as discussing what types of non-GAAP information could be published and what additional disclosures should be made so that any such information is not misleading. The Financial Services Institute of Australasia (FINSIA) and the Australian Institute of Company Directors (AICD) jointly issued a policy guidance paper on disclosure of non-GAAP financial measures in March 2009 (AICD/FINSIA 2009). This non-mandatory guidance endorsed the use of non-GAAP reporting to provide additional information that reflects management’s views on “underlying” profit, whilst also emphasizing the importance of transparency and consistency to ensure the non-GAAP information is not false or misleading. The stated intention was to encourage companies to provide additional non-statutory information about underlying profit, to present this additional information in communications to the investment community, and to adequately explain adjustments made to what is otherwise the statutory profit.

In 2011, ASIC released Consultation Paper 150 *“Disclosing financial information other than in accordance with accounting standards”* (CP150 – ASIC 2011a). This was followed by Regulatory Guide 230 *Disclosing non-IFRS financial information* (RG230 – ASIC 2011b). RG230 provides

regulatory guidance on disclosing non-IFRS financial information of which non-IFRS profit (underlying profit or non-statutory profit) information is a sub-set. Major requirements in RG230 focus on the prominence given to non-GAAP earnings, the terminology used by firms (i.e. adoption of “underlying profit” as opposed to other terms such as “normalized profit”, “result excluding exceptional items”, “underlying result”, etc.), disclosure of a detailed reconciliation between GAAP and non-GAAP earnings, and the consistency of adjustments made to GAAP earnings in arriving at the corresponding non-GAAP earnings across other financial periods.

The use of non-GAAP financial information in corporate disclosures is also governed by general statutory obligations, such as requirements that the information not be misleading. In particular, managers are required to comply with the Corporations Act by not disclosing misleading financial information.¹⁷ Therefore, managers are liable for any misleading non-GAAP information included in media releases and/or annual reports. Corporate reporting behaviour is monitored by ASIC so as to maintain a high quality financial reporting environment. According to the Regulation Impact Statement (ASIC 2011c), only 2 percent of the 250 reports from a mixture of ASX top 100 firms and others investigated by ASIC were found to have used non-GAAP profit disclosures in a disruptive manner. However, 58 percent of the reports were identified as not fully complying with the draft regulatory guide attached to CP150.

¹⁷ The Corporations Act 2001 (Cth) establishes that a company director or other officer must exercise their powers and discharge their duties with care and diligence [s 180].

It is important to note that non-GAAP financial information is not required to be audited, which potentially dampens assurance on the quality of additional performance metrics provided. However, under ASA/ISA 720 *“The Auditor’s Responsibilities Relating to Other Information in Documents Containing an Audited Financial Report”*, auditors have the responsibility to read and verify other information presented in documents containing an audited financial report.¹⁸ When material inconsistencies exist between other information and that disclosed in the audited financial report, auditors are required to make an Other Matter(s) disclosure.

3.2. Descriptive evidence

Research on non-GAAP reporting in Australia is relatively limited. Due to the unavailability of machine-readable data on non-GAAP reporting, existing studies typically utilize hand-collected samples with a small number of firms within a short sample period. For example, Cameron et al. (2012) explore the prominence of non-GAAP earnings disclosures and the provision of a reconciliation to the statutory profit for the top 50 Australian non-mining listed companies over 2007-2009. They find that all of these companies disclosed non-GAAP earnings in the narrative sections of their

¹⁸ ASA/ISA 720 *The Auditor’s Responsibilities Relating to Other Information in Documents Containing an Audited Financial Report* “establishes requirements and provides application and other explanatory material regarding the auditor’s responsibilities relating to other information in documents containing an audited financial report and the auditor’s report thereon. This:

- (a) requires the auditor to read the other information to identify material inconsistencies, if any, with the audited financial report;
- (b) requires the auditor to make appropriate arrangements with management to obtain the other information prior to the date of the auditor’s report;
- (c) requires the auditor to determine whether the audited financial report or the other information needs to be revised when material inconsistencies are identified; and
- (d) describes the auditor’s responsibilities when material inconsistencies are identified.”

annual reports in 2008 and 2009.¹⁹ Among firms emphasizing non-GAAP earnings, the number of firms making net positive adjustments to increase non-GAAP earnings was substantially higher than those making negative adjustments. Most firms reported better performance using non-GAAP earnings, and were more likely to report positive non-GAAP earnings when GAAP earnings were negative. These results suggest that Australian managers may engage in “impression management” by disclosing non-GAAP earnings measure that presents the firm’s performance in the best light.

Sek and Taylor (2011) compile a detailed description of the difference between GAAP and non-GAAP earnings for the “big four” Australian banks from 2003 to 2008. They conclude that the definition of non-GAAP earnings is not consistent between banks, nor does it appear to be consistently applied by individual banks over time. They thus raise concerns about the ability of Australian firms to “self-define” financial outcomes. Malone et al. (2012) study the determinants and consequences of non-GAAP earnings disclosures among ASX 200 firms over the period 2008-2010. Consistent with Cameron et al. (2012), they report that non-GAAP earnings provided by firms and financial analysts generally exceeded statutory net profit, and companies were more optimistic in their estimates of non-GAAP earnings than financial analysts. They also find that exclusions from non-GAAP earnings are associated with lower analyst forecast errors in the subsequent period, but are not associated with share prices.

¹⁹ For 2007, 48 out of 50 firms reported non-GAAP earnings.

Johnson et al. (2014) conduct an experiment to determine whether the disclosure of non-GAAP earnings significantly affects the information choices of non-sophisticated Australian financial statement users. They suggest that when non-GAAP earnings information is provided, participants tend to select this information rather than GAAP earnings to identify basic measures of profitability. The results indicate that non-GAAP disclosures tend to be incorporated in the information-gathering stage of decision-making by non-sophisticated investors.

In the remainder of this section, I provide a detailed descriptive analysis of non-GAAP disclosure in Australia using a comprehensive database of actual non-GAAP disclosures. Prior US-based research typically relies on non-GAAP proxies such as the measure of income reported in analyst forecast services or at best rely on small sample supplementation of these methods using actual disclosures. In contrast, for the years 2000-2014, I use text search technology available from SIRCA to identify all instances within full-year profit announcements where ASX 500 companies reported non-GAAP earnings measures. The non-GAAP earnings data are hand-collected from firms' media releases, preliminary financial statements and annual reports using search terms such as "cash earnings", "core earnings", "underlying earnings" and "normalized profit". The final sample consists of 11,648 firm-year observations for the period of 2000-2014.²⁰

Figure 3.1 presents the frequency with which companies disclosed at least one non-GAAP metric in their earnings announcements. There is an

²⁰ A more detailed explanation is contained in Chapter 4.

increasing tendency to report non-GAAP measures over the sample period, with the peak in 2014 of 42%.²¹ The highest occurrence prior to 2013 is found in 2009, with 36% of the ASX 500 companies disclosing at least one non-GAAP metric in their earnings announcements. This might be explained by considerable exclusions of asset write-downs in the wake of the global financial crisis that prompted companies to issue non-GAAP metrics in response to unusual economic events. In contrast, only 15% of ASX 500 companies disclosed non-GAAP earnings metrics in 2002, with a slight decline in the years leading up to 2002.²²

Figure 3.2 illustrates the frequency with which companies present reconciliation information detailing the adjustments to statutory earnings made in deriving the non-GAAP number. A steady rise over the sample period is found, particularly in recent years, increasing from around 56% in 2002 to 91% in 2013. The increasing tendency to present reconciliation information is confirmed by a significant time trend over 2000-2014.²³ This result appears to correspond with legislative and regulatory guidance introduced to improve reporting transparency of non-statutory financial information (ASIC 2005; 2001a, 2011b).

²¹ I use a simple time trend regression and find a statistically significant t-statistic on the yearly coefficient of 9.9.

²² This may coincide with an amendment to *AASB 1018 Statement of Financial Performance* made in June 2002 that required companies to disclose extraordinary items on the face of the income statement as a separate line item. However, this requirement was short-lived, since Australian equivalents to IFRS (A-IFRS) adopted in 2005 eliminated the mandatory disclosure of extraordinary items.

²³ The t-statistic on the yearly coefficient is 11.3, statistically significant at the 1% level.

I further divide the sample period into three sub-periods: 2000-2004, 2006-2010 and 2011-2014.²⁴ I find that the average tendency to disclose a reconciliation in 2006-2010 is significantly higher than that for 2000-2004 (72.85% vs. 60.69%). Reconciliation frequency is found to further increase, with an average of 87.05% in 2011-2014, significantly higher than that for 2006-2010. Therefore, the evidence appears to be consistent with the conjecture that regulatory guidance has been associated with improved transparency in non-GAAP disclosures.

Figure 3.3 compares the likelihood of ASX 500 companies disclosing non-GAAP earnings metrics across different industries. I classify companies into industries based on two-digit GICS codes. Australian companies in the Utilities industry are found to be most likely to present non-GAAP information, followed by companies in the Consumer Discretionary, Financial and Industrial classifications respectively. On the other hand, ASX 500 companies in the Energy, Materials, Health Care and Telecommunications industries are among those least likely to disclose non-GAAP earnings.

Given the prevalence of non-GAAP reporting among Australian firms, the question naturally arises as to whether non-GAAP earnings generally convey a different view of a firm's performance compared to the GAAP equivalent. In Figure 3.4, I focus on this comparison. On average, 52.4% of companies disclose a higher value of non-GAAP earnings than equivalent GAAP earnings. The proportion declines gradually over the period of 2002-

²⁴ I do not include 2005 to avoid the transition effect arising from the adoption of IFRS.

2007, with the lowest of 38.4% in 2007. It jumped to 56.5% and 64.6% in 2008 and 2009 respectively, largely due to one-off losses recognized in statutory profits during the economic downturn. However, the tendency of reporting higher non-GAAP earnings persists in recent years (ranging from 55%-61% over 2010-2014), indicating that an “economic downturn” cannot fully explain such reporting behaviour. A simple time trend regression also indicates that there is some upward trend in the percentage of firms reporting non-GAAP earnings higher than the GAAP equivalent (trend = 0.009; $t = 1.80$).

Since non-GAAP earnings numbers are mostly derived after excluding several items from statutory earnings, I examine the absolute and relative magnitude of the exclusions from non-GAAP earnings (namely the difference between non-GAAP and GAAP earnings) across years. Figure 3.5 shows the mean and median of the exclusion amounts. Although the mean amount of exclusions (see Panel A of Figure 3.5) is substantially higher than the median amount (Panel B), the time-series patterns of both mean and median exclusions are quite consistent. Exclusions over 2008-2014 are consistently higher than for earlier years, with significant amounts of exclusions during the economic downturn.²⁵ In 2008, the median (mean) exclusion of \$16 (\$187) million signals the early negative impact of the financial crisis on Australia economy.²⁶ Since most Australian companies

²⁵ While 2002 shows an average of \$243 million in total exclusions, it reflects the effect of News Corporation with a \$13.2 billion write-down. Excluding News Corporation from the sample reduces the average in line with the preceding years.

²⁶ Mining companies overshadowed the rest of the ASX500 constituents for the year in terms of exclusions. Rio Tinto Limited, whose fiscal calendar ended on 31 December 2008,

end their fiscal year on 30 June, their annual results in 2009 fully reflect the negative impact suffered over the depth of the economic crisis in late 2008, resulting in an increased median (mean) exclusion amount of \$31 (\$285) million.²⁷ In contrast, the median exclusion during the post-crisis period of 2010-2014 is around \$15 million.

Figure 3.6 demonstrates the relative magnitude of total exclusions as a percentage of the absolute value of GAAP earnings. On average, exclusions are about 31% of the amount of GAAP earnings. The highest percentage of exclusions occurs in 2009, with an average of 75% of statutory earnings. Statistical tests reveal that there is no clear time trend for the absolute magnitude of exclusions.

To provide further insights into the difference between GAAP earnings and non-GAAP earnings, Figure 3.7 presents the distributions of changes in GAAP earnings and changes in non-GAAP earnings for ASX 500 companies over 2000-2014. I find that the frequency of changes in non-GAAP EPS in the interval of $[-0.05, 0.05]$ is significantly higher than that for changes in GAAP EPS, suggesting that non-GAAP EPS is a more persistent and predictable measure than GAAP EPS. Moreover, the frequency of non-GAAP earnings falling outside the interval of $[-0.3, 0.3]$ is significantly lower than that for GAAP earnings (i.e., there are fewer

reported an impairment charge of USD\$7.6 billion, leading to a net exclusion amount in excess of USD\$6.6 billion. Fortescue Metals Group Limited reported a net adjustment of AUD\$2.6 billion that included a revaluation loss of AUD\$2.8 billion to its Leucadia subordinated loan note.

²⁷ News Corporation disclosed more than US\$9.2 billion in total exclusions primarily related to a US\$8.9 billion impairment charge. The sharp fall in commodity prices during the year led BHP Billiton Limited to announce the suspension of its Ravensthorpe nickel operation and other mining projects, resulting in an exceptional costs of USD\$4.8 billion.

extreme values). Overall, the results indicate that non-GAAP earnings are less volatile and more predictable than their GAAP equivalent. This is consistent with non-GAAP earnings frequently excluding the effects of large unrealized profits or alternately the effects of large asset impairments which otherwise form part of the calculation of the GAAP equivalent.

While the data presented above indicates the significance of the adjustments made in deriving non-GAAP earnings, it is unclear whether such adjustments depend on the sign of GAAP earnings figures. Figure 3.8 reveals that 11.1% of firm-years included in the sample disclosed a non-GAAP profit when the GAAP equivalent was a loss. In contrast, there are virtually no examples (0.4% of the sample) of firms reporting a non-GAAP loss when the GAAP equivalent was a profit. A simple time trend regression fails to identify any clear time trend in this reporting behaviour.

Figure 3.9 illustrates the frequency of various non-GAAP terms utilized in earnings announcements. The usage of “underlying profit” (or any related terms to describe earnings) increases substantially over time. The likelihood of using the “underlying” term increases from 15.1% in 2000 to 56.1% in 2013, with similar upward trends observed for both pre-tax and after-tax “underlying” terms. A simple time trend regression confirms a significant time trend in using the term “underlying profits” or similar (trend = 0.025; $t = 22.68$). On the other hand, an average 3.4% of companies used the term “cash earnings” or similar. However, Figure 3.9 also indicates considerable variation in the usage of non-GAAP terms, since other terms (e.g., operating

profit, adjusted results, normalized earnings) still accounted for a sizeable proportion of observations at the end of our sample period.

Finally, Figure 3.10 summarizes the search process used to identify non-GAAP earnings disclosures. Media releases and others are found to be the most prevalent medium of initial non-GAAP earnings disclosure, followed by the preliminary financial statements. Very few firms first report a non-GAAP earnings disclosure when the annual report is released, consistent with an intention to place “early” focus on the non-GAAP result.

3.3 Conclusion

Overall, the above analyses for ASX 500 companies from 2000-2014 suggests that non-GAAP reporting is a common yet growing phenomenon in Australia, particularly after the implementation of IFRS. I find a significant upward trend in the frequency of firms reporting non-GAAP figures, the percentage of non-GAAP disclosers providing detailed reconciliation information, the percentage of firms disclosing non-GAAP earnings which exceed the corresponding GAAP result, and the usage of the “underlying profit” term over time. On average, non-GAAP earnings figures are higher than their GAAP equivalent, with an economically significant absolute and relative amount of adjustments (i.e., exclusions) to GAAP earnings. Non-GAAP earnings figures may convey a different view of a firm’s performance, since companies are more likely to disclose a profit using non-GAAP earnings when GAAP earnings indicate a loss, rather than reporting a loss as the non-GAAP result. Finally, there is evidence that non-

GAAP earnings are more predictable and less volatile than their GAAP equivalents.

Although the data suggests that non-GAAP earnings measures are presented on a selective basis in relation to the company's profitability, the results should be interpreted with caution because the possibility cannot be ruled out that non-GAAP disclosure enable managers to communicate operational performance effectively to financial statement users, especially during economic downturns or unusual economic events. I address this question in the following chapter.

Appendix 3.1: Regulatory changes and guidance in relation to the disclosures of corporate earnings and non-GAAP information

Year	Accounting Standards and guidelines on reporting corporate income	Requirements/Adjustments
1974	AAS 1 <i>Profit and Loss Statements</i> (pre-AASB 1018)	AAS 1 distinguishes between operating profit, abnormal items and extraordinary items. It requires revenues and expenses to be classified as either ordinary items or extraordinary items, the former of which can be further classified into abnormals and operating items before abnormals.
1989	AASB 1018 <i>Profit and Loss Accounts</i>	AASB 1018 continues to recognize three components of profit or loss: ordinary, abnormal and extraordinary items. However, it makes amendments to the definition (i.e. more restrictive in measurement) of extraordinary and abnormal items in AAS 1.
1999	AASB 1018 <i>Statement of Financial Performance</i>	AASB 1018 was reissued as the <i>Statement of Financial Performance</i> stating that reporting results before and after abnormal items on the face of the income statement was no longer permitted. However, “significant items” may be segregated in the notes to the accounts.
2002	AASB 1018 <i>Statement of Financial Performance</i>	Extraordinary items must be disclosed on the face of the statement of financial performance using a separate line item for profit or loss resulting from extraordinary items after related income tax expense (paragraph 4.1). The major change is the definition of extraordinary item, making it more restrictive: “it is extremely rare for a transaction or other event to give rise to an extraordinary item”.
2005	AASB 101 <i>Presentation of Financial Statements</i>	AASB 101 <i>Presentation of Financial Statements</i> states that “An entity shall not present any items of income and expense as extraordinary items, either on the face of the income statement or in the notes”. This standard superseded AASB 1018 <i>Statement of Financial Performance</i> . In addition, it followed IAS 1, where preparers can include additional line items, headings and sub-totals on the face of the income statement when such presentation is relevant for an understanding of the entity’s performance, especially in respect of some infrequent transactions.
2005	AASB 133 <i>Earnings per share</i>	AASB 133 paragraph 73 states that “disclose, in addition to basic and diluted earnings per share, amounts per share using a reported component of the statement of comprehensive

		income other than one required by this Standard”, and “if a component of the statement of comprehensive income is used that is not reported as a line item in the statement of comprehensive income, a reconciliation shall be provided”.
2005	ASIC Consultation Paper 69 <i>Disclosing pro forma financial information</i>	Set out proposed guidelines for the disclosure of non-GAAP financial information, and discuss what types of non-GAAP information can be published and what additional disclosures should be made so that any such information is not misleading.
2009	AICD/FINSIA report <i>Underlying Profit principles for reporting of non-statutory profit information</i>	This (non-mandatory) guidance policy endorses the use of non-GAAP reporting to provide additional information that reflects management’s views on “underlying” profit, whilst also emphasizing the importance of transparency and consistency to ensure the non-GAAP information is not false or misleading. The stated intention was to encourage “companies to provide, in a responsible and consistent manner, additional non-statutory information about underlying profit and to present this additional information in communications to the investment community in a table that shows and explains adjustments made to the statutory profit”.
2011	ASIC Consultation Paper 150 <i>Disclosing financial information other than in accordance with accounting standards</i> , followed by Regulatory Guide 230 <i>Disclosing non-IFRS financial information</i>	ASIC Regulatory Guide 230 provides regulatory guidance on disclosing non-IFRS financial information of which non-IFRS profit (underlying profit or non-statutory profit) information is a sub-set. Major requirements in RG230 focus on the prominence given to non-GAAP earnings, the terminology used by firms (i.e. adoption of “underlying profit” as opposed to other terms such as “normalized profit”, “result excluding exceptional items”, “underlying result”, etc.), disclosure of a detailed reconciliation between GAAP and non-GAAP earnings, and the consistency of adjustments made to GAAP earnings in arriving to the corresponding non-GAAP earnings across periods.

Figure 3.1: The frequency of ASX 500 listed firms reporting non-GAAP earnings

This figure shows the percentage of the ASX 500 (All Ords) listed firms that disclose at least one non-GAAP metric after tax in their earnings announcements.

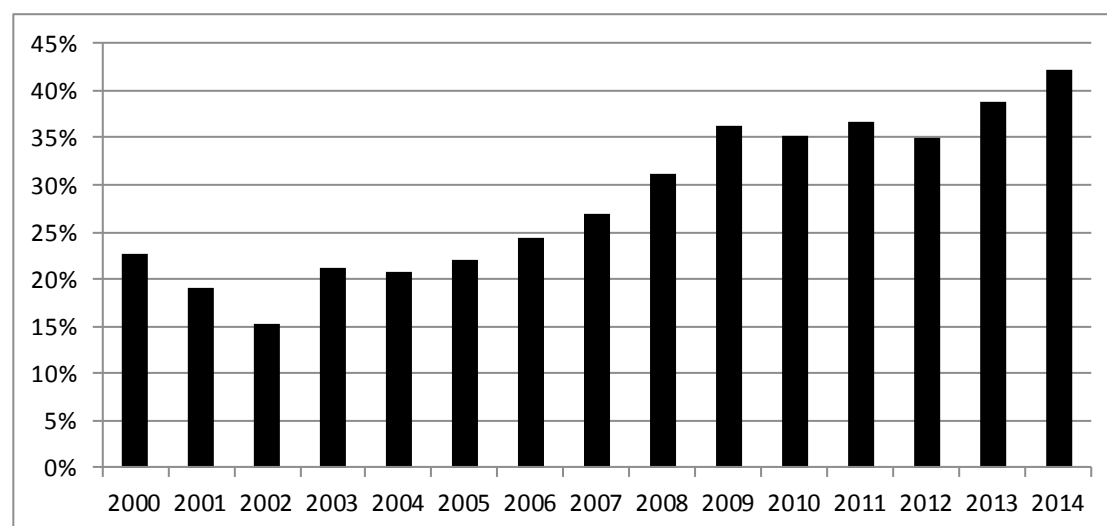


Figure 3.2: The frequency with which non-GAAP earnings announcements are reconciled to their statutory equivalent

This figure illustrates the percentage of the ASX 500 (All Ords) listed firms that disclose non-GAAP earnings after tax (all descriptive statistics restricts non-GAAP and GAAP earnings to the after tax figure) in their earnings announcements accompanied by a reconciliation table that details exclusions to statutory earnings to derive the non-GAAP number.

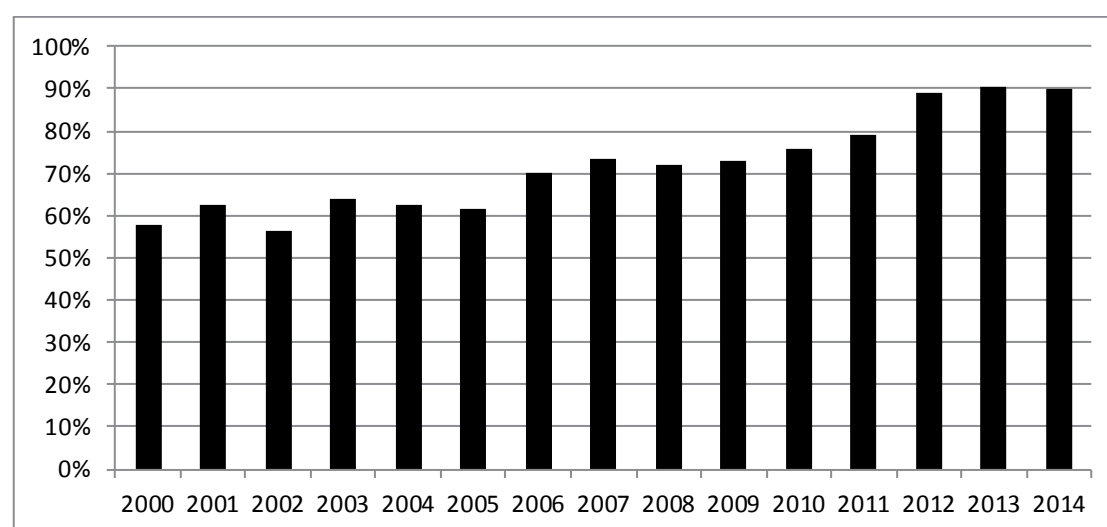


Figure 3.3: The frequency of non-GAAP disclosures by industry

This figure illustrates the percentage of firms with non-GAAP disclosures (Non-GAAP) versus firms without non-GAAP disclosures (GAAP). The classification of industry is based on SIRCA industry sector classifications.

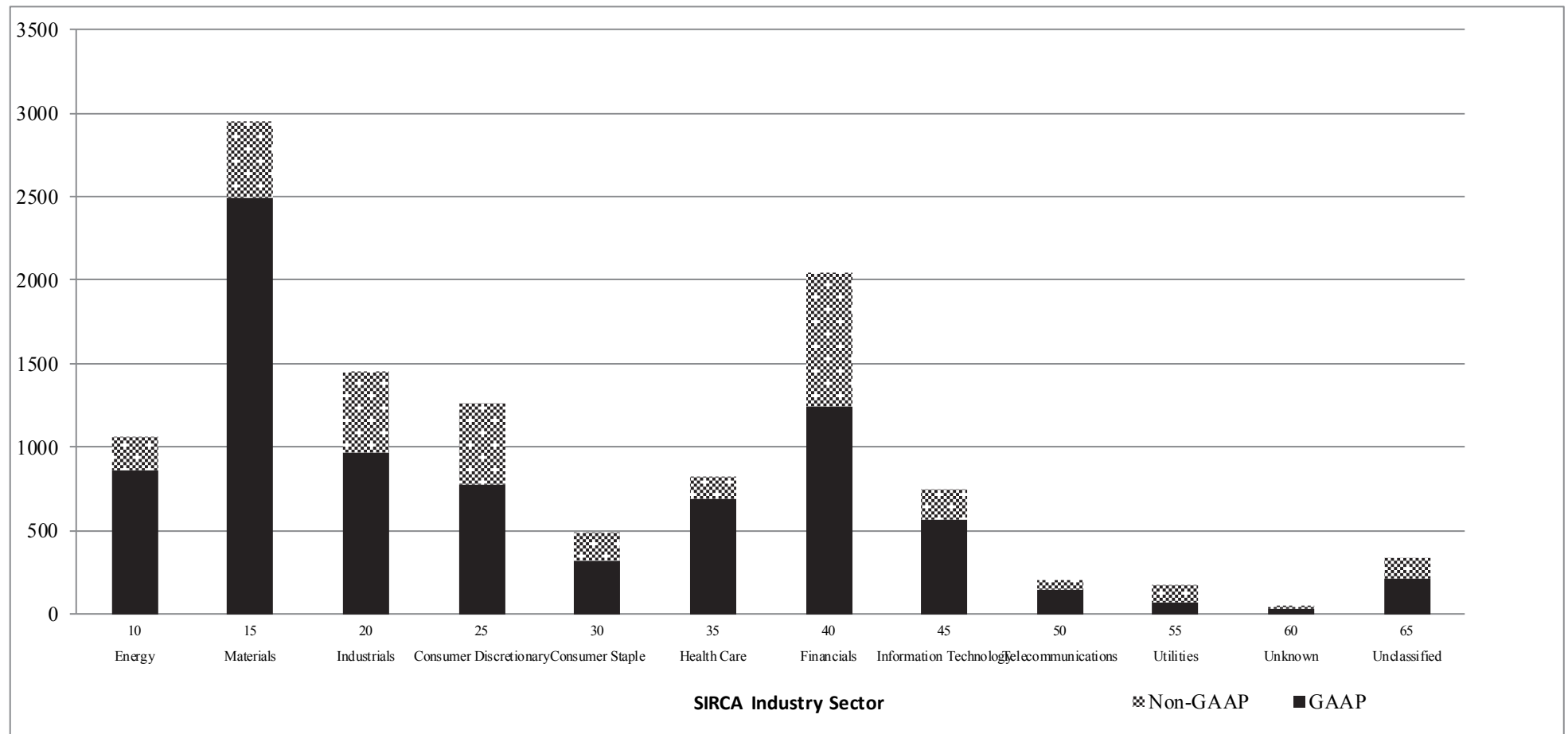


Figure 3.4: The percentage of ASX 500 firms disclosing non-GAAP earnings that exceed their GAAP equivalent

This figure shows the percentage of the ASX 500 (All Ords) listed firms that disclose non-GAAP earnings after tax that exceeds the GAAP equivalent.

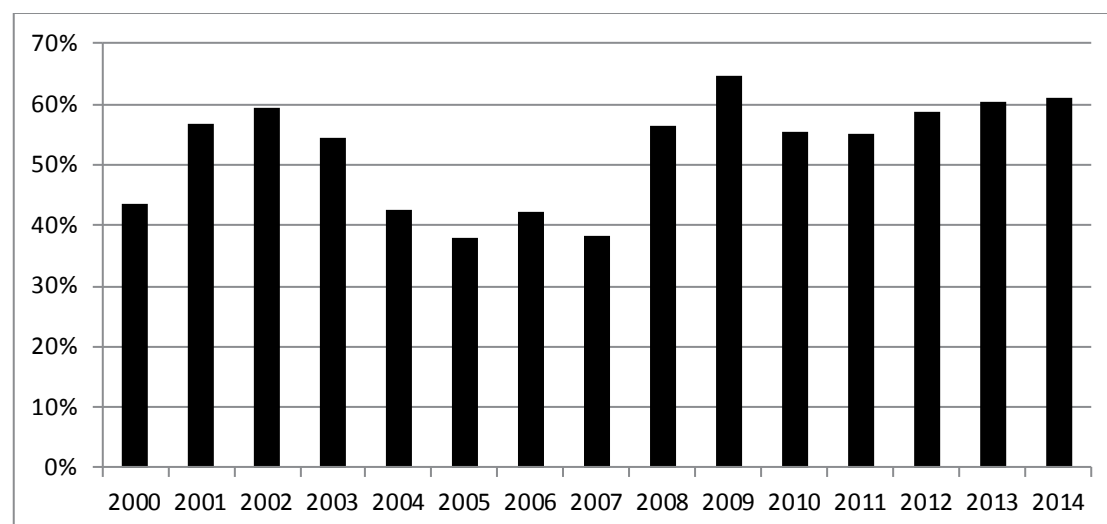
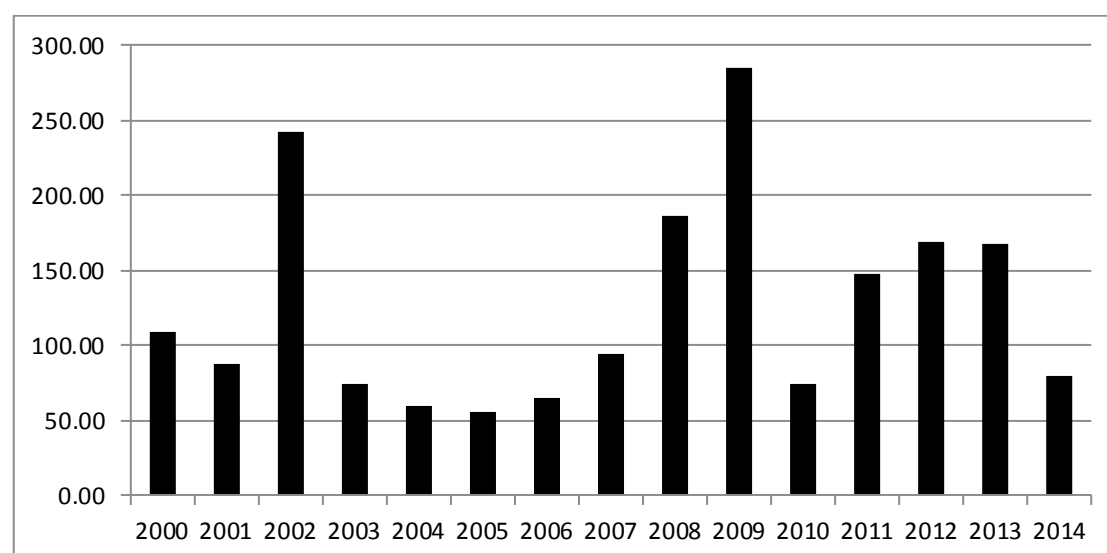


Figure 3.5: Dollar value of non-GAAP exclusions

This figure shows the mean and median of the aggregate value of exclusions (non-GAAP earnings after tax minus the relative GAAP earnings).

Panel A: The mean of the aggregate value of exclusions (\$millions)



Panel B: The median of the aggregate value of exclusions (\$millions)

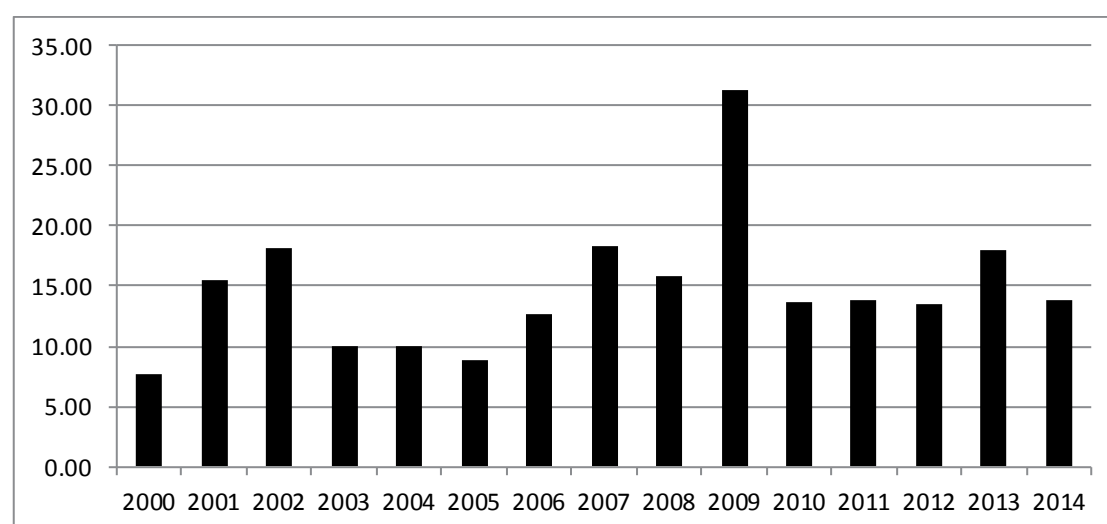
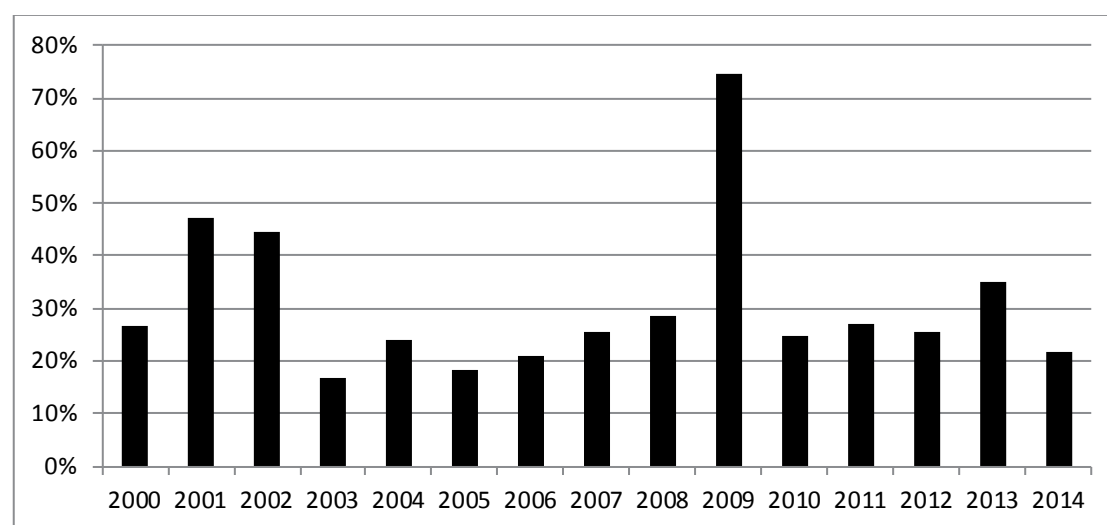


Figure 3.6: The absolute value of non-GAAP exclusions in relation to the equivalent GAAP earnings result

This figure shows the mean and median absolute value of exclusions as a percentage of the equivalent GAAP earnings result.

Panel A: The mean percentage of the absolute value of exclusions in relation to GAAP earnings (\$ millions)



Panel B: The median percentage of the absolute value of exclusions in relation to GAAP earnings (\$millions)

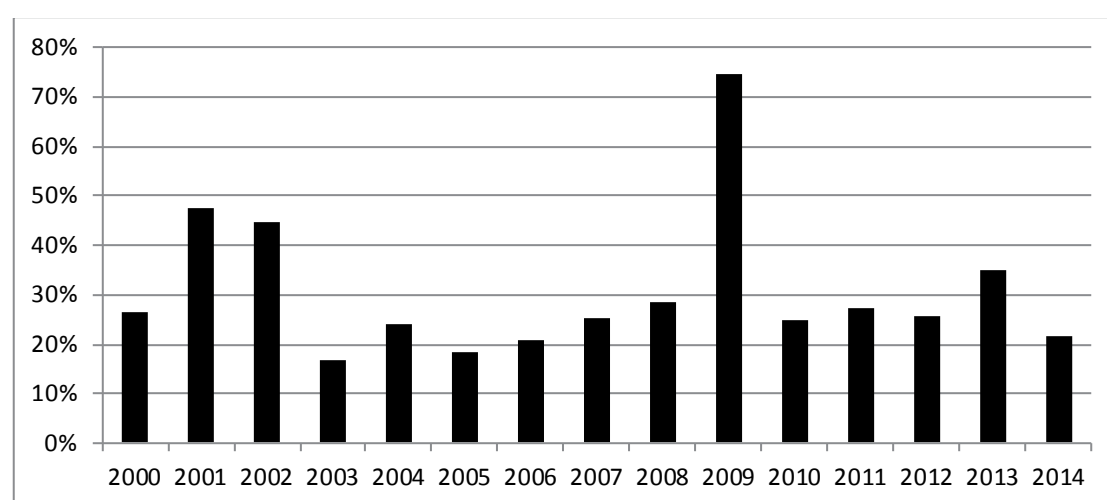


Figure 3.7: The distribution of changes in GAAP earnings and changes in non-GAAP earnings for ASX 500 listed firms

This figure shows the frequency of firms in different intervals of changes in GAAP earnings and changes in non-GAAP earnings. GaapEarn_change (NGEarn_change) is the change in GAAP EPS (non-GAAP EPS) from the previous period to the current period.

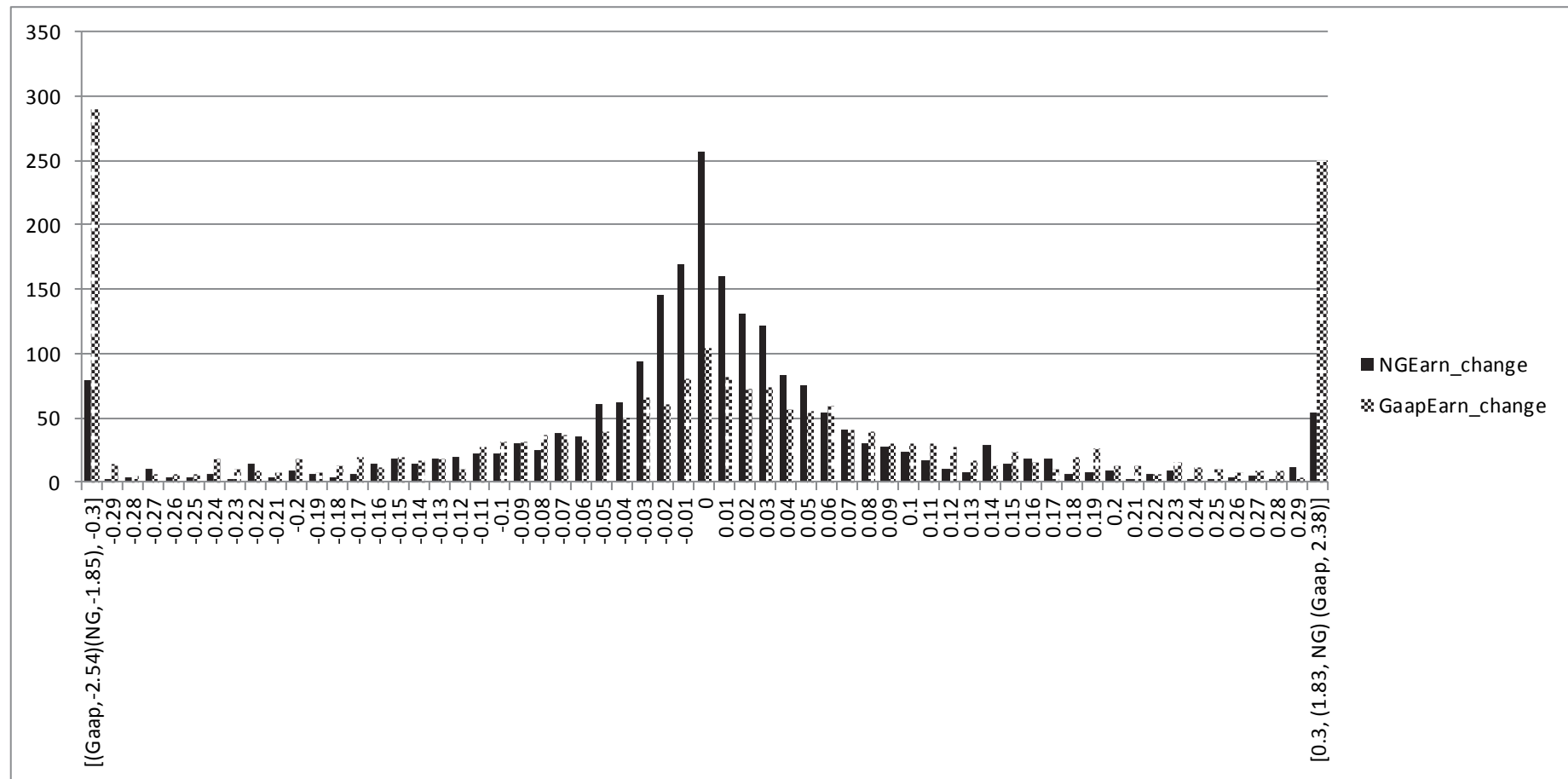
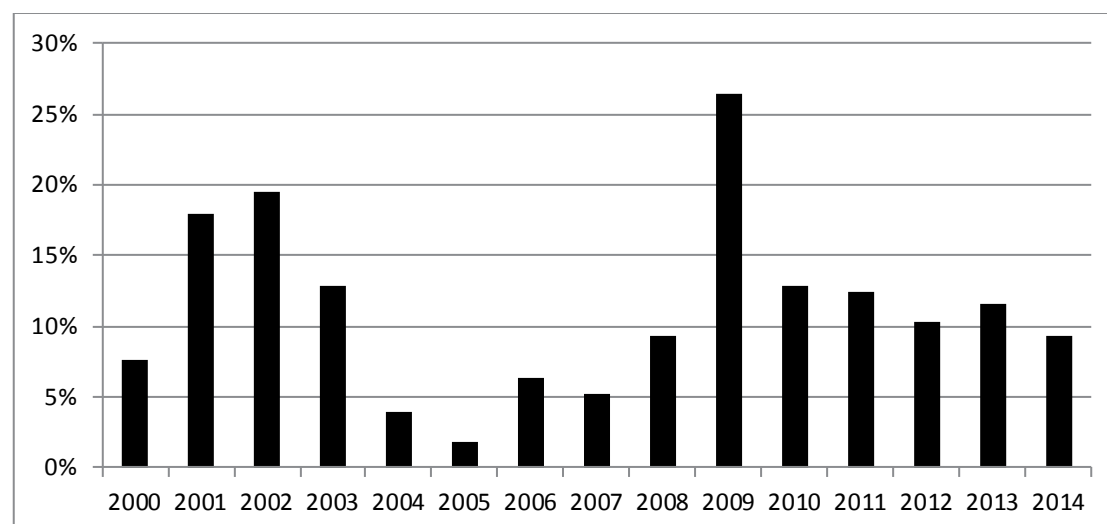


Figure 3.8: The frequency with which firms disclose a non-GAAP earnings with an opposite sign to the GAAP equivalent

This figure shows the percentage of non-GAAP reporters that disclose a non-GAAP earnings profit at the same time as a GAAP loss.



This figure shows the percentage of non-GAAP reporters that disclose a non-GAAP loss at the same time as a GAAP profit.

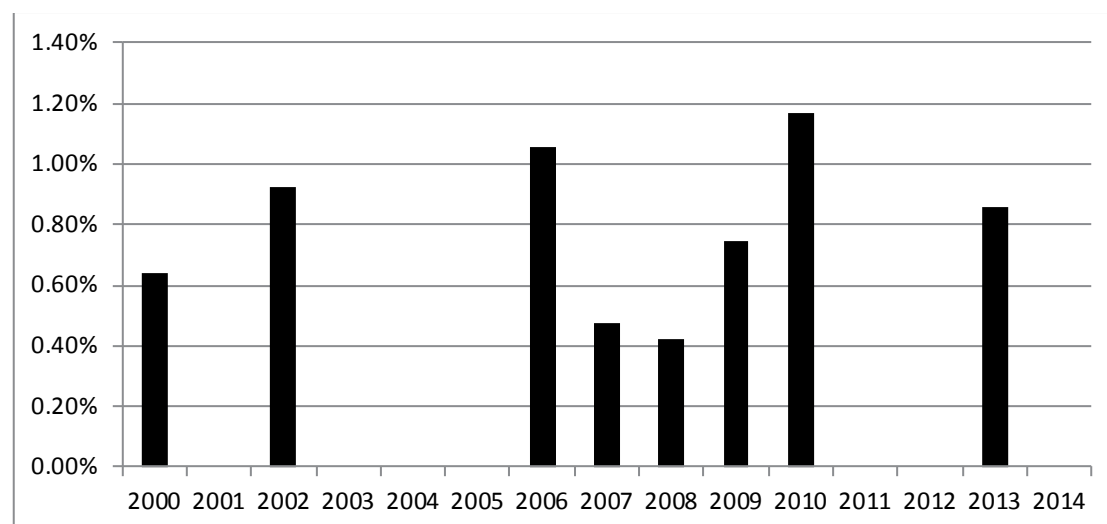


Figure 3.9: Terminology used by non-GAAP reporters

This figure summarizes the terminology used by the non-GAAP reporters. Note that there is only one observation per firm-year.

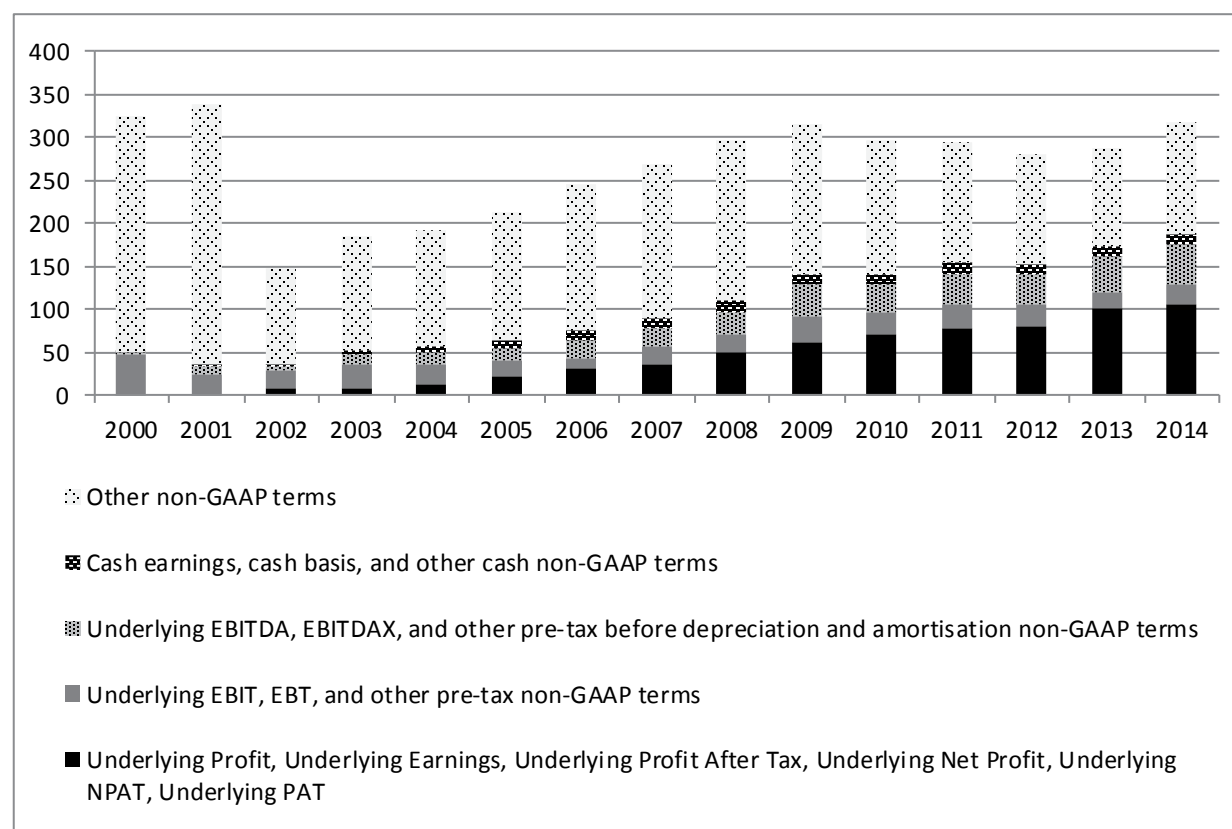
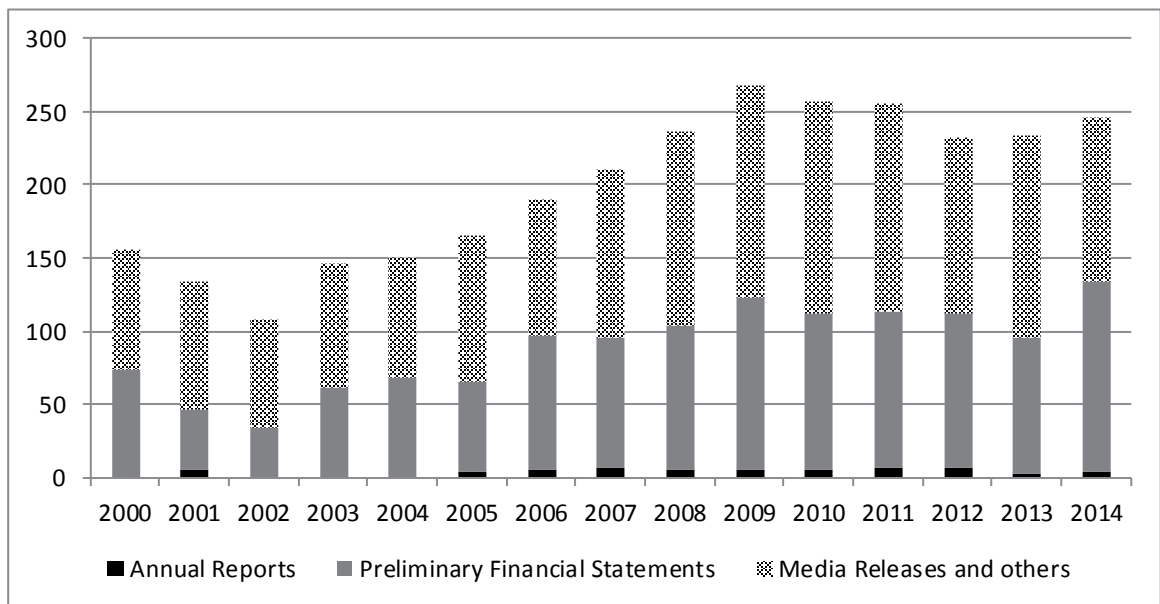


Figure 3.10: Source documents where non-GAAP earnings are identified

This figure summarizes the source documents used to identify non-GAAP disclosures. Priority was given to Media Releases (as it is common practice for firms to first release the financial year earnings in this source), followed by Preliminary Financial Statements and Annual Reports. Each firm-year search would stop as soon as a non-GAAP earnings figure was identified.



Chapter Four: The Quality of Non-GAAP Reporting in Australia

4.1.Introduction

A major role of financial reporting is to provide users of financial statements with relevant and high quality financial information that facilitates valuation and investment decisions. GAAP earnings are observed to have become less value relevant in recent decades (Collins et al. 1997), and have become a relatively noisy measure of a firm's underlying performance due to the increasing frequency and magnitude of 'special items'. For example, Collins et al. propose that "much of the shift in value-relevance from earnings to book values can be explained by the increasing significance of one-time items, the increased frequency of negative earnings, and changes in average firm size and intangible intensity across time"(p. 65). Consequently, the increasing prevalence of non-GAAP reporting globally reflects limitations embedded in GAAP. Because capital markets value persistence (Collins and Kothari, 1989), users may consider whether disaggregating earnings into permanent and transitory items helps evaluate persistence and the value relevance of earnings with more accuracy. Managers claim to arrive at 'adjusted earnings metrics' (mostly named underlying profit, underlying earnings, cash profit, cash earnings, pro forma earnings, street earnings, etc.) by excluding items they consider not to

be representative of current performance, and/or predictive of future earnings/cash flows (Alpert, 2001).

Such terms became popular in the US in the late 1990s, but are now subject to relatively strict regulation. In contrast, this practice has been relatively unregulated in markets outside the US even after the adoption of International Financial Accounting Standards (IFRS). For example, with the Australian implementation of IFRS in 2005, evidence suggests there has been a marked jump in the frequency and prominence of non-GAAP reporting. In fact, International Accounting Standard (IAS) 33 Earnings per Share and the Australian equivalent of IAS 33, namely Australian Accounting Standards Board (AASB) 133, offer substantial freedom on non-GAAP disclosures.

The rapid growth in the reporting of non-GAAP earnings metrics raises serious questions about the underlying motives for their promulgation. On one hand, managers claim that the disclosure of non-GAAP earnings provides a better measure of the company's underlying performance (the informative motive). This argument is supported by pervasive findings from the existing research that non-GAAP earnings numbers are, on average, more value-relevant (Bradshaw and Sloan 2002; Bhattacharya et al. 2003a) and fulfil a valuation role (Frankel and Roychowdhury 2005). On the other hand, as managers have significant discretion as to whether and how they

report a non-GAAP earnings number, there are widespread regulatory concerns that some managers may be motivated to use non-GAAP earnings numbers to inflate perceptions of underlying performance so as to mislead investors (the opportunistic motive). This claim is also supported by previous evidence that managers appear to use non-GAAP earnings measures to meet earnings benchmarks (Lougee and Marquardt 2004; Bhattacharya et al. 2004; Doyle and Soliman 2005).

The objective of this chapter is to conduct a direct comparison of the quality of GAAP earnings and non-GAAP earnings disclosed by Australian firms over the period of 2000-2014. Prior research suggests that the quality of financial statement information is jointly driven by a firm's underlying business model and business environments, and reporting incentives (Dechow et al. 2010). Since firms disclose GAAP and non-GAAP earnings for the same financial period simultaneously, my tests of the quality of GAAP and non-GAAP earnings are able to directly examine financial reporting incentives by holding a firm's business environment and uncertainty constant. Overall, Australia presents a relatively unique unregulated setting. Extant research comprises just a small sample of the market, and the sample period studied is very short, restricting the generalisability of the results. In addition to the overall lack of research on the non-GAAP reporting phenomenon (mainly due to unavailability of

machine-readable data), Australia has been subject to major accounting standards changes in 2005 (IFRS adoption), and regulation on non-GAAP reporting in 2011 (Regulatory Guide 230: Disclosing Non-IFRS Financial Information, ASIC).

My tests consider different aspects of earnings quality, namely conservatism, value relevance, earnings persistence, predictability, smoothness, and the behaviour of benchmark beating (Dechow et al. 2010). Using a sample of ASX 500 firms with hand-collected non-GAAP earnings data for the period from 2000 to 2014, I find consistent evidence supporting the informative motive that managers disclose non-GAAP earnings to aid investors in assessing a firm's underlying performance. In particular, I find that the persistence of non-GAAP earnings is significantly higher than that for GAAP earnings, and the difference in persistence is economically significant, accounting for about 26% of GAAP earnings persistence. I also find that non-GAAP earnings have significantly higher predictive ability for future profitability than GAAP earnings, suggesting that the exclusions of certain items from GAAP earnings are largely transitory and help improve the ability of current period earnings to predict future performance.

For earnings smoothness, my results show that non-GAAP earnings are smoother and less volatile compared to GAAP earnings, indicating that non-GAAP earnings appear to carry less transitory items. Non-GAAP earnings

are also found to be more value-relevant, as evidenced by a significantly higher regression coefficient and R-square from the valuation regression of stock prices on book value and earnings. There is no significant difference in timeliness and conservatism between GAAP and non-GAAP earnings.

However, my tests of the behaviour of benchmark beating provide some weak evidence on the opportunistic motive that managers may attempt to mislead investors by drawing their attention away from the “true” position by selectively excluding certain components used to calculate income as defined by GAAP. I compare the distributions of GAAP earnings and non-GAAP earnings around three earnings benchmarks: zero earnings, previous period non-GAAP earnings and previous period GAAP earnings. I find that the distribution of non-GAAP earnings change is highly concentrated in the interval of $[0, 0.01]$, indicating that firms may use non-GAAP earnings as a tool to meet or beat previous period non-GAAP earnings.

I then examine whether the quality of non-GAAP earnings in Australia has experienced any notable shifts around the introduction of International Financial Reporting Standards (IFRS) in 2005. For annual reporting periods beginning on or after 1 January 2005, Australian companies were required to comply with IFRS. The implementation of IFRS has shifted the focus of Australian financial reporting from income statement towards the balance sheet. It was expected to enhance “the overall quality of financial reporting

in Australia” (the Financial Reporting Council, 2002), and to bring the benefits of more relevant and reliable information to users of financial reports while not imposing significant burdens and costs on reporting entities. However, the change from Australian GAAP (A-GAAP) to Australian equivalents to IFRS (A-IFRS) accounting standards is sometimes characterised as imposing changes in accounting standards, whereby GAAP-based measures become more volatile and/or an increasing degree of unrealised gains and/or losses are included in the GAAP definition of income. Thus, it is possible that managers are more likely to act opportunistically and mislead investors by inflating perceptions of underlying performance.

My results show that, after the adoption of IFRS, non-GAAP earnings became more persistent and more value-relevant, while there is a marginally significant and decreasing trend in the smoothness of non-GAAP earnings. In addition, non-GAAP earnings have higher predictive ability than GAAP earnings in the periods before and after IFRS implementation.

The remainder of this chapter is organized as follows. Section 2 presents a review of prior literature and Section 3 develops research hypotheses. Research design including sample construction and empirical models are discussed in Section 4. Descriptive statistics, and correlation analysis are

discussed in Section 5. Section 6 presents the results for tests of different aspects of earnings quality, and Section 7 concludes.

4.2. Background and prior literature

4.2.1. Regulatory changes and non-GAAP reporting

Accounting standards and regulatory changes play an important role in the financial reporting environment, not only for mandatory, but also voluntary disclosures. It is argued that the current all-inclusive definition of earnings has led to a considerable decline in the value-relevance of earnings over the past decades.²⁸ Perhaps in an attempt to counteract the decline in the usefulness of GAAP EPS for valuation and performance measurement, the Accounting Standards Board allows, under FRS3 (UK setting, June 1993), managers to report additional non-GAAP EPS metrics on the face of the income statement alongside the relative GAAP metric.

From 1 January 2005, all publicly listed Australian companies were required to adopt Australian equivalents to International Financial Reporting Standards (A-IFRS). Shortly after the adoption of IFRS, the prevalence of non-GAAP disclosures among Australian companies attracted extensive attention from regulators and the professional community. ASIC, in its

²⁸ Lev and Zarowin (1999) document a steady decline in the value-relevance of earnings from 1977 to 1997. Collins et al. (1997) confirm the decline and show that GAAP earnings numbers have become a relatively noisy measure of a firm's underlying performance in the 1990s largely due to the increasing frequency and magnitude of one-time items over time.

regulation impact statement on “*Disclosing non-IFRS financial information*”, suggests that presentation of manager’s adjusted profit information other than allowed by the standards has become more prevalent after the implementation of IFRS. The case in point is that with A-IFRS adoption, more fair value adjustments to assets and liabilities are taken into account in the statement of comprehensive income, which arguably has triggered managers to adjust the profit figure accordingly.²⁹ In response to concerns surrounding the potential increase in non-GAAP reporting due to accounting standards changes imposed by A-IFRS, ASIC, released the Consultation Paper 69 “Disclosing pro forma financial information” to set out proposed guidelines for the use of non-GAAP information in financial reports and other documents (ASIC, 2005). The paper discusses what types of non-GAAP information can be published and what additional disclosures should be made so that any such information is not misleading. In addition, as noted in Chapter 3, the Financial Services Institute of Australasia (FINSIA) and the Australian Institute of Company Directors (AICD) jointly issued a policy guidance paper on disclosures about non-GAAP financial measures in March 2009. This (non-mandatory) guidance policy endorses

²⁹ ASIC Regulatory Guide 230 “Disclosing non-IFRS financial information” states “Australian accounting standards adopted IFRS in 2006. While profit information presented other than in accordance with accounting standards has been provided by entities for many years, it has become more prevalent since the introduction of IFRS. This may be at least partly attributable to IFRS requirements for more fair value adjustments to assets and liabilities to go through the statement of comprehensive income.”

the use of non-GAAP reporting to provide additional information that reflects management's views on "underlying" profit, whilst also emphasising the importance of transparency and consistency to ensure non-GAAP information is not false or misleading. The stated intention was to encourage "companies to provide, in a responsible and consistent manner, additional non-statutory information about underlying profit and to present this additional information in communications to the investment community in a table that shows and explains adjustments made to the statutory profit" (p.7).

The last guidelines released on non-GAAP reporting were released in December 2011. The Consultation Paper 150 *Disclosing financial information other than in accordance with accounting standards* (CP150) was the foundation of the Regulatory Guide 230 *Disclosing non-IFRS financial information* (RG230). RG230 provides regulatory guidance on disclosing non-IFRS financial information of which non-IFRS profit (underlying profit or non-statutory profit) information is a sub-set. The major requirements in RG230 focus on the prominence given to non-GAAP earnings, the terminology used by firms (i.e. adoption of "underlying profit" as opposed to other terms such as "normalised profit", "result excluding exceptional items", "underlying result", etc.), disclosure of a detailed reconciliation between GAAP and non-GAAP earnings, and the consistency

of adjustments made to GAAP earnings in arriving to the corresponding non-GAAP earnings across periods. The above discussion illustrates some of the accounting standards changes that are regarded as some of the triggers of the prevalence of non-GAAP reporting.

On the scope of corporate disclosures, the use of non-GAAP financial information is governed by general statutory obligations, such as requirements that the information not be misleading. In particular, managers are required to comply with the Corporations Act and Continuous Disclosure Rules from ASIC (e.g., truthfulness) by not disclosing misleading/disruptive financial information.³⁰ Therefore, managers are liable for any misleading non-GAAP information included in media releases and/or annual reports.

An important stream of research on non-GAAP reporting investigates not only how accounting standards and regulation changes affect managers' behaviour in voluntarily disclosing additional metrics of earnings. (i.e., Entwistle et al. 2006; Marques 2006; Heflin and Hsu 2008), but also how the non-GAAP reporting behaviour has triggered changes in accounting standards and regulation.

30 The Corporations Act 2001 (Cth) establishes that a company director or other officer exercise their powers and discharge their duties with care and diligence [s 180]. Fail to comply with this legislation can lead to civil pecuniary penalty of up to \$200,000 and may order the person compensate the company for any loss as a result of the contravention [Part 9.4B]. The office in question, Directors, may also be disqualified from managing corporations for a certain period [s 206C].

Despite evidence showing that non-GAAP earnings tend to be more value-relevant than GAAP earnings (Bhattacharya et al. 2003a; Lougee and Marquardt 2004; Brown and Shivakumar, 2003), managers are found to be using non-GAAP disclosure to cast light on negative GAAP results (Bhattacharya et al. 2004, Doyle et al. 2003; Bowen et al. 2005). This mixed evidence on the motives of non-GAAP reporting (opportunistic vs. informative) could potentially explain some of the regulatory changes aimed at minimising the degree to which non-GAAP earnings are used to mislead the market. In the US, the SEC issued “Cautionary Advice” regarding the use of non-GAAP financial information in earnings releases in December 2001 and state that non-GAAP figures with “no defined meaning and no uniform characteristics” could “mislead investors if it obscures GAAP results” and violate the anti-fraud provisions of existing securities laws (SEC, 2001). Under Sarbanes-Oxley Act (SOX) of 2002 (Section 401(b)), Regulation G, approved in January 2003 and enacted on 28 March 2003, requires that firms disclosing non-GAAP figures as an additional performance metric must present the most directly comparable GAAP financial results and a reconciliation of the non-GAAP figure to the relative GAAP figure. Evidence showing the impact of regulatory changes, such as Regulation R, shows that the probability of disclosing non-GAAP earnings was stable in 2001 and 2002 (i.e., after the issuance of “Cautionary Advice”) but decreased significantly after the approval of Regulation G (Marques, 2006). On the other hand, Kyung (2014) document that firms are 8.2% more likely to disclose non-GAAP earnings after the issuance of the

new C&DIs compared to the pre-C&DIs period, suggesting that the new C&DIs encourages non-GAAP disclosures.

Extant literature also finds that non-GAAP earnings are disclosed in a less biased manner after Regulation G. After the adoption of Regulation G, Entwistle et al. (2006) find a substantial reduction (85% to 67%) on the number of firms reporting a higher value of non-GAAP earnings relative to GAAP earnings, and similarly decline in the average amount of the difference between non-GAAP and GAAP earnings (reducing from 76 to 33 cents per share, or 116% to 54% of the absolute amount of GAAP earnings).

In Australia, most literature presents evidence on the causes of non-GAAP reporting. Specifically, the change from A-GAAP to A-IFRS is regarded as a possible trigger to the increase in non-GAAP reporting. For instance, adjustments for gain or losses arising from the fair value movements in hedges become more frequent under A-IFRS, increasing volatility of earnings (Sek and Taylor, 2011). Managers would, therefore, recur to non-GAAP reporting in order to reduce such impact/volatility³¹. Malone et al. (2012) examine not only the causes but also some consequences of non-GAAP disclosures among Australian firms in the presence of IFRS remeasurements (related to financial instruments, impairment and revaluation of investment property and agricultural, pension and insurance assets) and non-recurring items. They find that Australian firms with a higher incidence of remeasurements and one-off items are more

³¹ Sek and Taylor (2011) survey of the big four banks in Australia finds that after IFRS implementation, 'fair value adjustments' become one of the most common exclusions made to GAAP earnings when deriving the relative non-GAAP earnings.

likely to disclose non-GAAP figures. The non-GAAP disclosures are also found to be associated with lower analyst forecast errors in the subsequent period, suggesting that non-GAAP disclosures are useful for exchange information to financial analysts.

Although the Financial Reporting Council (2002) claimed that mandatory IFRS adoption would enhance “the overall quality of financial reporting in Australia”, extant literature to date has not been conclusive as to whether earnings under A-IFRS is of higher quality than those under A-GAAP (Lai et al. 2013). Chalmers et al. 2012 finds that the impairment approach to goodwill introduced by A-IFRS renders more useful information than the goodwill amortization method under A-GAAP. However, Chalmers et al. 2011 study of the impact of IFRS adoption on value relevance only find improvements in value relevance for earnings, while book value of equity value relevance remained unchanged. Additional evidence of the impact of IFRS adoption on value relevance using Europe and Australia settings fail to corroborate the view that accounting quality would be expected to improve upon IFRS adoption. Clarkson et al. (2011) suggest that neither book value of equity nor earnings has shown changes in value relevance in the post-IFRS period. Ahmed et al. (2012) compare firms in IFRS adopting countries against benchmark firms, and conclude that IFRS adoption caused a substantial growth in income smoothing and accrual aggressiveness as well as a decline in timeliness of loss recognition. Collectively, extant research to date has not been able to assert that IFRS implementation increased the overall quality of earnings.

4.2.2. *Earnings quality and non-GAAP reporting*

According to the *Conceptual Framework* (IASB, 2010) the main objective of financial reporting “is to provide financial information about the reporting entity that is useful to existing and potential investors, lenders and other creditors in making decisions about providing resources to the entity” (p.9). It also states relevance³² and faithful representation³³ as fundamental features of usefulness; and comparability, verifiability, timeliness, and understandability as increasing qualitative characteristics. The concept of earnings quality has long been debated, and consensus is that a single measure is not able to depict quality in its completeness. In addition, quality is also dependent on different users of accounting information. As a result, studies often investigate earnings quality by measuring different aspects described in the *Conceptual Framework* definition of earnings quality, in an attempt to capture earnings quality from

³² “Relevant financial information is capable of making a difference in the decisions made by users. Information may be capable of making a difference in a decision even if some users choose not to take advantage of it or are already aware of it from other sources.” (*Conceptual Framework* IASB 2010, QC6)

³³ “Financial reports represent economic phenomena in words and numbers. To be useful, financial information must not only represent relevant phenomena, but it must also faithfully represent the phenomena that it purports to represent. To be a perfectly faithful representation, a depiction would have three characteristics. It would be *complete, neutral* and *free from error*. Of course, perfection is seldom, if ever, achievable. The Board’s objective is to maximise those qualities to the extent possible.” (*Conceptual Framework* IASB 2010, QC12)

different perspectives. For example, Dechow (2010) states that “higher quality earnings provide more information about the features of a firm’s financial performance that are relevant to a specific decision made by a specific decision-maker” (p.2). On the other hand, Dechow and Schrand (2004) describes earnings quality as “earnings that accurately annuitise the intrinsic value of the firm” (p.5). Another definition of earnings quality comes from Schipper and Vincent (2003). They refer to the FASB conceptual framework and the Hicksian income³⁴ view that accounting earnings are of high quality if they faithfully represent changes in wealth.

Even though standard setters have constantly sought a financial reporting environment that depicts the real economics of businesses, prior research finds evidence that the value relevance of book value has increased overtime at the expense of the value relevance of earnings, due to the increase in the magnitude of one-time items, in the frequency of negative earnings, and the intensity of intangibles over a forty year sample period (Collins et al., 1997). An additional explanation for the decrease in the value relevance of earnings is that current GAAP definition of income also includes unrealised gains/losses. Such change, not only have triggered the deterioration of value relevance of earnings, but also increased the volatility

³⁴ Hicksian income refers to the amount of income that companies can distribute as dividends over a period, and still remain liquid at the beginning and the end of the period (Hicks 1939, 176).

of earnings (Sek and Taylor, 2011). As a consequence, firms and other financial statements users, such as analysts, investors and creditors, have demanded additional bottom-line performance metrics that display disaggregated earnings components in order to enhance decision-making. Prior research finds that earnings usefulness is enhanced if the components included in it are disaggregated based on the principles of value relevance, persistence and predictive ability (see Barth et al., 2001; Dechow and Ge, 2006; Fairfield et al. 1996; Lipe, 1986; Venter et al., 2014). The IASB's discussion paper on the Conceptual Framework for Financial Reporting: A Commentary and Research review also acknowledges the importance of disaggregating earnings to enhance the financial reporting environment and highlight that FASB documented a disaggregation objective and related principles.

Despite the accounting process generating a bottom-line figure also derived after substantial managerial discretion (i.e. timing and measurement of revenues and expenses), some users of accounting information supports the inclusion of additional performance metrics alongside GAAP earnings in the earnings press release under the perception that such disclosures enhance the quality of the financial reporting environment. Concerns arise due to contrasting ulterior motives in disclosing a non-standardised earnings metric. Prior literature in non-GAAP earnings has primarily focused its

attention as to whether the rationale behind managers advocating non-GAAP reporting is underpinned by altruistic or opportunistic motives. By usually running a ‘horse-race’ between GAAP and non-GAAP earnings, investigating some earnings quality properties, researchers try to draw a line between the opportunistic and informative motives behind non-GAAP earnings reporting (i.e., Bhattacharya et al. 2003a; Black and Christensen, 2009; Bradshaw and Sloan, 2002; Walker and Louvary, 2003; Aubert, 2010). They also look at whether investors and other users of accounting information find non-GAAP earnings a useful metric for valuation purposes (i.e., Entwistle et al. 2010).

Arguments surrounding opportunistic motives reflect the view that such reporting behaviour could add more, or even bias, to the financial reporting environment due to the fact that non-GAAP disclosures around the globe have been lightly regulated, with exception of the U.S., which has been subject to stricter regulation. In contrast, promoters of non-GAAP reporting argue that managers’ significant freedom in deriving non-GAAP earnings could better reflect operating fundamentals, thus reducing information asymmetry. Extant research has provided mixed evidence with respect to the motives of non-GAAP reporting. I do not intend to disentangle the incentives behind managers’ propensity to provide additional earnings metrics performance other than allowed by GAAP. Instead, the question I

attempt to answer is to whether these additional performance metrics are of higher quality than GAAP earnings by investigating their properties, and how accounting standard changes and regulation play a role in quality of non-GAAP reporting.

Studies on the properties of non-GAAP earnings have found an overall superiority of non-GAAP earnings over GAAP earnings based on its informativeness, value relevance and predictive ability. For instance, Bradshaw and Sloan (2002) study using U.S. data and street earnings as proxy for non-GAAP earnings, and find that the I/B/E/S metric is more value relevant than GAAP earnings but also that investors tend to respond more strongly to street earnings than GAAP earnings. Brown and Shivakumar (2003) present similar results. Using a hand-collected sample of non-GAAP earnings from actual press release, and short-window abnormal returns, Bhattacharya et al. (2003a) also found non-GAAP earnings to be more informative and persistent than GAAP earnings.

In Europe, Aubert and Grudnitski (2014) corroborate US-based results on the higher informativeness of non-GAAP earnings, but only for companies that provide a high quality reconciliation between GAAP and non-GAAP earnings. A study of UK firms', shows that managers tend to exclude non-operating items (mainly of a transitory nature) from GAAP earnings to derive non-GAAP earnings, thus better reflecting a firm's

operating fundamentals (Choi et al. 2007). Aubert (2010) finds that non-GAAP earnings among French firms are, on average, of higher value relevance than GAAP earnings. Similar results are found in South Africa, where non-GAAP reporting is mandatory and subject to strict regulation (Venter et al. 2014).

Notwithstanding evidence supporting the superiority of non-GAAP earnings over GAAP earnings as a more informative metric, some studies show contrasting results where managers are found to engage in non-GAAP reporting for strategic disclosure. For example, managers are found to be excluding items of a recurring nature when deriving non-GAAP earnings (Doyle et al. 2003; Landsman et al. 2007). Such behaviour detracts the predictive ability of non-GAAP earnings, what could lead to inappropriate distributions of wealth.

Even though some studies show instances where non-GAAP earnings includes certain recurring items, overall results support the superiority of non-GAAP earnings over GAAP earnings. Bradshaw et al. (2014) confirms this view. He replicates previous studies controlling for measurement errors presented in previous non-GAAP research, and finds non-GAAP earnings to be more value relevant than GAAP earnings. When a reconciliation is presented accordingly, non-GAAP reporting provides detailed information

about the components of earnings (transitory vs. permanent items), enhancing investors' ability to predict firms' future performance³⁵.

In Australia, extant research on non-GAAP reporting has been so far very limited. This can be partially attributed by the fact that there has not been a comprehensive database that allows a study capable of providing useful insights of the growing prominence of non-GAAP reporting in Australia. A survey report from KPMG for 2008, 2009, and 2016-years reveals that over 80% of the top 100 firms listed on the Australian Securities Exchange (ASX) report at least one non-GAAP earnings metric (KPMG, 2010, 2016). By examining the top 50 non-mining firms listed on the ASX for the period of 2007-2009, Cameron et al. (2012) find that non-GAAP reporting is pervasive in the whole sample studied. Managers are found to emphasise non-GAAP earnings when the same is of higher magnitude than GAAP earnings. In addition, evidence of firms engaging in non-GAAP reporting to avoid reporting a negative GAAP earnings corroborates the view that managers may be using non-GAAP reporting as a benchmarking beating tool. A descriptive study of non-GAAP reporting among the big four Australian banks over 2003-2005 period finds substantial degree of

³⁵ Lipe (1986) finds that the market reacts stronger to earnings components, which presents higher persistence. Results from an experimental study by Tarca et al. (2008) suggest that when earnings are disaggregated into "earnings before remeasurements" and "remeasurements", users of financial statements improve their ability to extract information relevant to investment decisions.

inconsistence across the four banks regarding the nomenclature used in defining the non-GAAP metric, and a certain degree of variability on the types of adjustments made in arriving at non-GAAP earnings. This variability may be partially due to the idiosyncratic component of earnings (Sek and Taylor, 2011). Malone et al. (2012) study the non-GAAP reporting among the ASX 200 firms over the period 2008-2010. Concluding remarks are consistent with Cameron et al. (2012), indicating a bias towards non-GAAP disclosure when GAAP earnings is lower than the relative non-GAAP earnings. However, they highlight the superiority of non-GAAP earnings as a more value-relevant metric, since users of financial statements can identify different components of earnings through non-GAAP reporting.

4.3.Hypothesis development

Based on extant literature, I examine the quality of earnings by using well established proxies of earnings quality. What I look at is neither a complete set of possible earnings attributes nor are the proxies for the attributes I examine perfect. I believe what I look at is by far the most important attributes. I use generally accepted measures regarded to capture these underlying constructs³⁶. I choose conservatism, value relevance, earnings persistence, earnings predictability, earnings smoothness and benchmark

³⁶ Schipper and Vincent (2003) refer to the FASB conceptual framework and the Hicksian income view that accounting earnings are of high quality if they faithfully represent changes in wealth.

beating as proxies to compare the earnings quality of GAAP and non-GAAP metrics for the same set of firm-years in my sample.

4.3.1. Conservatism

Using timeliness and conservatism as measures of earnings quality derives from the notion that accounting earnings is intended to measure economic income, such as is reflected in changes in the market value of equity (Ball et al. 2000). In particular, Watts (2003) supports the perspective that conservatism is a desirable attribute of accounting earnings, based on the asymmetric costs of overpayments versus underpayments to firm stakeholders and the role of conservative reporting in constraining such payments.

Basu (1997) refers to the conservatism principle as the underlying principle that drives the asymmetrical timeliness of earnings, where earnings recognise economic losses on a more timely manner relative to economic gains. This is also known as conditional conservatism. Examples of conditional conservatism that may increase transitory losses in GAAP earnings include inventory cost methods (i.e. lower at cost or net realisable value), long-term assets depreciation/amortisation, and liability accruals related to provisions and restructuring charges (i.e. warranty expense

accruals, bad-debt provisions). As a consequence, highly conditionally conservative GAAP earnings tend to include more transitory items.

Although regarded as a metric of earnings quality, evidence shows that conservatism dampens several other attributes of earnings quality. For example, Heflin et al. (2015) investigates the conditional conservatism embedded in GAAP earnings and how it affects several earnings quality properties. The findings support the view that conditional conservatism reduces the usefulness of GAAP earnings, and adjustments made to GAAP earnings in deriving street earnings reduce conditional conservatism, thus enhancing the usefulness of street earnings to investors and analysts for valuation purposes. Descriptive evidence on Australia data detailed on Chapter 3 shows that, on average, 52.4% of the companies in the sample disclose a higher value of non-GAAP earnings than the equivalent GAAP earnings. I then expect non-GAAP earnings to be less conservative than GAAP earnings.

In Australia, A-IFRS is implemented during the sample period studied, and adjustments for gain or losses arising from the fair value movements in hedges become more frequent under A-IFRS (Sek and Taylor, 2011). This accounting standard change potentially led companies to exclude not only losses from fair value movements in hedges but also gains from it. Since

both gain and losses are expected to be excluded from GAAP earnings when deriving the relative non-GAAP earnings, I anticipate that the difference in conservatism between non-GAAP earnings and GAAP earnings is lower after A-IFRS implementation. This discussion leads to my first predictions. Because non-GAAP earnings by definition exclude transitory items, I expect not only GAAP earnings to be more conditionally conservative than non-GAAP earnings, but also that the difference in conservatism between the two earnings metrics is decreased in the post-IFRS period. Given these arguments, I specify the following hypotheses in the alternative form:

Hypothesis 1a: *Non-GAAP earnings are less conservative than GAAP earnings*

Hypothesis 1b: *Non-GAAP earnings are less conservative than GAAP earnings, and the difference decreases in the post-IFRS period*

4.3.2 Value relevance

Value relevance is often measured as the ability of earnings to explain variation in returns, where greater explanatory power is viewed as desirable (Francis et al. 2004). A stream of this research interprets value relevance as a direct measure of decision usefulness (e.g., Joos and Lang (1994), Collins et al. (1997), Francis and Schipper (1999) and Lev and Zarowin (1999)). On the other hand, Francis et al. (2004) measure value relevance as the explanatory power of earnings levels and change for returns.

Prior research finds evidence that the value relevance of book value has increased at the expense of the value relevance of earnings, due to an increase in the magnitude of one-time items, the increase in the frequency of negative earnings, and the intensity of intangibles over a forty years sample period (Collins et al., 1997). An additional explanation for the decrease in the value relevance of earnings is that the current GAAP definition of income also includes unrealised gains/losses. A higher number of transitory items included in earnings can add noise to the determination of the permanent part of earnings, reducing its value relevance (Hann et al. 2007).

The basis for non-GAAP reporting is that such alternative measures of performance derived from GAAP earnings by making exclusions to items deemed to be non-recurring and one-off provides a more representative measure of a firm's underlying performance. Another stream of literature explores the relationship between non-GAAP earnings and value relevance. For example, Brown and Sivakumar (2003) compare the valuation consequences of two operating income measures by using a book value and earnings regression (Collins et al. 1997) to determine which regression has the higher R-square (Biddle et al. 1997) and which operating income coefficient has the higher multiplier (Collins et al. 1997). In Brown and Sivakumar (2003), they modify the standard valuation model, which uses "bottom line" earnings, because they focus on operating income. Their

results in confirm that pro forma earnings are more value relevant than a measure of operating earnings derived from firms' financial statements.

Albring et al. (2010) use a book value and earnings regression to test whether the non-GAAP earnings metric is more value-relevant to capital markets than GAAP earnings, following Collins et al. (1997). They decompose “bottom line” earnings into two components follow the implementation in Brown and Sivakumar (2003), as their non-GAAP and GAAP earnings measures represent components of “bottom line” earnings. Albring et al. (2010) find that the explicitly defined non-GAAP measure used is significantly associated with equity market values and returns and is significantly more value-relevant than the GAAP measure. Most recently, Venter et al. (2014) test the value relevance of earnings components where there is GAAP earnings and non-GAAP earnings, and where the items to be eliminated from GAAP earnings are defined in detail, using the traditional value relevance framework developed by Ohlson (1995). The results in Venter et al. (2014) demonstrates that non-GAAP earnings reported under a mandatory regime have higher value relevance than GAAP earnings. They also claim that the disaggregation of these items is useful to investors in a setting where managerial motivations are minimized.

This discussion leads to my next two predictions. Firstly, given the inherent nature of non-GAAP earnings exclusions often being transitory, I

expect non-GAAP earnings to be more value relevant than GAAP earnings. Moreover, because A-IFRS implementation increased the magnitude of transitory items in the definition of net income (Sek and Taylor, 2011), I expect the value relevance of non-GAAP earnings in comparison to GAAP earnings to be more pronounced in the post-IFRS period. Given these arguments, I specify the following hypotheses in the alternative form:

Hypothesis 2a: *Non-GAAP earnings are more value relevant than GAAP earnings*

Hypothesis 2b: *Non-GAAP earnings are more value relevant than GAAP earnings, and the relative difference increases in the post-IFRS period*

4.3.2. Earnings persistence, predictability and smoothness

Earnings persistence

Earnings persistence is used as the measure of earnings quality as it captures earnings sustainability (Francis et al. 2004). A considerable amount of research on earnings persistence focuses on the usefulness of earnings to equity investors for valuations. There are two main streams to this research. The first stream is based on the assumption that more persistent earnings yields better inputs to equity valuation models. As a result, more persistent earnings have higher quality than less persistent earnings. The second

stream of research attempts to address the broader issue of whether earnings are useful in decision-making that improves equity valuation outcomes.

Early research finds that more persistent earnings have a stronger stock price response (Kormendi and Lipe 1987; Collins and Kothari 1989; Easton and Zmijewski 1989). Subsequently, researchers have investigated whether investors are aware of the differential impact of the variables on earnings persistence. The key finding of this research reveals that investors are not fully aware of the differing persistence levels of the accrual and cash flow components of earnings (Sloan 1996).

Furthermore, a line of literature investigates how specific accruals relate to earnings persistence. For example, Bartov et al. (1998) document negative stock market reactions to the announcement of special items, but the negative reactions were small (around 1%), and announcement period returns were positive if the write-off was associated with a restructuring or an operational change. However, Dechow and Ge (2006) find that firms with large negative accruals driven by special items have positive future returns, which suggests that investors tend to overweight special item accruals.

Earnings predictability

Lipe (1990) defines earnings predictability is the ability of earnings to predict itself. The measure of earnings predictability focuses on the

prediction errors from a time-series earnings model (Lipe 1990). Lougee and Marquardt (2004) provide the first empirical evidence in regards to the predictive ability of pro forma earnings, and show that pro forma earnings are not, on average, significantly correlated with future returns. However, Lougee and Marquardt (2004) reveal that pro forma earnings are marginally significantly negatively correlated with future returns when GAAP earnings informativeness is high and when GAAP earnings surprises are negative. The results in Lougee and Marquardt (2004) also show that pro forma earnings appear to have no predictive ability for future returns, when the informativeness of past GAAP earnings is low or when GAAP earnings surprises are positive.

Earnings smoothness

Earnings smoothness is used as a measure of earnings quality because smoothness has an ability to reflect decision usefulness absent consideration of a firm's accounting choices in applying the measurement system. However, smoothness is not a de facto indication of greater decision usefulness or higher earnings quality (Dechow et al. 2010). Smoothness measures are based on the volatility of earnings relative to some benchmark, such as cash flows (Leuz et al. 2003; Francis et al. 2004). Empirical studies explore how accounting choices can derive smoother earnings. In particular, they look at which choices firms make to achieve smoothness and cross-

sectional variation in the firms that make these choices (Hand 1989; Chaney et al. 1998; Kanagaretnam et al. 2004). Overall, the evidence from these studies reveals that the earnings smoothness is the best indirect proxy for earnings quality.

Another stream of literature on earnings smoothness provides more evidence on a long term debate on whether the smoothness of a firm's earnings reflects variation in informativeness about fundamental performance. In summary, there are two perspectives in regards to this debate (Christie and Zimmerman 1994; Bowen et al. 2008; Ewert and Wagenhofer 2011): (1) smoother earnings may be more informative if the accrual-based measurement system in the absence of choice and the firm's implementation of an accrual-based system (both of which influence smoothness) better reflect fundamental performance than do other systems or choices, (2) a firm's accounting choices may be opportunistically motivated and may not improve the decision usefulness of earnings.

Meanwhile, some studies use cross-country data to assess the use of smoothness as the proxy for earnings quality and conclude that smoothing lowers earnings quality based on evidence that it is associated with predicted determinants of low earnings quality such as low-quality country GAAP, less enforcement, or poor shareholder rights (Leuz et al. 2003; Lang et al. 2006; Francis and Wang 2008). Moreover, Francis et al. (2004) and

Bhattacharya et al. (2003b) find that smoothness is linked with the implied cost of equity capital at the firm level and country level.

As previously discussed, changes in accounting standards have increased the degree of unrealised gains and/or losses included in the GAAP definition of income, thus potentially reducing the overall informativeness of GAAP earnings (Collin et al. 1997; Bhattacharya et al. 2003a; Lougee and Marquardt 2004). Prior research corroborates this view, showing that a high degree of transitory items reduces earnings persistence (Burgstahler et al. 2002), earnings response coefficients (Collins and Kothari, 1989), and make earnings less smother (Hann et al. 2007).

The discussion above serves as the basis for my next hypotheses. In sum, earnings containing a high level of transitory items will be less useful for valuation purposes. Following the proposition that non-GAAP earnings inherently contains less transitory items than GAAP earnings, I expect non-GAAP earnings to be more persistent, more predictive of future cash flows and smoother than GAAP earnings. As per my previous earnings properties tests, I also expect A-IFRS implementation to accentuate the difference between the two relative earnings metrics. Given these arguments, I specify the following hypotheses in the alternative form:

Hypothesis 3a: *Non-GAAP earnings are more persistent than GAAP earnings*

Hypothesis 3b: *Non-GAAP earnings are more persistent than GAAP earnings, and the relative difference increases in the post-IFRS period*

Hypothesis 4a: *Non-GAAP earnings are more predictive of future earnings than GAAP earnings*

Hypothesis 4b: *Non-GAAP earnings are more predictive of future earnings than GAAP earnings, and the relative difference increases in the post-IFRS period*

Hypothesis 5a: *Non-GAAP earnings are smoother than GAAP earnings*

Hypothesis 5b: *Non-GAAP earnings are smoother than GAAP earnings, and the relative difference increases in the post-IFRS period*

4.3.3. Benchmark beating

Benchmark beating is widely considered as a possible indicator of earnings management in the literature. For example, Beatty et al. (2002) compare the likelihood of private versus public banks avoiding earnings declines. They find an asymmetric pattern in earnings changes, and explain this pattern as evidence of the extent of earnings management and, consequently, compare the extent of this asymmetry between privately and publicly owned banks. Furthermore, Dichev and Skinner (2002) identify the extent to which covenant slack measured directly from borrowing agreements displays a discontinuity at zero. They argue that an unusually large number of small positive values is indicative of earnings management.

However, simply using benchmark beating as an indicator of earnings management is problematic, because the discontinuities might be caused by factors independent of earnings management. For example, Durtschi and Easton (2005) find that kinks of the frequency distributions of earnings are severely affected by the choice of deflator, sample selection criteria and differences between characteristics of observations to the left of zero and observations to the right of zero. Beaver et al. (2007) also show that differences between profit and loss firms with respect to the treatment of income taxes and special items explain roughly two-thirds of the discontinuity in the distribution of earnings. They conclude that the conservative nature of accounting and the difference in the tax treatment of profit and loss firms, rather than earnings management, are primary explanations for any kink in the distribution of earnings.

As the terminology suggests, non-GAAP earnings is a non-standardised metric potentially subject to a high degree of discretion with regards to what managers deem to be recurrent in subsequent financial periods. This degree of discretion is inherent in managers' voluntary disclosure, that can either enhance or cloud the financial reporting environment. In other words, managers could voluntarily provide additional performance metrics to either inform or mislead investors (i.e., Bhattacharya et al. 2003a; Black and Christensen, 2009; Bradshaw and Sloan, 2002; Walker and Louvary, 2003;

Aubert, 2010). Burgsthaler and Dichev (1997) find evidence of managers engaging in opportunistic behaviour by looking at earnings distributions around the strategic earnings benchmark. Specifically, they find earnings distributions to be unusually low (high) around small losses (profits) and small decreases in earnings (increases in earnings) suggesting managers engage in earnings management to avoid reporting earnings decreases and losses. The literature on non-GAAP earnings has also documented instances where managers' additional metrics of performance are disclosed in order to meet/beat strategic benchmarks when GAAP earnings are likely to miss them (e.g. Black and Christensen, 2009; Lougee and Marquardt, 2004; Walker and Louvari, 2003). Doyle et al. (2013) investigates if the same motivation is likely to occur when managers report non-GAAP earnings. The findings suggest that managers tend to make use of non-GAAP earnings as a benchmark-beating tool, especially when it is costlier to manage earnings through accrual management. I do not intend to infer that managers are using non-GAAP reporting for strategic disclosure, as this is very hard to disentangle from the informative motive (both motives are likely to coexist). Instead, I compare the GAAP earnings distributions with non-GAAP earnings distributions to identify if, among firms disclosing non-GAAP earnings, there are instances where the benchmarks are beaten with more frequency than for GAAP earnings. As non-GAAP earnings often

exclude items of a transitory nature (items not recurrent in the following periods), I expect the non-GAAP earnings to beat strategic benchmarks with a higher frequency than GAAP earnings. Given these arguments, I specify the following hypothesis in the alternative form:

Hypothesis 6: *Non-GAAP earnings have a higher likelihood to beat strategic earnings benchmark than do GAAP earnings*

4.4. Research design

4.4.1 Sample selection

The non-GAAP earnings data for this study are hand-collected from earnings announcements for the ASX 500 firms from 2000 to 2014. Specifically, I use text search technology available from SIRCA to identify all instances within full-year profit announcements where a non-GAAP earnings measure was reported by firms listed in the ASX 500. The non-GAAP earnings data are identified and collected from firms' media releases, preliminary financial statements and annual reports using search terms such as "cash earnings", "core earnings", "underlying earnings", "normalised profit" and other researcher identified terms that suit the definition of non-GAAP earnings. The final sample consists of 11,648 firm-year observations for the period of 2000-2014. I also use the ASPECT Huntleys FinAnalysis financial database to extract accounting information. To mitigate the undue

influence of outliers I winsorise the top and bottom one percentile of key variables used in the regression analysis.

4.4.2. Empirical models

The tests I employ consist of accounting-based and market-based models. Prior earnings quality research has typically used five empirical measures: earnings persistence, earnings predictability, earnings smoothness, value relevance, and conservatism. To test my hypotheses, I employ these measures to examine the quality of non-GAAP earnings, where I run a “horse race” between GAAP earnings and corresponding non-GAAP earnings. My choice of using each firm-year observation as a control for itself prevents my study from being affected by an omitted variables issue. In addition, I include year fixed effects for the pooled regressions in all models. For the conservatism test, (model (2)), requires a comparison of two different sets of firm-years (firms that only disclose GAAP earnings vs. firms that disclose both GAAP earnings and non-GAAP earnings), I include, in addition to year fixed effects, firm fixed effects. As expected, results including firm fixed effects are qualitative similar for the tests with the same set of firm-years.

Conditional conservatism

Conditional conservatism is defined by the asymmetric recognition of bad news relative to good news. The test using conditional conservatism captures whether earnings are capable of reflecting good and bad news

impounded in returns. Following Basu (1997) and Ball and Shivakumar (2005), I use the following regression models of firm-specific earnings on positive and negative stock returns. The first equation investigates the incremental degree of conservatism between GAAP earnings and non-GAAP earnings for firms disclosing non-GAAP earnings. The second equation compares the degree of conservatism on GAAP earnings between firms that only disclose GAAP earnings vs. firms that disclose additional non-GAAP bottom line earnings. The models are as follows:

$$EPS_{i,t} = \alpha_{0,i} + \alpha_{1,i} NEG_{i,t} + \alpha_{2,i} RET_{i,t} + \alpha_{3,i} NEG_{i,t} * RET_{i,t} + \alpha_{4,i} DNG_{i,t} + \alpha_{5,i} DNG_{i,t} * NEG_{i,t} + \alpha_{6,i} DNG_{i,t} * RET_{i,t} + \alpha_{7,i} DNG_{i,t} * NEG_{i,t} * RET_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$GaapEPS_{i,t} = \alpha_{0,i} + \alpha_{1,i} NEG_{i,t} + \alpha_{2,i} RET_{i,t} + \alpha_{3,i} NEG_{i,t} * RET_{i,t} + \alpha_{4,i} DG_{i,t} + \alpha_{5,i} DG_{i,t} * NEG_{i,t} + \alpha_{6,i} DG_{i,t} * RET_{i,t} + \alpha_{7,i} DG_{i,t} * NEG_{i,t} * RET_{i,t} + \varepsilon_{i,t} \quad (2)$$

Where:

$EPS_{i,t}$ is $NGEarn_{i,t}$ scaled by last year's closing price if $DNG_{i,t} = 1$ [Non-GAAP earnings per share (PAT_G from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect database) for firm i at time t] or $GaapEarn_{i,t}$ scaled by last year's closing price if $DNG_{i,t} = 0$ [GAAP earnings per share (PAT_G from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect database) for firm i at time t];

$NEG_{i,t}=1$ if $RET_{j,t} < 0$ or 0 otherwise;

$RET_{i,t}$ = cumulative stock return on firm i 's from 9 months before the fiscal year-end t to three months after fiscal year-end t ;

$DNG_{i,t}=1$ to identify $NGEarn_{i,t}$ or 0 to identify $GaapEarn_{i,t}$ for the same set of firms;

$GaapEPS_{i,t}$ is $GaapEarn_{i,t}$ for firms that only report GAAP earnings scaled by last year's closing price if $DG_{i,t}=1$ [GAAP earnings per share (Reported NPAT after abnormals – 8050 divided by the Total share outstanding – 9500 as per Ausaspect database) for firm i at time t] or is $GaapEarn_{i,t}$ for non-GAAP reporters scaled by last year's closing price if $DG_{i,t} = 0$ [GAAP earnings per share (PAT_G from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect database) for firm i at time t];

$DG_{i,t}=1$ to identify $GaapEarn_{i,t}$ for firms that only report GAAP earnings or 0 to identify $GaapEarn_{i,t}$ for firm that report both GAAP earnings and non-GAAP earnings;

$\epsilon_{i,t}$ is the error term.

Similarly to Basu (1995) and Ball and Shivakumar (2005) the regression coefficient α_3 is considered as a measure of accounting conservatism. A higher value of α_3 indicates higher degree of conservatism. To examine the conditional conservatism between GAAP earnings and non-GAAP earnings,

I examine the estimates on the incremental coefficient α_7 of Equations (1) and (2), what represents the incremental in conditional conservatism between the two earnings metrics (GAAP earnings vs. non-GAAP earnings in equation 1; GAAP earnings for only GAAP reporters vs. GAAP earnings for non-GAAP reporters in equation 2).

Value relevance

Value relevance is based on the rationale that accounting numbers are correlated with returns. In other words, if accounting numbers are able to explain the variability in stock returns they are deemed to be value relevant. I base the tests on the framework developed by Ohlson (1995) where firm value is a function of book value of equity and accounting earnings. I use market valuation statistical models consistent with prior research on value relevance. Following Collins et al. (1997), to determine whether non-GAAP earnings is more value-relevant than GAAP earnings, I regress book value and earnings on stock price. The valuation equation with higher explanatory power (R^2) is considered to be more value relevant. Standard valuation models include net income as an explanatory variable for prices or returns. I then follow Venter et al. (2014) proposition of disaggregating GAAP earnings into non-GAAP earnings plus exclusions (items excluded by managers when deriving the non-GAAP earnings) in a second regression. The models are as follows:

$$Price_{i,t} = \alpha_{0,i} + \alpha_{1,i}Bookval_{i,t} + \alpha_{2,i}GaapEarn_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$Price_{i,t} = \alpha_{0,i} + \alpha_{1,i}Bookval_{i,t} + \alpha_{2,i}NGEarn_{i,t} + \alpha_{3,i}Exclusions_{i,t} + \varepsilon_{i,t}$$

(4)

Where:

Price_{i,t} = closing price four months after the fiscal year-end (closing_price from sppr_price database) for firm *i* at time *t*;

Bookval_{i,t} = book value of equity per share (Total shareholders' equity – 7010 divided by Total share outstanding – 9500 as per Ausaspect database);

GAAPearn_{i,t} = GAAP earnings per share (PAT_G from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect database) for firm *i* at time *t*

NGEarn_{i,t} = Non-GAAP earnings per share (PAT_G from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect database) for firm *i* at time *t*

Exclusions_{i,t} = Non-GAAP earnings per share for firm *i* at time *t* minus GAAP earnings per share for firm *i* at time *t*;

ε_{i,t} is the error term.

Within the value relevance framework, the valuation equation with the higher explanatory power (R^2) is considered to be more value relevant for the set of accounting items being included. In addition, an accounting figure

is considered to be value relevant if its regression coefficient is statistically different from zero, and be more value relevant than other accounting figures if its coefficient has a significantly higher multiplier.

Earnings persistence

Following previous research (e.g. Lev (1983); Ali and Zarowin (1992); and Francis et al. (2004)), I measure earnings persistence as the slope coefficient estimate, α_2 , from an autoregressive model order one (AR1) for annual split-adjusted earnings per share ($Earnings_t$, measured as a firm's net income before extraordinary items in year t divided by the weighted average number of outstanding shares during year t):

$$Earnings_{t+1} = \alpha_0 + \alpha_2 Earnings_t + v_{t+1} \quad (5)$$

Where:

Earnings is GAAP earnings or non-GAAP earnings divided by shares outstanding; v is the error term.

Particularly, based on the equation (5), I estimate the following regression models to test the earnings persistence of GAAP earnings and non-GAAP earnings respectively.

$$GaapEarn_{i,t+1} = \alpha_{0,i} + \alpha_{1,i} GaapEarn_{i,t} + \varepsilon_{i,t} \quad (6)$$

$$NGEarn_{i,t+1} = \alpha_{0,i} + \alpha_{1,i} NGEarn_{i,t} + \varepsilon_{i,t} \quad (7)$$

Where:

$GAAPEarn_{i,t}$ = GAAP earnings per share (PAT_G from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect database) for firm i at time t ;

$NGEarn_{i,t}$ = Non-GAAP earnings per share (PAT_G from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect database) for firm i at time t ;

$\varepsilon_{i,t}$ is the error term.

Earnings predictability

Another way of measuring earnings quality is to assess the ability of earnings number in predicting future earnings. Similar to Lougee and Marquardt (2004), my measure of earnings predictability is derived from regressing year-ahead GAAP and non-GAAP earnings on current year GAAP and non-GAAP earnings, as follows:

$$GaapEarn_{i,t+1} = \alpha_{0,i} + \alpha_{1,i}GaapEarn_{i,t} + \alpha_{2,i}NGEarn_{i,t} + \varepsilon_{i,t} \quad (8)$$

$$NGEarn_{i,t+1} = \alpha_{0,i} + \alpha_{1,i}GaapEarn_{i,t} + \alpha_{2,i}NGEarn_{i,t} + \varepsilon_{i,t} \quad (9)$$

Where:

$GAAPEarn_{i,t}$ = GAAP earnings per share (PAT_G from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect database) for firm i at time t

$NGEarn_{i,t}$ = Non-GAAP earnings per share (PAT_G from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect

database) for firm i at time t

$\varepsilon_{i,t}$ is the error term.

A significant coefficient on non-GAAP earnings indicates that non-GAAP earnings have predictive ability for future profitability.

Earnings smoothness

Earnings smoothness metrics translates the idea of managers conveying information about future income to smooth out any transitory variations in the earnings number, indicating that earnings are of higher quality if they are smoother. I follow Leuz et al. (2003) model where smoothness is the ratio of the standard deviation of net income to the standard deviation of cash flow from operations. I modify the model by substituting the denominator standard deviation of cash flow for the standard deviation of non-GAAP earnings. The model is as follows:

$$\text{Earnings smoothness}_{i,t} = \sigma(\text{GaapEarn}_{i,t}) / \sigma(\text{NGEarn}_{i,t}) \quad (10)$$

Where:

$\sigma(\text{GAAPEarn}_{i,t})$ = the standard deviation of GAAP earnings per share (PAT_G from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect database) for firm i at time t ;

$\sigma(\text{NGEarn}_{i,t})$ = the standard deviation of non-GAAP earnings per share (PAT_G from non-GAAP database divided by the Total share

outstanding – 9500 as per Ausaspect database) for firm i at time t ;

Benchmark beating

Following Burgsthaler and Dichev (1997), I investigate the distributions of both GAAP and non-GAAP earnings around ‘zero’ earnings. In addition, I investigate the distributions of earnings changes, benchmarked by last year’s GAAP earnings, in order to compare GAAP earnings vs. non-GAAP earnings ability to beat last year’s earnings. It is impossible to do alternative tests relating the non-GAAP and the GAAP metric to analysts’ forecast, as I do not know to what extent the analysts’ forecast is biased towards the GAAP measure versus the non-GAAP measure. Hence the only two viable benchmarks to consider are with avoiding a loss and avoiding an earnings decline.

4.5. Descriptive statistics and correlation analysis

Table 4.1 provides descriptive statistics on the key variables for the full sample. The average firm has a price of 2.70 and a book value of equity of 1.41. The mean dollar value per share of GAAP earnings is 0.29, while the mean dollar value per share of non-GAAP earnings is 0.36. Consistently, the median value of non-GAAP earnings is also higher than that for GAAP earnings (0.18 vs. 0.15). This indicates that on average firms report higher non-GAAP earnings than GAAP earnings, and the non-GAAP earnings measure appears to be more optimistic than GAAP earnings. It is also noted

that the non-GAAP measure is not dominated by a few extremely positive values as the maximum values of GAAP and non-GAAP earnings are quite close (4.42 vs. 4.87).

Table 4.2 reports Pearson and Spearman correlations for the variables used in the regression analyses. Most variables are significantly correlated with one another at a 1% level of significance, except for the correlation between Exclusions and other variables. As expected, GAAP earnings and non-GAAP earnings are highly correlated, with a significant Person (Spearman) correlation coefficient of 0.807 (0.854).

4.6.Results

4.6.1. Conservatism

The results for tests of conservatism are presented in Table 4.3. Panel A shows results for the difference in conditional conservatism between GAAP earnings and non-GAAP earnings for the same set of firm-years. Consistent with Heflin et al. (2015) and the Hypothesis 1a, the negative and significant coefficient of -0.008 (p-value=<0.0001) from the pooled regression shows that non-GAAP earnings are on average less conservative than GAAP earnings. Although marginal, the results suggest that managers are in fact excluding transitory items from the GAAP income definition (both transitory gain and losses) when deriving the non-GAAP earnings. From the

yearly regressions, I can also confirm that non-GAAP earnings have overall been less conservative over 2000-2014, especially for the 2009-2012 period (-0.013, 0.015, -0.022 and -0.012 at 1% significance level). Sek and Taylor (2011) survey of the big four banks in Australia finds that after IFRS implementation, 'fair value adjustments' (a provision that accounts for unrealised gain/losses), become one of the most common exclusions made to GAAP earnings when deriving the relative non-GAAP earnings. This may explain the accentuated result for the years following the global financial crisis, where the fair value of financial instruments (mainly negatively affecting the financial industry) increased dramatically, increasing the conditional conservatism of GAAP earnings at the time. However, over the entire IFRS period, the difference in conservatism between GAAP and non-GAAP earnings shows a decrease from -0.006 to -0.008, suggesting both transitory gain and losses are excluded from GAAP earnings when deriving the equivalent non-GAAP earnings. Although the coefficients are significant on the yearly regressions, the difference between pre-IFRS and post-IFRS is not statistically significant. Therefore, Hypothesis 1b is not supported. On Panel B, additional analysis on the post-IFRS period investigating the incremental difference in conservatism between GAAP earnings and non-GAAP earnings after the release of RG230 does not show significant results between periods.

Overall, the results for conservatism for non-GAAP reporters show that on average non-GAAP earnings are less conservative than GAAP earnings, and the difference marginally decreased after the A-IFRS introduction.

Panel C of Table 4.3 presents additional tests for the conservatism test. I compare GAAP earnings conservatism between Australian firms that only report GAAP earnings versus Australian firms that report an additional bottom-line earnings metric, in this case, non-GAAP earnings. Similarly, the results are consistent with prior literature (e.g. Heflin et al. 2015, Lai et al. 2013) and show that over the sample period studied, GAAP earnings for firms that only report GAAP earnings is on average less conservative than GAAP earnings of non-GAAP reporters (-0.003, 1% level). Firms that report non-GAAP earnings appear to present GAAP earnings that are more conditionally conservative, with a possible explanation being for management's tendency to disclose additional bottom-line metrics of performance that excludes transitory items. Additional tests on the differences between periods (Panel D) do not show statistically significant results.

Overall, results show that conditional conservatism affects firms differently. Despite yearly results indicating that there was a decrease in conservatism in the GAAP definition of income after IFRS implementation, the difference between periods is not statistically significant, thus

Hypothesis 1b is not supported. In addition, non-GAAP reporters are usually firms where conditional conservatism is higher than for firms that only disclose GAAP earnings.

4.6.2. Value relevance

Table 4.4 presents the regression results for regression coefficients and R-squares. When both the book value of equity and GAAP earnings are included (regression 3), I find that GAAP earnings are value relevant with a positive and significant average coefficient of 4.932 at 1% level. The value relevance of GAAP earnings showed an increase of 1.625 (at 10% level) from the pre-IFRS period to the post-IFRS period. Although results show a decrease in the value relevance of GAAP earnings of -1.626 after the release of RG230, the difference is not statistically significant.

Panel B shows the results when GAAP earnings are decomposed into non-GAAP earnings and exclusions (difference between non-GAAP earnings and GAAP earnings). The coefficient on non-GAAP earnings of 9.179 at 1% significance level (pooled regression) is significantly higher than that for GAAP earnings in Panel A. In addition, the coefficient on the difference between GAAP earnings and non-GAAP earnings is -1.409 at 1% significance level, indicating that the exclusions from GAAP earnings largely contain transitory components of earnings that are value irrelevant. It is also noted that the coefficient on non-GAAP earnings has increased

significantly (from 7.611 to 10.008) after the implement of IFRS. Although the difference between periods prior and post-AIFRS is not statistically significant, the yearly coefficients increased over the sample period studied. The coefficients on exclusions are negative and mostly insignificant in over the years, indicating that managers mostly exclude transitory items when deriving non-GAAP earnings.

Finally, I find that the R-square of the valuation model with non-GAAP earnings and the exclusions is significantly higher (0.833 vs. 0.753) than that for the model with GAAP earnings, suggesting that disaggregated earnings provide more useful information to investors. Overall, the results in Table 4.4 support Hypotheses 2a but not 2b. In sum, the results are consistent with prior evidence from the US (Brown and Sivakumar, 2003; Entwistle et al., 2010).

4.6.3. Earnings persistence, predictability and smoothness

For the tests of earnings persistence, I regress earnings (GAAP or non-GAAP earnings) on earnings in the previous period. The results reported in Table 4.5 show that non-GAAP earnings are more persistent than GAAP earnings (0.916 vs. 0.719) for the whole sample period (2000-2013). The difference in persistence between GAAP and non-GAAP earnings (0.203) is both economically and statistically significant (p-value = 0.005), accounting for about 27% of GAAP earnings persistence. Comparing the periods before

and after the adoption of IFRS, the difference between GAAP earnings persistence and non-GAAP earnings decreased, but coefficient on difference-in-difference is not statistically significant. Overall, the results support only Hypotheses 3a, suggesting that non-GAAP earnings reported by Australian companies are more persistent and thus have higher quality than GAAP earnings.

For tests of earnings predictability, I regress future profitability (either GAAP or non-GAAP earnings) on current period GAAP earnings and non-GAAP earnings. Results in Panel A of Table 4.6 suggest that both GAAP and non-GAAP earnings have predictive ability for future GAAP earnings (coefficient = 0.256, p-value = <.0001 for GAAP earnings; coefficient = 0.650, p-value = <.0001 for non-GAAP earnings). In fact, non-GAAP earnings have higher predictive ability than GAAP earnings (0.650 vs. 0.256), suggesting that the exclusion of certain items from GAAP earnings to report non-GAAP earnings helps to improve the ability of current period earnings to predict future profitability.

The results in Panel B of Table 4.6 confirm the findings in Panel A. Non-GAAP earnings is found to predict future non-GAAP earnings (coefficient = 0.841 p-value = <0.001), whereas GAAP earnings has a very low ability to predict future non-GAAP earnings. It can also be noted that the coefficients on GAAP earnings are insignificant in most years. I also

find that the R-square for Equation (9) is significantly higher than that for Equation (8) (0.858 vs. 0.571, p-value = 0.000). Overall, while Lougee and Marquardt (2004) find non-GAAP earnings to be able to predict future non-GAAP earnings rather than GAAP earnings, my results show that non-GAAP earnings are better predictor of both future GAAP and non-GAAP earnings supporting the stated Hypothesis 4a. The superior predictive ability of non-GAAP earnings is evidenced in the periods before and after the adoption of IFRS, although the incremental difference is not statistically significant. Consequently, Hypothesis 4b cannot be supported. Similarly, not statistically significant differences are found after the release of Regulatory Guide 230 *Disclosing non-IFRS financial information* (RG230) by ASIC.

The results in Table 4.7 compare smoothness of GAAP and non-GAAP earnings. I find results consistent with Hypothesis 5a that non-GAAP earnings are smoother than GAAP earnings, except for years 2011 and 2013, indicating that non-GAAP earnings carry less transitory items, thereby reducing the volatility of earnings. However, there is a marginally significant and decreasing trend in the smoothness measure, particularly after the adoption of IFRS, which contradicts my prediction stated on the Hypothesis 5b. This suggests that the difference in volatility of non-GAAP earnings and GAAP earnings has become lower over time.

4.6.4. Benchmark beating

Following Burgstahler and Dichev (1997), I examine the distributions of both GAAP and non-GAAP earnings to identify instances where managers could be disclosing non-GAAP earnings to meet or beat strategic earnings benchmark. I consider three earnings benchmarks: zero earnings, previous period non-GAAP earnings and previous period GAAP earnings.

Figure 4.1 presents both GAAP earnings and non-GAAP earnings distributions. Compared to the distribution of GAAP earnings, non-GAAP earnings present a different shape in the distribution not only around zero earnings, but also in the loss area. In particular, non-GAAP earnings are less concentrated below zero, consistent with the results of the summary statistics in Table 4.1 that non-GAAP earnings are systematically higher than GAAP earnings. Importantly, Figure 4.2 suggests that the distribution of non-GAAP earnings change is highly concentrated in the interval of $[0, 0.01]$, supporting Hypothesis 6 that firms may use non-GAAP earnings as a tool to meet or beat previous period non-GAAP earnings. However, the distribution of non-GAAP earnings minus previous period GAAP earnings (Figure 4.3) does not support the opportunistic explanation of non-GAAP reporting. Overall, the results from distribution analyses provide some weak evidence on Hypothesis 6 that non-GAAP earnings can be used to meet or beat prior period non-GAAP earnings. This is consistent with prior

literature, suggesting that opportunistic and informative motives to report non-GAAP earnings are likely to coexist, thus hard to disentangle one from another.

4.7. Conclusion

This chapter aims to evaluate the quality of non-GAAP reporting by Australian firms listed on the ASX. I conduct a direct test on the quality of GAAP and non-GAAP earnings by investigating some earnings properties established in the literature that are indicative high quality earnings. Using a sample of ASX 500 firms with hand-collected non-GAAP earnings data over 2000-2014, I find consistent evidence that managers disclose non-GAAP earnings to aid investors in assessing a firm's core earnings. In particular, non-GAAP earnings are found to be smoother and more persistent and value-relevant, and have a higher predictive ability of future profitability than GAAP earnings. On the other hand, my tests of the behaviour of benchmark beating also provide some weak evidence on the opportunistic motive that managers attempt to mislead investors by inflating non-GAAP earnings numbers. I find that the distribution of non-GAAP earnings change is highly concentrated in the interval of $[0, 0.01]$, supporting that firms may use non-GAAP earnings as a tool to meet or beat previous period non-GAAP earnings.

I then examine whether the quality of non-GAAP earnings Australia has experienced any notable shifts around the introduction of International Financial Reporting Standards (IFRS) in 2005. An important result, as extant literature provides mixed results, is how earnings became less conservative with the introduction of the A-IFRS. Despite being considered an earnings attribute that increase the accounting quality, prior evidence shows that the higher is the degree of conditional conservatism, the higher is the amount of transitory items, which could dampen several other earnings quality properties, such as predictive ability, persistence, value relevance and smoothness. Consistent with this evidence and the fact that non-GAAP earnings in essence carry less transitory items, my results not only indicate non-GAAP-earnings to be less conservative than GAAP earnings, but also have become more persistent, and more value-relevant, especially after the adoption of IFRS. While only marginally significant and decreasing trend is found in regards to smoothness of non-GAAP earnings. In addition, non-GAAP earnings have higher predictive ability than GAAP earnings in the periods before and after IFRS implementation.

The findings in this chapter present some limitations. In regards to the sample construction, I could not collect any more detailed information about what items have been excluded by managers when deriving the non-GAAP metric. The long time period and accounting for the ASX 500 firms has

substantially increased the sample size. This limitation creates an avenue for future research.

Overall, the findings in this chapter can be generalised for the majority of the Australian market, as the firms listed on the ASX 500 accounts for 76% of the Australian equity market (as at April, 2016). The results suggest that additional metrics of performance voluntarily disclosed by managers of Australian firms reduce information asymmetry, increasing the quality of the financial reporting environment.

Figure 4.1: Non-GAAP and GAAP earnings distributions
GAAP/Non-GAAP Earnings per share distributions (\$0.01 intervals)

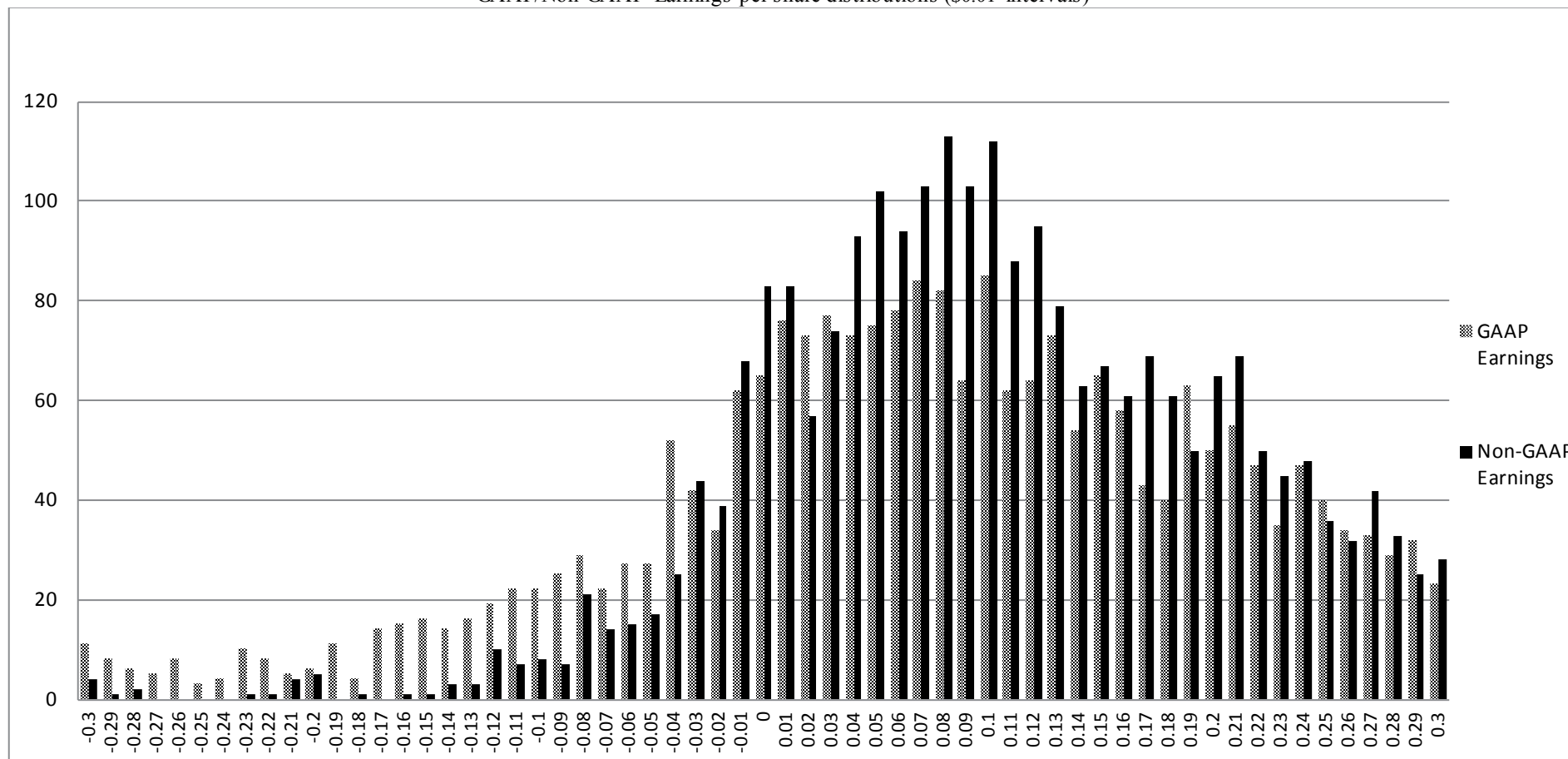


Figure 4.1 shows GAAP/Non-GAAP Earnings per Share distributions for for firm i at time t

Figure 4.2: Non-GAAP earnings change distributions

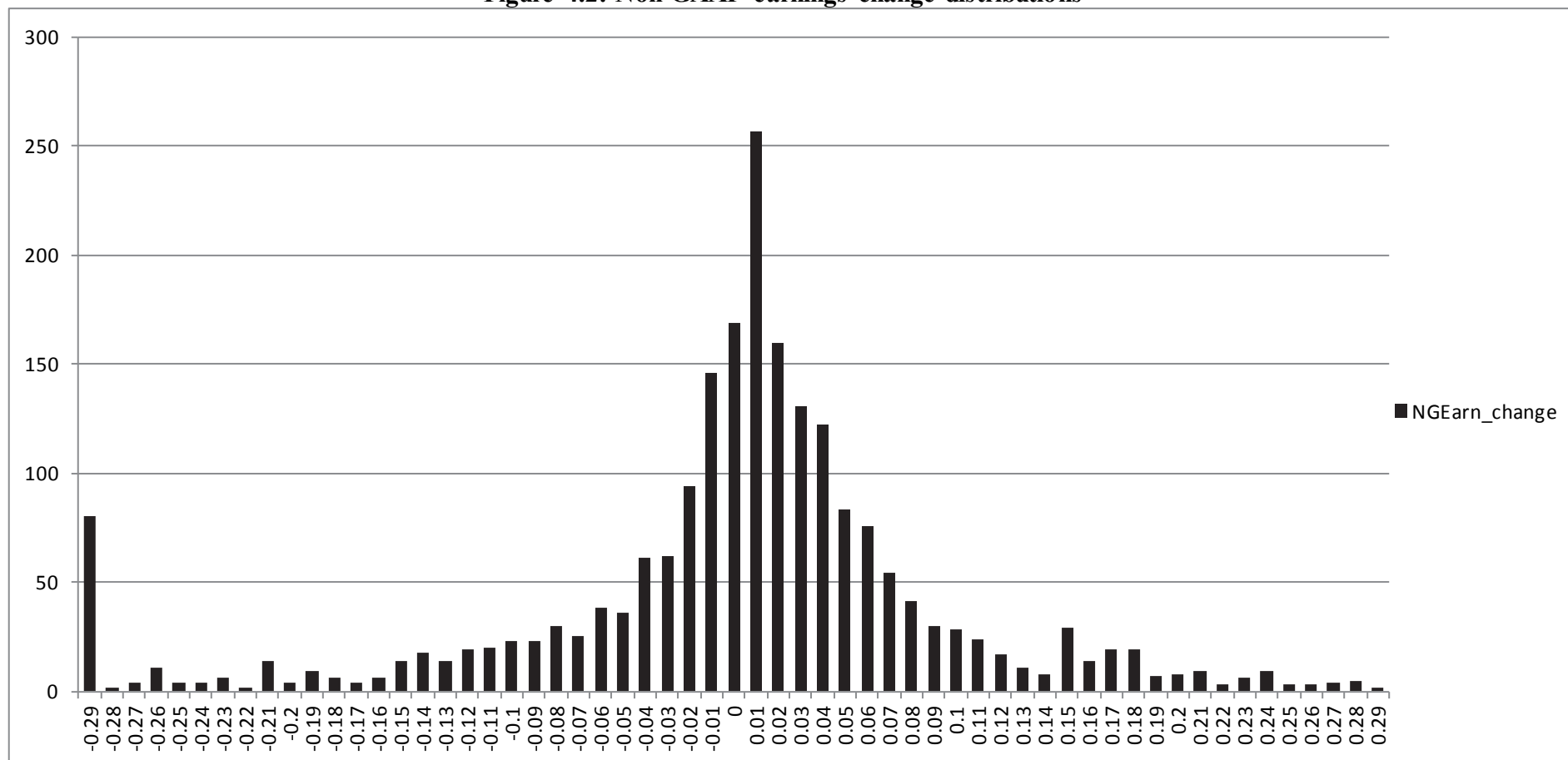


Figure 4.2 shows the non-GAAP earnings change distributions, where *NGEarn_change* is the non-GAAP earnings per share (PAT_NG from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect database) for firm *i* at time *t* minus the lag *NGEarn*.

Figure 4.3: Non-GAAP Earnings vs. last year's GAAP Earnings

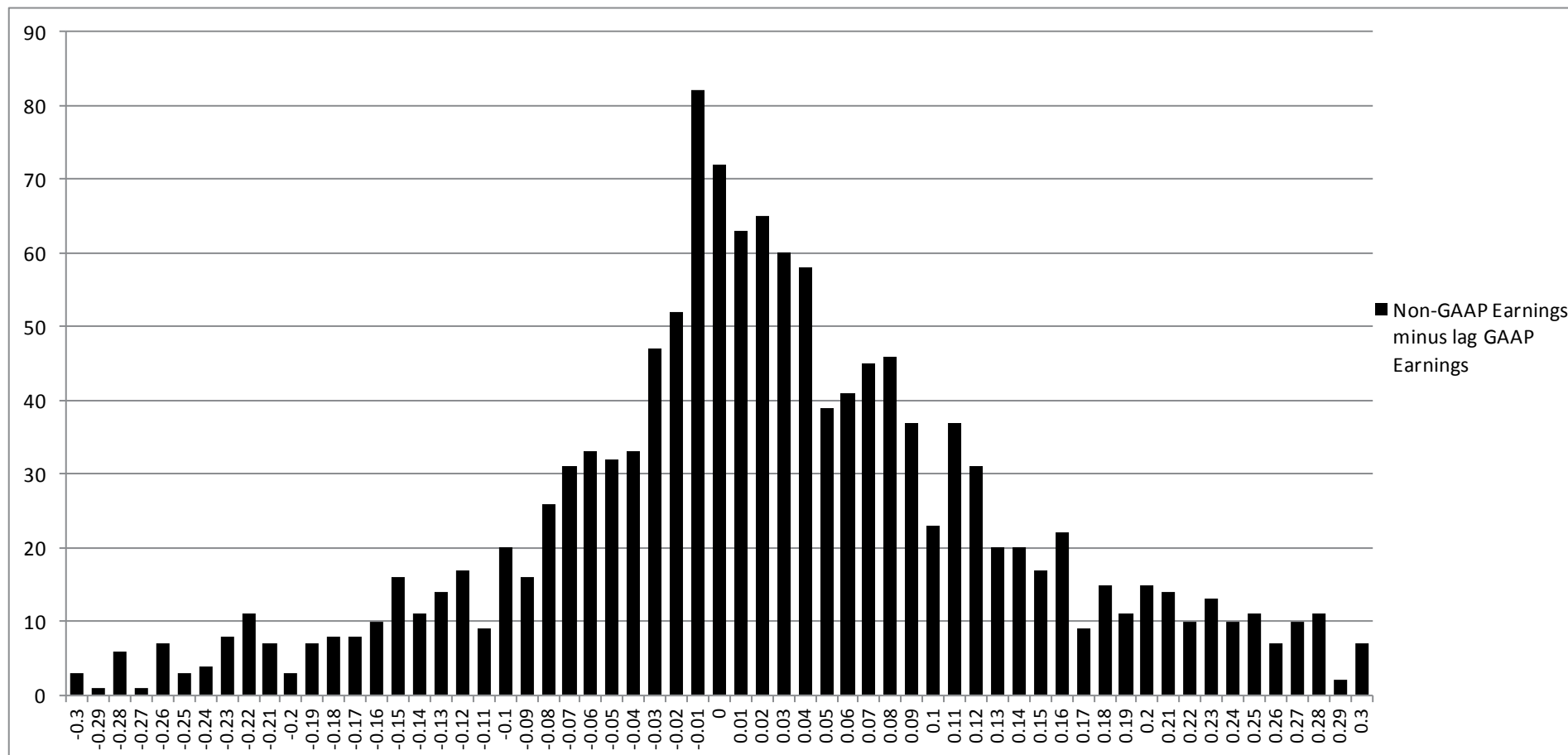


Figure 4.3 shows current non-GAAP earnings relative to last year's GAAP earnings. The distributions represent the magnitude of the difference between current non-GAAP Earnings and lag GAAP earnings, and number occurrences where current non-GAAP Earnings beat last year's GAAP earnings.

Table 4.1: Summary statistics

Table 4.1 presents the summary statistics of accruals measures, external financing variables and other variables. The measurement of all variables can be found in the Appendix. All variables are deflated by average total assets and reported in percentage. The number of observations is 11,648.

Variable	N	Mean	Median	Std Dev	Q1	Q3
Continuous Variables						
GaapEarn	2613	0.2879	0.1462	0.6582	0.0210	0.3705
NGEarn	2614	0.3604	0.1797	0.5664	0.0740	0.3985
Exclusions	2612	0.0812	0.0196	0.3808	-0.0111	0.1058
GaapEPS0	8781	0.0738	0.0005	0.3127	-0.0247	0.1085
Bookval	11395	1.4088	0.5059	2.5255	0.1213	1.5013
Price	11494	2.7039	0.8400	5.3491	0.2050	2.7200
RET	11487	17.384	4.0178	75.9527	-25.490	36.556
Dummy variables						
NEG	11648	0.4562	0	0.4981	0	1
DNG	11648	0.2776	0	0.4478	0	1.0000
DG	11648	0.7755	1.0000	0.4172	1.0000	1.0000

Table 4.2: Correlation analysis

Table 4.2 presents the correlation matrix for selected variables used in the analysis. The number of observations is 11,648. Person (Spearman) correlation coefficients are in the lower (upper) triangle.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) GaapEarn	1.0000	0.8054	-0.48289	0.9636	0.6344	0.7524	0.2856	-0.2713	0.0414	-0.0301
		<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0341	0.1231
(2) NGEarn	0.8074	1.0000	-0.0473	0.7878	0.7694	0.8712	0.1932	-0.1918	0.0571	-
	<.0001		0.0155	<.0001	<.0001	<.0001	<.0001	<.0001	0.0034	-
(3) Exclusions	-0.4467	0.0948	1.0000	-0.4593	-0.0461	-0.1043	-0.2653	0.2424	0.0178	-
	<.0001	<.0001		<.0001	<.0001	<.0001	<.0001	<.0001	0.3631	-
(4) GaapEPS0	0.9454	0.7798	-0.4257	1.0000	0.6138	0.6327	0.2862	-0.2831	0.2423	-0.2535
	<.0001	<.0001	<.0001		<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
(5) Bookval	0.6547	0.7752	0.0431	0.6819	1.0000	0.8406	0.1398	-0.1612	0.4229	-0.4055
	<.0001	<.0001	0.0274	<.0001		<.0001	<.0001	<.0001	<.0001	<.0001
(6) Price	0.7708	0.8879	-0.0031	0.7659	0.7949	1.0000	0.3458	-0.3128	0.3600	-0.3574
	<.0001	<.0001	0.8714	<.0001	<.0001		<.0001	<.0001	<.0001	<.0001
(7) RET	0.1451	-0.1487	-0.1464	0.0756	-0.0209	0.0688	1.0000	-0.8612	0.0021	-0.0140
	<.0001	<.0001	<.0001	<.0001	0.0255	<.0001		<.0001	0.8191	0.1321
(8) NEG	-0.1969	-0.1084	0.1693	-0.1817	-0.0964	-0.1690	-0.6045	1.0000	-0.0255	0.0440
	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	0.0058	<.0001
(9) DNG	0.0273	0.0359	0.0146	0.1910	0.3283	0.2651	-0.0627	-0.0255	1.0000	-0.8616
	0.1619	0.0664	0.4542	<.0001	<.0001	<.0001	<.0001	0.0058		<.0001
(10) DG	-0.0180	-	-	-0.2133	-0.3345	-0.2812	0.0531	0.0440	-0.8616	1.0000
	0.3561	-	-	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	

Table 4.3: Results on timeliness and conservatism

Table 4.3 reports on regression models that examine timeliness and conservatism of GAAP earnings and Non-GAAP earnings with as the measure of earnings quality, using:

$$EPS_{it} = \alpha_{0i} + \alpha_{1i} NEG_{it} + \alpha_{2i} RET_{it} + \alpha_{3i} NEG_{it} * RET_{it} + \alpha_{4i} DNG_{it} + \alpha_{5i} DNG_{it} * NEG_{it} + \alpha_{6i} DNG_{it} * RET_{it} + \alpha_{7i} DNG_{it} * NEG_{it} * RET_{it} + \varepsilon_{it} \quad (1)$$

$$GaapEPS_{it} = \alpha_{0i} + \alpha_{1i} NEG_{it} + \alpha_{2i} RET_{it} + \alpha_{3i} NEG_{it} * RET_{it} + \alpha_{4i} DG_{it} + \alpha_{5i} DG_{it} * NEG_{it} + \alpha_{6i} DG_{it} * RET_{it} + \alpha_{7i} DG_{it} * NEG_{it} * RET_{it} + \varepsilon_{it} \quad (2)$$

where **EPS** takes the value of $NGEarn_{i,t}$ or $GaapEarn$ scaled by last financial year's closing share price for the same set of firm-years. **GaapEPS** takes the value of $GaapEarn$ or $GaapEarn0$ scaled by last financial year's closing price. $NEG_{j,t}=1$ if $RET_{j,t} < 0$ or 0 otherwise; RET is the cumulative stock return on firm i 's from 9 months before the fiscal year-end to three months after fiscal year-end. $DNG=1$ means **EPS** equals $NGEarn$ (non-GAAP earnings per share), or $DNG=0$ means **EPS** equals $GaapEarn$ (GAAP earnings per share) from firms that report both GAAP and non-GAAP earnings. $DG=1$ means **GaapEPS** equals GAAP earnings per share from firms that only report GAAP earnings, or $DG=0$ means **GaapEPS** equals GAAP earnings per share from firms that report both GAAP and non-GAAP earnings.

Panel A - Dependent variable: <i>EPS(Binary)</i> takes the value of $NGEarn_{i,t}$ if $DNG_{i,t}=1$ or $GaapEarn$ if $DNG_{i,t}=0$ for non-GAAP earnings reporters																
Period	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	All years
Intercept (α_0)	0.055	0.140	0.098	-0.093	0.275	0.063	0.038	0.090	0.030	0.087	0.064	0.048	0.037	-0.014	0.080	0.052
p-value	0.009	0.000	0.479	0.107	0.001	0.001	0.226	<.0001	0.256	0.102	0.015	0.671	0.497	0.675	0.000	0.016
NEG (α_1)	-0.084	-0.087	0.164	0.163	-0.236	-0.079	-0.097	-0.031	0.063	-0.037	0.107	0.482	0.050	-0.039	-0.043	0.042
p-value	0.048	0.151	0.484	0.152	0.277	0.097	0.186	0.179	0.036	0.660	0.021	0.002	0.596	0.582	0.252	0.085
RET (α_2)	0.001	-0.002	-0.004	0.001	0.000	0.000	0.002	0.000	0.002	-0.003	0.000	0.002	0.001	0.001	-0.001	-0.000
p-value	0.008	0.015	0.065	0.282	0.931	0.361	0.010	0.240	0.000	0.001	0.508	0.388	0.437	0.196	0.016	0.639
NEG*RET (α_3)	-0.002	0.006	0.024	0.005	0.001	-0.003	0.001	0.003	0.000	0.012	0.014	0.028	0.012	0.003	0.006	0.009
p-value	0.104	<.0001	<.0001	0.130	0.944	0.099	0.706	0.000	0.873	<.0001	<.0001	<.0001	<.0001	0.121	<.0001	<.0001
DNG (α_4)	0.035	-0.044	-0.040	0.201	-0.044	-0.022	0.007	-0.039	0.027	-0.031	0.009	0.002	0.032	0.053	-0.010	0.003
p-value	0.235	0.420	0.838	0.014	0.711	0.407	0.873	0.006	0.474	0.683	0.798	0.989	0.679	0.266	0.747	0.867
DNG*NEG (α_5)	0.077	0.089	-0.167	-0.182	0.077	0.038	0.122	0.041	-0.064	0.061	-0.125	-0.296	-0.013	0.071	0.016	-0.031
p-value	0.202	0.295	0.615	0.258	0.803	0.565	0.237	0.218	0.129	0.611	0.058	0.184	0.925	0.470	0.765	0.369
DNG*RET (α_6)	-0.002	0.002	0.005	-0.001	0.000	0.000	-0.001	0.001	-0.002	0.004	0.001	0.000	0.000	0.000	0.001	0.001
p-value	0.016	0.071	0.147	0.412	0.976	0.485	0.400	0.007	0.035	0.001	0.374	0.953	0.801	0.916	0.329	0.034
DNG*NEG*RET (α_7)	0.004	-0.005	-0.023	-0.004	0.000	0.002	-0.001	-0.004	0.000	-0.013	-0.015	-0.022	-0.012	-0.003	-0.004	-0.008
p-value	0.025	0.004	0.008	0.423	0.995	0.510	0.808	0.002	0.734	<.0001	<.0001	0.000	0.002	0.337	0.007	<.0001
R ²	0.141	0.279	0.130	0.058	0.024	0.056	0.095	0.125	0.199	0.185	0.368	0.207	0.181	0.065	0.121	0.107
N	184	188	162	219	208	256	296	318	402	454	436	416	394	442	481	4856

Panel B - Dependent variable: EPS takes the value of $NGEarn_{it}$ if $DNG_{it}=1$ or $GaapEarn$ if $DNG_{it}=0$ for non-GAAP earnings reporters

Period	Average	Time trend	2000-2004	2006-2014	A vs B	2006-2011	2012-2014	C vs D
			Average	Average	Difference	Average	Average	Difference
			(A)	(B)		(C)	(D)	
Intercept (α_0)	0.067	-0.004	0.095	0.051	-0.044	0.060	0.034	-0.025
p-value	0.005	0.431	0.187	0.002	0.532	0.002	0.334	0.459
NEG (α_1)	0.020	0.009	-0.016	0.051	0.067	0.081	-0.011	-0.092
p-value	0.654	0.380	0.848	0.409	0.682	0.387	0.759	0.351
RET (α_2)	0.000	0.000	-0.001	0.000	0.001	0.001	0.000	0.000
p-value	0.879	0.393	0.456	0.447	0.235	0.562	0.667	0.878
NEG*RET (α_3)	0.007	0.000	0.007	0.009	0.002	0.010	0.007	-0.003
p-value	0.008	0.386	0.208	0.018	0.971	0.078	0.118	0.618
DNG (α_4)	0.009	0.000	0.022	0.006	-0.016	-0.004	0.025	0.029
p-value	0.579	0.994	0.672	0.589	0.850	0.705	0.310	0.255
DNG*NEG (α_5)	-0.017	-0.003	-0.021	-0.021	0.000	-0.044	0.025	0.068
p-value	0.600	0.655	0.752	0.637	0.782	0.516	0.422	0.346
DNG*RET (α_6)	0.001	0.000	0.001	0.000	0.000	0.001	0.000	0.000
p-value	0.310	0.954	0.554	0.447	0.502	0.580	0.423	0.860
DNG*NEG*RET (α_7)	-0.007	0.000	-0.006	-0.008	-0.003	-0.009	-0.006	0.003
p-value	0.008	0.356	0.293	0.011	0.971	0.052	0.156	0.558
R2	0.149	0.003	0.126	0.172	0.045	0.197	0.122	-0.074
p-value	0.000	0.611	0.045	0.000	0.479	0.004	0.067	0.195

Panel C - Dependent variable: *GaapEPS* takes the value of *GaapEarn0* for firms that only report GAAP earnings if *DG*=1 or *GaapEarn* for firms that report both GAAP and non-GAAP earnings if *DG*=0

Period	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	All years
Intercept (α_0)	0.055	0.141	0.098	-0.094	0.267	0.063	0.038	0.091	0.031	0.087	0.064	0.048	0.037	-0.015	0.081	0.052
p-value	0.239	0.009	0.567	0.431	0.016	0.089	0.412	0.001	0.543	0.153	0.128	0.705	0.616	0.757	0.193	0.697
NEG (α_1)	-0.085	-0.081	0.165	0.163	-0.228	-0.079	-0.097	-0.032	0.062	-0.038	0.108	0.483	0.051	-0.036	-0.042	-0.022
p-value	0.378	0.328	0.572	0.484	0.422	0.399	0.370	0.575	0.265	0.702	0.151	0.006	0.696	0.709	0.702	0.515
RET (α_2)	0.002	-0.002	-0.005	0.001	0.001	0.001	0.002	-0.001	0.003	-0.004	0.001	0.003	0.001	0.001	-0.002	0.000
p-value	0.236	0.075	0.134	0.600	0.921	0.643	0.078	0.625	0.041	0.003	0.681	0.438	0.566	0.339	0.408	0.794
NEG*RET (α_3)	-0.002	0.007	0.025	0.005	0.001	-0.003	0.001	0.004	0.001	0.013	0.015	0.029	0.013	0.004	0.007	0.004
p-value	0.469	<.0001	0.002	0.460	0.962	0.403	0.798	0.107	0.945	<.0001	<.0001	<.0001	0.001	0.241	0.062	<.0001
DG (α_4)	0.013	-0.108	-0.330	0.206	-0.092	-0.005	-0.015	-0.056	-0.042	-0.140	0.008	-0.118	-0.083	0.039	-0.182	0.023
p-value	0.806	0.074	0.068	0.113	0.443	0.910	0.786	0.043	0.464	0.052	0.883	0.425	0.329	0.501	0.025	0.370
DG*NEG (α_5)	0.004	0.048	-0.022	-0.370	0.129	0.052	0.085	0.008	0.004	0.012	-0.155	-0.380	0.038	-0.012	-0.035	-0.024
p-value	0.976	0.609	0.945	0.157	0.669	0.600	0.479	0.903	0.954	0.921	0.091	0.072	0.801	0.916	0.803	0.523
DG*RET (α_6)	-0.002	0.003	0.007	-0.002	0.001	-0.001	-0.003	-0.001	-0.003	0.003	-0.001	-0.002	-0.001	-0.001	0.002	0.000
p-value	0.081	0.047	0.035	0.474	0.945	0.348	0.053	0.881	0.047	0.014	0.232	0.618	0.806	0.198	0.353	0.849
DG*NEG*RET (α_7)	0.007	-0.005	-0.020	0.002	0.007	0.008	0.005	0.001	0.003	-0.009	-0.009	-0.022	-0.008	0.002	-0.003	-0.003
p-value	0.031	0.017	0.012	0.801	0.628	0.032	0.259	0.776	0.079	0.001	0.001	<.0001	0.056	0.575	0.460	<.0001
R ²	0.126	0.177	0.057	0.041	0.061	0.124	0.061	0.122	0.110	0.079	0.157	0.109	0.080	0.095	0.073	0.278
N	436	503	677	681	682	706	753	757	777	791	760	741	716	701	671	10352

Panel D - Dependent variable: *EPS (BinaryGaap)* takes the value of *GaapEarn* of firms that only report GAAP earnings if *DG=1* or *GaapEarn* of firms that report both GAAP and non-GAAP earnings if *DG=0*

Period	Average	Time trend	2000-2004	2006-2014	A vs B	2006-2011	2012-2014	C vs D
			Average	Average	Difference	Average	Average	Difference
			(A)	(B)		(C)	(D)	
Intercept (α_0)	0.066	-0.003	0.093	0.051	-0.042	0.060	0.034	-0.026
p-value	0.005	0.503	0.187	0.002	0.542	0.002	0.341	0.462
NEG (α_1)	0.021	0.007	-0.013	0.051	0.064	0.081	-0.009	-0.090
p-value	0.633	0.486	0.872	0.406	0.698	0.389	0.793	0.360
RET (α_2)	0.000	0.000	-0.001	0.000	0.001	0.001	0.000	-0.001
p-value	0.834	0.462	0.666	0.586	0.349	0.576	1.000	0.671
NEG*RET (α_3)	0.008	0.001	0.007	0.010	0.002	0.011	0.008	-0.003
p-value	0.005	0.335	0.202	0.012	0.979	0.064	0.094	0.643
DG (α_4)	-0.060	-0.004	-0.062	-0.065	-0.003	-0.061	-0.075	-0.015
p-value	0.069	0.671	0.515	0.026	0.898	0.051	0.360	0.844
DG*NEG (α_5)	-0.040	-0.003	-0.042	-0.048	-0.006	-0.071	-0.003	0.068
p-value	0.323	0.750	0.649	0.332	0.966	0.355	0.902	0.388
DG*RET (α_6)	0.000	0.000	0.001	-0.001	-0.002	-0.001	0.000	0.001
p-value	0.893	0.579	0.454	0.244	0.203	0.256	0.876	0.445
DG*NEG*RET (α_7)	-0.003	-0.001	-0.002	-0.004	-0.003	-0.005	-0.003	0.002
p-value	0.279	0.341	0.740	0.156	0.949	0.270	0.408	0.682
R2	0.096	-0.001	0.092	0.098	0.006	0.106	0.083	-0.024
p-value	0.000	0.610	0.023	0.000	0.685	0.001	0.006	0.165

Table 4.4: Results on Value Relevance

Table 4.4 reports on regression models that examine the quality of GAAP earnings and Non-GAAP earnings with value relevance as the measure of earnings quality, using:

$$Price_{i,t} = \alpha_{0,t} + \beta_1 Bookval_{i,t} + \beta_2 GaapEarn_{i,t} + \varepsilon_{i,t} \quad (3)$$

$$Price_{i,t} = \alpha_{0,t} + \beta_1 Bookval_{i,t} + \beta_2 NGEarn_{i,t} + \beta_3 Exclusions_{i,t} + \varepsilon_{i,t} \quad (4)$$

where $Price_{i,t}$ is the closing price four months after is the fiscal year-end, adjusted for stock splits and stock dividends for firm i at time t ; $Bookval_{i,t}$ is common equity per share for firm i at time t ; $NGEarn_{i,t}$ is the non-GAAP earnings metric collected from earnings press release (PAT_NG from non-GAAP database) divided by number of common shares outstanding for firm i at time t ; $GaapEarn_{i,t}$ is the bottom line figure divided by number of common shares outstanding for firm i at time t ; and $\varepsilon_{i,t}$ is the error term.

Panel A - Dependent variable: <i>Price</i>																
Period	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	All Years
Intercept (α_0)	0.889	0.417	-0.031	0.294	1.015	1.031	0.930	0.901	0.347	0.779	0.814	0.331	0.548	0.840	0.551	0.662
p-value	0.042	0.186	0.935	0.396	0.008	0.035	0.017	0.083	0.302	0.040	0.002	0.214	0.063	0.026	0.102	0.008
Bookval (α_1)	1.018	1.284	1.593	1.589	1.094	0.763	0.759	1.089	1.015	1.264	0.784	0.914	1.146	1.126	1.145	1.115
p-value	<.0001	<.0001	<.0001	<.0001	<.0001	0.000	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
GaapEarn (α_2)	4.697	4.945	3.205	1.861	4.799	7.965	9.502	6.983	4.728	2.848	7.076	5.272	3.302	5.030	4.994	4.932
p-value	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
R ²	0.718	0.840	0.807	0.782	0.782	0.757	0.836	0.758	0.748	0.687	0.828	0.802	0.786	0.728	0.750	0.753
Panel B - Dependent variable: <i>Price</i>																
Intercept (α_0)	0.408	0.327	0.044	0.135	0.995	0.819	1.032	0.710	-0.090	-0.024	0.286	0.166	0.444	0.836	0.583	0.671
p-value	0.322	0.270	0.866	0.696	0.005	0.049	0.003	0.042	0.713	0.926	0.244	0.444	0.029	0.019	0.016	0.001
Bookval (α_1)	0.755	0.860	0.670	1.428	0.785	0.364	0.343	0.468	0.370	0.239	0.643	0.646	0.453	0.905	0.324	0.597
p-value	<.0001	<.0001	<.0001	<.0001	<.0001	0.039	0.009	<.0001	<.0001	0.008	<.0001	<.0001	<.0001	<.0001	0.000	<.0001
NGEarn (α_2)	8.853	8.880	9.755	3.107	7.460	11.853	11.873	12.844	10.162	13.021	8.670	7.346	8.405	6.352	11.402	9.179
p-value	0.009	0.000	0.614	0.319	0.579	0.592	0.000	0.546	0.071	0.015	0.809	0.001	0.001	<.0001	0.216	<.0001
Exclusions (α_3)	-3.106	-3.292	0.283	-0.826	-0.672	-0.684	-3.716	-0.554	-0.786	-0.843	-0.191	-1.259	-1.175	-2.838	0.932	-1.409
p-value	0.009	0.000	0.614	0.319	0.579	0.592	0.000	0.546	0.071	0.015	0.809	0.001	0.001	<.0001	0.216	<.0001
R ²	0.755	0.868	0.907	0.797	0.812	0.826	0.877	0.892	0.869	0.861	0.864	0.869	0.900	0.758	0.873	0.833

N	110	109	86	112	114	135	161	181	216	232	228	221	208	227	256	2596
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Panel C - Dependent variable: *Price*

Period	Average	Time trend	2000-2004	2006-2014	A vs B	2006-2011	2012-2014	C vs D
			Average	Average	Difference	Average	Average	Difference
			(A)	(B)		(C)	(D)	
Intercept (α_0)	0.644	0.005	0.517	0.671	0.154	0.684	0.646	-0.037
p-value	0.000	0.786	0.056	0.000	0.490	0.002	0.022	0.808
Bookval (α_1)	1.106	-0.017	1.316	1.027	-0.289	0.971	1.139	0.168
p-value	0.000	0.295	0.000	0.000	0.075	0.000	0.000	0.085
GaapEarn (α_2)	5.147	0.031	3.901	5.526	1.625	6.068	4.442	-1.626
p-value	0.000	0.812	0.003	0.000	0.100	0.001	0.016	0.182
R ²	0.774	-0.002	0.786	0.769	-0.017	0.777	0.755	-0.022
p-value	0.000	0.471	0.000	0.000	0.535	0.000	0.001	0.471

Panel D - Dependent variable: *Price*

Intercept (α_0)	0.445	0.005	0.382	0.438	0.056	0.347	0.621	0.274
p-value	0.000	0.822	0.084	0.009	0.795	0.111	0.032	0.239
Bookval (α_1)	0.617	-0.027	0.900	0.488	-0.412	0.452	0.561	0.109
p-value	0.000	0.146	0.003	0.000	0.035	0.001	0.086	0.609
NGEarn (α_2)	9.332	0.061	7.611	10.008	2.397	10.653	8.720	-1.933
p-value	0.000	0.717	0.003	0.000	0.135	0.000	0.027	0.334
Exclusions (α_3)	-1.248	0.093	-1.523	-1.159	0.364	-1.225	-1.027	0.198
p-value	0.003	0.271	0.099	0.036	0.680	0.065	0.446	0.880
R ²	0.849	0.002	0.828	0.862	0.034	0.872	0.844	-0.028
p-value	0.000	0.453	0.000	0.000	0.296	0.000	0.003	0.582

Table 4.5: Results on earnings persistence

Table 4.5 reports on regression models that examine the quality of GAAP earnings and Non-GAAP earnings with earnings persistence as the measure of earnings quality, using

$$GaapEarn_{i,t+1} = \alpha_{0,i} + \alpha_{1,i} GaapEarn_{i,t} + \varepsilon_{i,t} \quad (6)$$

$$NGEarn_{i,t+1} = \alpha_{0,i} + \alpha_{1,i} NGEarn_{i,t} + \varepsilon_{i,t} \quad (7)$$

where $GaapEarn_{i,t}$ is the bottom line figure divided by number of common shares outstanding for firm i at time t ; $NGEarn_{i,t}$ is the non-GAAP earnings metric collected from earnings press release (PAT_NG from non-GAAP database) divided by number of common shares outstanding for firm i at time t ; and $\varepsilon_{i,t}$ is the error term.

$NGEarn$ is Non-GAAP earnings per share; and $\varepsilon_{i,t}$ is the error term.

Panel A - Dependent variable: <i>GaapEarn</i>															
Period	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	All years
Intercept (α_0)	-0.013	0.037	0.199	0.251	0.041	0.115	0.069	0.024	-0.020	0.196	0.072	0.036	0.126	0.100	0.137
p-value	0.799	0.624	0.002	0.000	0.396	0.025	0.228	0.701	0.753	<.0001	0.042	0.468	0.008	0.005	0.000
GaapEarn (α_1)	0.618	0.708	0.657	0.662	1.180	0.888	1.138	0.682	0.615	0.497	0.814	0.645	0.603	0.860	0.719
p-value	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
R ²	0.560	0.336	0.480	0.484	0.802	0.754	0.721	0.499	0.314	0.439	0.592	0.349	0.358	0.619	0.499
Panel B - Dependent variable: <i>NGEarn</i>															
Intercept (α_0)	0.014	0.029	0.064	0.064	-0.018	0.050	-0.003	0.009	0.056	-0.023	0.014	0.045	0.046	0.108	0.012
p-value	0.606	0.512	0.138	0.065	0.536	0.199	0.909	0.707	0.032	0.272	0.416	0.011	0.306	0.001	0.596
NGEarn (α_1)	0.844	0.931	0.990	0.948	1.193	1.107	1.066	0.943	0.752	1.065	1.086	0.864	0.946	0.678	0.916
p-value	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
R ²	0.843	0.714	0.797	0.850	0.905	0.865	0.900	0.897	0.763	0.824	0.915	0.904	0.608	0.651	0.785
N	55	52	53	62	80	88	113	135	167	187	173	164	174	186	1689

Panel C - Dependent variable: <i>GaapEarn</i>								
Period	Average	Time trend	2000-2004	2006-2014	A vs B	2006-2011	2012-2014	C vs D
			Average	Average	Difference	Average	Average	Difference
			(A)	(B)		(C)	(D)	
Intercept (α_0)	0.088	0.000	0.103	0.075	-0.028	0.063	0.113	0.050
p-value	0.001	0.984	0.115	0.015	0.643	0.090	0.073	0.176
GaapEarn (α_1)	0.755	-0.004	0.765	0.732	-0.033	0.732	0.732	0.000
p-value	0.000	0.786	0.002	0.000	0.800	0.000	0.111	0.998
R ²	0.522	-0.006	0.532	0.486	-0.046	0.486	0.489	0.003
p-value	0.000	0.587	0.002	0.000	0.633	0.001	0.166	0.987
Panel D - Dependent variable: <i>NGEarn</i>								
Intercept (α_0)	0.033	0.002	0.031	0.032	0.001	0.016	0.077	0.061
p-value	0.005	0.435	0.121	0.067	0.967	0.234	0.244	0.270
NGEarn (α_1)	0.958	-0.009	0.981	0.925	-0.056	0.963	0.812	-0.151
p-value	0.000	0.372	0.000	0.000	0.494	0.000	0.104	0.448
R ²	0.817	-0.007	0.822	0.808	-0.014	0.867	0.630	-0.238
p-value	0.000	0.342	0.000	0.000	0.798	0.000	0.022	0.002
Panel E – <i>GaapEarn</i> vs <i>NGEarn</i>								
Intercept (α_0)	-0.056	0.002	-0.097	-0.044	0.053	-0.047	-0.036	0.011
p-value	0.000	0.749	0.238	0.140	0.585	0.196	0.440	0.872
Diff (α_1)	0.203	-0.005	0.216	0.193	-0.023	0.231	0.081	-0.150
p-value	0.005	0.706	0.119	0.049	0.822	0.062	0.707	0.669
R ²	0.295	0.000	0.289	0.321	0.032	0.382	0.141	-0.241
p-value	0.000	0.968	0.016	0.000	0.684	0.001	0.472	0.227

Table 4.6: Results on earnings predictability

Table 4.6 reports the results of regression models that examine earnings predictability of GAAP earnings and non-GAAP earnings as follows:

$$GaapEarn_{i,t+1} = \alpha_{0,i} + \alpha_{1,i}GaapEarn_{i,t} + \alpha_{2,i}NGEarn_{i,t} + \varepsilon_{i,t} \quad (8)$$

$$NGEarn_{i,t+1} = \alpha_{0,i} + \alpha_{1,i}GaapEarn_{i,t} + \alpha_{2,i}NGEarn_{i,t} + \varepsilon_{i,t} \quad (9)$$

where $GaapEarn_{i,t}$ is the bottom line figure divided by number of common shares outstanding for firm i at time t ; $NGEarn_{i,t}$ is the non-GAAP earnings metric collected from earnings press release (PAT_NG from non-GAAP database) divided by number of common shares outstanding for firm i at time t ; and $\varepsilon_{i,t}$ is the error term.

$NGEarn$ is Non-GAAP earnings per share; and $\varepsilon_{i,t}$ is the error term.

Panel A - Dependent variable: <i>GaapEarn</i>															
Period	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	All years
Intercept (α_0)	-0.051	0.002	-0.013	0.055	-0.007	-0.016	0.044	-0.066	-0.114	-0.051	0.000	0.010	-0.007	-0.009	-0.003
p-value	0.388	0.987	0.831	0.361	0.883	0.660	0.454	0.262	0.078	0.042	0.996	0.844	0.879	0.757	0.941
GaapEarn (α_1)	0.388	0.567	0.248	0.053	0.728	0.078	0.856	0.164	0.211	0.154	0.108	0.422	0.247	0.282	0.256
p-value	0.068	0.034	0.017	0.680	<.0001	0.439	<.0001	0.120	0.090	<.0001	0.362	0.009	0.002	<.0001	<.0001
NGEarn (α_2)	0.324	0.199	0.780	0.891	0.566	1.083	0.317	0.769	0.579	0.902	0.818	0.233	0.551	0.647	0.650
p-value	0.240	0.522	<.0001	<.0001	0.003	<.0001	0.094	<.0001	0.000	<.0001	<.0001	0.120	<.0001	<.0001	<.0001
R ²	0.571	0.342	0.698	0.670	0.824	0.887	0.728	0.599	0.373	0.782	0.674	0.359	0.481	0.790	0.601
Panel B - Dependent variable: <i>NGEarn</i>															
Intercept (α_0)	0.038	0.025	0.089	0.069	-0.014	0.049	0.000	0.009	0.054	-0.009	0.022	0.046	0.037	0.112	0.020
p-value	0.194	0.607	0.036	0.059	0.620	0.213	0.994	0.694	0.037	0.680	0.185	0.011	0.402	0.000	0.359
GaapEarn (α_1)	0.234	-0.042	0.188	0.036	0.205	-0.042	0.456	-0.018	-0.034	0.082	0.204	0.011	-0.164	0.285	0.080
p-value	0.025	0.750	0.009	0.636	0.034	0.689	<.0001	0.675	0.500	0.004	0.001	0.842	0.028	<.0001	<.0001
NGEarn (α_2)	0.558	0.972	0.825	0.912	0.975	1.154	0.624	0.963	0.786	0.984	0.886	0.854	1.073	0.480	0.841
p-value	0.000	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001	<.0001
R ²	0.858	0.714	0.823	0.851	0.910	0.865	0.925	0.897	0.763	0.832	0.921	0.904	0.619	0.685	0.788
N	55	52	53	62	80	87	113	135	167	187	173	164	174	186	1688

Panel C - Dependent variable: <i>GaapEarn</i>								
Period	Average	Time trend	2000-2004 Average (A)	2006-2014 Average (B)	A vs B Difference	2006-2011 Average (C)	2012-2014 Average (D)	C vs D Difference
Intercept (α_0)	-0.015	-0.001	-0.003	-0.022	-0.019	-0.030	-0.008	0.022
p-value	0.188	0.799	0.877	0.204	0.731	0.267	0.079	0.405
GaapEarn (α_1)	0.317	-0.013	0.397	0.300	-0.097	0.319	0.265	-0.055
p-value	0.000	0.430	0.028	0.004	0.860	0.041	0.042	0.661
NGEarn (α_2)	0.621	0.007	0.552	0.607	0.055	0.603	0.599	-0.004
p-value	0.000	0.709	0.014	0.000	0.896	0.003	0.051	0.975
R ²	0.625	-0.001	0.621	0.599	-0.022	0.586	0.636	0.050
p-value	0.000	0.927	0.002	0.000	0.710	0.001	0.152	0.807
Panel D - Dependent variable: <i>NGEarn</i>								
Intercept (α_0)	0.036	0.001	0.041	0.032	-0.009	0.020	0.056	0.036
p-value	0.001	0.713	0.081	0.028	0.788	0.106	0.184	0.373
GaapEarn (α_1)	0.099	-0.005	0.124	0.100	-0.024	0.117	0.067	-0.050
p-value	0.032	0.685	0.082	0.148	0.984	0.188	0.657	0.845
NGEarn (α_2)	0.859	-0.001	0.848	0.832	-0.016	0.850	0.798	-0.052
p-value	0.000	0.930	0.000	0.000	0.735	0.000	0.044	0.847
R ²	0.824	-0.006	0.831	0.815	-0.016	0.874	0.697	-0.176
p-value	0.000	0.353	0.000	0.000	0.844	0.000	0.005	0.022
Panel E – <i>GaapEarn</i> vs <i>NGEarn</i>								
Diff (α_0)	0.054	0.002	0.044	0.058	0.014	0.050	0.083	0.033
p-value	0.024	0.655	0.077	0.121	0.669	0.118	0.812	0.559
Diff (α_1)	-0.222	0.009	-0.273	-0.203	0.070	-0.202	-0.204	-0.002
p-value	0.000	0.565	0.015	0.000	0.637	0.004	0.333	0.995
Diff (α_2)	0.242	-0.008	0.296	0.229	-0.067	0.246	0.178	-0.069
p-value	0.016	0.647	0.100	0.042	0.695	0.062	0.469	0.875
R ²	0.199	-0.005	0.210	0.220	0.010	0.288	0.017	-0.271
p-value	0.000	0.682	0.000	0.000	0.914	0.000	0.021	0.212

Table 4.7: Results on earnings smoothness

Table 4.7 reports on the regression model that examines the quality of GAAP earnings and Non-GAAP earnings with earnings smoothness as the measure of earnings quality, using:

$$\text{Earnings smoothness}_{i,t} = \sigma(\text{GaapEarn}_{i,t}) / \sigma(\text{NGEarn}_{i,t}) \quad (10)$$

where $\text{Earnings smoothness}_{i,t}$ is the ratio of firm i's standard deviation of GAAP earnings per share, to its standard deviation of non-GAAP earnings per share. $\text{GaapEarn}_{i,t}$ is the bottom line figure divided by number of common shares outstanding for firm i at time t; $\text{NGEarn}_{i,t}$ is the non-GAAP earnings metric collected from earnings press release (PAT_NG from non-GAAP database) divided by number of common shares outstanding for firm i at time t; and $\varepsilon_{i,t}$ is the error term. NGEarn is Non-GAAP earnings per share; and $\varepsilon_{i,t}$ is the error term.

Period	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	All Years
Smoothness	1.505	1.214	1.352	1.279	1.141	1.198	1.022	1.26	1.245	1.552	1.065	0.993	1.098	0.919	1.118	1.162
N	167	143	112	149	152	172	195	226	257	289	277	270	253	268	304	3234

	Average	Time trend	2000-2004 Average (A)	2006-2014 Average (B)	A vs B Difference	2006-2011 Average (C)	2012-2014 Average (D)	C vs D Difference
Smoothness	1.1973	-0.0221	1.2978	1.1414	-0.1564	1.1896	1.0450	-0.1446
p-value	<.0001	0.0319	0.0000	0.0000	0.4763	0.0000	0.0563	0.2362

Chapter Five: Conclusion

The role of accounting standards in promoting consistent measurement and recognition of similar economic transactions is well understood. Such uniformity is fundamental to ensuring meaningful cross-sectional and temporal comparisons of financial performance and position. Yet over the last decade, there has been a substantial rise in the frequency with which firms report, and at times appear to emphasise alternative definitions of financial performance, which do not strictly comply with definitions of performance contained in accounting standards. Not surprisingly, this practice has received the attention of professional organizations as well as regulators. However, while relatively explicit legislation has been enacted in some countries to address the reporting of non-GAAP income measures (e.g., Regulation G in the US), this practice has remained largely unregulated in countries such as Australia.

The absence of explicit regulation provides the opportunity to identify how, when and why firms elect to report their results other than in compliance with GAAP, as well as some of the consequences. Such evidence can guide assessment of the need for regulation of non-GAAP reporting specifically, as well as the broader question of how desirable it is to have flexibility in the regulations that govern the provision of periodic financial reporting. Perhaps most importantly, the ability to observe

divergence in the development of financial reporting requirements (especially accounting standards) and voluntarily adopted reporting practices facilitates a “bottom up” approach to identifying the most appropriate definitions of periodic income, a marked contrast with the “top down” approach, under which income has seemingly been increasingly derived from the change in corresponding balance sheets.

Turning to extant (largely US-based) research, I identify two contrasting motives underlying non-GAAP reporting. One is opportunism on the part of boards and/or management, while the other is focussed on the provision of useful information for stakeholders not otherwise available from statutory financial reporting measures. First, there is considerable evidence that non-GAAP disclosures are used opportunistically to provide a more favourable picture of periodic performance by beating strategic performance benchmarks. Exclusions from non-GAAP earnings are found to have predictive ability for future performance, indicating that at least some of these items are not transitory. However, there is also support for the information role of non-GAAP reporting, especially from studies that examine the value relevance of non-GAAP earnings numbers disclosed by both management and analyst forecast services.

Internal governance mechanisms such as board independence and the presence of institutional shareholders are found to be possible deterrents of opportunistic non-GAAP disclosure. Performance-based compensation plans with a short-term focus may create incentives for opportunistic

reporting of relatively favourable measures. While external auditors by definition are not responsible for non-GAAP disclosures in the financial statements and/or in the press release, opportunistic non-GAAP reporting has been found to be associated with audit fees and auditor resignations, suggesting that auditors could be concerned with risks arising from aggressive non-GAAP reporting.

Tests of market reaction and market efficiency suggest that non-professional individual investors cannot fully understand the information contained in non-GAAP disclosures and particularly the implication of the exclusion items from non-GAAP figures. However, investors' reactions to non-GAAP information depend on its presentation (e.g., its prominence compared to GAAP earnings), the firm's broader information environment and the quality of related non-GAAP disclosures, as well as the underlying performance of the firm. In contrast, there is little evidence that professional investors such as financial analysts and short-sellers are misled by non-GAAP disclosures as evidenced by analysts forecast revisions and short-seller trading. These findings from archival research are also supported by experimental studies. In addition, experimental research suggests that the presence and the relative emphasis of non-GAAP information only increase non-professional investors favourableness assessment through unintended cognitive effects (e.g., overweighting salient information). Such effects can be largely mitigated by the provision of a clear reconciliation with the equivalent GAAP result.

US-based studies have also provided important insights into the regulation of non-GAAP disclosures and generally support the effectiveness of the multiple SEC interventions, which have occurred over the last 15 years. After the adoption of Regulation G, non-GAAP disclosures among US firms are found to be less prevalent, less biased towards more favourable outcomes relative to their GAAP equivalent, and less prominent in press releases. The requirement to provide a reconciliation between non-GAAP disclosures and their GAAP equivalent has been shown to improve investors' perception of non-GAAP information and reduce market mispricing. There is also some evidence that industry guidance can complement accounting regulations.

In summary, prior research on the circumstances associated with the production and dissemination of non-GAAP earnings measures (including measures of market reaction) yields mixed evidence as to the likely motives for their production. While several studies lend support to a somewhat cynical view of non-GAAP reporting as being a method for selectively reporting a better result than is evident from underlying GAAP figures, there is also significant empirical support for the view that managers are addressing deficiencies in GAAP in providing this information. While extant research cannot unambiguously distinguish between these two non-mutually exclusive explanations, there is consistent evidence that financial reporting regulations can play a role in influencing non-GAAP disclosures.

Furthermore, I observe that the interaction between non-GAAP disclosures and internal and external corporate governance mechanisms remains largely unexplored. Besides using non-GAAP disclosures as an alternative performance measure directed at external stakeholders (irrespective of the motive), there is also some anecdotal evidence that non-GAAP figures sometimes are used as the basis for determining some part of CEO compensation (e.g., annual bonuses). The rise in non-GAAP reporting and the use of such metrics in CEO compensation contracts contrasts with the shift from the income statement focus to the balance sheet focus that underlies the evolution of accounting standards, and raises concerns about the design of efficient compensation contracts.

The evidence I provide in Chapter 3 of non-GAAP reporting in Australia, although largely descriptive, yields a number of important insights. The frequency of non-GAAP reporting has risen over time, but so has the likelihood that a reconciliation with the GAAP equivalent will be provided. Although there is evidence that the non-GAAP result exceeds its GAAP equivalent more frequently than otherwise, the difference is not as large as some anecdotes would suggest. In other words, non-GAAP income measures are not overwhelmingly just a more favourable result than the GAAP equivalent. However, there is some evidence that the likelihood of a non-GAAP measure exceeding its GAAP equivalent has increased over time. I also show that non-GAAP measures have substantially smaller variation from year to year, and there are less extreme annual variations than

for GAAP earnings results. These results are consistent with non-GAAP earnings being less volatile than their GAAP equivalent, and consequently easier to forecast. In addition, I also observe a strong convergence towards the use of terms such as “underlying profit” or “underlying earnings” as the main description of non-GAAP earnings figures.

In the last chapter of this thesis, I provide a comprehensive study on the quality of non-GAAP earnings in Australia. The tests consist of running a ‘horse race’ between GAAP and non-GAAP earnings for the same set of firm-years. I evaluate the earnings metrics by directly assessing differences in conservatism, value relevance, earnings persistence, earnings predictability, earnings smoothness and benchmark beating. These metrics are widely characterized as potential indicators of earnings quality and are well established in the academic literature. I then compare whether these differences have been affected by the introduction of IFRS in Australia.

The conservatism test shows not only that non-GAAP earnings are less conservative than GAAP earnings, but also that the adoption of A-IFRS caused a decrease in the difference in conservatism between the two metrics. Furthermore, GAAP earnings of firms reporting non-GAAP earnings appears to more conservative than for firms not disclosing non-GAAP earnings. These results suggest that conservatism embedded in GAAP earnings may impair firms’ ability to provide more informative earnings, therefore managers use non-GAAP reporting as an alternative/complement.

I also find non-GAAP earnings to be more value-relevant, more persistent, more predictive of future earnings, and smoother than GAAP earnings. This is consistent with the fact that non-GAAP earnings inherently carry less transitory items, which extant literature shows to be detrimental to several properties of earnings quality. With the exception of smoothness, the difference in quality increases after the adoption of IFRS.

To address the opportunism motive for reporting non-GAAP earnings, I investigate the distributions of both GAAP and non-GAAP earnings in an attempt to identify as evidence of differences in the extent of benchmark beating. Such differences are mainly concentrated in the interval of $[0, 0.01]$, where the frequency is higher for non-GAAP earnings, and in the loss area, where the opposite happens. This result could be indicative of benchmark beating; however, weak results from the earnings change distributions (non-GAAP earnings minus lag GAAP earnings) prevent me from inferring managers use non-GAAP reporting to mislead the market. Prior studies suggest both informative and opportunistic motives are likely to coexist, and are thus hard to disentangle. Further research may choose to investigate a sub-sample of firms that are more likely to engage in earnings management combined with their propensity to disclose non-GAAP earnings in order to disentangle the competing motives.

Overall, it appears that non-GAAP earnings in Australia are of higher quality than their GAAP earnings equivalent, a result largely consistent with non-GAAP metrics serving as useful information for external stakeholders.

Despite claims of managerial opportunistic behaviour in disclosing non-GAAP earnings alongside GAAP earnings, my study cannot provide conclusive evidence to support these claims. This limitation creates an opportunity for further research to better understand whether this is opportunistic or better reporting.

In summary, the results provided in this thesis enrich the literature in non-GAAP reporting, and provides a comprehensive study of the behaviour in Australia over a 15-year sample period (2000-2014). My study confirms that this voluntary disclosure adds quality to the financial reporting environment providing incremental information to valuation and investment purposes. It also represents a significant challenge to accounting standard setters and more broadly, regulators of financial markets.

Appendices

Appendix A: Definition of variables used in Chapter 4

Variable	Measurement
Panel A: Earnings variable	
<i>PAT_G</i>	<i>PAT_G</i> is the GAAP earnings, calculated as the disclosed GAAP earnings together with non-GAAP earnings collected from a firm's earnings press release.
<i>PAT_NG</i>	<i>PAT_NG</i> is the non-GAAP earnings calculated as the disclosed non-GAAP earnings collected from a firm's earnings press release
<i>GaapEarn</i>	<i>GaapEarn</i> is the GAAP earnings per share of non-GAAP reporting firms (<i>PAT_G</i> from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect database).
<i>NGEarn</i>	<i>NGEarn</i> is the non-GAAP earnings per share share of non-GAAP reporting firms (<i>PAT_NG</i> from non-GAAP database divided by the Total share outstanding – 9500 as per Ausaspect database).
<i>Exclusions</i>	<i>Exclusions</i> is the difference between <i>NGEarn</i> and <i>GaapEarn</i> .
<i>GaapEarn0</i>	<i>GaapEarn0</i> is the GAAP earnings per share of GAAP only reporting firms (<i>NPAT</i> – 8036 divided by the Total

share outstanding – 9500 as per Ausaspect database).

DNG *DNG*=1 means ***EPS*** equals *NGEarn* (non-GAAP earnings per share), or *DNG*=0 means ***EPS*** equals *GaapEarn* (GAAP earnings per share) from firms that report both GAAP and non-GAAP earnings.

DG *DG*=1 means ***GaapEPS_{it}*** equals GAAP earnings per share from firms that only report GAAP earnings, or *DG*=0 means ***GaapEPS_{it}*** equals GAAP earnings per share from firms that report both GAAP and non-GAAP earnings

Panel B: Firm's Characteristics

RET *RET* is the cumulative stock return on firm *i*'s from 9 months before the fiscal year-end *t* to three months after fiscal year-end *t*;

NEG *NEG* equals 1 if *RET* < 0 or 0 otherwise

Price *Price* is the closing price four months after the financial year end date (closing price from sppr _price database)

Bookval *Bookval* is the book value of equity per share (Total shareholders' equity – 7010 divided by Total share outstanding – 9500 as per Ausaspect database)

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