New Zealand Non-GAAP Earnings from 2006-2010: Composition, Determinants, Relevance and Emphasis

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ABSTRACT

In recent years, there has been a growth in the reporting of Non-GAAP earnings (NGE) in New Zealand. NGE is disclosed by companies to report their "true profit" under the belief that GAAP earnings (GE) do not show a correct picture of their financial performance. This research documents an analysis of NGE with a sample of New Zealand stock exchange companies from 2006 to 2010. The analysis covers NGE disclosures in their annual reports, earnings announcements and media releases. The research examines (1) the composition of NGE, (2) the determinants of NGE, (3) the relevance of NGE, and (4) the effects of emphasis on NGE.

Overall, my results indicate that NGE is a mainstream voluntary reporting item in the New Zealand stock market, it is frequently larger than GE and is mostly used to paint a better picture of earnings. In particular, the negative association between annual returns and the gap between NGE and GE suggests that firms tend to paint a better picture using NGE when their market returns are lower. Emphasizing NGE in different documents seems to have different effects. The negative influence of annual report and earnings announcement emphases suggests that those relying more on these sources, for example the sophisticated investors, tend to view this practice negatively. However, investors relying on media, for example the naïve investors, tend to react positively.

Key words: Non-GAAP earnings (NGE), GAAP earnings (GE), emphasis on NGE in annual report, earnings announcement, media, market price, market volume

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CHAPTER 1: INTRODUCTION

1.1 Introduction

The rapid proliferation of non-GAAP earnings (NGE) in capital markets communication is a phenomenon that started in the late 1980s (Bradshaw & Sloan, 2002).[1] NGE are the earnings after deduction of non-recurring expenses (gains) which companies believe will not occur again (Weil, 2001a). These earnings are disclosed mostly in the front-end of the annual report, in earnings announcement bulletins and media releases.

Analysts perceive NGE to be more informative and representative of 'core earnings', a number that pertains solely to the performance of on-going operations (; Bradshaw & Sloan, 2002; Brown & Sivakumar, 2003; Bhattacharya, Black, Christensen, & Larson, 2003; Lougee & Marquardt, 2004; Bowen, Davis & Matsumoto, 2005; Aubert, 2009). Many institutional investors, most Wall Street analysts, and even many accountants say GAAP is irrelevant. "I don't know anyone who uses GAAP net income anymore for anything," says Lehman Brothers Inc. accounting expert Robert Willens (Byrnes, Henry & McNamee, 2001). It is argued that GAAP emphasises reliability and comparability rather than financial information relevance and the reflection of the characteristics of the industry and enterprises. Firms disclose non-GAAP financial information based on the characteristic of their industry and themselves, which is more conducive to investors and creditors to predict the timing, amount and uncertainty of future cash flows.

In contrast, a wide variety of NGE nomenclatures[2] increase investors' risk of being misled. With no specific definition of NGE, financial statement users cannot confidently compare numbers across different companies. SEC ex-chief accountant Lynn Turner called pro forma results as EBS earnings —for everything but bad stuff (Turner, 2000).

[1] They sampled press releases from 1987 and from 1999. Only 18% of earnings announcements from the earlier period mentioned any form of NGE. In the later period, 71% of releases mentioned non-GAAP numbers. The pro-forma number appeared more frequently in the lead paragraphs, typically a couple of paragraphs before the GAAP number.

[2] The resulting number is referred to as pro forma, underlying, core, operating, on going/continuing, sustainable, economic, normalized, distributable, EBIT, EBITDA, EBITDAF or adjusted results. Financial Markets Authority (FMA) in New Zealand identifies these alternative performance measures and information other than in accordance with accounting standards as non-conforming financial information (NCFI) (*Corporate Reporter* 30 November 2011).

"Way too often, they seem to be used to distract investors from the actual results," he stated. Eccles, Herz, Keegan and Phillips (2001, p.92) even claim that there is only one small step to EBEWDWTDFE —earnings before expenses I don't want to deduct from earnings. In fact, Biddle, Bowen and Wallace (1997) found that GAAP earnings explain share returns better than a pro forma measure (sampled from 1983 to 1994). Prior empirical studies (Frederickson & Miller, 2004; Elliott, 2006; Allee, Bhattacharya, Black, & Christensen, 2007; Frankel, McVay, & Soliman, 2011; Brown, Christensen, & Elliott, 2011) present evidence that investors may be misled by overly relying on NGE information. Furthermore, several studies (Bowen, Davis, & Matsumoto, 2005; Hitz, 2010; Campbell & López, 2010) focus on the emphasis on NGE rather than examining the choice to report NGE and conclude that equity market participants are affected by emphasis on NGE.

Most of the prior studies have been conducted in the US setting, where regulatory requirements have been comprehensive, detailed and strongly implemented for a longer period of time compared to other settings. Therefore, those studies' results would be tainted by regulatory influences. The tendency to disclose NGE is increasing in other settings. This study evaluates the trends and extent of NGE reporting in a less regulated setting which is also experiencing increasing levels of disclosure with an increasing proliferation of NGE. This setting is the New Zealand financial reporting setting. It is argued that since the introduction of the International Financial Reporting Standards (IFRS) in New Zealand there has been a greater frequency, persistence, and magnitude of NGE, which in turn has led to a growing concern on the part of the auditors on the rapid proliferation of non-GAAP measures.[3] The purpose of this study is to examine four aspects of NGE: the composition of NGE, the determinants of NGE, the relevance of NGE and the effects of the emphasis placed on NGE. Additionally, I expand the range of types of emphasis on NGE. Bowen *et al.* (2005) focused on emphasis on NGE in earnings announcements. I examine earnings announcements and media, to examine the market reaction to emphasis on NGE in earnings announcement windows (short-window tests) and the association of emphasis in annual reports with the annual value and liquidity of firms (long-window tests).

[3] The Accounting Standards Review Board (ASRB) announced on 19 December 2002 that reporting entities in NZ will be required to apply IFRS for periods commencing on or after 1 January 2007 and reporting entities have the option to adopt IFRS early from 1 January 2005 (Hickey, Spencer, van Zijl & Perry, 2003).

I analyze a sample of 84 firms listed in NZ stock market between 2006 and 2010 (420 observations) and hand-collect data from their annual reports, earnings announcements and media reports. My key findings are as follows: (1) A wide variety of terms are used to represent NGE and there is no consistency in NGE reporting between companies; (2) Service firms and Energy firms are the major users of NGE; (4) Tax, financial cost, depreciation and amortization are the three main items used to adjust GE and derive NGE; (5) A firm with lower governance, low quality audits, higher leverage places higher emphasis on NGE; (6) When NGE is larger than GE, the magnitude of the difference between the two metrics has a significant negative association with market return; (7) The emphasis on NGE is much higher than that of GE in annual reports, earnings announcements and in the media; (8) The emphasis on NGE in annual reports has a significant negative association with annual market return; (9) The emphasis on NGE in earnings announcement has a significant and negative association with market price in two and three day announcement windows; (10) The emphasis on NGE in media has a significant positive association with market price, but when NGE is larger this association turns negative; and (11) when a firm's NGE is higher and it emphasizes more NGE over GE in the media, its stock volume and shares turnover is higher in the announcement window.

These findings suggest that NGE is a mainstream voluntary reporting item in the New Zealand stock market, it is frequently higher than GE, and is mostly used to paint a better picture of earnings. The negative association between annual returns and the gap between NGE and GE indicates that firms tend to show a better image of them using NGE when their market returns are lower. Emphasis on NGE seems to have according to where NGE are emphasized more, the earnings announcements or the media coverage of earnings announcements. The negative influence of annual report and earnings announcement emphasis suggests that those relying more on these sources, for example the sophisticated investors, tend to view NGE emphasis negatively. However, investors relying on media, for example the naïve investors, tend to react positively. This view is reinforced by the finding that there is a positive volume reaction to emphasis on media and a negative reaction to emphasis on earnings announcements.

1.2 Motivation

In New Zealand, NGE, often known as underlying profit, are deemed to be problematic (Corporate Reporter, 30 November 2011, Securities Commission, 2010). Firstly, there is no standardization for such calculations. Companies choose what they see fit. As an example, EBITDA may or may not include one-time cash charges and write-downs. Secondly, if there is no reconciliation in the annual report, readers cannot tell where the difference comes from and this can lead to mispricing of shares (Zhang & Zheng, 2011). While it is not compulsion to show the movement from NGE to GE, all relevant information needed to make the fundamental calculations for these items is given in GAAP financial reports: balance sheet, income statement, cash flow statement, and related notes to the statements. Thirdly, although NZ Securities Commission (2010, 19) states that non-GAAP measures should not be disclosed more prominently than financial information required by NZ GAAP, according to Deloitte (2010, 2011), the most common place for the discussions on NGE is the Director/CEO report and within the highlights for the year in an annual report. Lastly, media is the mainstream source of information for average investors to access earnings information. Bowen *et al.* (2005) indicate that companies with greater media coverage emphasize more NGE in the U.S. market. In New Zealand, the effect of media emphasis on NGE has not been considered by policy maker in their discussions on NGE reporting.

Prior to May, 2012, there was no particular regulation targeting NGE in New Zealand. The New Zealand FMA issued a guidance note on the disclosure of non-GAAP financial information (FMA, 2012). The guidance note sets out the FMA's expectations on the use of financial information in corporate documents, such as transaction documents and market announcements, and is largely based on equivalent guidance in ASIC's Consultation Paper 150. In the guidance, FMA claims it will assess non-GAAP financial information disclosures against this guidance from 1 January, 2013.

Since there are emerging trends emphasising NGE, there are reasons to support the FMA (2012) view to consider having guidance for the use of alternative performance measures. Nevertheless, before such guidance is legislated, it is important to understand more intricately what NGE are and how NGE influence the market. Therefore the primary issues addressed in this paper are:

(1) The composition of NGE,

(2) The determinants of NGE,

(3) The relevance of NGE, and

(4) The emphasis on NGE in annual report, earnings announcement and media.

I divide emphasis of NGE into two parts by time: Annual report is set to measure emphasis of NGE in the long-term while earnings announcement and media are used for short-window effects. The period is from 2006 to 2010, which is before the issued NGE guidance, but covers the IFRS adoption period in New Zealand. This procedure captures the market reactions surrounding firms' voluntary emphasis on NGE not under the guidance of the regulations.

Another reason for conducting this study in New Zealand is because New Zealand firms like firms in many other smaller jurisdictions, have low regulatory intervention and fewer information sources. They have irregular or no analyst following. Fewer competing disclosure sources make company sources important. This feature is particularly prominent for medium and small enterprises which the International Accounting Standards Board (IASB) feels should have less extensive accounting standards. I believe that an analysis for NGE in a low analyst following setting could be an analysis for the efficacies of less extensive accounting standards, such as the proposed IFRS for small and medium enterprises (SMEs). The results of such an analysis will help the IASB understand the disclosure practices of SMEs under less demanding disclosure requirements.

The remainder of this thesis is organized in the following manner: Chapter 2 reviews the relevant literature. Chapter 3 develops the hypotheses. Chapter 4 illustrates the research design. Chapter 5 explains the sample and sub-samples selection. Chapter 6 presents the descriptive statistics and empirical results. Conclusion, contributions, limitations and suggestions for future research are laid out in Chapter 7.

CHAPTER 2: LITERATURE REVIEW

This chapter has the literature review on NGE. The literature review is ordered in the following manner. First, it examines the literature to identify the nature of NGE and the determinants of NGE. Second, it reviews the literature on the relevance and informativeness of NGE. Third, it examines the literature on the market reaction to emphasis on NGE. I also briefly review the regulatory guidelines on NGE in the USA, Europe, Australia and New Zealand to provide an idea of the regulatory developments currently occurring around the world.

2.1 Non-GAAP earnings (NGE)

2.1.1 Composition

In 2012, FMA defined non-GAAP financial information as "…financial information that is presented other than in accordance with all relevant GAAP" in New Zealand guidance note. Non-GAAP earning is a common type of non-GAAP financial information. To identify NGE there are common terms used including 'pro forma earnings', 'underlying profits', 'street earnings', 'normalised profits', 'cash earnings', and 'earnings before non-recurring items'. These terms generally lack standard meanings. The same term may refer to different calculations and adjustments.

In the US, NGE are commonly known as pro-forma earnings. Pro forma, a Latin word literally means "as a matter of form" which provides little guidance for an accepted definition of pro forma earnings. Companies contend that compared with GE, which includes the effects of anomalous, nonrecurring items such as restructuring charges and gains and losses on the sales of assets, pro forma earnings metrics improve metrics for assessing future cash flows (Weil, 2001a). Article 11 of Regulation S-X issued by U.S. SEC, states that pro forma information is required in cases where a business entity has engaged in a business combination or roll-up under the equity method of accounting, as well as there is a reasonable probability of a spin-off, sale or abandonment of some parts or all of a business. However, since it is voluntarily disclosed, companies can arbitrarily deduct costs they consider is unrelated with true performance.

2.1.2 Determinants of NGE

The intent of NGE reporting is to reveal an entity's "normalized" earnings, which typically do not include such items as charges for layoffs, inventory obsolescence, or asset impairments (Entwistle, Feltham, & Mbagwu, 2006; Christensen *et al.*, 2010). For the determinants of pro forma reporting, Bhattacharya *et al.* (2004) examine quarterly pro forma releases for 1998-2000, and find that pro forma firms are significantly less profitable, more liquid, and have higher debt levels and book-to-market ratios than other firms in their industries. Lougee and Marquardt (2004) and Bowen, Davis, and Matsumoto (2005) also find the similar results. Business sectors also take a role in determining NGE. Campbell and Pitman (2007) observed the quarterly press release of S&P 500 companies and find that the business services sector is an avid discloser of non-GAAP reporting. Bhattacharya *et al.* (2004) also find that firms reporting pro forma earnings tend to be from Services and High-technology industries. Governance is a factor as well. Frankel, McVay and Soliman (2011) find a positive association between board independence and the quality of NGE.

The main motivation to disclose NGE in prior research is that managers appear to reach the desired benchmark and meet analysts' expectations. Bhattacharya *et al.* (2004) concludes that based on U.S market the companies tend to use NGE to meet analysts' expectations and downplay negative earnings news. This is like an earnings management approach to meet earnings target (Dechow & Skinner, 2000). Consistent with Bhattacharya *et al.* (2004), Isidro and Marques (2009) collect information from the European market and find that for all earnings benchmarks they consider (analyst forecast, industry performance, last year's earnings, avoid losses, and higher performance) managers tend to disclose one or more NGE measures in the earnings announcement press release. Furthermore, meeting the analyst forecast is the strongest motivation to disclose one or more NGE.

2.2 The relevance of NGE

A large portion of the prior literature on NGE focuses on whether NGE are valued by the market. Bradshaw & Sloan (2002) examine the magnitude of the difference between 'Street earnings' reported by analysts (I/B/E/S, Institutional Broker's Estimate System) and GE and report an increasing tendency to exclude significant and allegedly non-

recurring expenses from pro forma measures. They provide evidence that pro forma earnings have become the primary determinant of stock prices compared to GAAP and are perceived by investors to be more value relevant. Their findings suggest investors perceive 'Street earnings' as a better indication of long-run recurring performance. Bhattacharya *et al.* (2003) report similar findings indicating investors view pro forma earnings as more informative than GE in short-window abnormal returns test. They also find that pro forma earnings are more permanent than GE and analysts perceive pro forma earnings to be more representative of 'core earnings' than GE. Furthermore, other studies illustrates that firms with less informative GE (Lougee & Marquardt, 2004) and less value-relevant earnings, specifically firms with prior losses and high-technology firms (Bowen *et al.*, 2005) are more likely to release pro forma earnings, and the information content of pro forma earnings varied with GE informativeness.

Brown & Sivakumar (2003) also find that pro forma operating income has greater information content than EPS metrics based on GAAP. However, they acknowledge that if markets are not efficient then their findings could suggest that investors erroneously focus on lower quality earnings numbers. Such concerns were raised by an earlier study, Biddle *et al.* (1997), which found that GE explain share returns better than NGE.

Hence whether NGE or GAAP earnings have more information and relevant information is still a debatable issue.

2.3 The market reaction to emphasis on NGE

Johnson *et al.* (2005) use a market multiples approach to investigate NGE impact on market price and find no evidence that pro forma firms are priced differently than other firms. There is no evidence of a stock return premium (or penalty) at the quarterly earnings announcement date for pro forma firms. However, Bowen *et al.* (2005) using firms disclosing pro forma earnings in their quarterly release find that firms emphasize metrics that are more value-relevant and portray more favourable firm performance .

The market reaction to emphasis on NGE leads to another subject: whether investors are misled by emphasis on NGE or not. Though Johnson *et al.* (2005) provide evidence that investors are not, on average, misled by pro forma earnings disclosures in 2000.

Frederickson and Miller (2004) tested M.B.A students as nonprofessional investors and conclude that nonprofessional investors who received an earnings announcement that contained both pro forma and GAAP disclosures assessed a higher stock price than did non-professionals who received an announcement containing only GAAP disclosure. Eillott (2006) followed the tests and concluded the emphasis management places on pro forma earnings, not the mere presence of pro forma earnings, influences nonprofessional investors' judgments and decisions. Allee *et al.* (2007) persist in both experimental and archival settings and find the similar result that less-sophisticated investors rely more on the pro forma figure when it is placed before the GAAP earnings number in the press release. Different from prior measurement for investors, Bhattacharya *et al.* (2007) distinguish less and more sophisticated investors by their trades' sizes as more-sophisticated investors traded large in their one transaction. They draw the same conclusion and suggest Regulator should consider that more less-sophisticated investors rely on pro forma earnings information.

The limitation for these studies is that they ignore the time influence to the market reaction, or in other words, the market reaction in long-term (annual) and in short-windows could be significantly different. The earnings information is released in various ways. Different agency disclosing NGE might lead to different results according to Bowen *et al.* (2005). Therefore, it is important to consider the influence of sources such as media coverage to market reactions. While sophisticated investors and analysts have better understanding of annual reports and earnings announcements, the average investors get their information mainly from mainstream media sources such as newspapers (such as NZ Herald, The Australian and Wall Street Journal Asia)and financial related websites (such as scoop). Therefore the market reaction to emphasis on NGE depends on the extent of media reports that companies received.

2.4 The regulatory development on NGE around the world

NGE are considered as voluntary disclosures over and above the mandated GAAP disclosures by the major financial reporting and securities regulators around the world. Likewise, most of the regulatory initiatives mentioned below are guidelines on how NGE should be disclosed. The following are the guidelines of the major financial reporting and securities regulators of the USA, Europe, Australia and New Zealand.

2.4.1 United States

In the United States, SEC issued "Cautionary Advice", cautioning public companies not to mislead investors by including special gains but excluding special losses from pro forma earnings in 2001. The "no defined meaning and no uniform characteristics'' may ''mislead investors if it obscures GAAP results'', and could violate the anti-fraud provisions of existing Securities Laws (SEC, 2001). The SEC passed Regulation G (SEC 2002) which establishes rules for the use of NGE[4]. Section 401(b) of the SOX Act directs the SEC to establish rules regulating disclosures of non-GAAP financial measures. There was an initial dip in the frequency of NGE disclosures after SOX and Regulation G, However, other studies (Brown, Elliot, & Mergenthaler, 2009; Frankel *et al.*, 2011; Cheng, Chou, & Shiah, 2012) find that the frequency of NGE reports has continued to increase in recent years.

2.4.2 Europe

Europe uses the International Organization of Securities Commission (IOSCO) guideline. IOSCO issued a cautionary statement regarding non-GAAP results measures in 2002. The advantages as well as disadvantages of disclosing alternative financial measures are similar to those of the US guideline (Isidro & Marques, 2009). It stated that these figures can be useful for investors "if properly used and presented", but can also mislead investors, "if such measures are used to obscure the financial results determined according to GAAP or provide an incomplete description of true financial results". In October 2005 the Committee of European Securities Regulators (CESR) issued a recommendation on alternative performance measures with the objective of encouraging European listed firms to disclose non-GAAP financial measures "in a way that is appropriate and useful for investor's decision making". The statement by CESR emphasizes that whenever press releases contain non-GAAP financial measures a proper use of these measures is "crucial for investors and transparent financial markets", as they are made public before the annual reports and have wide press coverage. Moreover, it recommends that "issuers should define the terminology used and the basis of calculation adopted" and, where possible, present non-GAAP financial measures in combination with defined measures, explaining the differences between both measures (which can be done through reconciliation).

[4] Regulation G became effective in March of 2003.

2.4.3 Australia and New Zealand

The guidelines with respect to the disclosure of NGE in Australia and New Zealand are similar to those of the US and Europe. The Australian Securities and Investment Commission (ASIC, 2011) Consultation Paper 150, states that NGE should not be included in the statutory financial statements and only in the notes to the financial statements when it is necessary to give a true and fair view of the financial statements. NGE are permitted in other communications (directors 'reports, press releases and analyst briefings, etc.) but they must not be misleading or be given greater prominence than GAAP financial information. Reconciliation between the non-GAAP and GAAP earnings is also required along with explanations of the adjustments.

In the review of financial reporting by issuers, Cycle 12, announced in October 2010, the New Zealand Securities Commission states that it continues to support NGE disclosures that improve investor understanding of firm performance (Securities Commission 2010). However, the Commission expressed the view that "Neither should such non-GAAP measures be disclosed more prominently than financial information required by NZ GAAP" Securities Commission. (2010, p. 19). The New Zealand FMA has issued a guidance note on the disclosure of non-GAAP financial information (FMA, 2012). The guidance note sets out the FMA's expectations on the use of financial information in corporate documents, such as transaction documents and market announcements, and is largely based on equivalent guidance in ASIC's Consultation Paper 150. In the guidance, FMA claims it will assess non-GAAP financial information disclosures against this guidance from 1 January, 2013.

All of the above guidelines attempt to warn the investors of the fallacies of NGE when reported in a misleading manner, and cautions the reporting firms to refrain from misleading or confusing the investors about the distinction between NGE and GAAP earnings. If NGE are disclosed by firms, the guidelines stipulate how and where NGE should be disclosed distinctively as additional, non-GAAP metrics.

CHAPTER 3: HYPOTHESES DEVELOPMENT

I follow the issues raised in the motivation and literature review sections to set the hypotheses. To start with, for NGE composition I provide no hypotheses. I only provide descriptive evidence on the components of NGE disclosed by the sample firms. I only hypothesise for the determinants, relevance and effects of emphasis on NGE.

3.1 The hypotheses for determinants of level NGE disclosed

Doyle *et al.* (2003) argue that disclosing pro forma earnings is a form of earnings management which is the use of accounting judgement within GAAP to achieve an earnings target. The higher the target earnings of the firm, the more opportunistic the firm will try to be and, and therefore will disclose more NGE to achieve the expectations of the investors. Isidro & Marques (2009) use last year's earnings as a benchmark and find it has a positive effect on the propensity of managers to disclose one or more non-GAAP earnings measures in the earnings announcement press release. Thus, I predict the following:

H1a: There is a positive association between level of NGE disclosed and the target profit of the firm.

Additionally, once they have a large NGE then the firms are likely to emphasize it more to draw the investors' attention to it.

H1b: There is a positive association between emphasis on NGE and the level of NGE of the firm.

NGE are also regarded as additional signals that the managers of firms believe are useful to the investors. The voluntary disclosure literature (Hossain et al. 1995; Botosan, 1997; Gordon et al. 2010), along with the NGE literature, provides a basis for identifying the determinants of additional disclosures such as NGE. If a firm has higher leverage, it will have the motivation to report higher NGE as they need to portray a better performance picture, in an attempt to influence banks and other creditors' perceptions of earnings (Bhattacharya *et al.*, 2004; Lougee and Marquardt, 2004; and Bowen *et al.*,2005). Thus, I predict the following:

H2a: There is a positive association between level of NGE disclosed and the leverage of the firm.

H2b: There is a positive association between emphasis on NGE and the leverage of the firm.

Most pro forma announcements meet/beat analysts' mean forecasts, greater than GAAP earnings and down play negative earnings news (Bhattacharya *et al.*, 2003; Bhattacharya *et al.*, 2004; Aubert, 2009). When more analysts follow the firm, the the higher is the likelihood of the firm disclosing higher NGE and emphasise it to meet or beat analysts' expectation and draw attention of the analysts to NGE. Thus, I hypothesise:

H3a: There is a positive association between level of NGE disclosed and analyst following.

H3b: There is a positive association between emphasis on NGE and analyst following.

Governance quality is tied to earnings related disclosures because external auditors and board of directors review annual report, earnings announcement and other earnings release type disclosures. A large body of empirical evidence illustrates that auditors and outside independent directors protect shareholders' interests against managerial opportunism (Hermalin and Weisbach 2003). Karamanou and Vafeas (2005) find where firms have more effective board and audit committee structures, managers are more likely to make or update earnings forecast which is more accurate. Frankel *et al.* (2011) also suggest that there are negative associations between board independence and NGE amounts. Thus, I hypothesize:

H4a: There is a negative association between level of NGE disclosed and governance quality.

H4b: There is a negative association between emphasis on NGE and governance quality.

3.2 The hypotheses for relevance of NGE

There are mixed findings for relevance of NGE in prior literatures. It is argued that NGE has more relevant information than GE (Bradshaw & Sloan, 2002; Brown & Sivakumar, 2003; Bhattacharya *et al.*, 2003; Lougee & Marquardt, 2004; Bowen *et al.*, 2005; Aubert, 2009).

However, Brown & Sivakumar (2003) acknowledge that if markets are not efficient then their findings could suggest that investors erroneously focus on lower quality earnings numbers. Such concerns were raised by an earlier study, Biddle *et al.* (1997), which found that GE explain share returns better than NGE.

Therefore, whether NGE or GAAP earnings have more information and relevant information is still an unresolved issue. This point is better left for an empirical determination. Likewise, I hypothesise:

H5: Both NGE and GE are positively associated with market returns and market liquidity of shares.

3.3 The hypotheses for emphasis on NGE and market reaction

One of the contentions about emphasising NGE is whether investors are misled or not. Hitz (2010) finds that firms make extensive use of so-called 'EB' (earnings before) metrics, and managers emphasize NGE measures both in terms of frequency and reporting. Research indicates that sophisticated investors and unsophisticated investors acquire financial information differently (Maines and McDaniel, 2000). Unsophisticated investors seek and receive accounting information via media such as newspapers and websites while sophisticated ones will rely more on annual reports and earnings announcement which released under regulations. Though Johnson et al. (2005) insist that on average investors are not misled by NGE disclosure, Frederickson and Miller (2004), Eillott (2006), Allee *et al.* (2007), Bhattacharya *et al.* (2007) and Brown *et al*. (2011) all find that less-sophisticated investors rely on NGE more and are susceptible to be misled while sophisticated investors are not. Therefore, if annual report and earnings announcement represent sophisticated investors reaction while media represents

reaction of average investors then their emphasis on NGE will affect market differently. Thus, I predict:

H6: Emphasis on NGE in annual reports has a negative association with the annual market returns and liquidity.

Further, the market reaction to emphasis on NGE in annual reports could further decrease when the amount of NGE is higher because the market could become more sensitive due to the size of the NGE amount. Thus I predict:

H7: Emphasis on NGE in annual reports with increased levels of NGE has a negative association with the annual market returns and liquidity.

Likewise, for earnings announcements, I hypothesise:

H8: Emphasis on NGE in earnings announcement has a positive association with the market returns and liquidity reactions.

H9: Emphasis on NGE in earnings announcement with increased levels of NGE has a positive association with the market returns and liquidity reactions.

Prior researches mainly focus on NGE disclosure in annual report and earnings announcement (Bhattacharya et al., 2003; Lougee & Marquardt, 2004; Aubert, 2009). Media emphasis on NGE has rarely been studied (Bowen et al., 2005). Bowen et al. (2005) suggest that higher levels of NGE emphasis in the media lead to larger stock market reactions to NGE in quarterly press release. Elliott (2006) finds that unsophisticated investors' judgements about past performance are significantly higher when NGE are presented before GAAP earnings in the media.

Therefore, I hypothesise:

H10: Emphasis on NGE in the media has a positive association with the market returns and liquidity reactions.

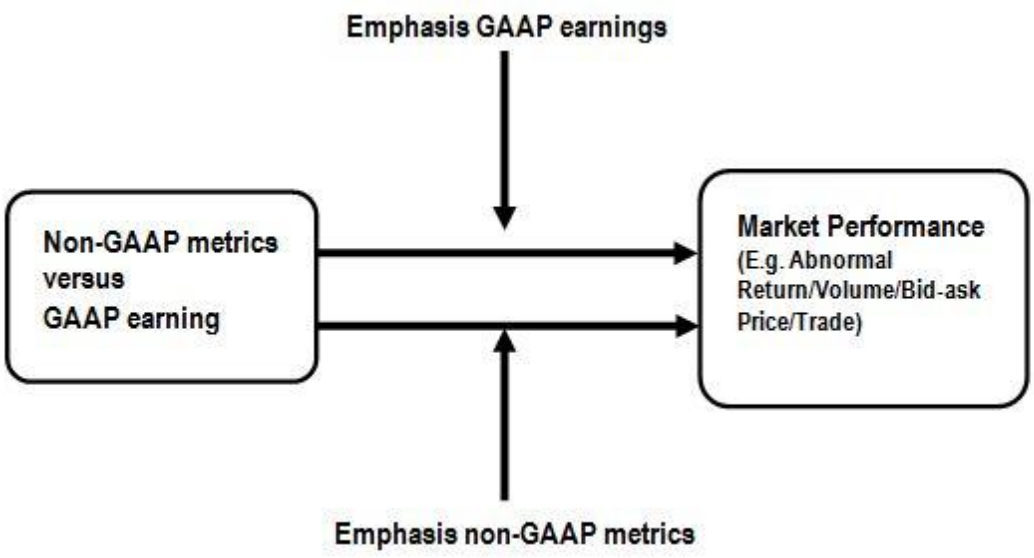
H11: Emphasis on NGE in the media with increased levels of NGE has a positive association with the market returns and liquidity reactions.

CHAPTER 4: REASEARCH DESIGN

4.1 Research Model

I examine four research issues regarding NGE, its (1) composition; (2) determinants; (3) relevance, and (4) emphasis. One distinctive part of this research is the research design for the effect of the emphasis on NGE. Based on the review of the literature, I recognize the three types of NGE emphases (annual report, earnings announcement and media release)[5]. I measure and test these emphases separately.

The main design is as follows:



4.1.1 The composition of NGE models

For the composition of NGE, I follow Bradshaw & Sloan (2002), Bhattacharya *et al.* (2003), Campbell & Pitman (2007) and Sek & Taylor (2011) and analyze the following issues:

1. The types of NGE disclosed and their frequencies and consistency. (Figures 1.1 to 1.3).

[5] In prior literatures analysts is a perspective to review NGE as well (Bhattacharya *et al.*, 2003; Lougee & Marquardt, 2004; Bowen *et al.* 2005). But these researches all focus on U.S. market. In New Zealand there are a few analysts coverage. Therefore, to measure analyst following I count the numbers of analysts' recommendations the firm has.

2. The distribution of NGE disclosures by industries (Figure 1.4).

3. The likely impact of NGE on GAAP profit (Figure 2).

4. The items used to adjust GAAP profit to NGE (Figure 3).

4.1.2 The determinants of NGE models

Models 1 and 2 are for hypotheses 1 to 4, and I call them the determinants of NGE models. In these models I use two measures of NGE: (1) magnitude of NGE disclosed divided by total assets (*NGE_Asset*) and (2) emphasis on NGE relative to GE in annual report overviews and CEO reports (*AREMP*). Likewise, Model 1 is for the determinants of the magnitude of NGE disclosed, and Model 2 is for the emphasis on NGE in annual reports, i.e., the difference between the number of times GAAP profit is mentioned and the number of times NGE information is mentioned in the annual report overview and the CEO report.

$$\textbf{NGE\_Asset} = \beta_0 + \beta_1 \text{ Diff\_Tgt\_Asset} + \beta_2 \text{ LEV} + \beta_3 \text{ Incnst} + \beta_4 \text{Length} + \beta_5 \text{ Analysts} + \beta_6 \text{ IBOD\_BOD} + \beta_7 \text{ IAC\_AC} + \beta_8 \text{ lnAFEE\_Asset} + \beta_9 \text{ Big4} + \beta_{10} \text{Loss} + \beta_{11} \text{ NZX50} + \sum_{i=12}^{16} \beta_i \text{ Industry Dummies} + \sum_{i=17}^{21} \beta_i \text{ Year Dummies} + \varepsilon \quad (1)$$

$$\textbf{AREMP} = \beta_0 + \beta_1 \text{ NGE\_Asset} + \beta_2 \text{ LEV} + \beta_3 \text{ Incnst} + \beta_4 \text{ Length} + \beta_5 \text{ Analysts} + \beta_6 \text{ IBOD\_BOD} + \beta_7 \text{ IAC\_AC} + \beta_8 \text{ lnAFEE\_Asset} + \beta_9 \text{ Big4} + \beta_{10} \text{ Loss} + \beta_{11} \text{ NZX50} + \sum_{i=12}^{16} \beta_i \text{ Industry Dummies} + \sum_{i=17}^{21} \beta_i \text{ Year Dummies} + \varepsilon \quad (2)$$

The list of variables and their definitions used in the models are summarized in Table 1.

<Insert Table 1 here>

In Model 1 the main determinants are difference from target earnings (*Diff_Tgt_Asset*), leverage (*LEV*), analysts (*Analysts*), board independence (*IBOD_BOD*), and governance proxied by independent audit committee (*IAC_AC*), extent of auditing (*lnAFEE_Asset*), audit quality (*Big4*), and negative performance (*Loss*). The control variables are consistency of NGE items (*Incnst*), length of overviews and CEO reports (*Length*), market following (*NZX50*), industry (*Industry Dummies*) and year (*Year Dummies*).

Difference from target earnings (in this case last year's earnings) is a primary motivator for NGE disclosure. I use last year's earnings as the target earnings, which is also used in Ball & Brown (1968). Since most New Zealand companies have very low analyst following or no analyst following, following Bowen *et al.* (2005) and Cheng *et al.* (2011) I use number of analysts (*Analysts*) for analyst following rather than analysts' forecasts as another independent variable.

Firm size is the most common determinant of disclosure, with large firms having more to disclose or are under higher market and regulatory scrutiny. Since both the dependent variable (*NGE_Asset*) and the size related independent variables (*Diff_Tgt_Asset*, *LEV* and *lnAFEE_Asset*) are variables scaled for asset, I use no additional variable to control for firm size.

Board independence (*IBOD_BOD*), independent audit committee (*IAC_AC*) auditing (*lnAFEE_Asset*) and audit quality (*Big4*) are governance variables. *IBOD_BOD* and *IAC_AC* represent the proportion of independent directors in the board and audit committee, respectively. *IAC_AC* and *lnAFEE_Asset* represent the scope and quality of audits, respectively. The higher the level of these governance variables the lower would be the use of non-conforming disclosures. However, if NGE are additional voluntary disclosures meant to benefit the investors, there can be a positive association between these governance variables and the disclosure of NGE.

Incnst and *Length* are used as control variables. *Incnst* represents whether a company inconsistently discloses the same items of NGE between sample periods. 0 represents consistently use the same items of Non-GAAP earnings in five years while 32 represents a firm use different items or same item with different definitions every year in five years.[6] It allows the multivariate test to include the effects of changes in NGE disclosures. *Length* represents the length of discussions in annual report overviews and CEO reports. The longer such reports are, the more likely it is for the companies to discuss NGE issues and other firm performance issues.

Industry characteristics are known to affect the nature and level of disclosure and accounting (Botosan, 1997). I control for industry effects by using industry dummies for

[6] I score the inconsistency of the firms (*Incnst*) by cumulating their adoption of different types of NGE. If the firm changes its type of NGE disclosed compared with last year then it gets 1 point. Since I define eight different types of NGE and there are four intervals in the five-year observation period, the highest score for inconsistency is 32 points.

each industry. I also control for market following and float by including an NZX50 dummy. NZX50 are large and highly liquid companies, and their performance is measured on a quarterly basis (https://www.nzx.com/markets/NZSX/indices/NZ50). These companies are likely to disclose more but, at the same time, try not to mislead the investors and the regulators. To control for the effects of any macro-economic effects and regulatory changes during a year, Year dummies are created for each year. For negative earnings that can lead firms to disclose NGE, I use a loss dummy (*Loss*).

In Model 2, I replace *Diff_Tgt_Asset* with *NGE_ Asset*. I expect the magnitude of NGE (*NGE_Asset*) to be a reason for emphasizing NGE in annual report overviews and CEO reports (*AREMP*). When companies have higher NGE they are likely to draw the attention of the investors to it for investment decision making.

4.1.3 The relevance of NGE models

For the relevance of NGE in annual report (hypothesis 5), I ascertain if NGE is associated with share price change, firm risk and share liquidity. I follow Bradshaw & Sloan (2002), Brown & Sivakumar (2003), Entwistle *et al.* (2006; 2010) and Chen (2010) to develop the NGE relevance in annual reports models (Models 3 to 6). Model 3 ascertains whether or not the magnitude and direction of NGE are related to annual market return (price change). Model 4 ascertains the association of NGE with firm risk represented by average annual bid-ask spread (firm risk). Models 5, 6 and 7 examine the association of NGE with liquidity using market volume of shares traded in dollars, share turnover in number of shares and market trades in company shares, respectively, as proxies of liquidity.

$$\begin{aligned}\textbf{Ann\_Mktret} = {} & \beta_0 + \beta_1 \text{NGE\_Asset} + \beta_2 \text{GE\_Asset} + \beta_3 \text{Diff\_Tgt\_Asset} + \beta_4 \text{AREMP} \\ & + \beta_5 \text{Incnst} + \beta_6 \text{LEV} + \beta_7 \text{IBOD\_BOD} + \beta_8 \text{IAC\_AC} + \beta_9 \text{lnAFEE\_Asset} + \\ & \beta_{10} \text{Big4} + \beta_{11} \text{Recon} + \beta_{12} \text{Loss} + \beta_{13} \text{NZX50} + \sum_{i=14}^{18} \beta_i \text{ Industry Dummies} \\ & + \sum_{i=19}^{23} \beta_i \text{ Year Dummies} + \varepsilon \end{aligned} \quad (3)$$

$$\begin{aligned}\textbf{Ann\_BASdailyavg} = {} & \beta_0 + \beta_1 \text{NGE\_Asset} + \beta_2 \text{GE\_Asset} + \beta_3 \text{Diff\_Tgt\_Asset} + \beta_4 \text{AREMP} \\ & + \beta_5 \text{Incnst} + \beta_6 \text{LEV} + \beta_7 \text{IBOD\_BOD} + \beta_8 \text{IAC\_AC} + \beta_9 \text{lnAFEE\_Asset} + \\ & \beta_{10} \text{Big4} + \beta_{11} \text{Recon} + \beta_{12} \text{Loss} + \beta_{13} \text{NZX50} + \sum_{i=14}^{18} \beta_i \text{ Industry Dummies} \\ & + \sum_{i=19}^{23} \beta_i \text{ Year Dummies} + \varepsilon \end{aligned} \quad (4)$$

Ann_Liquidity = β_0 +β_1NGE_Asset +β_2GE_Asset + β_3Diff_Tgt_Asset +β_4AREMP
+β_5Incnst +β_6LEV + β_7IBOD_BOD +β_8IAC_AC +$\beta_9$lnAFEE_Asset +
β_{10}Big4 + β_{11}Recon +β_{12}Loss + β_{13}NZX50 + $\sum_{i=14}^{18} \beta_i$ Industry Dummies
+ $\sum_{i=19}^{23} \beta_i$ Year Dummies + ε (5), (6) and (7)

In models 3 to 7, if NGE (*NGE_Asset*) and GE (*GE_Asset*) are the experimental variables and annual market return of the firm (*Mkt_Ret*) is the dependent variable. All other variables are control variables. Firm size is controlled by variables divided by total asset. Leverage is controlled because high leverage and loss firms would have higher risk and therefore, lower returns, higher bid-ask spread and lower liquidity. Industries characteristics can also cause variance in returns, bid-ask and liquidity, depending on industry concentration and industry risk among other features.

4.1.4 The emphasis on NGE models

First, I analyse the following issues to understand the nature of the emphasis variables:

1. The emphasis placed on NGE and GE in overview/CEO's report/management report of annual reports (Figure 4).

2. The emphasis placed on NGE and GE in earnings announcements (Figure 5).

3. The emphasis placed on NGE and GE in the media (Figure 6.1 and 6.2).

4.1.4.1 The annual report emphasis on NGE models

I test the effects of emphasis on the relevance of NGE by examining the emphasis on NGE in the annual report (*AREMP*), and the effects of the interaction between NGE (*NGE_ASSET*) and emphasis on NGE in the annual report (*AREMP*) on annual returns, annual bid ask spread and liquidity variables for hypothesis 6 and 7. The interaction term used for the tests is *NGE_ASSET*AREMP*. The models used are as follows:

Ann_Mktret = β_0 +β_1NGE_Asset +β_2GE_Asset + β_3Diff_Tgt_Asset +β_4AREMP
+β_5Incnst +β_6LEV + β_7IBOD_BOD +β_8IAC_AC + β_9Big4
+β_{10}lnAFEE_Asset +β_{11}Recon +β_{12}Loss + β_{13}NZX50 + $\sum_{i=14}^{18} \beta_i$ Industry
Dummies + $\sum_{i=19}^{23} \beta_i$ Year Dummies + β_{24} NGE_Asset*AREMP +ε (8)

Ann_BASdailyavg = $\beta_0 + \beta_1$NGE_Asset $+\beta_2$GE_Asset + β_3Diff_Tgt_Asset $+\beta_4$AREMP $+\beta_5$Incnst $+\beta_6$LEV + β_7IBOD_BOD $+\beta_8$IAC_AC + β_9Big4 $+\beta_{10}$lnAFEE_Asset $+\beta_{11}$Recon $+\beta_{12}$Loss + β_{13}NZX50 $+\sum_{i=14}^{18}\beta_i$ Industry Dummies $+\sum_{i=19}^{23}\beta_i$ Year Dummies + β_{24} NGE_Asset*AREMP $+\varepsilon$ (9)

Ann_Liquidity = $\beta_0 + \beta_1$NGE_Asset $+\beta_2$GE_Asset + β_3Diff_Tgt_Asset $+\beta_4$AREMP $+\beta_5$Incnst $+\beta_6$LEV + β_7IBOD_BOD $+\beta_8$IAC_AC + β_9Big4 $+\beta_{10}$lnAFEE_Asset + β_{11}Recon $+\beta_{12}$Loss + β_{13}NZX50 $+\sum_{i=14}^{18}\beta_i$ Industry Dummies $+\sum_{i=19}^{23}\beta_i$ Year Dummies + β_{24} NGE_Asset*AREMP $+\varepsilon$ (10), (11) and (12)

4.1.4.2 The earnings announcement and media emphasis on NGE models

To test hypotheses 8 to 11, I followed Lougee & Marquardt (2004), Bowen *et al.* (2005) and develop the model for stock returns (CAR_i) and earnings:

CAR$_i$ = $\beta_0 + \beta_1$NGE_Asset $+\beta_2$GE_Asset $+\beta_3$Diff_Tgt_Asset $+\beta_4$EAEMP $+\beta_5$MCEMP+ β_6IBOD_BOD $+\beta_7$IAC_AC $+\beta_8$ABAS$_i$ + β_9Mktret$_i$ + β_{10}Incnst $+\beta_{11}$Big4 $+\beta_{12}$Loss + β_{13}NZX50 $+\sum_{i=14}^{18}\beta_i$ Industry Dummies $+\sum_{i=19}^{23}\beta_i$ Year Dummies $+\beta_{24}$ NGE_Asset*EAEMP $+\beta_{25}$ NGE_Asset*MCEMP $+\varepsilon$ (13)

I also refer to Cheng *et al.* (2011) to consider the reactions of volume (CAV_i), shares of turnover ($CATur_i$) and shares traded ($CATrades_i$) due to emphasis on NGE.

CAV$_i$ = $\beta_0 + \beta_1$NGE_Asset $+\beta_2$GE_Asset $+\beta_3$Diff_Tgt_Asset $+\beta_4$EAEMP$+\beta_5$MCEMP + β_6IBOD_BOD $+\beta_7$IAC_AC $+\beta_8$ABAS$_i$ $+\beta_9$ACAR$_i$ $+\beta_{10}$Mktvol$_i$ + β_{11}Incnst $+\beta_{12}$Big4 $+\beta_{13}$Loss + β_{14}NZX50 $+\sum_{i=15}^{19}\beta_i$ Industry Dummies $+\sum_{i=20}^{24}\beta_i$ Year Dummies $+\beta_{25}$ NGE_Asset*EAEMP $+\beta_{26}$ NGE_Asset*MCEMP $+\varepsilon$ (14)

CATur$_i$ = $\beta_0 + \beta_1$NGE_Asset $+\beta_2$GE_Asset $+\beta_3$Diff_Tgt_Asset $+\beta_4$EAEMP+ β_5MCEMP+ β_6IBOD_BOD $+\beta_7$IAC_AC + β_8ABAS$_i$ $+\beta_9$ACAR$_i$ $+\beta_{10}$Mktvol$_i$ + β_{11}Incnst $+\beta_{12}$Big4 $+\beta_{13}$Loss + β_{14}NZX50 $+\sum_{i=15}^{19}\beta_i$ Industry Dummies +

$$\sum_{i=20}^{24} \beta_i \text{Year Dummies} + \beta_{25}\,\text{NGE\_Asset*EAEMP} + \beta_{26}\,\text{NGE\_Asset*MCEMP} + \varepsilon \quad (15)$$

$$\textbf{CATrades}_i = \beta_0 + \beta_1 \text{NGE\_Asset} + \beta_2 \text{GE\_Asset} + \beta_3 \text{Diff\_Tgt\_Asset} + \beta_4 \text{EAEMP} + \beta_5 \text{MCEMP} + \beta_6 \text{IBOD\_BOD} + \beta_7 \text{IAC\_AC} + \beta_8 \text{ABAS}_i + \beta_9 \text{ACAR}_i + \beta_{10} \text{Mktvol}_i + \beta_{11} \text{Incnst} + \beta_{12} \text{Big4} + \beta_{13} \text{Loss} + \beta_{14} \text{NZX50} + \sum_{i=15}^{19} \beta_i \text{ Industry Dummies} + \sum_{i=20}^{24} \beta_i \text{ Year Dummies} + \beta_{25}\,\text{NGE\_Asset*EAEMP} + \beta_{26}\,\text{NGE\_Asset*MCEMP} + \varepsilon \quad (16)$$

I set four event windows around earnings announcement day (denoted as day 0) t= (0, 1), (-1, 1), (-2, 2) and (-5, 5), the trading day centred on the release date of earnings announcement date. The advantage of using progressive windows to re-examine information content is that the two-day and three-day windows are short enough to minimize problems caused by the appearance of other information (not included in the model) while five-day and eleven-day windows are long enough to avoid possible delayed response from the market.

The return and volume metrics are similar to Cheng *et al.* (2011).

The measure of price reaction is the cumulative abnormal daily return (CAR_i) over the event windows:

$CAR_i = \sum_{t=a}^{b} R_{it} - \overline{R_t}$ and $\overline{R_t}$ is computed as follows:

$$\overline{R_t} = \left(\sum_{t=1}^{n} R_{it}\right) / n$$

where R_{it} is the daily return in event window t (a and b represent the start trading day and end trading day centred on the earnings announcement date respectively) on security i, and n is the number of days in the non-announcement period commencing ten trading days before the previous earnings announcement release date and ending ten trading days before the earnings announcement release date.[7]

The measure of volume reaction is the cumulative abnormal trading volume (CAV_i) over the event windows:

$$CAV_i = \sum_{t=a}^{b} (V_{it} - V_{imd})$$

[7] The NZX trading days per year should be 250 days (https://www.nzx.com/markets/nzsx/trading_hours) and the average number of trading days in the non-announcement period is 230 days.

Where V_{imd} is the median daily share turnover in the same non-announcement period as defined in the computation of the above. I use median, not average, of daily share turnover to avoid skewness.

$$CATur_i = \sum_{t=a}^{b} (Tur_{it} - \overline{Tur_t})$$

$$CATrades_i = \sum_{t=a}^{b} (Trades_{it} - \overline{Trades_t})$$

The absolute value of shares traded ($CATur_i$) and shares of transactions ($CATrades_i$) are computed similar to CAR_i.

In models 13 to 16, because investors have different abilities to process earnings information (Kim and Verrecchia, 1994; Brooks, 1994; Krinsky and Lee, 1996; Cheng et al 2011), abnormal bid-ask spreads ($ASAB_i$) during the short-window are introduced to control for the change in market asymmetry.

$$ABAS_i = \sum_{t=a}^{b} (BAS_{it} - \overline{BAS_i})$$

where $\overline{BAS_i}$ is the mean bid-ask spread of days in the non-announcement period commencing ten trading days after the last earnings announcement release date and ending ten trading days before the current earnings announcement release date. The cumulative market return ($Mktret_i$) and market turnover ($Mktvol_i$) during the announcement windows are also included to control for the market-wide variations in returns and trading, respectively. The absolute value of cumulative daily return ($ACAR_i$) over the announcement windows is set to control for market price in volume (Model 14) and share traded (Model 16) models. For the short-windows, firms emphasize NGE at different levels in the earnings announcement and media release. I examine the effects of the interaction between NGE (*NGE_ASSET*) and the level of NGE emphasised in the earnings announcement (*EAEMP*), the interaction between NGE (NGE_ASSET) and the NGE emphasised in the media (*MCEMP*). The interaction terms used for the tests are *NGE_ASSET*EAEMP* and *NGE_ASSET*MCEMP*.

CHAPTER 5: SAMPLE COLLECTION

5.1 Sample selection and data collection

The sample consists of all current listed NZX companies over the period 2006 to 2010, except the firms related to finance industries and firms listed in the debt market. Finance industries firms have their separate regulatory regimes for disclosure, and debt securities information needs are different from that of equity securities. Data for analyses are from annual reports and earnings announcements (Preliminary Full Year Result) of companies that are available at the NZX Company Research website. The initial sample consists of 191 listed companies in the New Zealand stock market (New Zealand Exchange or NZX). After screening for missing data, 420 observations, an average of 84 observations per year is retained. For the regressions, since some of the related variables have high skewness and kurtosis, I winsorise their extreme data.[8] Details of the sample selection procedure are presented in Table 2.

<Insert Table 2 here>

For each firm, I manually collect information related to the adjustments of NGE and emphasis placed on NGE and GE within the annual report. Annual market reaction including market value and traded volume are collected from NZX Research. For the earnings announcement part, the date and content of earnings announcement of each firm are gathered from NZX Research as well.

I measure emphasis in three ways. Firstly, in annual reports I measure the level of emphasis by computing the differences in the frequency of GE and NGE mentioned in the highlights and CEO/CFO of the annual reports.

Second, based on the approach in Frederickson and Miller (2004), Bowen *et al.* (2005) and Elliott (2005), I measure the level of emphasis of earnings in earnings announcements as in the following four-point scale:

[8] The filtering criteria is to exclude the maximum and minimum of GAAP profit (*GE_Asset*), extent of auditing (*lnAFEE_Asset*) and leverage (*LEV*) while exclude no more than eight maximum and minimum of stock returns (CAR_i), volume reactions (CAV_i), value of shares traded ($CATur_i$) and shares of transactions ($CATrades_i$).

Content in Press Release	Emphasis Level	Measure of NGE Emphasis
Only GE is mentioned in the announcements.	Lev 1	least emphasis
Mention GE in front of NGE.	Lev 2	↕
Mention NGE in front of GE.	Lev 3	↕
Only NGEs are mentioned in the announcements.	Lev 4	most emphasis

Third, for media emphasis, I use Factiva and search the key strings "earnings announcement" "profit" and "annual" to identify media disclosure of the two earnings metrics between three-day short window (-1,+1). I review all headlines and content of the results to identify press releases that relate to earnings announcements and firm performance. Here I use a different measurement compared to that used in earnings announcement. It is well-known that word frequency has a strong influence on the fixation time of the human mind on a word (Rayner, 1998). Earnings announcement has its regular format and states content in an organized and simple way, hence the placement of a particular word in the write-up is important to the reader. Unsophisticated investors, who gain accounting information mainly from media, have fewer preconceived ideas of the importance of relations among various financial items (Bouwman, 1982; Hunton & McEwen, 1997), and can, infer the importance of financial information based on the way the information is presented (Maines and McDaniel, 2000). However, media reports are not very organized and there is no standardization of media report format. In many reports it is difficult to distinguish NGE from GE (Weil 2001a, 2001b). Often readers need to finish the entire earnings narrative in the media release. In such a situation the frequency of the use of a word is likely to affect the reader more than the placement. Therefore, I use frequency of NGE and GE use instead of their position to measure media emphasis on NGE and GE.

Content in Press Release	Emphasis Level	Measure of NGE Emphasis
Only GE are mentioned in media release.	Mc 1	least emphasis
The mentioned times of GE are more than that of NGE.	Mc 2	↕
The mentioned times of NGE are more than that of GE.	Mc 3	↕
Only NGEs are mentioned in media release.	Mc 4	most emphasis

CHAPTER 6: EMPIRICAL RESULTS

6.1 Descriptive statistics

6.1.1 The composition of NGE

Figures 1.1 to 1.5 show the NGE measures used by the sample firms. Figure 1.1 shows that there are a variety of terms used to describe non-statutory performance such as "EBIT" "EBITA" "EBITDA" "EBITDAF"[9] "underlying earnings/profits," "distributable profit", "net earnings/profit before abnormal/unusual items" and more[10]. In 420 observations there are 309 cases (73.57%) of reported NGE. 180 cases (58.25%) presented up to four different measures of profitability while others only reported one kind of NGE. The most popular term to describe non-GAAP metrics is "EBITDA".[11] Except for "EBITA," "EBITDA," and "EBITDAF," the other terms such as underlying earnings have no clear or consistent meaning.

<Insert Figure 1.1 here>

Figure 1.2 (a & b) shows a wide use of NGE in NZX50 firms.[12] Compared with Figures 1.1, the number of firms not disclosing NGE is sharply fewer. The other measures have a similar pattern as that of the whole sample. As a whole, large firms seem to disclose more NGE than small firms.

Furthermore, I compare the trend of NGE reporting in NZX50 firms and non-NZX50 firms (Figure 1.2b). It is noted that the number of firms reporting NGE is high in 2006 (75.00%), and declines in 2008 (70.24%). Then it rises gradually and reaches a new peak in 2010 (76.19%). While for NZX 50 firms, it climbs from 75.61% to 90.24%.

[9] "I" stands for interests, "T" for tax, "A" for amortization, "D" for depreciation and "F" for fair-value adjustments.

[10] Others include operating loss from farming activities before market movements in livestock & property and gains from property sales and normalized net profit.

[11] EBITDA first came into common use with leveraged buyouts in the 1980s, when it was used to indicate the ability of a company to service debt. With EBITDA, analyzers can analyze a company's operating profitability before non-operating expenses (such as interest and "other" non-core expenses) and non-cash charges (depreciation/amortization). Some researches exclude "EBIT" "EBITDA" since they are often reported on a per share basis long before the pro forma reporting trend began in late 1990s (Bhattacharya *et al.* 2007) . Here I include all alternative profit figures based on Deloitte survey (2011).

[12] The sample includes 41 NZX50 firms.

<Insert Figure 1.2 here>

Figure 1.3 focuses on the consistency of NGE used by firms. I score consistency from 0 to 32. The lower the score is the more stable the types of NGE that firms use. The consistency of "EBIT" and "underlying profit" varies a lot compared with other items. The average score for all firms is 2.07 while for NZX50 is 2.68, which illustrates that firms do not always use the same NGE to report, large firms seem to change their NGE types more than small firms. Similar to Bhattacharya *et al.* (2003; 2004), NGE was not comparable either across firms or across years because firms use the adjustments inconsistently across years and different firms use different adjustments in each year.

<Insert Figure 1.3 here>

When distributed by industries (Figure 1.4), "services" industry tops the list in terms of number of companies and magnitude of NGE followed by "energy" industry[13].

<Insert Figure 1.4 here>

Figure 2 illustrates the impact of NGE on firms' performance. In most cases (93.53% among 309 observations reported NGE) NGE was greater than GE. Increasing GE seems to be the main effect of NGE metrics. It is also worth noting that in the five years, the number of firms reducing a loss has been increasing since 2006(3.17%) with a significant increase from 2008, and a peak in 2009(22.58%). Only an average of 5.87% of the firms reported NGE to make their performance look worse than the statutory results[14]. There is only one case where a profit was made a loss.[15]

[13] I also compare the mean and median in different industries and it suggests that in "services" industry there are companies that have quite large amounts of NGE. This is consistent with the findings of Bhattacharya *et al.* (2003).This could be because of size as larger companies will have larger NGE. Therefore, when seen as a ratio of total assets, there is little difference between the mean and median of this industry, and both the means and medians are higher for "service" industry compared with those of other industries. Likewise, we can conclude that the NGE of "service" industry is relatively higher than those of other industries.

[14] This scenario is mainly to decrease profit, which is not similar to the "big bath" scenario.

<Insert Figure 2 here>

Figure 3 (a & b) focuses on the frequency and percentage of the items used to adjust GE to NGE. By percentage, I mean the adjustment amount as a percentage of the total of all adjustments. "Tax", "interest/finance charges" and "Depreciation/amortisation" featured highly in both frequency and amount as companies looked to remove these effectively non-cash items from statutory profit. Besides the three adjustment categories "Equity accounting/Minority interests", "Fair value adjustments", "Impairment of assets/goodwill" and "One off or abnormal costs" are also used. A large proportion of items in "Others," according to the annual reports, are accounting mismatch, loss/profit from discontinued operations, funding[16] or not specified. "Unknown" means adjustments with no explanation. Therefore, there are issues relating to reconciliation of NGE with GE that need to be resolved so that all companies disclose the reconciliation of their NGE with GE.

<Insert Figure 3 here>

The above analysis exposes certain important features. First, the most popular NGE measure is EBITDA. Second, NZX50 companies, i.e., the 50 largest and most liquid companies listed on the NZSX disclose NGE more than the remaining NZX firms. Third, NGE could not be comparable either across firms or across years as different adjustments were used each year. Fourth, "services" and "energy" industries disclose NGE more than other industries. Fifth, most companies use NGE adjustments to show a higher profit or to reduce or reverse a loss. Finally, tax, interest/finance charges and depreciation/amortization are the main measures of adjustments to derive NGE. These measures are not non-recurring or unusual items which according to NGE definitions are the items that are removed from GAAP earnings to give a more realistic picture of a firm's performance.

[15] The firm is NZ Windfarms Limited (NWF). In June 2007, the company's Second Public Offering raised NZ$75 million.

[16] There was no clear mention of what funding is and why it should be excluded.

6.1.2 The emphasis on NGE and GE

Figure 4 provides breakdown of emphasis level (frequency) of GAAP and NGE in overview/CEO's report/management report in annual reports. The emphasis on NGE is much higher than that of GE measures among the NGE users, and it increases consistently after 2008. It is worth noting that when firms use NGE, their emphasis on GE generally decreased each year, from 2.27 to 1.94 (except in 2009 it rebounded by 0.06). However, in firms without NGE, the trend of GE emphasis matches the concave trend of NGE reporting in all firms (Figure 1.2b), that is, when the firm does not report NGE it does not emphasize GE.

<Insert Figure 4 here>

In Figure 5, overall the emphasis on GE is still prevalent, but its dominance has fallen sharply in 2010, while that of NGE remained in a firm upward trend. The difference between GAAP and NGE which is released in earnings announcement is almost always positive in these 5 years, which means NGE disclosed here are always larger than GE.

Figure 5 shows that in 2006 there were just as many GE only emphasis firms for the earnings announcements as there were for NGE emphasis firms. Over the five year sample period, GE only emphasis firms have declined and the number of firms emphasizing NGE has increased. Also, the number of firms emphasizing only NGE has increased. This clearly indicates that firms are currently emphasizing NGE a lot more in the earnings announcement than in the previous years.

<Insert Figure 5 here>

Figure 6.1 displays the emphasis of earnings in media release. In the figure the trend of media coverage (*MEDLA*) of a firm is similar to that of the percentage of NGE disclosed in all firms (refer to Figure 1.2b), which illustrates a saddle - type curve. In the media reports, 84.85% reported only GE by the media in 2006 while it declined in 2007 to 79.03% and rebound in the next two years. In 2010 it dropped less than 70%. On the other hand, emphasis on NGE has grown, and in 2010, it almost came to the

same level as that of GE only emphasis. The NGE only emphasis, although small, has also grown over the years. The trend in NGE emphasis in media reports also mirrors closely the trend in emphasis in earnings announcements, which raises the question of whether the use of NGE in earnings announcements has anything to do with the increasing usage of NGE in media reports.

<Insert Figure 6.1 here>

Another interesting point is the sources of media reports. Figure 6.2 illustrates the trend of media release used for reporting GE and NGE. This trend fits that of the percentage of NGE disclosed in all firms (refer to Figure 1.2b), and by 2009 reporting of NGE exceeds the reporting of GE in the media. The level of NGE reporting by Australia, international and online media on New Zealand firms has risen steadily. This suggests that NGE reporting influence can also come from overseas sources and the worldwide online sources.

<Insert Figure 6.2 here>

6.1.3 Descriptive statistics for the multivariate tests

Descriptive statistics of variables used in the multivariate tests are provided in Table 3. I note that some variables have high kurtosis. All variables that have high kurtosis with no negative observations are normalized using natural logarithm.

The average of *lnAsset* is 19.514, with a range from 15.525 to 27.150, indicates that the sample firms have a very wide span of total asset size. The mean proportion of independent audit committee members (*IAC_AC*) is 0.766, which suggests that a large number of companies have independent audit committees. The proportion of independent directors (*IBOD_BOD*) range from 0.2 to 1.0, while mean is 0.592. The minimum proportion of independent directors does not satisfy the “one third”

requirement made by the Security Commission.[17] In the sample firms, 88.1% follow the regulation and have more independent members than the required minimum.

Table 3 also contains univariate descriptive statistics for the return and volume on an annual basis, and the cumulative daily returns and the cumulative daily volume in the announcement (short windows). It is noted that the cumulative daily volume (CAV_i) and cumulative abnormal share trades over the window ($CATur_i$) have kurtosis from 9.119 to 50.127, yielding a distribution that has a sharper peak and longer, fatter tails[18]. As can be seen in the table, analyst coverage (*Analysts*) is only 1.247 on average, which is in contrast with the machinery industry sample used in the disclosure study, Botosan (1997), where the mean analyst coverage was 11.5. Thus the descriptive statistics suggest that New Zealand firms receive little or no analyst coverage in comparison to the US firms.

<Insert Table 3 here>

6.2 Pearson correlations

A Pearson correlation matrix of variables is presented in Table 4. It shows that *NGE_Asset* is positively correlated with *GE_Asset*, *AREMP*, *Analysts*, *LEV*, CAV_i, $CATrades_i$ ($p<0.01$) and is negatively correlated with *Diff_NG_Asset* ($p<0.05$). Pearson coefficients are also high for between independent variables correlations, suggesting multicollinearity problems for the multivariate regression model. However, I compute VIFs for each independent variable when running multivariate analyses. All VIFs are well below 3 while the statistically unacceptable level is up to 10. Therefore none of multivariate tests are significantly affected by multicollinearity between the independent variables.

<Insert Table 4 here>

[17] According to Corporate governance in NZ principles and guidelines, the boards of publicly owned entities comprise a minimum one third of independent directors. The codes of firms out of criteria are MHI, NWF, STU, NZR, WID, RBD, TUR, PHB, IFT, and RNS.

[18] I have tried to normalize using natural logarithm but the kurtosis is even higher hence I decided to use original data.

6.3 Regression results

6.3.1 The determinants of NGE

Table 5 reports the results of multivariate tests (regression) for the NGE determinants (Models 1 to 2). The F-statistics are significant in models 1 and 2 ($p < 0.01$), and the adjusted R^2 of the two models are 0.321 and 0.270, respectively.

<Insert Table 5 here>

The results of Model 1 show that independent board (*IBOD_BOD*), *Loss* and property industry have significant negative associations with the magnitude of NGE (all *p*-values < 0.01), and analyst coverage (*Analysts*), independent audit committee (*IAC_AC*), extent of auditing (*lnAFEE_Asset*) and market following (*NZX50*) have significant positive associations with the magnitude of NGE (*p*-values < 0.01). Therefore, the results suggest that better quality audits increase the amount of NGE, which contradicts Hypothesis 4a. This could be because better quality auditors may be encouraging higher levels of voluntary disclosure (Hossain, et al., 1995).

Loss has negative relation with NGE, which means profit firms have a higher motivation to disclose NGE. It confirms the results of Figure 2. Figure 2 shows that more than two-thirds of the firms that disclose NGE are profit firms, and all of them show higher profit by disclosing NGE. Consistent with Bowen *et al.* (2005), the greater the analysts following the firm, the more the firms emphasise NGE. Also, NZX50 firms tend to disclose higher magnitudes of NGE, which indicates that reporting NGE has moved towards the mainstream voluntary disclosure items in the stock market.

Model 2 shows that the amount of NGE (*NGE_Asset*), leverage (*LEV*), consistency of NGE items (*Incnst*), length of overviews and CEO reports (*Length*) and market following (*NZX50*) have significant positive associations with emphasis on NGE relative to GE in annual report overviews and CEO reports (*NGE_Asset* and *Length* at *p*-values < 0.01 while others at *p*-values < 0.05). Therefore, the greater the NGE amount is, the higher is the leverage of the firm, and the larger the firm, there is greater emphasis on NGE in the annual reports overviews and discussions.

6.3.2 The relevance of NGE

Table 6 reveals multivariate tests (regression) results for relevance of NGE (Models 3 to 7). Neither NGE nor GE has significant results. It contradicts the argument that NGE is useful to the investors as there is no significant relation between NGE and market return. The difference between current year GE and last year GE (*Diff_Tgt_Asset*) have significant negative association with market return ($p < 0.01$), which indicates market still relies on GE and prefers a stable profit relative to last year. In the US, Johnson *et al.* (2005) had similar results. This suggests that NGE and the gap of GE between current year and previous year is perceived negatively in the market.

<Insert Table 6 here>

For the business risk and liquidity effects of relevance regressions (Models 4 to 7), once again I find that NGE and GE are not significantly associated with the dependent variables.

In model 4, consistency of NGE items (*Incnst*), property sector, audit quality (*lnAFEE_Asset*) and NZX50 are negative and significantly associated with average daily bid-ask spreads (the former two at $p < 0.05$ while the latter two at $p < 0.01$). In Models 5 and 6, property sector and NZX50 have significant positive relation with number of shares traded (p-values of < 0.05 and 0.01, respectively). This suggests that larger firms have lower risk levels and have both higher turnover and higher volume of market transactions.[19] Independence of board (IBOD_BOD) has significant positive coefficient with volume of traded shares as well ($p < 0.05$). In Model 7, independence of audit committee (*IAC_AC*) and NZX50 are positively associated with the number of shares traded (*Ann_lnTrades)* ($p < 0.05$ and 0.01, respectively).

The adjusted R^2s of models 4 to 7 ranged from 0.110 to 0.513. The direction of the NGE and GE results suggest that Non-GAAP metrics are less relevant for the market than GE.

[19] There are seven listed property firms and only one of them (CDI) is out of NZX50.

6.3.3 The market performance for emphasis on NGE

6.3.3.1 The annual report emphasis on NGE

I test to see if placing more emphasis on NGE than on GE in the annual report overviews and CEO reports has any significant associations with the market metrics (models 8 to 12). I find (See Table 7) in model 8 that the emphasis on NGE in annual report (*AREMP*) has significant negative association with market return (p <0.01). The result shows that emphasis on NGE relates negatively with the economic performance of the firm.

<Insert Table 7 here>

6.3.3.2 The short window (Earnings announcement and media) emphasis on NGE

Table 8.1 reveals regression results for effects of NGE emphasis on stock market price reaction in short windows (Models 13). The adjusted R^2s of short window (0, 1) (-1, 1) (-2, 2) (-5, 5) ranged from 0.010 to 0.059 and F statistics is significant in three-day, five-day and eleven-day windows (p <0.05) but not significant in two-day window (p =0.299).

The results show that the level of NGE emphasized in earnings announcement (*EAEMP*) has a decreasing significant negative impact on stock returns (CAR_i) over the (0, 1), (-1, 1) and (-2, 2) announcement windows (p < 0.05). Whereas the level of NGE emphasized in media (*MCEMP*) has a significant positive association with CAR_i over all four announcement windows (p<0.01). The results suggest that NGE emphasis in earnings announcements is regarded negatively by the market, whereas, emphasis in the media has a positive effect. Media has a very wide coverage and is likely to communicate information more widely, especially to the naïve investors. As for earnings announcement, these are likely to be followed closely by more sophisticated investors. Likewise, it can be inferred that the more sophisticated investors would tend to regard NGE emphasis more negatively than would the naive investors.

The interaction term *NGE_Asset*MCEMP* is negative and significant in the two-day and three-day windows (p < 0.1) but not significant in the five-day and eleven-day

windows. This suggests that in the immediate days surrounding the earnings announcement when a firm's NGE is higher and it emphasizes NGE more, its stock returns are adverse, but this adverse reaction diminishes over time.

<Insert Table 8.1 here>

Table 8.2 reveals the regression results for effects of NGE emphasis on stock market trading volume reaction in short windows (Models 14). The adjusted R^2s of short window (0, 1) (-1, 1) (-2, 2) (-5, 5) ranged from 0.168 to 0.287 and F statistics is significant in all short windows (p <0.01).

Different from market return, both *EAEMP* and *MCEMP* are not significantly associated with the trading volume. However, the interaction term *NGE_Asset*MCEMP* is positive and significant in the two-day, three-day and five-day windows ($p < 0.05$). This suggests that when a firm's NGE is higher and it emphasizes NGE more than it emphasizes GE in the media, its stock trading volume is higher. It seems that media emphasis has a reinforcement effect on NGE.

<Insert Table 8.2 here>

Table 8.3 discloses regression results for effects of NGE emphasis on stock market trading turnover in short windows (Models 15). The adjusted R^2s of short window (0, 1) (-1, 1) (-2, 2) (-5, 5) ranged from 0.136 to 0.172 and F statistics is significant in all short windows (p <0.01).

Different from the coefficient in model 11, The NGE amount (*NGE_Asset*) has a significant negative coefficient in eleven-day windows (p <0.05). The trend illustrates that higher NGE leads to lower trading turnover in short windows. Still *EAEMP* and *MCEMP* are not significantly associated with the number of shares traded. NZX50 shows a positive association with market trading shares volume in all windows ($p <$ 0.01) which is consistent with the result in model 11.

<Insert Table 8.3 here>

Table 8.4 shows the regression results for the effects of NGE emphasis on stock market share trades in the short windows (Models 16). The adjusted R^2s of short window (0, 1) (-1, 1) (-2, 2) (-5, 5) ranged from 0.280 to 0.382 and F statistics is significant in all short windows (p <0.01).

Similar to the trading volume model 14, both *EAEMP* and *MCEMP* are positive but not significantly associated with the number of share trades in the announcement windows. There is no significant impact of the interaction terms *NGE_Asset*MCEMP* and *NGE_Asset*EAEMP*.

<Insert Table 8.4 here>

The above analysis exposes certain important features. Overall, investors react positively to emphasis on NGE at immediate announcement windows. As times goes by, they will realize the 'real' information and they may revise their decision. Secondly, emphasis on NGE in media has a positive influence to market price reactions while emphasis on NGE earnings announcement has a negative association. On the whole, announcement windows media emphasis always weighs more than that of earnings announcement. The more emphasis on NGE in media with higher amounts of NGE, the higher is the stock trading volume and turnover.

6.3.4 Additional tests

Additional tests were conducted on NZX50 and non-NZX50 companies (results not tabulated). NZX50 companies being larger and having more active trading in their shares enjoy higher stock market following and market transparency. Therefore, the market effects of their own disclosures would be less than those of the non-NZX50 firms. The additional tests support this argument. Results also show that, even though NZX50 companies disclose more NGE than non-NZX50 companies, their NGE have no significant association with market returns and volume, but have a negative association with bid-ask spread. On the other hand, non-NZX50 firms have similar effects to those seen for the full sample. In other words, the disclose of NGE lowers market risk for more prominent firms (NZX50 firms) and is of negative consequence for the market returns of less prominent firms (non-NZX50 firms). The reduction in market risk for

prominent firms is akin to higher levels of disclosure reducing the risk levels of firms (e.g., Botosan 1997; Sengupta 1998).

I rerun the tests of emphasis placed on NGE in annual report separately for NZX50 and non-NZX50 firms (results not tabulated). Once again, I find that the results are more robust for non-NZX50 firms. In other words, the effects of NGE are more conspicuous for less prominent firms. I also notice that NGE and *NGE_ASSET*AREMP* reduce the bid-ask spread for the NZX50 firms. The extra reporting of NGE may reduce the risk levels of NZX50 companies.

In a separate test to ascertain which types of NGE identified in Figures 1.1 and 1.2 are relevant to the investors, we find that EBITDA has a significant positive association ($p < 0.01$) and "Other" (not specified type) has a significant negative association ($p < 0.01$) with market return. EBITDA is a form of Non-GAAP metrics that is mostly cash based. Its positive association suggests that investors prefer profitability measures that also provide liquidity information. On the other hand, measures that are poorly specified, such as "Other" types, are given negative connotations or are perhaps used by firms with negative market performance.

CHAPTER 7: CONCLUDIONS, CONTRIBUTIONS, LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

7.1 Conclusions

This study provides information on four issues of Non-GAAP metrics in New Zealand: its (1) composition, (2) determinants, (3) relevance, and (4) emphasis.

7.1.1 The conclusion for composition of NGE

The main findings for composition are that companies disclose NGE in a variety of ways. There is no between firms and between years consistency in NGE reporting between companies. A wide variety of terms are used to represent NGE, some of which are not properly defined in the annual report. Also, a small minority of companies do not fully disclose the reconciliation between NGE and GE. A point to note is that most companies while disclosing GE provide enough information for investors to develop their own income measures.

Service and Energy firms are the major users of Non-GAAP metrics. I also find that tax, financial cost, depreciation and amortization are the three main items used to adjust GE and derive NGE. Fair value adjustment, the depreciations and amortisations follow as the next most popular adjustments. Akin to the view of Bradshaw & Sloan (2002), Brown & Sivakumar (2003), these adjustments suggest that managers try to reduce information asymmetry by providing a cash flow related profit to investors. It also suggests that the adjustments to derive NGE are not necessarily unusual or nonrecurring items.

7.1.2 The determinants for composition of NGE

The difference between current year profit and last year's profit is a reason for NGE disclosure. Also, similar to the results of Hodgson & Stevenson-Clarke, (2000), Bhattacharya *et al.* (2004), Lougee & Marquardt (2004), Bowen *et al.* (2005), and similar to the results of Aubert (2009), I find firms with higher leverage disclose higher NGE, and NGE figures are higher than GE.

It is surprising to find that audit quality takes an important role in increasing amount of NGE. Independent board members on the audit committee and higher audit fees also seem to contribute to the increase in NGE. This does not support the prediction in hypothesis 1. Nevertheless, the result showing that board independence has a negative association with NGE is consistent with the findings of Frankel *et al.* (2011).

Unlike Bhattacharya *et al.* (2004) and Lougee and Marquard (2004), I find profit firms disclose more NGE. This difference might be because of sample difference. For instance, Bhattacharya *et al.* (2004) choose US market quarterly release in 1998 and 2000 while 48 percent of their observations report a GAAP loss. In my case, only 18.1 percent of observations report a GAAP loss. If I compute the NGE percentage separately, 52.6% of the companies that have GAAP loss disclose NGE while 77.9% of the companies with GE disclose NGE. Therefore, profit firms disclose more NGE.

7.1.3 The conclusion for relevance of NGE

There is no evidence to show that NGE is a useful indicator for investors. Therefore, the results provide weak support for the hypotheses that firms NGE disclosure in annual reports are value relevant. The finding supports the contention of the critics of Non-GAAP metrics reporting who argue that NGE is misleading (Derby, 2001). After Enron's bankruptcy, the SEC in the U.S warned public companies to be clear in their disclosure of "pro forma" financial information and alerted investors to the potential dangers of such information (SEC 2001; Holtz *et al.* 2003). However, the SEC conceded that such non-conforming information can serve useful purposes if used properly and that "Companies may quite appropriately wish to focus investors' attention on critical issues" (SEC, 2001).

7.1.4 The conclusion for emphasis on NGE

Most companies that disclose NGE tend to put more emphasis on NGE than on GE in the annual report overviews and CEO reports. In the annual data regressions, I find that extra emphasis placed leads to significant negative associations with market return. This finding is contrary to Bowen *et al.* (2005) view that higher emphasis on NGE leads to larger market reactions to pro forma earnings. However, Bowen *et al.* is based on quarterly earnings announcement release while my basis is annual data, hence there is no direct comparability.

There is no significant result showing that extra emphasis placed on NGE over GE in the annual reports leads to higher stock trading volume, turnover and number of trades. This finding has both a positive connotation and a negative connotation, i.e., it may suggest that the shareholders are trading more because they are being misled or they may be trading more because of additional information being made available to the market through the use of NGE in managerial discussions and analyses. Hence, NGE still has a potential to mislead investors.

The findings for emphasis placed on NGE in earnings announcement and media are that the emphasis on NGE in earnings announcement and media is less than that in the annual report but follows the trend. Compared with overseas media, New Zealand media seems to be relatively conservative in their coverage of NGE. The short windows tests support the hypothesis as there is a positive association between NGE emphasis and the price and volume of stocks in the market. This finding differs from Johnson *et al.* (2005) view that there is no evidence of a stock return premium at the quarterly earnings announcement date for pro forma firms, but it is consistent with the findings of Bowen *et al.* (2005). However, I find that the emphasis on NGE of earnings announcement has a negative association with market reaction while media has a positive reaction. This could be because sophisticated investors rely more on earnings announcement while media has wider less sophisticated audiences. This result is similar to that of Elliott (2006) and Allee *et al.* (2007).

7.2 Contribution

This study has a three dimensional way to test emphasis on NGE. Prior research mainly focuses on annual report or earnings announcement emphasis but ignore the influence by media release. I expand the Bowen *et al.* (2005) design of research. Bowen *et al.* focus on high technology industries while I include all six industries and find that service (included high technology industry) and energy emphasize NGE more frequently than GE. I then add both the long-term (annual basis) and the short windows tests to observe the effects of emphasis on NGE. Finally, in Bowen *et al.* (2005), media is only a control variable. I develop it as an independent variable and show that NGE in media influences the market.

The results provide insights into the NGE reporting practices of New Zealand listed companies. Last but not the least, policy makers should consider the media effects on investor behavior, as our results illustrate that media emphasis on NGE has greater influence to the average investors compared with earnings announcements. It implies that if media exaggerate and publicize NGE, no matter whether the NGE is released in earnings announcements under regulation, the market will react positively in the immediate announcement periods.

7.3 Limitation

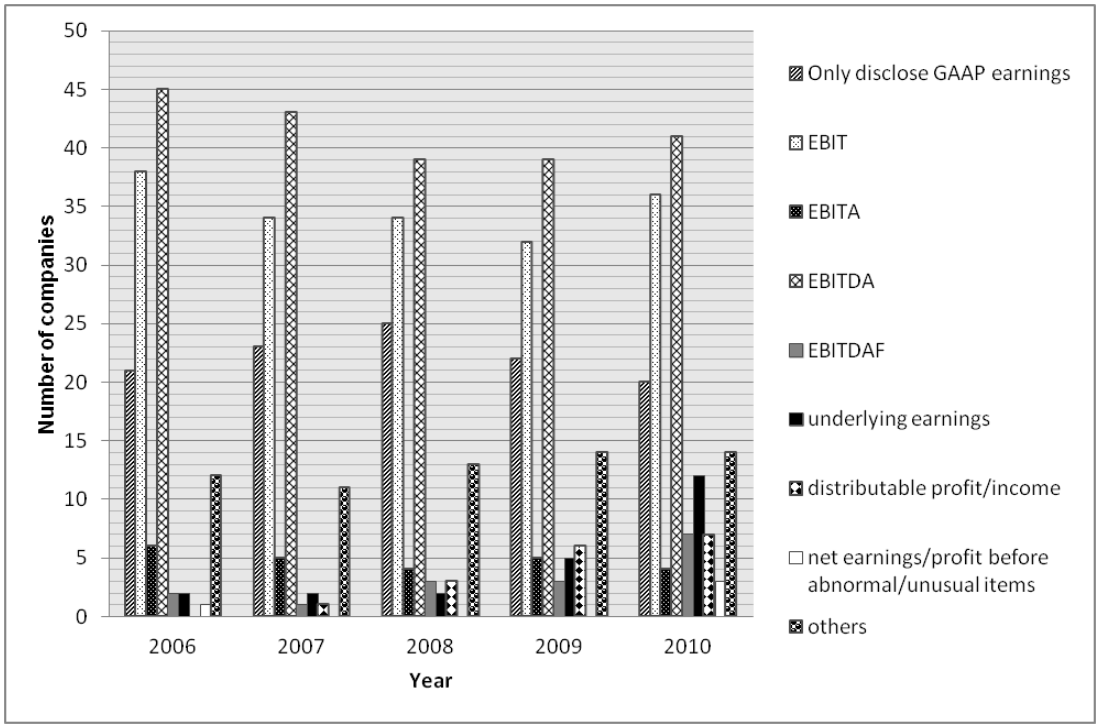
My research has some limitations. Firstly, I have a small sample size relative to the samples of US studies. This may have contributed to our weaker results. Multi-year data allows for a larger sample. However, multi-year samples often suffer from auto-correlation because some items may not vary much between years. As our sample has 84 companies out of 191 listed companies (44%) in New Zealand stock market, the sample is of reasonable for reflecting the whole population of firms. Secondly, I treat all NGE components similarly. It could be that certain components of NGE are more relevant than others.

7.4 Suggestions for future research

Future research can attempt to focus on media impact of emphasis on NGE. The difference in emphasis levels between different media source and the reason why they disclose NGE in different ways could be investigated. Furthermore, future research could test the effect of the FMA guidance to NGE reporting since it became applicable from 1 January 2013 and covers the provision of NGE reporting in investor communications other than financial statements (e.g. market announcements and press releases) and transaction documents.

LIST OF FIGURES

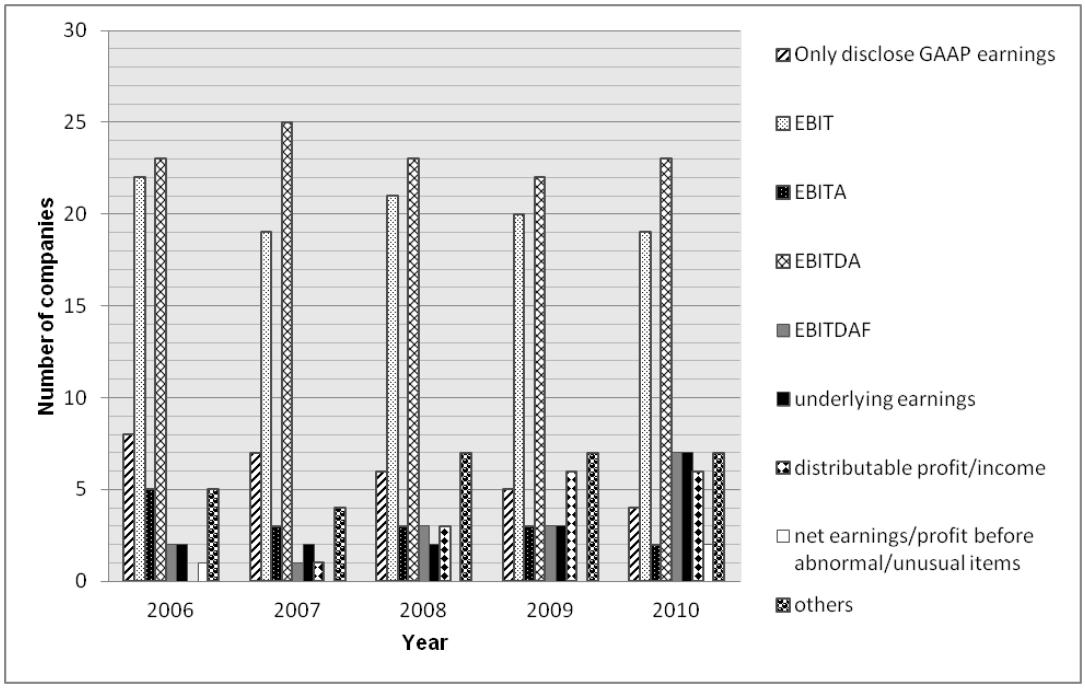
Figure 1.1: **Types of NGE used by NZX firms (Some firms use multiple measures)**



Number of companies using NGE	EBIT	EBITA	EBITDA	EBITDAF	UP	DP	NEBAI	Others
2006	38	6	45	2	2	0	1	12
2007	34	5	43	1	2	1	0	11
2008	34	4	39	3	2	3	0	13
2009	32	5	39	3	5	6	0	14
2010	36	4	41	7	12	7	3	14

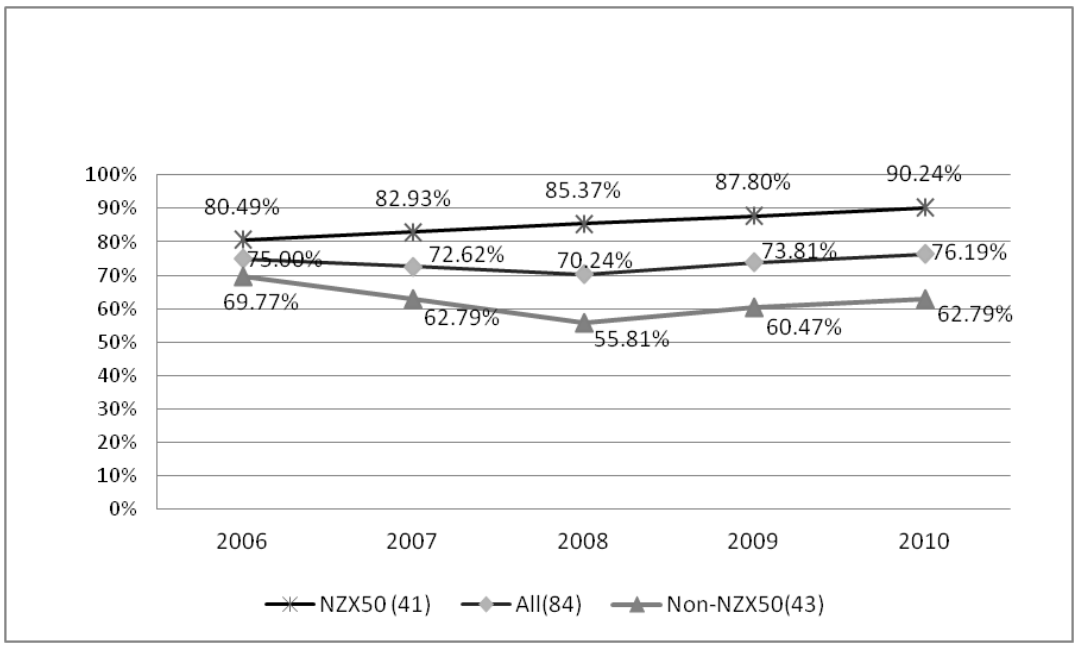
Note: 'Others' here mainly includes normalised group loss/profit, operating profit before financing cost and tax, net profit after tax (NAPT) before deferred tax adjustments. The matrix below shows the correlation among these terms. UP, DP and NEBAI is short for "underlying earnings/profit" "distributable profit" and "net earnings/profit before abnormal/unusual items", respectively.

Figure 1.2a: Types of NGE used by NZX 50 firms (Some firms use multiple measures)



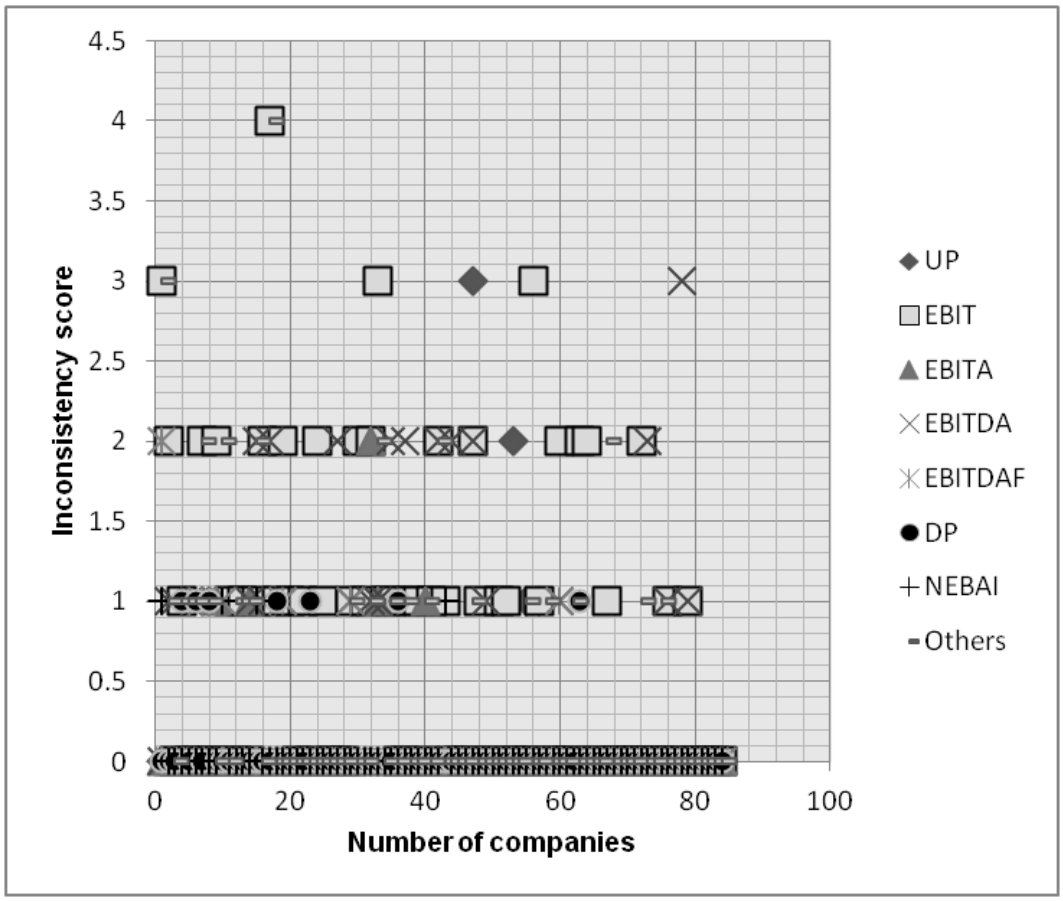
Note: Forty-one NZX50 firms Ire in the sample. 'Others' here mainly includes normalised group loss/profit, operating profit before financing cost and tax, net profit after tax (NAPT) before deferred tax adjustments.

Figure 1.2b: The percentage of number of companies disclosing NGE in five years



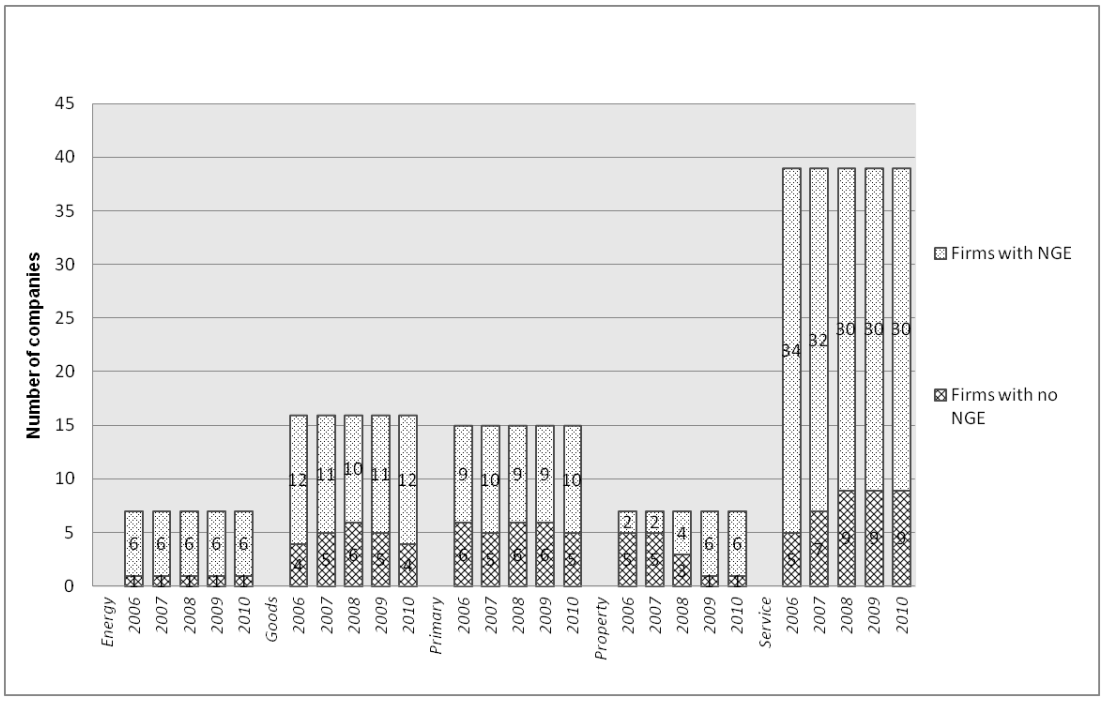
Note: There are eighty-four companies in all; including forty-one NZX50 firms and forty-three non-NZX50 firms in the sample.

Figure 1.3: The consistency of NGE used by companies



Note: I measure inconsistency score from 0 to 32. If the firm uses the same types of NGE as that of previous year then 0 is marked, otherwise 1. Because there are 8 types of NGE in our observations and 5-year-observed period hence the maximum score should be 32.

Figure 1.4: Number of companies using NGE by industries



Note: All securities in the NZX All Index are classified into one of six Group Sector Indices which consist of 'Primary' 'Energy' 'Goods' 'Property' 'Services' 'Investment'. Investment group firms are out of observations.

Figure 2: The likely impact of disclosed NGE on GE (Percentage)

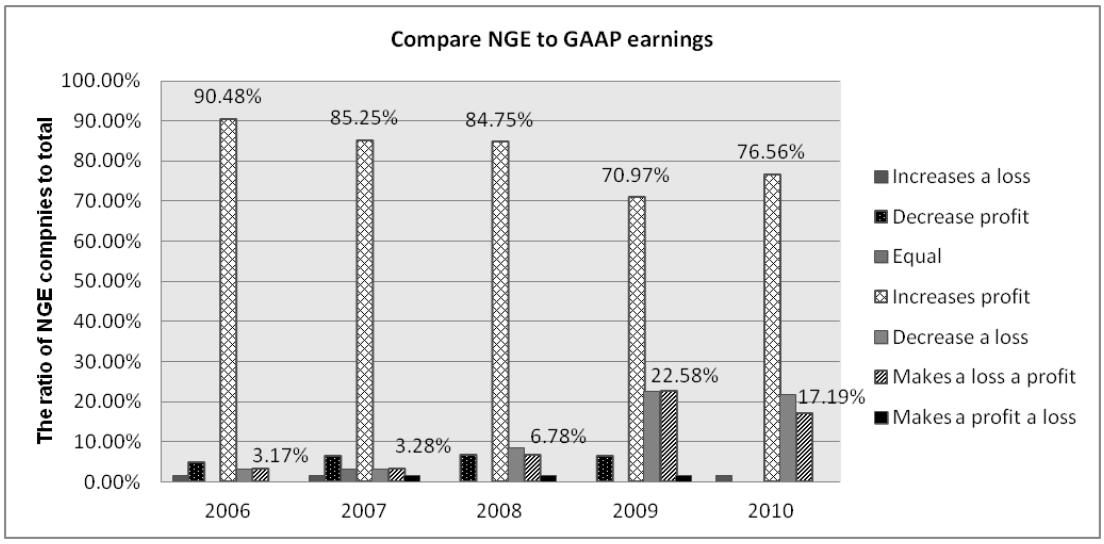
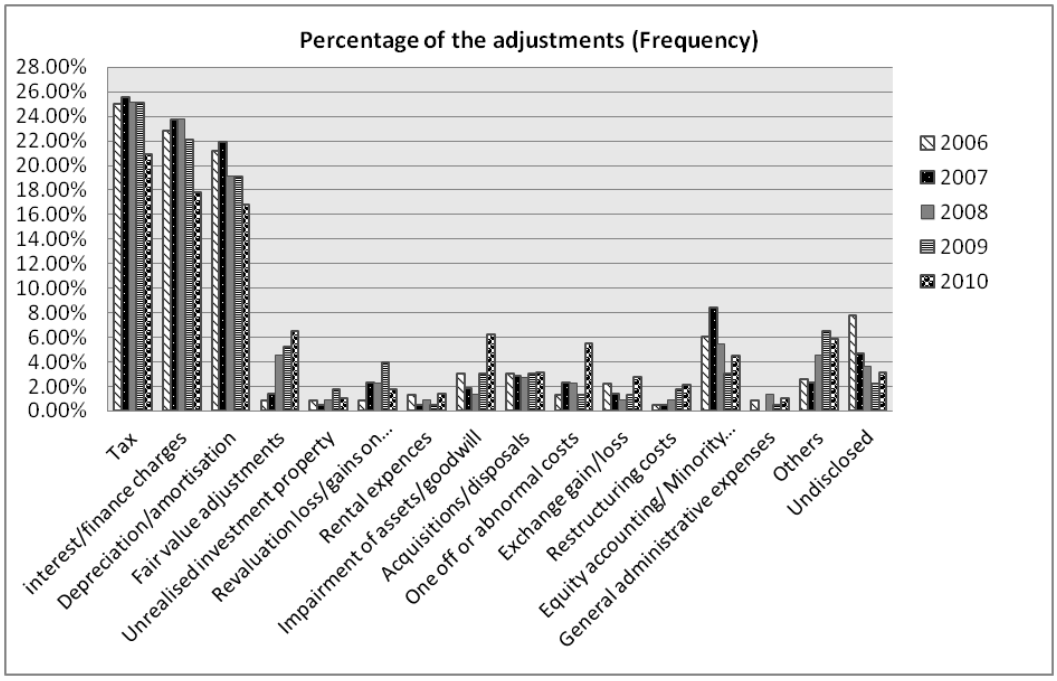
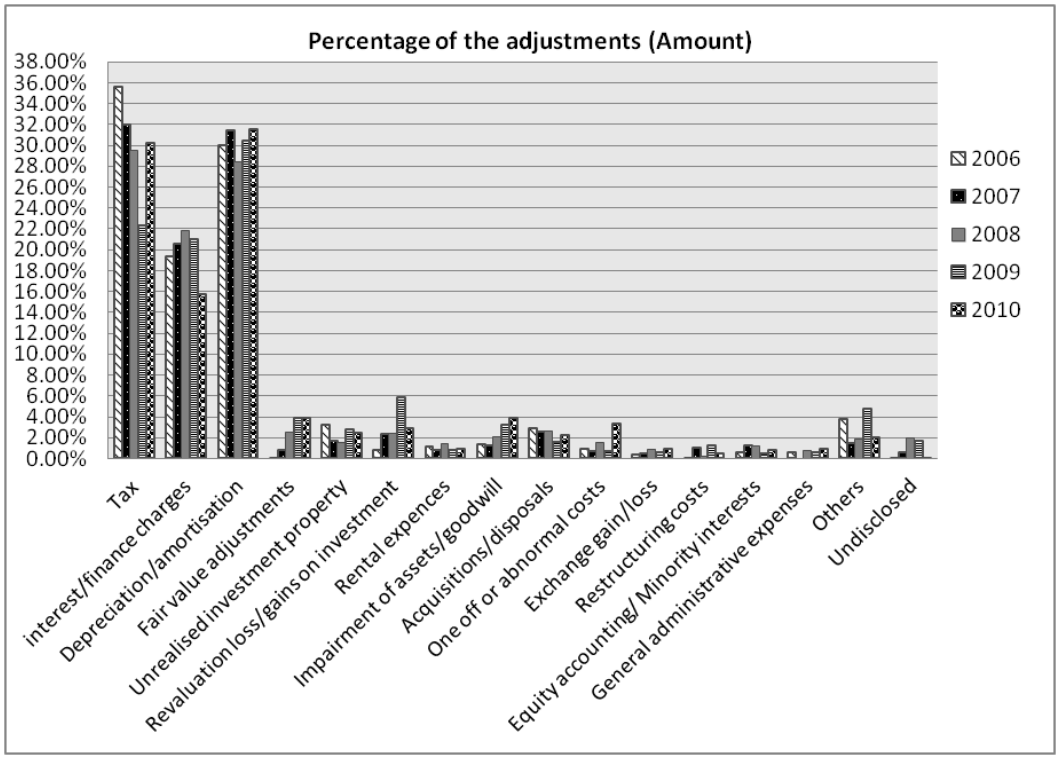


Figure 3a: The items used to adjust GE to NGE (Frequency percentage)



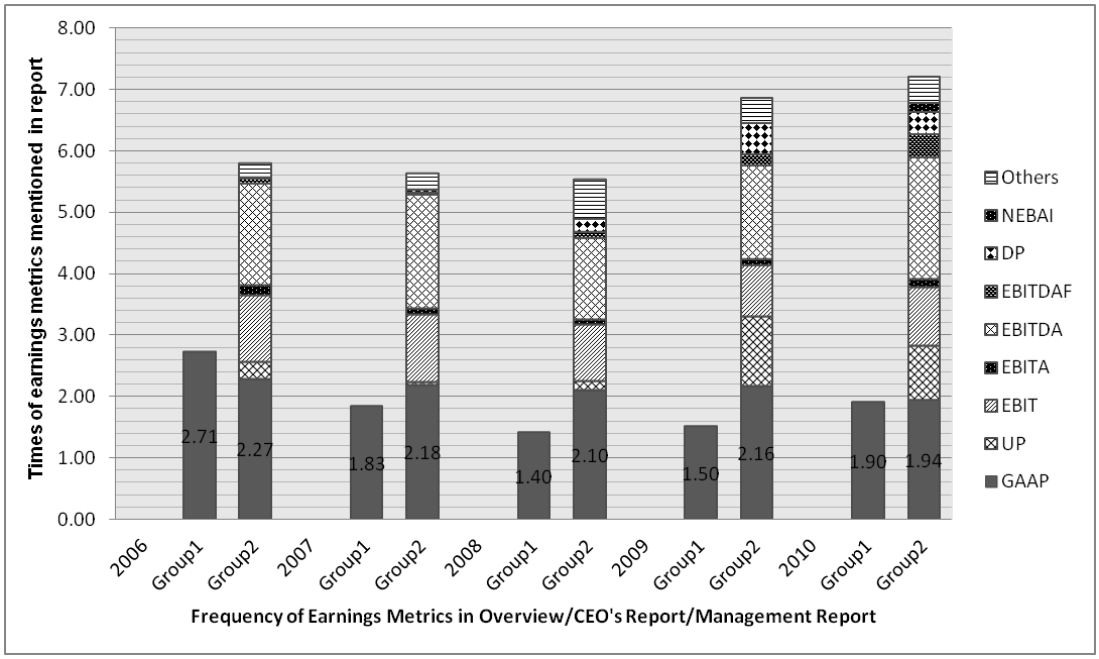
Note: Frequency is equal to the average of the percentage which measures as count of each adjustment divided by count of total adjustments.

Figure 3b: The items used to adjust GE to NGE (Amount percentage)



Note: Percentage is equal to the absolute value of each adjustment divided by the absolute value of the difference between NGE and GE multiplied by one hundred.

Figure 4: Word length of overview/CEO's report/management report of firms not disclosing NGE and disclosing NGE

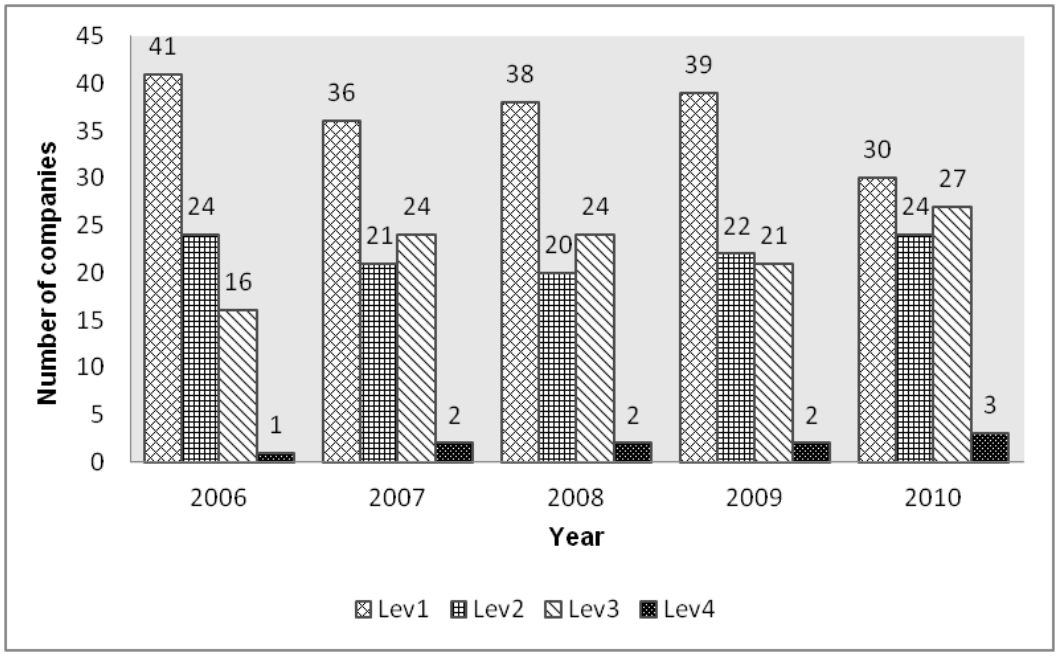


Year \ Frequency	GAAP	Non-GAAP	UP	EBIT	EBITA	EBITDA	EBITDAF	DP	NEBAI	Others	Valid Text Lengh
2006											
Group1	2.71	-	-	-	-	-	-	-	-	-	6.00
Group2	2.27	3.52	0.29	1.08	0.16	1.66	0.08	-	0.02	0.23	6.52
2007											
Group1	1.83	-	-	-	-	-	-	-	-	-	4.61
Group2	2.18	3.46	0.05	1.10	0.10	1.87	0.03	0.05	-	0.26	7.03
2008											
Group1	1.40	-	-	-	-	-	-	-	-	-	4.28
Group2	2.10	3.42	0.14	0.93	0.08	1.32	0.10	0.22	-	0.63	6.68
2009											
Group1	1.50	-	-	-	-	-	-	-	-	-	3.82
Group2	2.16	4.71	1.13	0.84	0.11	1.52	0.19	0.50	-	0.42	7.32
2010											
Group1	1.90	-	-	-	-	-	-	-	-	-	4.55
Group2	1.94	5.27	0.88	0.97	0.13	1.98	0.39	0.36	0.14	0.42	8.55

Note 1: Group 1 represents firms with no NGE financial information while Group 2 represents firms with NGE financial information reporting. UP, DP and NEBAI is short for 'underlying earnings/profit' 'distributable profit' and 'net earnings/profit before abnormal/unusual items', respectively.

Note 2: Valid text length is measured as A4 pages without unrelated pictures, advertisements in overview, CEO's report and management report.

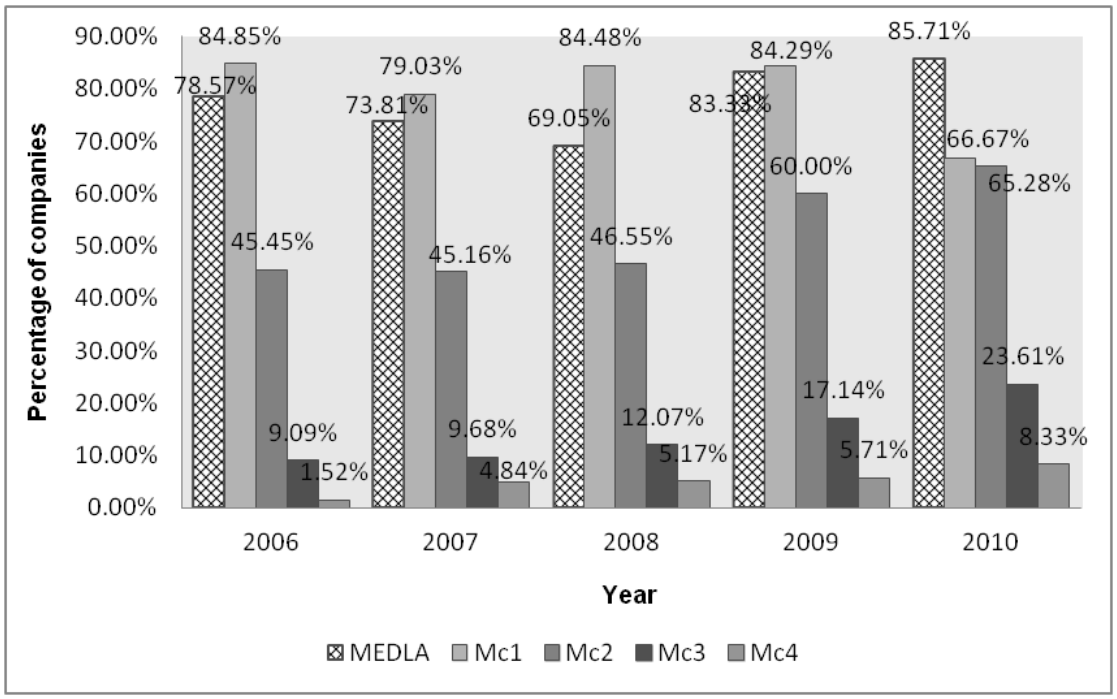
Figure 5: Emphasis of earnings metrics in earnings announcements



Note: Based on the measure approach in Frederickson and Miller (2004), Bowen *et al.* (2005) and Elliott (2005), the bar is divided on the following four-point scale:

Content in Press Release	Emphasis Level	Measure of NGE Emphasis
Only GE is mentioned in the announcements.	Lev 1	least emphasis
Mention GE in front of NGE.	Lev 2	↕
Mention NGE in front of GE.	Lev 3	↕
Only NGEs are mentioned in the announcements.	Lev 4	most emphasis

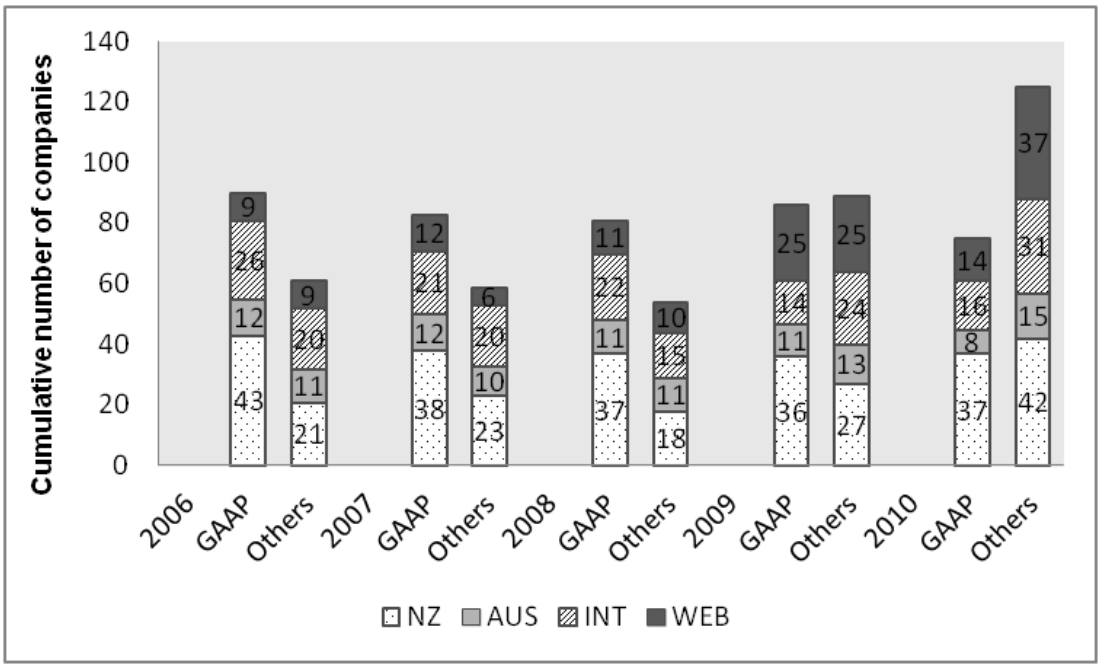
Figure 6.1: Emphasis of earnings metrics in media



Note: Media coverage (MEDLA) is whether the firm is mentioned in the news during the 3-day window period surrounding the earnings announcement. If the media reports the results in the 3-day window period then taking the value of 1, otherwise, 0. The bar is divided on the following four-point scale:

Content in Press Release	Emphasis Level	Measure of NGE Emphasis
Only GE is mentioned in media release.	Mc 1	least emphasis
The mentioned times of GE are more than that of NGE.	Mc 2	↕
The mentioned times of NGE are more than that of GE.	Mc 3	↕
Only NGEs are mentioned in media release.	Mc 4	most emphasis

Figure 6.2: Media sources



Note: The bar is the cumulative count the level of media coverage in the sample. Details of media follow:

NZ (source from press release in New Zealand) – *Dominion Post, New Zealand Herald, New Zealand Press Association, The Press (Christchurch), Otago Daily Times, Newstalk ZB (radio).*

AUS (source from press release in Australia) – *The Australian, Australian Associated Press Financial News Wire, Associated Press Newswires, Australian Associated Press Bulletins, The Courier-Mail, The Sydney Morning Herald, The Daily Telegraph.*

INT (source from press release in Overseas) – *Dow Jones International News, Wall Street Journal Asia, AFX Asia, Asia Corporate News Newswire, Agency France Presses, Associated Press (US owned).*

WEB (source from press release in internet) – *Business Desk, Reuters News, Scoop.*

LIST OF TABLES

Table 1: List of variables definitions

Variable	***Measurement***
Dependent Variable	
NGE_Asset	NGE divided by total asset (in case there are more than one type of NGE disclosed, the one with the largest difference from GE is taken for computing this variable)
Ann_Mktret	a measure of market return, equal to the ratio of difference between market value in previous year and current year to market value in previous year
Ann_BASdailyavg	average daily bid-ask spreads in annual year
Ann_lnVol	natural log of the number of shares traded divided by the average of shares outstanding
Ann_lnTur	natural log of the dollars of share traded divided by the average of the market value
Ann_lnTrades	natural log of the number of share transactions divided by the natural log of the market value at the end of the year
CAR_1	the cumulative daily return over the two-day earnings announcement window t=(0,+1)
CAR_3	the cumulative daily return over the three-day earnings announcement window t= (-1,+1)
CAR_5	the cumulative daily return over the five-day earnings announcement window t= (-2,+2)
CAR_{11}	the cumulative daily return over the eleven-day earnings announcement window t= (-5,+5)
CAV_1	the cumulative medium-adjusted daily percentage of shares traded over the earnings announcement window t= (0,+1)
CAV_3	the cumulative medium-adjusted daily percentage of shares traded over the earnings announcement window t= (-1,+1)
CAV_5	the cumulative medium-adjusted daily percentage of shares traded over the earnings announcement window t= (-2,+2)
CAV_{11}	the cumulative medium-adjusted daily percentage of shares traded over the earnings announcement window t= (-5,+5)
$CATur_1$	cumulative abnormal value of shares traded over the earnings announcement window t= (0,+1)
$CATur_3$	cumulative abnormal value of shares traded over the earnings announcement window t= (-1,+1)
$CATur_5$	cumulative abnormal value of shares traded over the earnings announcement window t= (-2,+2)
$CATur_{11}$	cumulative abnormal value of shares traded over the earnings announcement window t= (-5,+5)
$CATrades_1$	cumulative abnormal daily shares of transactions over the earnings announcement window t= (0,+1)
$CATrades_3$	cumulative abnormal daily shares of transactions over the earnings announcement window t= (-1,+1)
$CATrades_5$	cumulative abnormal daily shares of transactions over the

	earnings announcement window t= (-2,+2)
$CATrades_{11}$	cumulative abnormal daily shares of transactions over the earnings announcement window t= (-5,+5)
$ABAS_1$	cumulative abnormal daily bid-ask spreads over the earnings announcement window t= (0,+1)
$ABAS_3$	cumulative abnormal daily bid-ask spreads over the earnings announcement window t= (-1,+1)
$ABAS_5$	cumulative abnormal daily bid-ask spreads over the earnings announcement window t= (-2,+2)
$ABAS_{11}$	cumulative abnormal daily bid-ask spreads over the earnings announcement window t= (-5,+5)
Independent Variable	
GE_Asset	statutory profit divided by total asset
Diff_NG_Asset	difference between statutory profit and NGE, divided by total asset in previous year
Diff_Tgt_ASSET	difference between statutory profit and target profit (profit in previous year), divided by total asset
lnAsset	natural log of total assets
lnAFEE_Asset	natural log of auditors fee divided by total asset
IAC_AC	proportion of independent audit committee members to the total number of audit committee members
IBOD_BOD	proportion of independent directors to the total number of board of directors
AREMP	difference between times of NGE mentioned and those of GE mentioned in annual report
EAEMP	scores NGE emphasised in earnings announcement from 0 to 4
MCEMP	scores NGE emphasised in the media(expect NZX) over the window (-1,+1) from 0 to 4
Analysts	is the number of analysts following a firm
Length	A4 pages without unrelated pictures, advertisements in overview, CEO's reports and CFO's reports
Incnst	scores from 0 to 32 as 0 represents consistently use the same items of NGE in five years while 32 represents a firm use different items or same item with different definitions every year in five years
LEV	leverage is measured as end of year total debt divide by total assets
$Mktret_1$	the cumulative market returns over the earnings announcement window t=(0,+1) based on the NZAX NZ index
$Mktret_3$	the cumulative market returns over the earnings announcement window t= (-1,+1) based on the NZAX NZ index
$Mktret_5$	the cumulative market returns over the earnings announcement window t= (-2,+2) based on the NZAX NZ index
$Mktret_{11}$	the cumulative market returns over the earnings announcement window t= (-5,+5) based on the NZAX NZ index
$ACAR_1$	the absolute value of cumulative daily return over the two-day earnings announcement window t=(0,+1)
$ACAR_3$	the absolute value of cumulative daily return over the three-day earnings announcement window t= (-1,+1)

$ACAR_5$	the absolute value of cumulative daily return over the five-day earnings announcement window t= (-2,+2)
$ACAR_{11}$	the absolute value of cumulative daily return over the eleven-day earnings announcement window t= (-5,+5)
$Mktvol_1$	the cumulative market turnover over the earnings announcement window t=(0,+1) based on the NZAX NZ index
$Mktvol_3$	the cumulative market turnover over the earnings announcement window t= (-1,+1) based on the NZAX NZ index
$Mktvol_5$	the cumulative market turnover over the earnings announcement window t= (-2,+2) based on the NZAX NZ index
$Mktvol_{11}$	the cumulative market turnover over the earnings announcement window t= (-5,+5) based on the NZAX NZ index
Recon	coded as 1 if there is reconciliation movement, 0 otherwise
Big4	coded as 1 if the firm was audited by a Big 4 auditor, 0 otherwise
Loss	coded as 1 if current year has a net loss, 0 otherwise
NZX50	coded as 1 if the firm is one of are the largest 50 companies listed on the New Zealand Exchange by free float market capitalisation, 0 otherwise
Year Dummies	
Y2006	coded as 1 if the annual year is 2006, 0 otherwise
Y2007	coded as 1 if the annual year is 2007, 0 otherwise
Y2008	coded as 1 if the annual year is 2008, 0 otherwise
Y2009	coded as 1 if the annual year is 2009, 0 otherwise
Y2010	coded as 1 if the annual year is 2010, 0 otherwise
Industry Dummies	
Energy	coded as 1 if the firm is classified into 'Energy', 0 otherwise
Goods	coded as 1 if the firm is classified into 'Goods', 0 otherwise
Primary	coded as 1 if the firm is classified into 'Primary', 0 otherwise
Property	coded as 1 if the firm is classified into 'Property', 0 otherwise
Services	coded as 1 if the firm is classified into 'Services', 0 otherwise

Table 2: Sample selection

Criterion		*Number of Firms*
Current listed firms in New Zealand Exchange Market		191
Less:	Finance and related services firms	15
	Investment firms	25
	Equity trusts and funds firms	6
	Firms listed only on NZDX	40
	Firms newly listed in 2011	1
	Firms listed in 2010	6
	Firms listed in 2009	1
	Firms listed in 2008	4
	Firms listed in 2007	4
	Firms changed balance date during 2006-2010	5
Total Observed Firms		**84**
Total Observations		**420**
Less:	Observations with missing data in 2006 (e.g. listed in 2006)	3
	Observations with missing data for audit fee	2
	Observations with extreme data	95
Total samples for regressions		**320**

Table 3: Descriptive statistics

Variable	*N*	*Mean*	*Min*	*25%*	*50%*	*75%*	*Max*	*Skew.*	*Kurt.*
NGE_Asset	320	0.1009	-0.2147	0.0000	0.0889	0.1610	0.5331	0.8943	1.1851
Ann_Mktret	320	-0.1091	-5.8366	-0.2544	-0.0472	0.1830	0.8844	-4.3467	33.2439
Ann_BASdailyavg	320	0.0589	-0.0092	0.0187	0.0414	0.0676	0.7325	4.6916	32.4508
Ann_lnVol	320	0.1784	0.0016	0.0370	0.1042	0.2383	1.7000	2.6619	11.5946
Ann_lnTur	320	0.1689	0.0015	0.0355	0.1018	0.2357	1.0918	1.9038	4.1549
Ann_lnTrades	320	0.3806	0.1986	0.3270	0.3986	0.4342	0.5126	-0.4675	-0.7138
CAR_1	320	0.0044	-0.1544	-0.0130	0.0013	0.0249	0.1929	0.2047	2.7468
CAR_3	320	0.0036	-0.1677	-0.0179	0.0013	0.0281	0.1929	0.0624	2.5802
CAR_5	320	0.0032	-0.2802	-0.0210	0.0032	0.0345	0.1840	-0.8001	4.0335
CAR_{11}	320	0.0018	-0.2668	-0.0316	0.0008	0.0418	0.2226	-0.3930	2.2065
CAV_1	320	0.0016	-0.0006	0.0001	0.0005	0.0020	0.0369	5.7417	50.1270
CAV_3	320	0.0022	-0.0006	0.0002	0.0009	0.0028	0.0415	4.8997	39.6778
CAV_5	320	0.0036	-0.0004	0.0004	0.0016	0.0044	0.0474	3.3935	17.8131
CAV_{11}	320	0.0074	-0.0002	0.0010	0.0034	0.0098	0.0712	2.6124	9.1188
$CATur_1$	320	13.2340	-3.5477	-0.0069	0.6175	7.4485	378.9902	5.5207	38.2218
$CATur_3$	320	20.6097	-1.9700	0.0557	1.8171	13.7719	578.0744	6.2628	47.0501
$CATur_5$	320	34.4710	-0.8914	0.1953	3.8323	24.5501	934.9519	6.1462	46.7173
$CATur_{11}$	320	78.3193	-0.4592	0.6434	11.3533	54.7064	1613.8243	4.7602	28.0690
$CATrades_1$	320	37.6299	-2.6489	2.2968	11.9348	44.2306	523.5299	3.2210	14.1813
$CATrades_3$	320	57.1758	-2.1048	3.6573	18.0017	67.5734	569.5299	2.5977	7.5815
$CATrades_5$	320	97.4571	-2.1048	5.6021	38.8646	116.6182	931.1992	2.7331	8.7707
$CATrades_{11}$	320	212.6914	0.5066	15.4931	90.7516	238.3979	1872.3593	2.4474	6.5675
$ASAB_1$	320	0.0566	-0.2961	0.0043	0.0251	0.0803	0.5373	1.8178	5.1157
$ASAB_3$	320	0.1129	-0.1949	0.0222	0.0568	0.1619	0.9373	2.1741	5.8456
$ASAB_5$	320	0.2215	-0.1695	0.0577	0.1287	0.2820	1.9075	2.6857	9.5445
$ASAB_{11}$	320	0.5381	-0.6798	0.1547	0.3385	0.6928	4.0775	2.4189	7.8617
$Mktvol_1$	320	-0.0016	-0.0673	-0.0070	-0.0014	0.0031	0.0278	-0.6073	4.6637
$Mktvol_3$	320	-0.0022	-0.1763	-0.0091	-0.0020	0.0055	0.0405	-3.2648	32.3218
$Mktvol_5$	320	-0.0038	-0.1649	-0.0156	-0.0038	0.0070	0.0549	-1.3986	9.4728
$Mktvol_{11}$	320	-0.0097	-0.1736	-0.0244	-0.0097	0.0108	0.1790	-0.4687	5.3445
$Mktret_1$	320	-0.0018	-0.0673	-0.0070	-0.0014	0.0031	0.0278	-0.6528	4.9040
$Mktret_3$	320	-0.0022	-0.0446	-0.0093	-0.0024	0.0053	0.0371	-0.2831	1.3547
$Mktret_5$	320	-0.0039	-0.0898	-0.0156	-0.0042	0.0062	0.0549	-0.0527	1.7989
$Mktret_{11}$	320	-0.0116	-0.1808	-0.0216	-0.0072	0.0082	0.0846	-1.9059	6.6035
GE_Asset	320	0.0412	-0.4773	0.0136	0.0443	0.0781	0.2829	-1.7540	8.2884
Diff_NG_Asset	320	-0.0597	-0.4773	-0.1031	-0.0622	-0.0021	0.2629	-0.3007	2.7532
Diff_Tgt_Asset	320	-0.0038	-0.3467	-0.0241	-0.0009	0.0172	0.3002	-0.1325	6.6612
lnAsset	320	19.5139	15.5252	18.2432	19.3000	20.7620	27.1502	0.6137	1.0734
lnAFEE_Asset	320	-7.4176	-10.5387	-8.4286	-7.2967	-6.5704	-3.6550	-0.1472	-0.2572
IAC_AC	320	0.7663	0.3333	0.6667	0.6667	1.0000	1.0000	-0.0860	-0.9139
IBOD_BOD	320	0.5917	0.2000	0.4000	0.5714	0.7500	1.0000	0.2945	-0.9438
AREMP	320	0.9000	-7.0000	-1.0000	0.0000	2.0000	20.0000	1.7624	5.4337
EAEMP	320	1.8563	1.0000	1.0000	2.0000	3.0000	4.0000	0.5022	-1.0392
MCEMP	320	1.4906	0.0000	1.0000	1.0000	2.0000	4.0000	0.3918	-0.2711
Analysts	320	1.2469	0.0000	0.0000	1.0000	2.0000	5.0000	0.4353	-0.3140
Length	320	6.8188	0.0000	4.0000	6.0000	9.0000	36.0000	1.5692	7.4404
Incnst	320	0.9406	0.0000	0.0000	0.0000	1.0000	10.0000	2.5577	8.1642
LEV	320	0.4375	0.0025	0.3068	0.4419	0.5855	1.0596	0.0299	-0.0413

Note: The data in black border is divided by 100,000.

Table 4: Pearson correlation matrix for variables

Variable		*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*	*16*	*17*
NGE_Asset	1	1.000																
Ann_Mktret	2	-0.039	1.000															
Ann_BASdailyavg	3	0.059	0.059	1.000														
lnVol	4	.161**	-0.064	-.277**	1.000													
lnTur	5	.170**	-0.017	-.282**	.931**	1.000												
lnTrades	6	.217**	0.035	-.379**	.688**	.714**	1.000											
GE_Asset	7	.492**	-0.030	-0.109	0.084	0.095	.148**	1.000										
Diff_NG_Asset	8	-.619**	0.014	0.040	-0.096	-0.095	-0.097	.380**	1.000									
Diff_Tgt_Asset	9	.172**	-.172**	0.015	-0.013	0.010	-0.026	.356**	.139*	1.000								
lnAFEE_Asset	10	0.069	0.004	-.134*	-.174**	-.187**	-.374**	-0.019	-0.090	0.037	1.000							
IAC_AC	11	.145**	0.077	0.049	.147**	.123*	.190**	0.080	-0.082	0.047	-.242**	1.000						
IBOD_BOD	12	0.025	0.067	.119*	0.105	0.085	0.004	0.023	-0.006	0.030	-.142*	.645**	1.000					
AREMP	13	.263**	0.008	-0.106	.163**	.152**	.254**	0.003	-.277**	0.046	-0.026	0.023	0.018	1.000				
Analysts	14	.342**	0.003	-.286**	.528**	.537**	.697**	.248**	-.139*	-0.010	-.288**	.171**	0.084	.169**	1.000			
Length	15	.133*	0.007	-0.019	.271**	.267**	.313**	0.102	-0.049	0.024	-.262**	.124*	0.032	.401**	.292**	1.000		
Incnst	16	0.019	-0.003	-0.099	.124*	.139*	.153**	-0.063	-0.077	-0.003	-.177**	0.101	.143*	.283**	0.040	.196**	1.000	
LEV	17	.170**	0.084	.182**	.132*	.128*	.138*	-0.003	-.183**	0.030	-.125*	0.069	.155**	.221**	.148**	.160**	.111*	1.000

Variable	**NGE_ Asset**	**ABAS$_i$**	**Mktvol$_i$**	**Mktret$_i$**	**GE_Asset**	**Diff_NG _Asset**	**Diff_Tgt _Asset**	**lnAFEE _Asset**	**IAC_ AC**	**IBOD _BOD**	**MCEMP**	**Incnst**	**LEV**
CAR_1	0.032	0.007	0.072	0.069	0.106	0.061	.110*	0.078	-0.074	-0.032	0.020	-0.021	-0.088
CAR_3	0.030	0.042	0.033	0.062	.131*	0.086	.153**	0.086	-0.077	-0.026	0.053	-0.033	-0.089
CAR_5	0.061	0.037	0.105	.118*	.179**	0.096	.182**	0.017	-0.058	-0.036	0.055	0.006	-0.054
CAR_{11}	.117*	-0.028	0.088	0.087	.174**	0.033	.113*	0.038	-0.043	-0.047	.140*	0.041	-0.076
CAV_1	.226**	0.004	0.024	0.030	.116*	-.135*	0.055	0.020	0.029	0.058	.263**	0.048	0.110
CAV_3	.208**	-0.091	-0.001	0.002	.110*	-.122*	0.055	-0.018	0.050	0.069	.312**	0.087	.119*
CAV_5	.236**	-.180**	0.003	0.000	.128*	-.135*	0.042	-0.019	0.040	0.043	.319**	0.060	.125*
CAV_{11}	.252**	-.249**	-0.001	0.059	.153**	-.130*	0.048	-0.052	0.102	0.084	.331**	0.040	0.103
$CATur_1$	.115*	-0.008	0.024	0.029	.142*	-0.087	0.078	-.268**	.205**	.221**	.331**	.252**	.148**
$CATur_3$	0.079	-0.020	-0.005	0.020	.137*	-0.076	0.070	-.317**	.222**	.235**	.374**	.262**	.157**
$CATur_5$	0.088	0.054	-0.011	0.035	.128*	-0.074	0.060	-.332**	.228**	.233**	.394**	.251**	.160**
$CATur_{11}$	.116*	0.034	-0.046	-0.013	.132*	-0.068	0.039	-.365**	.246**	.239**	.414**	.236**	.153**
$CATrades_1$	.202**	-.152**	0.046	0.052	0.084	-0.046	0.048	-.201**	.195**	.227**	.306**	0.066	.193**
$CATrades_3$	.188**	-.223**	0.012	0.003	0.069	-0.021	0.060	-.215**	.203**	.235**	.326**	.129*	.184**
$CATrades_5$	.178**	-.246**	0.007	0.011	0.078	-0.023	0.051	-.226**	.210**	.227**	.332**	.112*	.198**
$CATrades_{11}$	.176**	-.256**	-0.060	-0.034	0.105	-0.028	0.044	-.254**	.231**	.242**	.334**	0.097	.179**
$ASAB_1$	-0.027	1.000	0.056	0.054	-0.069	-0.033	-0.057	0.062	0.013	-0.021	-0.031	-0.093	0.072
$ASAB_3$	-0.045	1.000	-0.005	-0.012	-0.068	-0.014	-0.044	0.062	0.002	-0.001	-0.069	-.149**	0.105
$ASAB_5$	-0.072	1.000	0.023	0.033	-0.063	0.019	-0.033	0.007	0.035	0.065	-0.039	-.153**	.163**
$ASAB_{11}$	-0.086	1.000	0.040	0.031	-0.033	0.062	-0.017	-0.020	0.053	.114*	-0.048	-.145**	.160**
$Mktvol_1$	0.094	0.056	1.000	.986**	0.019	-0.083	0.023	0.014	0.034	0.006	-0.005	0.007	-0.035
$Mktvol_3$	0.047	-0.005	1.000	.854**	0.038	-0.016	0.101	0.018	0.025	-0.023	-0.072	0.042	-0.020
$Mktvol_5$	0.053	0.023	1.000	.817**	0.056	-0.006	0.086	0.079	0.033	-0.027	-0.036	0.040	-0.067
$Mktvol_{11}$	-0.056	0.040	1.000	.898**	-.125*	-0.053	0.012	0.102	-0.015	-0.040	-0.032	.112*	0.023
$Mktret_1$	0.107	0.054	.986**	1.000	0.021	-0.095	0.020	0.028	0.016	-0.016	-0.004	0.013	-0.023
$Mktret_3$	0.051	-0.012	.854**	1.000	0.003	-0.052	0.088	0.039	0.011	-0.033	-0.065	0.070	-0.012
$Mktret_5$	0.053	0.033	.817**	1.000	0.004	-0.053	0.088	0.066	0.068	-0.010	0.000	0.088	-0.020
$Mktret_{11}$	-0.040	0.031	.898**	1.000	-.129*	-0.074	0.041	0.085	0.008	-0.033	0.014	.149**	0.002

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 5: Regression results for NGE determinants

$$NGE\_Asset = \beta_0 + \beta_1 Diff\_Tgt\_Asset + \beta_2 LEV + \beta_3 Incnst + \beta_4 Length + \beta_5 Analysts + \beta_6 IBOD\_BOD + \beta_7 IAC\_AC + \beta_8 lnAFEE\_Asset + \beta_9 Big4 + \beta_{10} Loss + \beta_{11} NZX50 + \sum_{i=12}^{16} \beta_i \, Industry\ Dummies + \sum_{i=17}^{21} \beta_i \, Year\ Dummies + \varepsilon \quad (1)$$

$$AREMP = \beta_0 + \beta_1 NGE\_Asset + \beta_2 LEV + \beta_3 Incnst + \beta_4 Length + \beta_5 Analysts + \beta_6 IBOD\_BOD + \beta_7 IAC\_AC + \beta_8 lnAFEE\_Asset + \beta_9 Big4 + \beta_{10} Loss + \beta_{11} NZX50 + \sum_{i=12}^{16} \beta_i \, Industry\ Dummies + \sum_{i=17}^{21} \beta_i \, Year\ Dummies + \varepsilon \quad (2)$$

		Model 1						***Model 2***					
Variables	Expt. Sign	Hyp	*Std. β*	*t*	*Sig.*	*Tol.*	*VIF*	Hyp	*Std. β*	*t*	*Sig.*	*Tol.*	*VIF*
NGE_Asset								H1b	0.203	3.416	**0.001**	0.645	1.550
Diff_Tgt_Asset	+	H1a	0.087	1.771	0.078	0.884	1.131						
LEV	+	H2a	-0.003	-0.053	0.958	0.764	1.309	H2b	0.126	2.300	**0.022**	0.764	1.309
Incnst	+		0.041	0.729	0.467	0.663	1.508		0.145	2.468	**0.014**	0.662	1.511
Length	-		0.034	0.655	0.513	0.801	1.248		0.325	6.071	**0.000**	0.800	1.250
Analysts	+	H3a	0.234	3.820	**0.000**	0.566	1.767	H3b	-0.058	-0.891	0.374	0.543	1.842
IBOD_BOD	-	H4a	-0.218	-3.317	**0.001**	0.491	2.038	H4b	0.071	1.025	0.306	0.473	2.113
IAC_AC	-	H4a	0.220	3.450	**0.001**	0.523	1.913	H4b	-0.099	-1.467	0.143	0.503	1.989
lnAFEE_Asset	-	H4a	0.231	3.504	**0.001**	0.489	2.043	H4b	0.170	2.443	**0.015**	0.471	2.124
Big 4	-	H4a	0.015	0.283	0.778	0.770	1.299	H4b	0.045	0.835	0.404	0.776	1.289
Loss	+		-0.174	-3.051	**0.002**	0.658	1.521		0.039	0.681	0.497	0.687	1.456
NZX50	+		0.234	3.282	**0.001**	0.420	2.382		0.174	2.312	**0.021**	0.406	2.465
Energy	?		-0.138	-2.635	**0.009**	0.772	1.295		-0.023	-0.421	0.674	0.755	1.325
Goods	?		-0.103	-1.996	**0.047**	0.793	1.261		-0.036	-0.663	0.508	0.785	1.273
Primary	?		-0.210	-3.908	**0.000**	0.739	1.354		0.082	1.446	0.149	0.707	1.415
Property	?		-0.254	-4.229	**0.000**	0.588	1.700		0.061	0.951	0.342	0.556	1.798
Services[a]	?		0.133	1.918	0.056	0.458	2.185						
Y2006	?		0.016	0.264	0.792	0.608	1.645						
Y2007[a]	?								0.026	0.421	0.674	0.594	1.683
Y2008	?		-0.014	-0.246	0.806	0.622	1.609		0.002	0.040	0.968	0.585	1.710
Y2009	?		-0.069	-1.147	0.252	0.583	1.717		0.028	0.430	0.667	0.534	1.873
Y2010	?		-0.049	-0.747	0.456	0.495	2.019		0.116	1.612	0.108	0.440	2.273
F-statistic				8.938	0.000					7.212	0.000		
Adjusted R^2				0.321						0.270			
N				320						320			

a. This parameter is set to zero because it is redundant.

Table 6: Regression results for NGE relevance

$$\textbf{Ann\_Mktret} = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 AREMP + \beta_5 Incnst + \beta_6 LEV + \beta_7 IBOD\_BOD + \beta_8 IAC\_AC + \beta_9 lnAFEE\_Asset + \beta_{10} Big4 + \beta_{11} Recon + \beta_{12} Loss + \beta_{13} NZX50 + \sum_{i=14}^{18} \beta_i\ Industry\ Dummies + \sum_{i=19}^{23} \beta_i\ Year\ Dummies + \varepsilon \quad (3)$$

$$\textbf{Ann\_BASdailyavg} = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 AREMP + \beta_5 Incnst + \beta_6 LEV + \beta_7 IBOD\_BOD + \beta_8 IAC\_AC + \beta_9 lnAFEE\_Asset + \beta_9 Big4 + \beta_{11} Recon + \beta_{12} Loss + \beta_{13} NZX50 + \sum_{i=14}^{18} \beta_i\ Industry\ Dummies + \sum_{i=19}^{23} \beta_i\ Year\ Dummies + \varepsilon \quad (4)$$

$$\textbf{Ann\_lnVol} = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 AREMP + \beta_5 Incnst + \beta_6 LEV + \beta_7 IBOD\_BOD + \beta_8 IAC\_AC + \beta_9 lnAFEE\_Asset + \beta_9 Big4 + \beta_{11} Recon + \beta_{12} Loss + \beta_{13} NZX50 + \sum_{i=14}^{18} \beta_i\ Industry\ Dummies + \sum_{i=19}^{23} \beta_i\ Year\ Dummies + \varepsilon \quad (5)$$

$$\textbf{Ann\_lnTur} = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 AREMP + \beta_5 Incnst + \beta_6 LEV + \beta_7 IBOD\_BOD + \beta_8 IAC\_AC + \beta_9 lnAFEE\_Asset + \beta_9 Big4 + \beta_{11} Recon + \beta_{12} Loss + \beta_{13} NZX50 + \sum_{i=14}^{18} \beta_i\ Industry\ Dummies + \sum_{i=19}^{23} \beta_i\ Year\ Dummies + \varepsilon \quad (6)$$

$$\textbf{Ann\_lnTrades} = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 AREMP + \beta_5 Incnst + \beta_6 LEV + \beta_7 IBOD\_BOD + \beta_8 IAC\_AC + \beta_9 lnAFEE\_Asset + \beta_9 Big4 + \beta_{11} Recon + \beta_{12} Loss + \beta_{13} NZX50 + \sum_{i=14}^{18} \beta_i\ Industry\ Dummies + \sum_{i=19}^{23} \beta_i\ Year\ Dummies + \varepsilon \quad (7)$$

Variables	Hyp	***Model 3***		***Model 4***		***Model 5***		***Model 6***		***Model 7***	
		t	*Sig.*	*t*	*Sig.*	*t*	*Sig.*	*t*	*Sig.*	*t*	*Sig.*
NGE_Asset	H5+	-1.250	0.212	-1.116	0.265	1.529	0.127	1.521	0.129	0.526	0.599
GE_Asset	H5+	-0.227	0.820	-0.120	0.905	0.029	0.977	0.079	0.937	-0.173	0.863
Diff_Tgt_Asset		-2.980	**0.003**	0.693	0.489	-0.297	0.766	0.130	0.897	-0.693	0.489
AREMP	H6-	0.191	0.849	-0.972	0.332	0.266	0.790	-0.120	0.904	1.748	0.081
Incnst		-0.441	0.659	-2.517	**0.012**	0.852	0.395	1.381	0.168	0.512	0.609
LEV		1.032	0.303	3.536	**0.000**	0.600	0.549	0.502	0.616	-1.111	0.267
IBOD_BOD		-0.123	0.902	0.621	0.535	2.050	**0.041**	1.808	0.072	-1.136	0.257
IAC_AC		1.569	0.118	-0.085	0.932	0.277	0.782	-0.067	0.947	2.650	**0.008**
lnAFEE_Asset		1.630	0.104	-4.117	**0.000**	1.701	0.090	1.722	0.086	0.999	0.319
Big4		2.062	0.040	-0.519	0.604	1.320	0.188	1.401	0.162	1.910	0.057
Recon		1.238	0.217	0.192	0.848	-1.400	0.163	-0.672	0.502	-0.437	0.663
Loss		-0.659	0.510	0.597	0.551	1.078	0.282	1.388	0.166	0.932	0.352
NZX50		-0.232	0.816	-2.697	**0.007**	5.854	**0.000**	5.924	**0.000**	11.871	**0.000**
Energy		0.612	0.541	-0.901	0.368	-0.975	0.331	-1.207	0.228	0.765	0.445
Goods		0.179	0.858	-0.480	0.631	-0.579	0.563	-0.576	0.565	-0.020	0.984
Primary		-1.404	0.161	-0.025	0.980	1.308	0.192	0.752	0.453	0.894	0.372
Property		0.751	0.453	-2.465	**0.014**	2.726	**0.007**	2.895	**0.004**	1.446	0.149
Services[a]											
Y2006		-2.847	**0.005**	-0.164	0.870	-0.712	0.477	-1.516	0.131	-0.557	0.578
Y2007[a]											
Y2008		0.969	0.334	1.213	0.226	-1.783	0.076	-2.270	**0.024**	-1.518	0.130
Y2009		-2.355	**0.019**	0.499	0.618	-0.556	0.579	-2.078	**0.039**	-1.396	0.164
Y2010		-1.030	0.304	1.420	0.157	-1.569	0.118	-2.259	**0.025**	-2.288	**0.023**
F-statistic		2.407	0.001	2.875	0.000	5.080	0.000	5.279	0.000	16.976	0.000
Adjusted R^2		0.085		0.110		0.212		0.220		0.513	
N		320		320		320		320		320	

a. This parameter is set to zero because it is redundant.

Table 7: Regression results for NGE emphasis in annual report

$$\textbf{Ann\_Mkret} = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 AREMP + \beta_5 Incnst + \beta_6 LEV + \beta_7 IBOD\_BOD + \beta_8 IAC\_AC + \beta_9 Big4 + \beta_{10} lnAFEE\_Asset + \beta_{11} Recon + \beta_{12} Loss + \beta_{13} NZX50 + \sum_{i=14}^{18} \beta_i \, Industry\ Dummies + \sum_{i=19}^{23} \beta_i \, Year\ Dummies + \beta_{24} UP\_Asset*AREMP + \varepsilon \quad (8)$$

$$\textbf{Ann\_BASdailyavg} = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 AREMP + \beta_5 Incnst + \beta_6 LEV + \beta_7 IBOD\_BOD + \beta_8 IAC\_AC + \beta_9 Big4 + \beta_{10} lnAFEE\_Asset + \beta_{11} Recon + \beta_{12} Loss + \beta_{13} NZX50 + \sum_{i=14}^{18} \beta_i \, Industry\ Dummies + \sum_{i=19}^{23} \beta_i \, Year\ Dummies + \beta_{24} UP\_Asset*AREMP + \varepsilon \quad (9)$$

$$\textbf{Ann\_lnVol} = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 AREMP + \beta_5 Incnst + \beta_6 LEV + \beta_7 IBOD\_BOD + \beta_8 IAC\_AC + \beta_9 Big4 + \beta_{10} lnAFEE\_Asset + \beta_{11} Recon + \beta_{12} Loss + \beta_{13} NZX50 + \sum_{i=14}^{18} \beta_i \, Industry\ Dummies + \sum_{i=19}^{23} \beta_i \, Year\ Dummies + \beta_{24} UP\_Asset*AREMP + \varepsilon \quad (10)$$

$$\textbf{Ann\_lnTur} = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 AREMP + \beta_5 Incnst + \beta_6 LEV + \beta_7 IBOD\_BOD + \beta_8 IAC\_AC + \beta_9 Big4 + \beta_{10} lnAFEE\_Asset + \beta_{11} Recon + \beta_{12} Loss + \beta_{13} NZX50 + \sum_{i=14}^{18} \beta_i \, Industry\ Dummies + \sum_{i=19}^{23} \beta_i \, Year\ Dummies + \beta_{24} UP\_Asset*AREMP + \varepsilon \quad (11)$$

$$\textbf{Ann\_lnTrades} = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 AREMP + \beta_5 Incnst + \beta_6 LEV + \beta_7 IBOD\_BOD + \beta_8 IAC\_AC + \beta_9 Big4 + \beta_{10} lnAFEE\_Asset + \beta_{11} Recon + \beta_{12} Loss + \beta_{13} NZX50 + \sum_{i=14}^{18} \beta_i \, Industry\ Dummies + \sum_{i=19}^{23} \beta_i \, Year\ Dummies + \beta_{24} UP\_Asset*AREMP + \varepsilon \quad (12)$$

		Model 8		***Model 9***		***Model 10***		***Model 11***		***Model 12***	
Variables	Hyp	*t*	*Sig.*	*t*	*Sig.*	*t*	*Sig.*	*t*	*Sig.*	*t*	*Sig.*
Intercept		-0.548	0.584	-1.941	0.053	0.216	0.829	0.505	0.614	11.746	**0.000**
NGE_Asset		-1.305	0.193	-1.125	0.262	1.445	0.150	1.421	0.156	0.433	0.665
GE_Asset		-0.264	0.792	-0.130	0.897	-0.008	0.993	0.032	0.974	-0.221	0.826
Diff_Tgt_Asset		-0.233	0.816	-0.779	0.437	-0.182	0.856	-0.537	0.592	0.733	0.464
AREMP		-3.016	**0.003**	0.668	0.505	-0.357	0.721	0.051	0.960	-0.768	0.443
Incnst		-0.450	0.653	-2.515	**0.012**	0.841	0.401	1.367	0.173	0.499	0.618
LEV		1.054	0.293	3.533	**0.000**	0.623	0.534	0.532	0.595	-1.076	0.283
IBOD_BOD		-0.090	0.928	0.628	0.530	2.076	**0.039**	1.843	0.066	-1.089	0.277
IAC_AC		1.590	0.113	-0.078	0.938	0.301	0.763	-0.035	0.972	2.677	**0.008**
Big4		1.617	0.107	-4.112	**0.000**	1.689	0.092	1.708	0.089	0.985	0.326
lnAFEE_Asset		2.055	**0.041**	-0.520	0.604	1.314	0.190	1.394	0.164	1.902	0.058
Recon		1.305	0.193	0.215	0.830	-1.289	0.199	-0.552	0.582	-0.315	0.753
Loss		-0.693	0.489	0.584	0.560	1.038	0.300	1.338	0.182	0.883	0.378
NZX50		-0.259	0.796	-2.697	**0.007**	5.812	**0.000**	5.876	**0.000**	11.808	**0.000**
Energy		0.656	0.512	-0.881	0.379	-0.921	0.358	-1.141	0.255	0.822	0.412
Goods		0.221	0.825	-0.465	0.642	-0.533	0.594	-0.520	0.604	0.036	0.971
Primary		-1.289	0.198	0.002	0.998	1.376	0.170	0.851	0.395	0.996	0.320
Property		0.791	0.429	-2.438	**0.015**	2.757	**0.006**	2.936	**0.004**	1.497	0.136
Services[a]											
Y2006		-1.498	0.135	-1.487	0.138	0.854	0.394	0.809	0.419	1.665	0.097
Y2007		1.006	0.315	-1.423	0.156	1.543	0.124	2.227	**0.027**	2.255	**0.025**
Y2008		1.949	**0.052**	-0.302	0.763	-0.064	0.949	0.182	0.856	0.910	0.363
Y2009		-1.311	0.191	-0.981	0.327	1.101	0.272	0.272	0.786	1.003	0.317
Y2010[a]											
UP_ASSET *AREMP	H7-	0.504	0.615	0.150	0.881	0.506	0.613	0.628	0.531	0.655	0.513
F-statistic		2.303	0.001	2.736	0.000	4.848	0.000	5.047	0.000	16.193	0.000
Adjusted R^2		0.083		0.107		0.210		0.219		0.512	
N		320		320		320		320		320	

a. This parameter is set to zero because it is redundant.

Table 8.1: Regression results for effects of NGE emphasis on stock market price reaction in short windows

$$CAR_i = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 EAEMP + \beta_5 MCEMP + \beta_6 IBOD\_BOD + \beta_7 IAC\_AC + \beta_8 ABASi + \beta_9 Mktreti + \beta_{10} Incnst + \beta_{11} Big4 + \beta_{12} Loss + \beta_{13} NZX50 + \sum_{i=14}^{18} \beta i\ Industry\ Dummies + \sum_{i=19}^{23} \beta i\ Year\ Dummies + \beta_{24} UP\_Asset*EAEMP + \beta_{25} UP\_Asset*MCEMP + \varepsilon \quad (13)$$

Variables	*Hyp*	*window=(0,1)*			*window=(-1,1)*			*window=(-2,2)*			*window=(-5,5)*		
		β	*t*	*Sig.*	*β*	*t*	*Sig.*	*β*	*t*	*Sig.*	*β*	*t*	*Sig.*
Intercept		0.028	1.678	0.094	0.030	1.700	0.090	0.046	2.179	0.030	0.045	1.626	0.105
NGE_Asset		0.005	0.070	0.944	-0.013	-0.180	0.857	-0.043	-0.487	0.626	0.074	0.648	0.517
GE_Asset		0.054	1.212	0.226	0.073	1.590	0.113	0.066	1.186	0.237	0.120	1.683	0.093
Diff_Tgt_Asset		0.031	0.774	0.439	0.058	1.399	0.163	0.077	1.529	0.127	0.027	0.420	0.675
EAEMP	H8+	-0.010	-1.966	**0.050**	-0.012	-2.246	**0.025**	-0.012	-2.003	**0.046**	-0.012	-1.513	0.131
MCEMP	H9+	0.011	2.591	**0.010**	0.016	3.407	**0.001**	0.014	2.522	**0.012**	0.022	3.112	**0.002**
IBOD_BOD		0.010	0.573	0.567	0.010	0.571	0.569	-0.003	-0.127	0.899	-0.008	-0.280	0.780
IAC_AC		-0.027	-1.491	0.137	-0.032	-1.669	0.096	-0.030	-1.307	0.192	-0.035	-1.189	0.235
$ABAS_i$		0.004	0.156	0.877	0.011	0.641	0.522	0.005	0.374	0.709	-0.004	-0.539	0.591
$Mktret_i$		0.338	1.419	0.157	0.227	1.163	0.246	0.322	1.865	0.063	0.185	1.618	0.107
Incnst		0.000	0.132	0.895	0.000	-0.213	0.832	0.002	0.715	0.475	0.001	0.447	0.655
Big4		-0.008	-0.930	0.353	-0.009	-1.021	0.308	-0.016	-1.451	0.148	-0.022	-1.565	0.119
Loss		-0.008	-0.737	0.462	-0.004	-0.376	0.707	-0.024	-1.827	0.069	-0.016	-0.957	0.339
NZX50		-0.008	-1.242	0.215	-0.009	-1.235	0.218	-0.006	-0.735	0.463	-0.010	-0.954	0.341
Energy		-0.002	-0.216	0.829	0.003	0.290	0.772	-0.010	-0.901	0.368	-0.017	-1.146	0.253
Goods		0.016	2.297	**0.022**	0.017	2.297	**0.022**	0.014	1.599	0.111	0.009	0.752	0.453
Primary		0.005	0.711	0.478	0.000	0.011	0.991	-0.002	-0.212	0.832	-0.004	-0.334	0.739
Property Services[a]		0.008	0.821	0.412	0.003	0.247	0.805	0.008	0.635	0.526	0.005	0.299	0.765
Y2006		-0.003	-0.365	0.715	-0.002	-0.240	0.810	0.000	-0.031	0.975	-0.008	-0.541	0.589
Y2007		0.004	0.442	0.659	0.003	0.319	0.750	0.009	0.820	0.413	0.009	0.657	0.511
Y2008		-0.002	-0.222	0.824	-0.001	-0.079	0.937	-0.001	-0.060	0.952	0.008	0.538	0.591
Y2009		-0.004	-0.435	0.664	-0.008	-0.968	0.334	-0.008	-0.825	0.410	-0.007	-0.525	0.600
Y2010[a]													
UP_Asset * EAEMP	H10+	0.037	1.057	0.291	0.049	1.322	0.187	0.052	1.172	0.242	0.012	0.202	0.840
UP_Asset * MCEMP	H11+	-0.050	-1.680	**0.094**	-0.061	-1.955	**0.052**	-0.046	-1.218	0.224	-0.040	-0.814	0.416
F-statistic			1.142	0.299		1.584	0.046		1.875	0.010		1.670	0.030
Adjusted R^2			0.010			0.040			0.059			0.046	
N			320			320			320			320	

a. This parameter is set to zero because it is redundant.

Table 8.2: Regression results for effects of NGE emphasis on stock market trading volume reaction in the short windows

$$CAV_i = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 EAEMP + \beta_5 MCEMP + \beta_6 IBOD\_BOD + \beta_7 IAC\_AC + \beta_8 ABASi + \beta_9 ACAR_i + \beta_{10} Mktvoli + \beta_{11} Incnst + \beta_{12} Big4 + \beta_{13} Loss + \beta_{14} NZX50 + \sum_{i=15}^{19} \beta i\ Industry\ Dummies + \sum_{i=20}^{24} \beta i\ Year\ Dummies + \beta_{25} UP\_Asset*EAEMP + \beta_{26} UP\_Asset*MCEMP + \varepsilon \quad (14)$$

Variables	*Hyp*	***window=(0,1)***			***window=(-1,1)***			***window=(-2,2)***			***window=(-5,5)***		
		β	*t*	*Sig.*	*β*	*t*	*Sig.*	*β*	*t*	*Sig.*	*β*	*t*	*Sig.*
Intercept		0	-0.159	0.874	-0.001	-0.419	0.675	-0.001	-0.467	0.641	-0.002	-0.563	0.574
NGE_Asset		-0.002	-0.453	0.651	-0.003	-0.479	0.632	-0.002	-0.225	0.822	-0.021	-1.555	0.121
GE_Asset		0.003	1.013	0.312	0.003	0.849	0.397	0.006	1.279	0.202	0.014	1.697	0.091
Diff_Tgt_Asset		0.002	0.836	0.404	0.002	0.796	0.426	0.003	0.654	0.514	0.004	0.497	0.620
EAEMP	H8+	0.000	0.258	0.797	0.000	0.318	0.751	0.001	0.994	0.321	0.000	0.213	0.832
MCEMP	H9+	0.000	0.428	0.669	0.000	0.803	0.423	0.000	0.503	0.616	0.001	0.868	0.386
IBOD_BOD		0.002	1.773	0.077	0.002	1.863	0.064	0.003	1.570	0.117	0.006	1.772	0.077
IAC_AC		-0.002	-1.814	0.071	-0.002	-1.690	0.092	-0.003	-1.627	0.105	-0.003	-0.733	0.464
$ABAS_i$		0.001	0.746	0.456	-0.001	-0.429	0.668	-0.002	-1.873	0.062	-0.003	-3.334	0.001
$ACAR_i$		0.015	2.857	0.005	0.015	2.544	**0.011**	0.012	1.817	0.070	0.015	1.514	0.131
$Mktvol_i$		-0.007	-0.453	0.651	0.000	0.012	0.990	-0.001	-0.053	0.958	0.008	0.670	0.504
Incnst		0.000	-1.870	0.062	0.000	-1.349	0.178	0.000	-1.692	0.092	-0.001	-2.045	0.042
Big4		0.001	1.334	0.183	0.001	1.671	0.096	0.001	1.588	0.113	0.002	1.309	0.192
Loss		0.002	2.614	**0.009**	0.002	2.489	**0.013**	0.003	2.945	**0.003**	0.005	2.645	**0.009**
NZX50		0.001	2.329	**0.021**	0.002	2.937	**0.004**	0.003	3.947	**0.000**	0.006	4.496	**0.000**
Energy		-0.001	-1.715	0.087	-0.001	-2.054	**0.041**	-0.002	-2.464	0.014	-0.003	-1.582	0.115
Goods		0.000	-1.028	0.305	-0.001	-0.944	0.346	0.000	-0.493	0.622	0.001	0.650	0.516
Primary		0.000	-0.781	0.436	0.000	-0.272	0.786	0.000	-0.224	0.823	0.000	-0.034	0.973
Property Services[a]		0.001	0.745	0.457	0.001	0.812	0.418	0.001	0.512	0.609	0.001	0.391	0.696
Y2006		-0.001	-1.619	0.106	-0.001	-1.339	0.182	0.000	-0.413	0.680	0.000	-0.105	0.916
Y2007		0.000	-0.545	0.586	0.000	0.119	0.906	0.001	0.918	0.359	0.002	1.444	0.150
Y2008		-0.001	-1.092	0.276	-0.001	-1.044	0.297	-0.001	-0.629	0.530	-0.001	-0.402	0.688
Y2009		0.000	-0.387	0.699	0.000	-0.584	0.559	0.000	0.149	0.882	-0.001	-0.319	0.750
Y2010[a]													
UP_Asset * EAEMP	H10+	0.000	0.193	0.847	0.000	0.091	0.928	-0.001	-0.316	0.753	0.008	1.170	0.243
UP_Asset * MCEMP	H11+	0.005	2.329	**0.021**	0.005	2.200	**0.029**	0.008	2.418	**0.016**	0.011	1.938	0.054
F-statistic		3.684	0.000		4.184	0.000			5.265	0.000		6.340	0.000
Adjusted R^2		0.168			0.193				0.243			0.287	
N			320			320			320			320	

a. This parameter is set to zero because it is redundant.

Table 8.3: Regression results for effects of NGE emphasis on stock market trading turnover in the short windows

$$CATur_i = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 EAEMP + \beta_5 MCEMP + \beta_6 IBOD\_BOD + \beta_7 IAC\_AC + \beta_8 ABASi + \beta_9 ACAR_i + \beta_{10} Mktreti + \beta_{11} Incnst + \beta_{12} Big4 + \beta_{13} Loss + \beta_{14} NZX50 + \sum_{i=15}^{19} \beta i\ Industry\ Dummies + \sum_{i=20}^{24} \beta i\ Year\ Dummies + \beta_{25} UP\_Asset*EAEMP + \beta_{26} UP\_Asset*MCEMP + \varepsilon \quad (15)$$

Variables	*Hyp*	*window=(0,1)*			*window=(-1,1)*			*window=(-2,2)*			*window=(-5,5)*		
		β	*t*	*Sig.*	*β*	*t*	*Sig.*	*β*	*t*	*Sig.*	*β*	*t*	*Sig.*
Intercept		-1.11E+06	-0.794	0.428	-2.27E+06	-1.018	0.310	-4.49E+06	-1.306	0.193	-1.19E+07	-1.672	0.096
NGE_Asset		-1.03E+07	-1.752	0.081	-1.50E+07	-1.633	0.103	-2.65E+07	-1.865	0.063	-7.38E+07	-2.547	**0.011**
GE_Asset		-2.36E+05	-0.064	0.949	4.39E+05	0.076	0.940	1.82E+06	0.205	0.837	7.86E+06	0.437	0.663
Diff_Tgt_Asset		1.92E+06	0.583	0.561	3.77E+06	0.727	0.468	5.01E+06	0.625	0.532	4.88E+06	0.298	0.766
EAEMP	H8+	-3.98E+04	-0.098	0.922	-1.37E+05	-0.213	0.831	-1.01E+05	-0.102	0.919	-1.56E+06	-0.773	0.440
MCEMP	H9+	2.07E+05	0.572	0.568	7.77E+05	1.361	0.174	1.01E+06	1.138	0.256	2.35E+06	1.301	0.194
IBOD_BOD		3.14E+06	2.289	**0.023**	5.12E+06	2.374	**0.018**	7.04E+06	2.119	**0.035**	1.42E+07	2.087	**0.038**
IAC_AC		-9.37E+04	-0.062	0.951	-2.39E+05	-0.101	0.920	3.45E+05	0.094	0.925	4.29E+06	0.575	0.566
$ABAS_i$		3.57E+05	0.190	0.849	6.39E+05	0.294	0.769	2.78E+06	1.417	0.158	1.59E+06	0.864	0.388
$ACAR_i$		5.57E+05	0.085	0.932	-4.11E+06	-0.410	0.682	-7.08E+06	-0.547	0.585	-5.03E+05	-0.023	0.981
$Mktret_i$		-2.02E+06	-0.103	0.918	8.23E+06	0.338	0.735	1.50E+07	0.544	0.587	3.44E+06	0.119	0.905
Incnst		-2.61E+05	-1.654	0.099	-1.09E+05	-0.441	0.659	-1.98E+05	-0.517	0.606	-5.68E+05	-0.725	0.469
Big4		5.62E+05	0.774	0.440	8.55E+05	0.751	0.453	1.56E+06	0.886	0.377	3.53E+06	0.985	0.325
Loss		2.01E+05	0.234	0.815	8.43E+04	0.062	0.951	6.58E+05	0.314	0.754	1.83E+06	0.428	0.669
NZX50		2.04E+06	3.717	**0.000**	2.89E+06	3.359	**0.001**	5.01E+06	3.784	**0.000**	1.13E+07	4.162	**0.000**
Energy		-1.32E+06	-1.748	0.082	-1.59E+06	-1.345	0.180	-2.38E+06	-1.304	0.193	-1.88E+06	-0.506	0.613
Goods		-8.99E+05	-1.511	0.132	-1.12E+06	-1.202	0.230	-1.68E+06	-1.169	0.243	-1.10E+06	-0.375	0.708
Primary		-5.40E+05	-0.860	0.391	2.03E+05	0.205	0.837	1.49E+05	0.097	0.923	1.06E+04	0.003	0.997
Property		-1.00E+06	-1.183	0.238	-1.34E+06	-1.000	0.318	-1.94E+06	-0.926	0.355	-3.94E+06	-0.914	0.362
Services[a]													
Y2006		-8.58E+05	-1.148	0.252	-1.00E+06	-0.852	0.395	-8.53E+05	-0.464	0.643	-1.02E+06	-0.269	0.788
Y2007		-7.50E+05	-1.049	0.295	-1.11E+06	-0.994	0.321	-1.60E+06	-0.928	0.354	-1.33E+06	-0.382	0.703
Y2008		-8.21E+05	-1.140	0.255	-1.34E+06	-1.191	0.235	-1.80E+06	-1.031	0.303	-2.69E+06	-0.762	0.446
Y2009		-7.22E+05	-1.078	0.282	-1.55E+06	-1.478	0.140	-2.17E+06	-1.330	0.185	-4.89E+06	-1.465	0.144
Y2010[a]													
UP_Asset * EAEMP	H10+	1.91E+06	0.655	0.513	4.17E+06	0.911	0.363	7.29E+06	1.034	0.302	2.81E+07	1.957	0.051
UP_Asset * MCEMP	H11+	4.32E+06	1.748	0.082	2.84E+06	0.732	0.465	5.48E+06	0.906	0.366	8.92E+06	0.724	0.469
F-statistic			3.088	0.000		3.063	0.000		3.361	0.000		3.756	0.000
Adjusted R^2			0.136			0.134			0.151			0.172	
N			320			320			320			320	

a. This parameter is set to zero because it is redundant.

Table 8.4: Regression results for effects of NGE emphasis on the number of shares traded in the short windows

$$CATrades_i = \beta_0 + \beta_1 NGE\_Asset + \beta_2 GE\_Asset + \beta_3 Diff\_Tgt\_Asset + \beta_4 EAEMP + \beta_5 MCEMP + \beta_6 IBOD\_BOD + \beta_7 IAC\_AC + \beta_8 ABASi + \beta_9 ACAR_i + \beta_{10} Mktvoli + \beta_{11} Incnst + \beta_{12} Big4 + \beta_{13} Loss + \beta_{14} NZX50 + \sum_{i=15}^{19} \beta i\ Industry\ Dummies + \sum_{i=20}^{24} \beta i\ Year\ Dummies + \beta_{25} UP\_Asset*EAEMP + \beta_{26} UP\_Asset*MCEMP + \varepsilon \quad (16)$$

Variables	*Hyp*	***window=(0,1)***			***window=(-1,1)***			***window=(-2,2)***			***window=(-5,5)***		
		β	*t*	*Sig.*	*β*	*t*	*Sig.*	*β*	*t*	*Sig.*	*β*	*t*	*Sig.*
Intercept		-68.235	-3.258	0.001	-85.383	-2.980	0.003	-126.223	-2.629	0.009	-246.898	-2.489	0.013
NGE_Asset		106.450	1.207	0.228	90.172	0.758	0.449	-45.452	-0.229	0.819	-462.644	-1.143	0.254
GE_Asset		31.695	0.576	0.565	25.764	0.344	0.731	19.323	0.156	0.876	109.001	0.434	0.665
Diff_Tgt_Asset		60.685	1.225	0.222	73.872	1.102	0.271	101.031	0.903	0.367	119.752	0.524	0.601
EAEMP	H8+	5.264	0.861	0.390	5.314	0.644	0.520	3.923	0.284	0.777	0.207	0.007	0.994
MCEMP	H9+	-0.171	-0.031	0.975	3.907	0.530	0.596	13.958	1.125	0.261	33.990	1.348	0.179
IBOD_BOD		69.279	3.361	**0.001**	98.501	3.541	**0.000**	156.858	3.381	**0.001**	315.484	3.312	**0.001**
IAC_AC		-9.854	-0.434	0.665	-13.213	-0.431	0.667	-11.109	-0.217	0.828	22.189	0.213	0.832
$ABAS_i$		-65.299	-2.319	**0.021**	-89.531	-3.185	**0.002**	-104.379	-3.816	**0.000**	-113.995	-4.440	**0.000**
$ACAR_i$		100.012	1.015	0.311	17.492	0.135	0.893	75.328	0.417	0.677	1.467	0.005	0.996
$Mktvol_i$		139.632	0.483	0.630	64.423	0.260	0.795	194.763	0.630	0.529	-105.773	-0.300	0.765
Incnst		4.857	2.049	**0.041**	6.219	1.944	0.053	7.649	1.426	0.155	11.256	1.028	0.305
Big4		16.485	1.513	0.131	23.419	1.591	0.113	36.674	1.492	0.137	65.195	1.304	0.193
Loss		21.309	1.653	0.099	23.040	1.314	0.190	28.337	0.968	0.334	58.787	0.981	0.327
NZX50		44.469	5.394	**0.000**	69.032	6.206	**0.000**	116.555	6.299	**0.000**	256.264	6.772	**0.000**
Energy		5.005	0.443	0.658	12.720	0.835	0.404	26.981	1.060	0.290	96.630	1.858	0.064
Goods		4.352	0.487	0.627	3.552	0.296	0.768	-2.444	-0.122	0.903	-2.884	-0.071	0.944
Primary		6.708	0.711	0.478	12.494	0.979	0.328	20.456	0.956	0.340	34.816	0.792	0.429
Property Services[a]		4.180	0.328	0.743	-1.514	-0.088	0.930	-12.077	-0.414	0.680	-41.999	-0.697	0.486
Y2006		12.599	1.121	0.263	19.021	1.255	0.210	27.925	1.092	0.276	51.429	0.984	0.326
Y2007		13.847	1.289	0.198	21.465	1.494	0.136	32.530	1.360	0.175	64.552	1.326	0.186
Y2008		-0.164	-0.015	0.988	1.777	0.123	0.902	3.434	0.142	0.887	18.890	0.383	0.702
Y2009		15.137	1.505	0.134	15.068	1.111	0.268	11.546	0.505	0.614	12.809	0.272	0.786
Y2010[a]													
UP_Asset * EAEMP	H10+	-62.153	-1.418	0.157	-56.742	-0.960	0.338	0.112	0.001	0.999	166.787	0.830	0.407
UP_Asset * MCEMP	H11+	44.383	1.196	0.233	43.918	0.877	0.381	53.352	0.632	0.528	89.727	0.522	0.602
F-statistic			6.178	0.000		7.614	0.000		7.970	0.000		9.212	0.000
Adjusted R^2			0.280			0.332			0.344			0.382	
N			320			320			320			320	

a. This parameter is set to zero because it is redundant.

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APPENDIX

Appendix A: List of companies

	Code	Company	Industry		Code	Company	Industry
01	CEN	Contact Energy Limited	Energy	43	KIP	Kiwi Income Property Trust	Property
02	HED	Horizon Energy Distribution Limited	Energy	44	PFI	Property for Industry Limited	Property
03	IFT	Infratil Limited	Energy	45	VHP	Vital Healthcare Property Trust	Property
04	NWF	NZ Windfarms Limited	Energy	46	AIR	Air New Zealand Limited	Services
05	NZR	The New Zealand Refining Company Limited	Energy	47	AMP	AMP Limited	Services
06	TPW	TrustPower Limited	Energy	48	APN	APN News & Media Limited	Services
07	VCT	Vector Limited	Energy	49	AIA	Auckland International Airport Limited	Services
08	CAV	Cavalier Corporation Limited	Goods	50	ANZ	Australia and New Zealand Banking Group Limited	Services
09	DGL*	Delegat's Group Limited	Goods	51	BGR	Briscoe Group Limited	Services
10	EBO	Ebos Group Limited	Goods	52	FRE	Freightways Limited	Services
11	FPA	Fisher & Paykel Appliances Holdings Limited	Goods	53	HLG	Hallenstein Glasson Holdings Limited	Services
12	FPH	Fisher & Paykel Healthcare Corporation Limited	Goods	54	JTM	Jasons Travel Media Limited	Services
13	GFF	Goodman Fielder Limited	Goods	55	KRK	Kirkcaldie & Stains Limited	Services
14	JWI	Just Water International Limited	Goods	56	LPC	Lyttelton Port Company Limited	Services
15	MGL	Mercer Group Limited	Goods	57	MFT	Mainfreight Limited	Services
16	MVN	Methven Limited	Goods	58	MHI	Michael Hill International Limited	Services
17	WSI	New Zealand Wool Services International Limited	Goods	59	MCK	Millennium & Copthorne Hotels New Zealand Limited	Services
18	RAK*	Rakon Limited	Goods	60	NZE	New Zealand Experience Limited	Services
19	SCT	Scott Technology Limited	Goods	61	NTH	Northland Port Corporation (NZ) Limited	Services
20	SKL	Skellerup Holdings Limited	Goods	62	PHB	Pharmacybrands Limited	Services
21	FFW[1]	Foley Family Wines Limited	Goods	63	POT	Port of Tauranga Limited	Services
22	WTL	Windflow Technology Limited	Goods	64	PPG	Postie Plus Group Limited	Services
23	WEL	Wool Equities Limited	Goods	65	PPL	Pumpkin Patch Limited	Services
24	ATM	A2 Corporation Limited	Primary	66	RNS	Renaissance Corporation Limited	Services
25	ALF	Allied Farmers Limited	Primary	67	RBD	Restaurant Brands New Zealand Limited	Services
26	FBU	Fletcher Building Limited	Primary	68	SAT**	Satara Co-operative Group	Services
27	GEL*	Glass Earth Gold Limited	Primary	69	SKT	Sky Network Television Limited	Services
28	NTL[2]	New Talisman Gold Mines Limited	Primary	70	SKC	SKYCITY Entertainment Group Limited	Services
29	LIC	Livestock Improvement Corporation Limited	Primary	71	SCY	Smiths City Group Limited	Services
30	NZO	New Zealand Oil and Gas Limited	Primary	72	SDL	Solution Dynamics Limited	Services
31	NPX	Nuplex Industries Limited	Primary	73	SPN	South Port New Zealand Limited	Services
32	PGW	PGG Wrightson Limited	Primary	74	STH	Southern Travel Holdings Limited	Services
33	SAN	Sanford Limited	Primary	75	TTK	TeamTalk Limited	Services
34	SEK	Seeka Kiwifruit Industries Limited	Primary	76	TEL	Telecom Corporation of New Zealand Limited	Services
35	STU	Steel & Tube Holdings Limited	Primary	77	TLS	Telstra Corporation Limited	Services
36	TEN	Tenon Limited	Primary	78	CMO	The Colonial Motor Company Limited	Services
37	TUR	Turners & Growers Limited	Primary	79	WHS	The Warehouse Group Limited	Services
38	WID	Widespread Portfolios Limited	Primary	80	THL	Tourism Holdings Limited	Services
39	ANO	AMP NZ Office Limited	Property	81	TUA	Turners Auctions Limited	Services
40	ARG	Argosy Property Trust	Property	82	ACY[3]	Acurity Health Group Limited	Services
41	CDI	CDL Investments New Zealand Limited	Property	83	WBC	Westpac Banking Corporation Limited	Services
42	GMT	Goodman Property Trust	Property	84	ZIN	Zintel Group Limited	Services

1. On 11 September 2012, the New Zealand Wine Company Limited (NWC) changed name to Foley Family Wines Limited (FFW).
2. On 1 May 2012, Heritage Gold NZ Limited (HGD) changed name to change name to New Talisman Gold Mines Limited (NTL).
3. On 6 August 2012, Wakefield Health Limited (WFD) changed name to Acurity Health Group Limited (ACY).
*and**represents companies with missing data in 2006 (e.g. listed in 2006), companies with missing data for audit fee in 2007 and 2008, respectively.

Appendix B: Summary of literature review of NGE

Author	Purpose	Sample/Period	Theory and statistical analysis	Conclusion/Recommendation	Main focus
Biddle *et al.* (1997)	Tests assertions that Economic Value Added (EVA) is more highly associated with stock returns and price values than accrual earnings, and evaluates which components of EVA, if any, contribute to these associations	219 firms (2271 observations) from Jun. 1983 to May 1994. US market	Use a test of the null hypothesis of no difference in the ability of two competing sets of independent variables to explain variation in the dependent variable. They make six pair wise comparisons of regressions among the accounting performance measures CFO, EBEI, RI and EVA.	GAAP earnings explain share returns better than an EVA (pro forma) measure.	Informativeness/ Relevance
Bradshaw & Sloan (2002)	Document the phenomenon that Managers, security analysts, investors, and the press rely increasingly on pro forma earnings and discuss competing explanations for the recent rise in the use of such modified earnings numbers and implications for the interpretation of related accounting research.	obtain forecasted quarterly EPS and I/B/E/S defined EPS from 1986 to 1997, US market	logistical regression, cross-sectional analysis	1. Over the past 20 years there has been a dramatic increase in the frequency and magnitude of cases where "GAAP" and "Street" earnings differ. 2. There is a very strong bias toward the reporting of a Street earnings number that exceeds the GAAP earnings number. 3. Market response to the Street earnings number has displaced GAAP earnings as a primary determinant of stock prices. 4. Through an analysis of earnings releases, management has taken a proactive role in defining and emphasizing the Street number when communicating to analysts and investors.	Informativeness/ Relevance, Market Reaction
Arnold & Duggan (2002)	1. For pro forma disclosures to the GAAP-based measures, management needs to apply a disciplined and consistent approach. 2. Analysts and investors must recognize the reflexive, broad-brush dismissal of "one-time items" is both naïve and potentially dangerous. 3. The earnings serving as a starting point should be clearly identified along with modifications to GAAP-based equivalent. 4. The requisite transparency is directly linked to presenting pro forma information. 5. The usefulness of pro forma measures can be enhanced through disclosure and discussion of the key performance metrics.				Critics
Halsey & Soybel (2002)	Some practitioners concur with the claims that removing noncash and nonrecurring items enhances comparability in time-series measures because the GAAP measure includes items such as restructuring charges and gains and losses on the sale of assets, which have little implication for future earnings.				Critics

Doyle *et al.* (2003)	Investigate (1) whether the expenses excluded from pro forma earnings provide incremental information about a firm's future cash flows beyond the pro forma earnings number itself. (2) Whether the stock market appropriately prices the predictable association between the excluded expenses in pro forma earnings and future cash flows.	The 1999 fourth quarter earnings announcement press release for 50 randomly chosen firms.	Consistent with Brown and Sivakumar (2001) and Bradshaw and Sloan (2002), we define pro forma earnings as the IBES-reported actual earnings per share	Firms with relatively large exclusions in their definition of pro forma earnings suffer relatively lower future cash flows and relatively lower stock returns over the next three years, and the market does not fully appreciate the predictive power of the excluded expenses of NGE.	Informativeness/ Relevance
Hirshleifer and Hong (2003)	To examine the consequences of limited attention for disclosure, financial reporting policy and market trading.	Equation derivation.	Offer a model that reflects both legitimate reasons for reporting pro forma earnings, and the possibility of manipulating such disclosure to exploit limited investor or analyst attention.	1. The degree of earnings persistence is a relevant consideration for a policymaker who seeks to align market perceptions with firm fundamentals. 2. Representativeness could lead investors to jump too readily to conclusions as they try to detect patterns in financial ratios indicative of the firm's financial condition. 3. Additional mispricing effects are not ruled out on prior conceptual grounds. 4. This suggests that adjustments in pro forma earnings can help investors with limited attention form more accurate perceptions about the terminal cash flow, consistent with the view of defenders of adjusted pro forma disclosures	Sophisticated Investors

Brown & Sivakumar (2003)	Followed Aboody **& Lev (1998)**, the study want to assess value relevance of pro forma earnings in 1. Ability to predict future earnings 2.association of earnings levels with stock price levels 3. Correlation of earnings surprises with abnormal stock return.	Sample period from 1989 to 1997. Consistent with **Bradshaw and Sloan (2002)**, they use Thomson Financial I/B/E/S data to measure operating income disclosed in a firm's earnings release.	1. Conduct predictive ability tests using a seasonal random walk (SRW) model. 2. Compare the valuation consequences by using a book value and earnings regression (**Collins *et al.*, 1997**) to determine which regression has the higher adjusted R-square (**Biddle *et al.*, 1997**) and which operating income coefficient has the higher multiplier (**Collins *et al.*, 1997**). 3. Examine information content using both a three-day and a 63-day window (**Brown & Warner, 1980**).	Overall under all three methods the operating income reported by managers and analysts is more value relevant than the one obtained by Standard and Poor's Compustat, a sophisticated user of firms' financial statements.1. The operating income reported by managers and analysts has fewer transitory components than operating income obtainable from firms' financial statements (**Lipe, 1986; Elliott and Shaw, 1988; Elliott and Hanna, 1996**). 2. Managers and analysts seek to provide value relevant information to the marketplace through their operating earnings measures.	Informativeness/ Relevance, Market Reaction
Bhattacharya *et al.* (2003)	To investigate whether market participants perceive pro forma earnings to be more informative and more persistent than GAAP earnings.	1149 firms reporting pro forma earnings metrics in their earnings announcements between Jan. 1998 and Dec. 2000 in U.S.	Short-window abnormal returns around earnings announcement dates reveals that pro forma earnings are significantly more informative to investors than GAAP operating earnings. Consistent with prior research (e.g., Brown and Sivakumar, 2003; Bradshaw and Sloan, 2002),	1. Firms reporting pro forma earnings tend to be from Services and High-technology industries. 2. Pro forma numbers may not be comparable across firms as different adjustments to arrive. 3. Pro forma numbers are significantly greater than both GAAP & I/B/E/S figures. 4. Pro forma numbers resulted in a profit move often than audited GAAP figures. 5. Most pro forma announcements meet/beat analysts' mean forecasts, greater than GAAP earnings. 6. Pro forma numbers are significant more informative to investors than GAAP earnings.(e.g., **Brown and Sivakumar, 2003; Bradshaw and Sloan, 2002**),	Informativeness/ Relevance, Market Reaction
Sarbanes-Oxley Act in 2002 and the Securities and Exchange Commission (SEC) regulation (Regulation G effective in early 2003)					

Lougee & Marquardt (2004)	To address the broader question of what motivates firms to release pro forma earnings and examine whether investors react appropriately to pro forma disclosures which void by prior research.	a sample of 249 press releases from 1997–1999, US market	To test whether pro forma earnings have greater relative information content than GAAP earnings, perform tests similar to those in **Biddle *et al.* (1995)**	1 Firms whose managers choose to report pro forma earnings are characterized by smaller ERC and RSQ measures and greater sales growth and earnings variability.2. Pro forma disclosers have higher debt-to-equity and market-to-book ratios. 3. Firms with less informative GAAP earnings are more likely to release pro forma earnings information than other firms.4. Pro forma earnings have greater relative and incremental information content when GAAP earnings informativeness is low or when GAAP earnings surprises are positive (**Bradshaw & Sloan, 2002; Brown & Sivakumar, 2003; Bhattacharya *et al.*, 2003**). 5. Pro forma earnings are, on average, weakly negatively correlated with future returns for these companies.	Informativeness/ Relevance
Bhattacharya *et al.* (2004)	To gather descriptive evidence on recent trends in pro forma reporting. 1. Who reports pro forma earnings figures? 2. How do firms arrive to pro forma earnings? 3. How comparable and consistent are pro forma numbers? 4. What are some of the possible motivation behind pro forma reporting?	596 firms, quarterly pro forma releases for 1998-2000, US market	Descriptive empirical evidence.	1. The composition of firms' pro forma earnings has changed over time. 2. Pro forma firms are less profitable, more liquid and have higher debt levels, higher P-E ratios and higher book-to market ratio than other firms in their industries. 3. Pro forma reporting increased significantly around the same time that pro forma firms experienced shared price and earnings declines. 4. Companies tend to use pro forma earnings reports to meet analysts' expectation and down play negative earnings news, a phenomenon that has increased over time.	Manager Incentives

Frederickson & Miller (2004)	1. Examine the effect of pro forma earnings disclosures on financial analysts' and non-professional investors' stock price judgements. 2. Why pro forma disclosures do or do not influence investors' judgements	Use M.B.A student as nonprofessional investors.(Hirst *et al.*, 1995; Hirst *et al.*, 1999; **Manies and McDaniel, 2000**)	Viewed M.B.A.s as a reasonable participant group. Observe their behaviour in reading different parts of earnings announcement (Headline, narrative that stated current and comparative amounts for annual earnings and quarterly earnings, comparative financial statements).	1. Nonprofessional investors who received an earnings announcement that contained both pro forma and GAAP disclosures assessed a higher stock price than did non-professionals who received an announcement containing only GAAP disclosure. 2. Pro forma disclosure had lower transparency. 3. Analysts used well-defined valuation models based on either earnings-multiples or cash flows while the nonprofessional investors were more likely to use simpler, heuristic-based valuation models. 4. The pro forma disclosure did not cause nonprofessional investors to assess a higher earnings number for determining a stock price, but to perceive the earnings announcement as more favourable, which in turn caused them to convert earnings into a higher stock price. 5. Pro forma earnings disclosure exceeds GAAP earnings in the experiment. (**Johnson & Schwartz, 2003; Lougee & Marquardt, 2004**)	Sophisticated Investors
Johnson *et al.* (2005)	This paper documents the frequency and magnitude of "pro forma" earnings in press releases issued during June through August 2000 and describes the 433 firms that engaged in this financial disclosure strategy	PFE 433 firms, from 1/6/2000-31/8/2000,	We then use a market multiples approach to determine if investors assign a higher (or lower) share price to pro forma firms than other firms.	We find no evidence that pro forma firms are priced differently than other firms. We also find no evidence of a stock return premium (or penalty) at the quarterly earnings announcement date for pro forma firms. Collectively, our results provide evidence that investors are not, on average, misled by pro forma earnings disclosures.	Market Reaction

Bowen *et al.*(2005)	They examine (1) the determinants of emphasis placed on pro forma and GAAP earnings within quarterly earnings press releases, (2) whether there has been a shift away from emphasizing pro forma earnings toward GAAP earnings, and (3) whether stock market reactions to earnings news were influenced by emphasis placed on metrics within the press release	Random 550 firms reporting pro forma earnings metrics in quarterly earnings announcements between April 7, 2001 and June 7, 2001 in U.S.	Multivariate tests with interaction test of media coverage with time dummy variable	1. Firms emphasize metrics that are more value-relevant and portray more favourable firm performance. 2. The extent of a firm's media coverage affects managers' emphasis decisions. 3. It indicates a highly significant shift toward GAAP emphasis and away from pro forma emphasis in 2002 relative to 2001. 4. Greater emphasis on earnings metric results in a stronger market reaction to the surprise in that metric. Overall, these findings are consistent with managers using emphasis in the earnings press release as a disclosure tool and this emphasis influencing at least one important stakeholder group-investors.	Informativeness/ Relevance, Market Reaction, Emphasis on NGE, Regulation G
Eillott (2006)	To examine how two underlying characteristics of pro forma earnings announcements, pro forma emphasis and the presence of a quantitative reconciliation, influence nonprofessional investors' and analysts' reliance on pro forma disclosures.	89 first-year M.B.A.s from a large state university participated in the experiment as nonprofessional investors while analysts as professional investors	Use a 2 *4 between-subjects design with one cell eliminated. Similar with **Frederickson & Miller (2004)**.	1. The emphasis management places on pro forma earnings, not the mere presence of pro forma earnings, influences nonprofessional investors' judgments and decisions. 2. Further analysis reveals the influence of pro forma emphasis on nonprofessional investors' judgments and decisions seems to be the result of an unintentional cognitive effect. 3. Analysts' judgments and decisions were also affected by the presence of reconciliation, but in the opposite direction to those of nonprofessional investors. 4. Specifically, the presence of a quantitative reconciliation led analysts to view pro forma earnings as more reliable, increasing their reliance on the pro forma disclosure in judging the earnings performance of the firm.	Sophisticated Investors

Entwistle *et al.* (2006)	Examines whether firms' reporting of pro forma earnings changed with the introduction of pro forma regulation, including that inspired by SOX.	448 earnings press releases of S&P 500 companies between Feb. 2001 and Feb. 2004.	An alternative measure of earnings (to GAAP earnings) for the year appears somewhere in the press release, either specifically in the headline or in the narrative. Second, this alternate measure must be expressed on a per share basis.	1. a sharp reduction over the two-year period in the per-share difference between pro forma and GAAP earnings, and this reduction is larger for firms that initially had income-increasing pro forma in 2001. 2. Far fewer firms are using pro forma after the introduction of SOX and they do so in a manner that is less likely to mislead investors. 3. The form of presentation of pro forma shifts substantially between 2001 and 2003.	Regulation (SOX) and NGE reporting format
Allee *et al.* (2007)	To externally validate and extend this experimental evidence using archival data to investigate how these two classes of investors process pro forma earnings information.	Based on **Wallace's (2002)** comprehensive list of adjusted GAAP earnings nomenclatures to search strings, obtain 17,511 announcements contain actual quarterly pro forma earnings announcements from Jan. 1998 to Dec. 2003, US market	Experimental evidence using trade-size-based proxies constructed from intraday transactions data to distinguish the trading activities of less-sophisticated investors from more-sophisticated investors.	Results suggest that less-sophisticated investors rely significantly more on quarterly earnings press the relative placement of the two earnings metrics. They conclude that the existence of a pro forma number as well as its strategic placement in the press release generally affect the judgments of less-sophisticated (but not more-sophisticated) investors and these inferences are robust because they persist in both experimental and archival settings releases that include a pro forma number than on those that do not, while more-sophisticated investors exhibit the opposite behaviour (**Frederickson & Miller, 2004**). Further, they find that less-sophisticated investors rely more on the pro forma figure when it is placed before the GAAP earnings number in the press release (**Elliott, 2006**)	Sophisticated Investors

Bhattacharya *et al.* (2007)	Investigate 1. Less sophisticated investors and more sophisticated investors who trades on pro forma earnings? 2. To what extent do they trade incrementally on earnings surprises?	5736 firms, quarterly pro forma releases for Jan. 1998- Dec. 2003, US market. Differ sophisticated investors with less sophisticated investors by trades size.($7,000 and $50,000 as threshold)	Examine three-trading days surrounding the pro forma announcement date. Lee-Ready algorithm to infer trade direction (**Lee & Ready, 1991**).	1. NGE peaked prior to the major accounting scandals of 2001 and dropped dramatically in the third quarter of 2002 after SOX. 2. Companies voluntarily disclose NGE are clustered in a few industries. 3. Earnings surprises based on NGE is significantly positively associated with the abnormal net-buying activities of the less sophisticated investors on the day after the announcement. 4. Regulator should consider that more less-sophisticated investors rely on NGE information.	Sophisticated Investors
Aubert (2009)	aims first at examining why French traded corporations use pro forma reporting in their annual press releases to announce earnings	Based on 116 pro forma earnings announcements over the period 1996-2006, Euronext Paris.	This study examines the main problem raised by pro forma earnings (or "street" earnings) because investors may have trouble focusing their attention when they are relying on this information to make decisions about investing in French publicly traded securities.	I find that managers do use pro forma earning measures strategically to report better corporate performance than those based on GAAP earnings metrics. In 79% of the cases I identified, pro forma numbers are higher than GAAP ones, suggesting that managers have significant motives to report a higher profit than the GAAP-based one and the one forecasted by analysts would be. Furthermore, about 82% of pro forma announcements should have disclosed bad news that would have been revealed by releasing GAAP earnings. Finally, I show that those pro forma numbers are much more informative than GAAP earnings.	Informativeness/ Relevance
Campbell & Pitman (2009)	To examine whether there has been a change in non-GAAP reporting by S&P 500 companies since the regulation went into effect.	Fourth quarter/FYE 2002 and 2005 of y S&P 500 companies press releases are analyzed	in their assessment of three significant issues documented in prior research	Results indicate 1. The proportion of companies releasing NGE information has decreased only moderately. 2. The most common pre- Regulation G categories of adjustments have changed and terminology remains as inconsistent as noted in Pre-G research. 3. The business services sector which had previously been identified as a prominent NGE is still an avid discloser of NGE. Overall a weak impact of the Regulation G of non-GAAP reporting on these three specific areas of concern.	NGE composition, Regulation G

Isidro & Marques (2009)	This study explores international differences in the use of one non-GAAP earnings measures to meet strategic earnings benchmarks.	We hand-collect information on non-GAAP disclosures from earnings announcements press releases and find that the majority of firms report more than one non-GAAP measure in press releases, 318 European firms.	An ordinal regression model. The ordinal regression model is often derived from a latent-variable model of the form.	Our results reveal that all the earnings benchmarks we consider (analyst forecast, industry performance, last year's earnings, avoid losses, and higher performance) have a positive effect on the propensity of managers to disclose one or more non-GAAP earnings measures in the earnings announcement press release. This propensity is higher in capital market-oriented jurisdictions, where a higher demand for public earnings information provides stronger incentives to use non-GAAP measures to reach the desired benchmarks. From the five earnings benchmarks studied reporting performance measures that meet analysts forecast is the strongest motivation to disclose one or more non-GAAP figures.	Manager Incentives
Hitz (2010)	1) The level and variety of NGE used by firms; (2) Typical adjustments to bottom-line accounting earnings and the general direction of these adjustments; (3) Transparent level of adjustments to GAAP earnings displayed; (4) How prominently are pro forma earnings reported compared to GAAP earnings; (5)CESR 2005 impact on pro forma earnings disclosures	Quarterly earnings announcements published from2005 to 2006 listed on the Frankfurt Stock Exchange.	Year-to-year analysis	Firms make extensive use of so-called 'EB' (earnings before) metrics. Furthermore, managers emphasize pure non-GAAP performance measures both in terms of frequency and reporting. Also, the transparency of adjustments to GAAP earnings turns out to be low.	Emphasis on NGE, Regulation
Entwistle *et al.* (2010)	examine the value relevance of Pro forma earnings, GAAP earnings and I/B/E/S to find which is most value relevant	earnings press releases of Standard and Poor's (S&P) 500 firms from 2000 to 2004	Traditional price and returns association models and incorporates both current and future measures of earnings.	1. Pro forma earnings, GE and I/B/E/S earnings are all value relevant in sample period. 2. NGE are significantly more value relevant than I/B/E/S and more value relevant than GE. It is robust to several alternate model specifications as well as to controlling for measures of opportunistic reporting.	Informativeness/ Relevance

Campbell & López (2010)	Examines the determinants of emphasis on non-GAAP disclosures in the earnings announcements of small cap companies	S&P Small Cap 600 index as baseline, final get 93 non-GAAP disclosing firms from fourth quarter press releases in 2006, U.S. market	Similar with **Bowen *et al.* (2005)**	Evidence indicating that small cap firms place a higher level of emphasis on non-GAAP financial measures when GAAP earnings suggest lower value-relevance and when their shares are owned by a higher proportion of institutional investors. We also find that small cap companies decrease the level of emphasis placed on non-GAAP information as their listing tenure increases.	Emphasis on NGE, Regulation G
Brown *et al.* (2011)	Investigate the effect of investor sentiment on managers' decisions to: (1) disclose an adjusted NGE, (2) exclude higher levels of recurring and nonrecurring items from the NGE, and (3) emphasize the NGE by placing it more prominently within the earnings press release.	36,672 quarterly earnings announcements issued by 1,954 firms over the 1998 to 2005 period, U.S. market	use a "within-firm" research design that compares all quarters for which the firm elects to report an adjusted earnings measure ("pro forma quarters") with those quarters for which the same firm does not disclose an adjusted earnings measure ("non-pro-forma quarters"). Hence all quarters in which LexisNexis search does not identify a pro forma press release.	1. Managers' propensity to disclose an adjusted earnings metric increase with the level of investor sentiment. It suggests managers should (1) exclude higher levels of both recurring and nonrecurring expenses in calculating NGE number and (2) emphasize NGE by placing it more prominently within the earnings press release. 3. There is an association between investor sentiment and managers' pro forma disclosure decisions at least partly reflect opportunistic motives. 4. Managers' own sentiment-driven expectations also play a role in their NGE disclosure decisions.(**Frankel *et al.* 2011**)	Informativeness/ Relevance, Sophisticated Investors

Frankel *et al.* (2011)	Examine the association between board independence and the characteristics of NGE.	The sample contains 4,246 firm-quarter observations from 1998 to 2005 with sufficient data to conduct our main test.	Investigate the implications of non-GAAP exclusions for next year's GAAP earnings and operating income over the next four quarters; Following **Kolev *et al.* (2008)** to estimate least squares regressions, also include time and industry fixed effects, where industries are defined using the Fama-French 48 industry classification (**Fama & French, 1997**).	The results suggest that companies with less independent boards are more likely to opportunistically exclude recurring items from NGE. Specifically, the exclusions from NGE have a greater association with future GAAP earnings and operating earnings when boards contain proportionally fewer independent directors. There is an association declines following Regulation G that managers appear to use exclusions to meet earnings targets prior to selling their shares more often in firms with fewer independent board members. Overall, our results suggest that board independence is positively associated with the quality of NGE.	Sophisticated Investors, Regulation G, Manager Incentives
Zhang & Zheng (2011)	To investigate whether reconciliations result in more accurate pricing of securities is an empirical issue	Our final sample consists of 1,900 pro forma press releases from 1998 to 2001	Build model based on value relevance, manager incentives (**Lougee & Marquart, 2004**) and investor sophistication (**Bowen *et al.*, 2005**)	1. Prior to RegG, mispricing of NGE is limited to firms with low reconciliation quality. There is no evidence of mispricing for firms with high reconciliation quality. 2 There is no evidence of mispricing after RegG. 3. There is across-RegG reduction of mispricing for firms whose reconciliation quality improves, and there continues to be no mispricing for firms that have high reconciliation quality both before and after RegG. Together, the results support the notion that better reconciliations reduce the extent of mispricing.	Regulation G, Market Reaction
Sek & Taylor (2011)	Attempt to provide evidence on the issues associated with non-GAAP reporting via a detailed case study examining non-GAAP earnings reported by the four large Australian trading banks	24 full-year profit announcements were investigated (comprised of four banks reporting from 2003 to 2008).	Detailed description, similar with **Bhattacharya *et al.* (2004)**	1. It shows that each of the major banks has a history of reporting 'cash earnings' or 'underlying earnings' but not consistent either between banks or by individual banks. 2. The adoption of IFRS in Australia has a noticeable impact on the definition of NGE. The data raises questions about the role of GE and the ability of firms to 'self-define' outcomes presents a significant challenge to regulators.	NGE Consistency