THE IMPACT OF NEW ZEALAND'S STATUTORY-BACKED CONTINUOUS DISCLOSURE REGIME ON CORPORATE DISCLOSURE BEHAVIOUR

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Professional Summary

The New Zealand Stock Exchange's (NZX) continuous disclosure listing rules have operated with statutory backing since 1 December 2002. Under the new continuous disclosure regime, an NZX-listed issuer is required to immediately release any material information once becoming aware of it. While the NZX takes the primary responsibility for monitoring its own listing rules, the statutory sanctions provide an enforcement regime to be implemented by either the Securities Commission with its prosecutory role, or any other person with an interest in any contravention of the statutory sanctions. If the statutory sanctions are effective, a better informed market – a market in which all material information must be released on a timely basis should be observed, which ultimately enhances investor protection. To test the effectiveness of the new continuous disclosure regime on the quantity, quality, and timeliness of public disclosures, we compare the changes in quantity (frequency), quality (precision and accuracy), and timeliness (horizon) of management earnings forecasts provided in company documents lodged with the NZX before and after the introduction of statutory sanctions.

We select the eight-year period from financial report period ending on 31 January 1999 to financial report period ending on 31 December 2005 as our study period, which covers roughly four and a half years pre-statutory sanctions and three and a half years post-statutory sanctions. Across this study period, we identify 720 management earnings forecasts in the 2677 documents related to 632 firm years released by 94 NZX-listed firms. The earnings forecast data extracted from the documents are then examined for changes in the quantity (frequency), quality (precision and accuracy), and timeliness (horizon) using both univariate and multivariate statistical procedures. The multivariate procedures control for time-series dependency and firm-specific characteristics (i.e. firm performance, firm size, cross-listing status, and growth prospects) known to impact the disclosure decision in the absence of regulatory change.

Our results provide qualified support for the effectiveness of statutory sanctions. Overall, disclosure frequency and the frequency of non-routine disclosures have significantly increased. However, a large number of material changes in periodic earnings are either not pre-empted by an earnings forecast or are only pre-empted by an earnings forecast made in conjunction with a routine announcement. Our results are also mixed for disclosure quality. While forecast precision and forecast accuracy have significantly improved, the improvement has come at the expense of a decline in forecast horizon. Furthermore, approximately 45 percent of all earnings forecasts are still qualitative in nature. These results suggest that the impact of the statutory sanctions has fallen short of the continuous disclosure culture envisaged by New Zealand corporate regulators. Nevertheless, the positive change in managers' forecasting behaviour is superior to that observed in other jurisdictions despite the lack of strong enforcement action. These findings have important implications for corporate regulators in their search for a superior corporate disclosure regime.

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Abstract

Since 1 December 2002, the New Zealand Stock Exchange's (NZX) continuous disclosure listing rules have operated with statutory backing. To test the effectiveness of the new corporate disclosure regime, we compare the change in quantity (frequency), quality (precision and accuracy), and timeliness (horizon) of earnings guidance in NZX disclosures before and after the introduction of statutory backing. Our results provide qualified support for the effectiveness of statutory sanctions. Disclosure frequency has significantly improved; however, a large number of material changes in periodic earnings are either not pre-empted by an earnings forecast or are only pre-empted by an earnings forecast made in conjunction with a routine announcement. In the post-statutory sanctions period, disclosure quality significantly improves in terms of forecast precision and accuracy but at the expense of a decline in forecast horizon, and many forecasts remain qualitative in nature. While these results suggest that the impact of regulatory reforms falls short of the continuous disclosure culture envisaged by New Zealand corporate regulators, the observed positive changes in managers' forecasting behaviour have been achieved in the absence of strong enforcement action. These findings have important implications for corporate regulators in their search for a superior corporate disclosure regime.

Keywords: continuous disclosure, management earnings forecasts, corporate regulation, statutory sanctions

JEL Classifications: G14 and K22

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1. Introduction

Corporate regulation has long been controversial. However, with the increasingly integrated global economy and the upsurge in corporate scandals over the last decade, there is renewed interest in the identification and implementation of best-practice regulatory frameworks (Lopez-de-Silanes, 2003; Gallery, 2006). Corporate governance and disclosure rules have been a priority in many regulatory reform programs that have been implemented across jurisdictions (Coglianese, Healy, Keating, and Michael, 2004; Ferrell, 2004). In New Zealand, a major regulatory reform occurred with an amendment to the Securities Markets Act 1988 (SMA). From 1 December 2002 this amendment introduced statutory sanctions to support the NZX's[1] continuous disclosure (CD) listing rules. As there is little evidence on the effectiveness of such mandatory disclosure regimes[2], this study seeks to examine the impact of statutory sanctions on the nature of public disclosures by NZX-listed companies.

Broadly, the benefits obtained from corporate disclosure regulation relate to how successful the regulatory regime meets two complementary objectives: (1) ensuring that investors have sufficient timely information to make informed decisions, and (2) preventing unfair access to information and insider trading. Internationally, these objectives are jointly addressed through periodic and continuous reporting.

Periodic financial reporting has the advantage of being structured and heavily regulated, but the information reported can be stale by the time it reaches investors. Continuous reporting can address the staleness issue but it is hard to regulate because it is difficult to establish when company insiders possess material information that should be released to investors. As a consequence, alternative regulatory approaches are evident across jurisdictions[3]. For example, securities regulation in the U.S. require SEC filing of quarterly financial reports and details about certain events (Form 8-K statements) within four business days after the event has occurred[4]. In contrast, Australian, U.K. and now New Zealand securities regulations require half-yearly reporting and the continuous disclosure of price-sensitive information. In contrast

[1] The New Zealand Exchange Limited, which was formerly referred to as NZSE prior to 30 May 2003, is now referred to as NZX.
[2] For the studies that examined the CD Regime in Australia in various contexts, refer to Brown, Taylor, and Walter (1999), Gallery, Gallery, and Gilchrist (2002), and Chan, Faff, Ho, and Ramsay (2007).
[3] See Golding and Kalfus (2004) for an international comparison of disclosure regimes in the U.S., U.K., Canada, Australia, New Zealand, Hong Kong and Singapore.
[4] In 2001 the SEC Chairman raised the possibility of a statutory-backed continuous disclosure regime to address disclosure issues arising from the Enron and other corporate scandals. However to date, only the scope of the Form 8-K disclosure obligations has been extended (Golding and Kalfus, 2004).

to the prescriptive U.S. approach, the principles-based CD approach provides managers with considerable disclosure discretion in the lengthy time period between periodic reports.

The New Zealand setting provides an ideal environment to examine the effectiveness of a statutory-backed continuous disclosure regime for a number of reasons. First, the regime was introduced only recently; hence, the formulation of the rules, and the accompanying provisions and guidance have benefited from the experiences in other jurisdictions (notably Australia) and coincided with the recent strengthening of corporate governance rules. Second, most related research focuses on the U.S. market where a strong culture of private enforcement of tort and securities laws tends to mask the impact of public enforcement. Moreover, recent U.S. research has focused on the effectiveness on rules designed to prevent selective disclosure (Regulation FD) rather than on continuous disclosure. Therefore, the U.S. research is of limited usefulness in informing debates about the effectiveness of continuous disclosure regimes. Third, while the New Zealand CD rules are very similar to those adopted in Australia, the New Zealand regulatory environment is significantly different. New Zealand has relatively light handed regulation and has a less litigious business environment. Indeed, there is little evidence of active enforcement of the New Zealand statutory-backed CD regime[5] compared to the recent trends in Australia[6]. Fourth, from a research design perspective, a reliable data source exists to effectively test the impact of statutory sanctions because disclosure documents lodged with the NZX are available in electronic form for a number of years prior to and subsequent to the introduction of statutory sanctions.

To evaluate the effect of statutory sanctions on the quantity, quality, and timeliness of public disclosures, we examine changes in management earnings forecasts[7] provided in company documents lodged with the NZX before and after the regulatory change. Researchers have tested the effectiveness of changes in disclosure regimes using a number of alternative measures such as changes in disclosure indices, stock price volatility, bid-ask spreads, analyst earnings forecasts, and management earnings forecasts. Of these measures, management

[5] The Fletcher Forests, Feltex, and Wool Equities cases are examples where alleged breaches of CD obligations did not lead to actual prosecutions (New Zealand Press Association, 2003; Macfie, 2006; Ward, 2007a, 2007b).
[6] In Australia, the recent Southcorp and Aristocat Leisure cases are important examples showing potential success of the civil penalty proceedings and class action against companies contravening the CD obligations (Golding and Kalfus, 2004).
[7] Consistent with King, Pownall, and Waymire (1990, p.113), we define management earnings forecasts to include all "managerial disclosures predicting earnings prior to the expected reporting date".

earnings forecasts[8] have a number of desirable properties relative to alternative measures for testing the effectiveness of New Zealand CD regime. First, unlike one-off price-sensitive events (such as merger proposals), management earnings forecasts are generally applicable to all firms and can be readily evaluated *ex post* through periodic financial reports. Second, the NZX specifically requires the disclosure of a change in a listed entity's financial forecast or expectation under the CD rules. As a consequence, it is difficult for a company to rely on the carve-out provisions to avoid disclosure when an earnings change is probable. Third, compared with other price-sensitive issues, managers have considerable discretion over the timing, frequency, form, and precision of their earnings forecasts. The "well-defined" features which encompass both disclosure quantity and quality make them an empirically superior disclosure proxy in corporate disclosure research (Healy and Palepu, 2001; Karamanou and Vafeas, 2005).

We identify 720 earnings forecasts in the 2677 documents released by 94 NZX-listed firms across the full study period (including 632 firm years with ending balance date from 31 January 1999 to 31 December 2005). The earnings forecast data extracted from the documents are then examined for changes in the quantity (frequency), quality (precision and accuracy), and timeliness (horizon) using both univariate and multivariate statistical procedures. The multivariate procedures control for time-series dependency and firm-specific characteristics (i.e. firm performance, firm size, cross-listing status, and growth prospects) known to impact the disclosure decision in the absence of regulatory change.

Our results provide qualified support for the effectiveness of statutory sanctions. Overall, disclosure frequency and frequency of disclosures other than as part of routine communications such as mandatory periodic financial reports and periodic releases associated with repetitive events (i.e. non-routine disclosures) have significantly increased; however, a large number of material changes in periodic earnings are not pre-empted by a least one management earnings forecast and many earnings forecasts continue to be issued in conjunction with routine information releases. Our results are also mixed for disclosure quality: forecast precision and forecast accuracy have significantly improved; however, the improvement has been accompanied by a decline in timeliness for firms expecting positive earnings changes. Also, approximately 45 percent of all forecasts are still qualitative in nature. These results suggest that the introduction of statutory sanctions have not produced the

[8] Refer to Cameron (1986), King et al. (1990), and Hirst, Koonce, and Venkataraman (2008) for reviews of the management earnings forecast literature.

continuous disclosure culture envisaged by New Zealand corporate regulators. Nevertheless, the positive change in managers' forecasting behaviour is superior to that observed in other jurisdictions despite the lack of evidence of strong enforcement. This suggests that strong enforcement action is not necessarily a precondition for achieving a change in corporate disclosure behaviour as argued in prior research.

The remainder of the paper is organised as follows. Section 2 provides an overview of New Zealand continuous disclosure regime. Section 3 summarises relevant disclosure theories and describes the research hypotheses. Section 4 provides an overview of the research design. Section 5 presents the results and the paper concludes in Section 6.

2. Background to the New Zealand Continuous Disclosure Regime

2.1 The Former Continuous Disclosure Regime

Prior to 1 December 2002, New Zealand securities law only required issuers to provide periodic disclosures (the filing of annual reports), episodic disclosures (e.g. the disclosure of share dealings by directors), and IPO related disclosures (Erlenwein, 2003). Listed issuers[9] were also bound by continuous disclosure obligations under the NZX Listing Rule 10.1.1. Under this Rule, listed issuers had a general obligation to disclose all price-sensitive information (relevant information) once the maintenance of confidentiality ceased to have a greater value to the issuer concerned than to the public. Like most stock exchanges requirements, the NZX listing rules are purely contractual provisions that issuers accept upon listing. Like other listing rules, the NZX had responsibility for monitoring and enforcing compliance with Rule 10.1.1. The purely contractual nature of the disclosure obligation led to concerns about the effectiveness of Rule 10.1.1[10]. Specifically, the NZX's enforcement mechanisms were considered inadequate, the definition of relevant information was vague, uncertain and broad, and the rules were inconsistent with international standards (Erlenwein, 2003).

[9] Collectively, all listed entities (companies and trusts) are referred to as listed issuers under the NZX Listing Rules.

[10] Erlenwein (2003) notes that the powers of the NZX (formerly the NZSE) were examined by the Court of Appeal in *New Zealand Stock Exchange Listed Company Association Inc.* (1984) 1 NZLR 699, where it was held that the NZSE was neither empowered nor required to make statutory rules for listed companies. Thus, the NZSE can vary its rules arbitrarily and it also has the power to interpret its listing rules and make rulings regarding the application of the rules. Furthermore, the NZSE's contractual agreement with listed companies did not provide a role for the Securities Commission in ensuring enforcement.

2.3 The New Continuous Disclosure Regime

The new CD regime applied from 1 December 2002 under the amended Securities Markets Act 1988 (SMA). Resembling the Australian model[11], it was based on the principle that a strong (statutory-backed) continuous disclosure regime would deliver superior outcomes to a more onerous rules-based model and as a result, avoid the necessity for costly quarterly reporting[12]. Like the Australian regulatory arrangement, the SMA does not prescribe the CD regime applying to listed issuers; rather, it provides a statutory framework within which the NZX Listing Rule 10.1 operates. The SMA requires a listed issuer (a party to a listing agreement with a registered exchange) to make any material information about events or matters available to participants in the registered exchange's market as they arise (SMA, Section 19D). Thus, the SMA preserves the autonomy of the NZX through recognising its primary responsibility for monitoring its own listing rules. It has also provided an enforcement regime to be implemented by either the Securities Commission, with its prosecutory role, or any other person with an interest in any failure to disclose. The SMA emphasises investor protection through an informed market – a market in which "material information" must be released on a timely basis. According to Section 19E, material information is defined as information that:

> *a reasonable person would expect, if it were generally available to the market, to have a material effect on the price or value of quoted securities of the public issuer*[13]

Coinciding with the introduction of the amended SMA, on 1 December 2002 the NZX introduced revised Listing Rule 10.1 to ensure compatibility with the SMA. The revised rule provides that an issuer should release material information immediately once becoming "aware" of it. A listed issuer is deemed to have come into possession of material information once a director or executive officer has become aware of it in the course of the performance of

[11] The Australian continuous disclosure regime represents a combination of stock exchange rules and statutory enactments. Under ASX Listing Rule 3.1, an entity has an immediate disclosure obligation when it becomes aware of any information that a reasonable person would expect to have a material effect on the price or value of its securities. The ASX continuous disclosure requirements have been backed by statutory sanctions since 5 September 1994. A failure to comply the continuous disclosure obligations could lead to civil and criminal penalties.

[12] A majority of participants in the New Zealand Securities Commission's consultation process regarding to corporate governance rejected the proposition of mandatory quarterly reporting for three reasons: (1) the continuous disclosure regime is sufficient, (2) unnecessary compliance costs, and (3) the risk of entities managing short-term earnings (New Zealand Securities Commission, 2004, p.57).

[13] Erlenwein (2003) and McGill (2004) question the vagueness of the terms "reasonable person" and "material information" as defined in the SMA.

his or her duties (Listing Rule 10.1.1). To assist companies in identifying material information, guidance notes to the listing rule provide a non-exhaustive list of events. The first and most relevant to our study is "a change in the issuer's financial forecast or expectation"[14].

The NZX has recognised that there are situations where the issuer should legally be allowed to withhold material information. Although not incorporated into the SMA, the "carve-out" provisions are a vital part of the continuous disclosure regime. According to the provisions, material information does not have to be released when: (1) a reasonable person would not expect the information to be disclosed; and, (2) the information is confidential and its confidentiality is maintained; and, (3) it would either be illegal to release the information, or it contains an incomplete proposal or negotiation, or comprises matters or supposition, or is insufficiently definite, or is for internal management only, or is a trade secret. Even if all three criteria are met, a firm can still be required to release specific information if it is necessary to prevent the development of a false market in a firm's securities[15].

If an issuer is found to have breached the CD provisions, the Securities Commission has the power under the amended SMA 1988 to issue an order requiring the issuer to disclose the necessary information and to publish corrective statements at the firm's expense. If the issuer commits a criminal offence in contravention of an order, a fine of up to $30,000 can be imposed. The Court may also make civil orders requiring disclosure or corrective statements, impose pecuniary penalties of up to $300,000, make compensatory orders, and order the payment of the Securities Commission's costs and expenses.

In many aspects, the disclosure regime introduced through the SMA resembles the recent Australian disclosure model[16]. While harmonising rules across jurisdictions can reduce costs for cross-listed firms, it has been argued that costs have increased disproportionately for other NZX-listed companies[17]. It is also not clear whether a statutory model is more effective than

[14] This change may arise not just from a revised expectation with respect to a projection or forecast in a prior announcement to the NZX but also from a change in the issuer's expected financial results relative to those for the previous corresponding period (See Example 7 of NZX Guidance Note - Continuous Disclosure, p.14).
[15] A false market is "a market for quoted securities which is materially influenced by false or misleading information" (NZX Listing Rule 10.1.1 (c)).
[16] The level of enforcement of Australian continuous disclosure regime has significantly increased in the post-2000 period (ASIC Consultation Paper 5: Heard it on the grapevine, 1999; ASIC Launches National Continuous Disclosure Surveillance Program, 2000; The CLERP Audit Reform and Disclosure Act 2004).
[17] See Erlenwein (2003), Gaynor (2003), McGill (2004), and Fargher (2004) for critiques of the new continuous disclosure rules. Also see Meade (2006) for the comparison of the New Zealand CD regime with the Australian CD regime, and the U.S. Regulation FD regime.

alternatives, such as the more prescriptive U.S. approach, in changing corporate disclosure behaviour. Whether there is an improvement in timely information flows depends on whether managers perceive the increased costs of withholding information outweigh the expected benefits.

3. Hypothesis Development

3.1 The Disclosure Decision

The disclosure literature suggests a number of reasons why management may be willing or reluctant to publicly disclose information. The adverse selection hypothesis suggests that managers choose to disclose or withhold information depending on a trade-off between the associated proprietary costs and expected benefits of informing investors (Verrecchia, 1983; Dye, 1985; Jung and Kwon, 1988). From a signalling perspective, managers may disclose negative information to deter entry of competitors to the product markets (Dye, 1986; Wagenhofer, 1990) or signal the superior quality of their firms (Akerlof, 1970; Teoh and Hwang, 1991). Managers may wish to signal the perceived inaccuracies in the market estimates of the firm's prospects (Ajinkya and Gift, 1984) and reduce the private information acquisition costs to investors (King et al., 1990). Alignment of the market's expectations may also be a desirable objective to mitigate potential litigation costs (Skinner, 1994, 1997; Cao and Narayanamoorthy, 2006) or reputation impairment costs (Skinner, 1994; Graham, Harvey, and Rajgopal, 2005; Tucker, 2006) arising from earnings surprises. Voluntary disclosure of earnings forecasts and other information could be used to minimise cost of capital (Diamond and Verrecchia, 1991; Lang and Lundholm, 1996; Botosan, 1997; Graham et al., 2005). However, managers might also opportunistically utilise disclosure to maximize their compensation (Aboody and Kasznik, 2000).

Collectively, the voluntary disclosure research suggests that managers balance conflicting interests in deciding to disclose or withhold information. Ultimately the decision to disclose is strategically driven and influenced by the nature of the information held by managers, incentives of managers, circumstances of the firm, and expected reaction by investors to the disclosure[18]. Intervention in the form of mandatory disclosure rules increases costs for non-compliance and leads managers to reassess their disclosure strategies. Research shows that the nature of the rule change and legal system contribute to observed variation in disclosure

[18] Refer to Healy and Palepu (2001) and Verrecchia (2001) for reviews of the disclosure literature.

behaviour across regimes. For instance, the strong culture of private litigation in the U.S. appears to precipitate the early disclosure of bad news relative to good news (Skinner, 1994; Kasznik and Lev, 1995; Soffer, Thiagarajan, and Walther, 2000; Baginski, Hassell, and Kimbrough, 2002). A similar level of asymmetrical treatment of news in not observed in Canada or in Japan where litigation risk is low (Baginski et al., 2002; Kato, Skinner, and Kunimura, 2006).

3.2 The Impact of Statutory Sanctions on the Frequency of Management Earnings Forecasts

In the absence of research on the earnings forecasting behaviour of NZX-listed firms[19], it is difficult to predict how statutory sanctions affected the public earnings guidance by NZX-listed firms[20]. *A priori* we would expect any change in disclosure practices arising from the introduction of statutory sanctions would be similar to those observed in Australia following the introduction of their statutory CD disclosure regime in 1994. The Australian findings are generally supportive of an overall increase in the frequency of public disclosures.

In an early study examining the capital market impact of the Australian statutory-backed CD regime, Brown et al. (1999) reveal that there is an increase in the frequency of price-sensitive disclosures made by the ASX-listed firms following the introduction of statutory sanctions. However, the increase is confined to relatively small firms and for firms which are more likely to reveal bad news. However, their study only examines a relatively short period around the 1994 introduction date (from August 1992 to March 1996) in which the enforcement action is considered to be weak[21].

In a more recent study, Chan et al. (2007) investigate the extent and nature of management earnings forecasts for a large sample of analyst followed companies listed on the ASX for the period 1994 to 2001. Their results show that the increased enforcement action by the Australian Securities and Investment Commission and the effects of legislative changes to the

[19] Prior NZ disclosure research only focus on voluntary disclosure in interim or annual reports (Bradbury, 1992; Hossain, Perera, and Rahman, 1995; Owusu-Ansah and Yeoh, 2005; Wong and Wong, 2006).

[20] Other NZ studies on the effectiveness of the regime examine a number of alternative measures including bid-ask spreads, stock liquidity, market spreads, analysts' consensus forecast and dispersion, stock market reaction to earnings announcements (Gilbert, Tourani-Rad, and Wisniewski, 2005; Marsden, Huang, and Poskitt, 2006; Poskitt and Yang, 2006).

[21] There is little evidence that compliance with the CD regime was effectively enforced by either regulatory authorities or shareholders until the Southcorp case in 2003 (Golding and Kalfus, 2004).

Australian CD regime have significantly increased the level of non-routine earnings forecasts in the period after 1 January 2000[22].

Assuming that the New Zealand regulation has had a similar impact, we would expect to see an increase in the quantity of management earnings forecasts released following the introduction of New Zealand statutory sanctions in 2002. That is, when managers become aware of material changes in expected earnings, they are more likely to release earnings guidance (on one or more occasions) to the market following the introduction of statutory sanctions. Consistent with the findings of Chan et al. (2007), we expect that the disclosure increase to be dominated by an increase in non-routine disclosures in the post-statutory sanctions period. Accordingly, we test the following hypotheses:

> *H1a: The frequency of management earnings forecasts in NZX announcements increases following the introduction of statutory sanctions.*
>
> *H1b: The frequency of non-routine management earnings forecasts in NZX announcements increases following the introduction of statutory sanctions*

3.3 The Impact of Statutory Sanctions on the Quality of Management Earnings Forecasts

Following the decision to release information to the market, managers must then decide on the qualitative characteristics of the information they are reporting (King et al., 1990). The qualitative characteristics of management earnings forecasts have been of recent interest to empirical researchers (Hirst et al., 2008). These studies examine a number of qualitative characteristics of earnings forecasts including precision and accuracy. However, the findings from these studies are mixed.

Skinner (1994) categories management earnings forecasts for a small sample of U.S. firms according to decreasing levels of precision (point, range, lower bound, upper bound, and qualitative forecasts) and finds that good news earnings forecasts tend to be point or range estimates while bad news forecasts tend to be qualitative. Bamber and Cheon (1998) report similar findings. They argue that managers faced with a higher probability of being sued for releasing inaccurate forecasts are likely to issue more qualitative earnings forecasts since qualitative forecasts are less likely to be inaccurate, leading to lower probability of being

[22] In the period immediately following the introduction of statutory sanctions in Australia, Gallery et al. (2002) observe that most earnings forecasts clustered around announcements provided in conjunction with a routine event such as the Chairman's Address or the release of a periodic report.

prosecuted. Baginski et al. (2002) find that in the Canadian market, which exacts lower legal penalties for inaccuracy than does the U.S. system, managers are likely to issue more precise forecasts that are less dependent on firm performance. Similarly, Frost (2004) documents that U.S. and U.K. managers issue fewer specific earnings forecasts and forecasts with shorter horizons compared to managers in France, Germany and Japan. Japanese managers consistently issue over-optimistic forecasts when releasing current period results, especially when firm performance is poor. These forecasts are, however, systematically corrected as the forecast horizon declines (Kato et al., 2006; Ota, 2006).

The Australian evidence is also mixed. Based on a sample of 233 stand-alone[23] earnings forecasts made by Australian firms, Coulton and Taylor (2004) show that good news stand-alone earnings forecasts are significantly more precise than bad news disclosures. However, using a much larger sample and including earnings forecasts in some routine documents such as the preliminary final and interim reports, Chan et al. (2007) find no association between forecast precision and earnings news. Chan's et al. findings suggest that the Australian CD regime does not discriminate between good and bad news. All material changes, regardless of the direction of the news, are considered price sensitive. Based on the findings of Chan et al., we also expect to observe an increase in quality of forecasts following the regime change in NZ. Hence we hypothesize that:

> *H2: The quality (precision and accuracy) of management earnings forecasts in NZX announcements increases following the introduction of statutory sanctions.*

3.3 The Impact of Statutory Sanctions on the Timeliness of Management Earnings Forecasts

Justification for a statutory-backed CD regime is based on a belief that stronger enforcement will create a better informed market because the market will be continuously updated with material information. The disclosed information increases in usefulness to decision makers if it provides a timely indicator of future performance, irrespective of the direction of earnings news (i.e. good or bad future performance). Although the New Zealand legal system imposes lower legal penalties through weaker private enforcement than either the U.S. or Australian systems, we expect the threat of increasing public enforcement through statutory sanctions

[23] Stand alone earnings forecasts are earnings forecasts which are not issued in conjunction with earnings announcements or with other major corporate announcements (e.g. major acquisition or disposal) (Coulton and Taylor, 2004; Hirst et al., 2008).

will act as a disincentive for managers to delay the disclosure of price-sensitive information. This leads to the following hypothesis about the timeliness of management earnings forecasts:

> *H3: The time horizon of management earnings forecasts in NZX announcements is longer following the introduction of statutory sanctions.*

The research on management earnings forecasts also highlights that forecast precision and accuracy need to be jointly examined with the forecast horizon. As more of the financial reporting period elapses and less time remains before the release of periodic reports, management will possess more information about the eventual outcome. Consistent with the expectation adjustment hypothesis, this greater certainty is frequently shown to lead to more precise (Baginski and Hassell, 1997; Baginski et al., 2002; Coulton and Taylor, 2004; Baginski, Hassell, and Kimbrough, 2006; Chan et al., 2007) and more accurate (Kasznik, 1999; Chen, 2004; Hribar and Yang, 2006) earnings forecasts. Thus, there is likely to be a trade-off between providing better quality forecasts and more timely forecasts. We make no predictions about this trade-off, but allow for any interactions in our research design.

3.4 Control Variables

The research findings on the effectiveness of the Australian CD regime are generally consistent with the litigation cost hypothesis (Skinner, 1994, 1997). According to this hypothesis, management earnings forecasts are more likely to occur when there are large negative earnings surprises in high litigation cost environments. In support of this hypothesis, Baginski et al. (2002) reveal that Canadian managers who operate in a less litigious environment than their U.S. counterparts, release more forecasts when earnings are increasing while U.S. managers are relatively more likely to issue forecasts during periods when earnings are decreasing (i.e. during bad news periods). Likewise, we do not expect to see a bad news disclosure bias in the New Zealand low litigious environment[24]. Nevertheless, we seek to investigate this issue by controlling for the earnings direction and news.

Our hypotheses have been developed to consider the impact of statutory sanctions on the quantity, quality, and timeliness of management earnings forecasts. In developing these hypotheses, we have assumed statutory sanctions will be effective in changing disclosure behaviour in favour of compliance as has occurred in Australia. However, institutional

[24] Any asymmetrical treatment of positive or negative earnings expectations would also be inconsistent with the provisions of the CD regime.

differences arising from the nature of the two markets, differences in the interpretations of the CD provisions, and differences in enforcement mechanisms may lead to variation in disclosure behaviour across the two jurisdictions[25]. For example, managers may not perceive the increased costs arising from being detected and penalised for non-compliance to be sufficiently large to outweigh the benefits gained from remaining with their existing disclosure strategies.

The costs of non-compliance are likely to increase in the level of materiality of unannounced changes in earnings expectations. When investors and analysts are surprised by large earnings changes, managers face greater potential litigation and reputation impairment costs; therefore, the magnitude of the expected earnings change is likely to be an important factor influencing management disclosure decisions (Kasznik and Lev, 1995). These costs are likely to increase under a more onerous CD regime. Even though the threat of prosecution is low in New Zealand, such a threat will be more likely if the unexpected earnings changes are large[26]. Therefore, we control for the magnitude of earnings changes in testing the change in disclosure behaviour.

Also, in developing our hypotheses, we have assumed that firm-specific factors are irrelevant to disclosure behaviour. Clearly, it is not the case. Prior research has shown that firm attributes such as firm size, cross-listing status, and growth prospects impact the disclosure decision regardless of the disclosure regime. Although these factors are expected to vary cross-sectionally among NZX-listed firms, they are not expected to directly lead to a change in disclosure behaviour subsequent to the introduction of statutory sanctions. To be confident that our findings are not influenced by these factors, we include appropriate controls in our research design.

4. Research Design

4.1 Study Period and Sample

The eight-year period from financial report period ending on 31 January 1999 to financial report period ending on 31 December 2005 is selected for testing purpose. This study period

[25] New Zealand has a comparatively smaller securities industry with lower volume and liquidity, there are differences in judicial interpretations arising from disclosure-based case law, and the type, size, and method of imposing penalties for non-disclosure vary across the two countries (Erlenwein, 2003; McGill, 2004).

[26] That is, it will be much easier for the corporate regulators or an aggrieved investor to argue a case of non-compliance if a company is silent before a large earnings surprise.

therefore covers roughly four and a half years prior to the introduction of statutory sanctions on 1 December 2002 and three and a half years post-statutory sanctions. All NZX-listed companies that survive at least for the period from 28 September 1999 to 13 September 2004 are included in the sample[27]. This selection process identifies 94 companies and they issue 2677 usable documents in announcements to the NZX. These documents contain 720 usable earnings forecasts[28]. Details of the sample selection procedure are provided in Table 1.

4.2 Data Sources and Classification of Management Earnings Forecasts

The NZX listing status is extracted from the Company Information section of the IRG database. The cross-listing status and listing date information are taken directly from NZX help line services. Earnings and other financial accounting information are obtained from the DataStream database or the Financial Information section of the IRG database. All disclosure data are extracted from announcements recorded in the Company Announcements section of the IRG database[29].

All the identified earnings forecasts are then scrutinised and coded according to the underlying event (routine or non-routine) associated with the announcements. Routine event announcements are defined as periodic announcements common to all firms required under NZX listing rules or are in common practice. They include all mandatory periodic financial reports (e.g. preliminary final, annual, half-yearly, quarterly reports), and other periodic releases associated with repetitive events (e.g. chairman's addresses at the AGM, letters to shareholders). All other announcements are considered non-routine events. Earnings forecasts are further classified according to their content (bad, neutral, or good news), precision (qualitative, open-ended, range or point estimates), error, and horizon.

Earnings forecasts are classified as good (bad) news if the content reveals favourable (unfavourable) earnings prospects relative to the last periodic earnings announcement or the last earnings forecast (if one had been provided since the last periodic earnings

[27] In contrast, other Australian studies focus on only large firms, e.g. Gallery et al. (2002) sample the top 500 ASX-listed companies, and Chan et al. (2007) sample only ASX-listed companies with analyst coverage.

[28] These documents include all routine announcements which potentially include earnings forecasts (e.g. preliminary final reports, annual reports, half-yearly reports, quarterly reports, chairman's addresses at AGM, letters to shareholders, etc), and any non-routine announcement containing earnings forecasts provided during the study period.

[29] The Company Announcements section captures all company announcements release to the NZX under its listing rules, including the revised CD Listing Rule 10.1, applicable from 1 December 2002.

announcement). Earnings forecasts are coded as neutral if the forecast indicates no expected change in earnings.

Forecast precision is defined as the level of specificity in the management earnings forecast. We follow Baginski et al. (2002) and Ajinkya, Bhojraj, and Sengupta (2005) by using an ordinal coding scheme where precision is coded 0, 1, 2, and 3 for qualitative, open-ended, range and point estimates, respectively. Qualitative forecasts are those where management provides a general impression about the expected performance (e.g. "we expect improved earnings performance this year"). These qualitative forecasts do not capture any precise numeric interpretation about the firms' expected performance. Open-ended forecasts are forecasts where management specifies a lower bound or an upper bound for the expected firm performance (e.g. "profit will be greater than $5 million" or "profit will be lower than $2 million"). Range forecasts contain a precise numeric range of expected firm performance (e.g. "profit will be between $1.1 and $1.3 million"). Point forecasts are more specific, indicating a precise single numerical figure about expected performance (e.g. "net income will be $1.2 million").

Forecast error measures the accuracy level of range and point earnings forecasts. We follow Ajinkya et al. (2005) and Baginski et al. (2006) and define forecast error as the magnitude of the difference between forecasted and actual earnings deflated by share price at the beginning of the financial year.

In our study, forecast horizon captures the timeliness of the earnings forecast. Assuming forecasts are accurate, longer forecast horizon provides investors with information on a timelier basis. Baginski et al. (2002) define forecast horizon as the number of calendar days until period end, regardless of whether the period is an interim or annual forecasting period. We follow the similar procedure and based on the fact that most forecasts in New Zealand relate to current full period earnings, we measure forecast horizon as the number of calendar days between the release date of the earnings forecast and the end of the current financial year.

4.3 Hypothesis Testing Procedures

The hypotheses are tested using univariate methods, and due to the expected interactions across constructs, multivariate methods are employed to jointly test hypotheses and to control for common firm-specific factors expected to impact on the disclosure decisions. In most of

the multivariate procedures, we estimate random effects logistic/linear regression models to make inferences about the hypothesised relationships and to control for the firm-specific attributes, heterogeneity bias and non-independence across observations[30]. The model specifications are as follows.

$$FCAST1_{i,t} = a_0 + a_1 REGIME_{i,t} + a_2 ECSIGN_{i,t} + a_3 ECHANGE_{i,t} + a_4 SIZE_{i,t} + a_5 XLIST_{i,t} + a_6 MVBV_{i,t} + (u_i + \varepsilon_{i,t}) \quad (1a)$$

$$FCAST2_{i,t} = b_0 + b_1 REGIME_{i,t} + b_2 ECSIGN_{i,t} + b_3 ECHANGE_{i,t} + b_4 SIZE_{i,t} + b_5 XLIST_{i,t} + b_6 MVBV_{i,t} + \mu_{i,t} \quad (1b)$$

$$PRECISE1_{i,t} = c_0 + c_1 REGIME_{i,t} + c_2 BAD_{i,t} + c_3 GOOD_{i,t} + c_4 ECHANGE_{i,t} + c_5 SIZE_{i,t} + c_6 XLIST_{i,t} + c_7 MVBV_{i,t} + c_8 NREVENT_{i,t} + c_9 FHORIZON_{i,t} + \eta_{i,t} \quad (2a)$$

$$ERROR_{i,t} = d_0 + d_1 REGIME_{i,t} + d_2 BAD_{i,t} + d_3 GOOD_{i,t} + d_4 ECHANGE_{i,t} + d_5 SIZE_{i,t} + d_6 XLIST_{i,t} + d_7 MVBV_{i,t} + d_8 PRECISE2_{i,t} + d_9 FHORIZON_{i,t} + \gamma_{i,t} \quad (2b)$$

$$FHORIZON_{i,t} = e_0 + e_1 REGIME_{i,t} + e_2 BAD_{i,t} + e_3 GOOD_{i,t} + e_4 ECHANGE_{i,t} + e_5 SIZE_{i,t} + e_6 XLIST_{i,t} + e_7 MVBV_{i,t} + e_8 FNUM_{i,t} + \phi_{i,t} \quad (3)$$

Equations (1a-b), (2a-b), and (3) are used to test for forecast frequency changes (H1a), non-routine forecast frequency changes (H1b), forecast quality (precision and accuracy) changes (H2), and forecast horizon changes (H3). The definitions of the dependent variables in the equations are as follows:

FCAST1 is an indicator variable taking the value of 1 if the current financial year's change in earnings is pre-empted by at least one management earnings forecast and 0 otherwise.

FCAST2 is an ordinal variable taking the value of 2, 1, and 0 if the current financial year's change in earnings in pre-empted by at least a non-routine earnings forecast, at least a routine earnings forecast, and no earnings forecasts, respectively.

PRECISE1 is the level of forecast precision, coded as 0, 1, 2, and 3 for qualitative, open-ended, range, and point forecasts, respectively. *PRECISE2* takes the value of 0 and 1 for range and point earnings forecasts, respectively, in equation (2b).

[30] Where the random effects model is proved not to have any significant improvement in the coefficient estimators, the results from a generic multivariate (logistic or OLS) regression model are reported.

ERROR is the natural logarithm of the magnitude of the forecast error measured by the difference between forecasted and actual earnings deflated by share price at the beginning of the financial year. Only the last range and point forecasts for the period are used [31].

FHORIZON is the number of calendar days between the release date of the last management earnings forecast in the period and the end date of the corresponding financial year.

The independent variables in equations (1a-b), (2a-b), and (3) are defined as follows.

REGIME is an indicator variable taking the value of 1 if the current financial reporting period ends on or after 1 December 2002 and 0 otherwise. Significant positive coefficients for equations (1a-b), (2a), and (3) and significant negative coefficient for equation 2b for this variable will provide support for the hypothesised relationships.

ECSIGN is an indicator variable taking the value of 1 for a positive current period earnings per share change and 0 otherwise.

BAD is an indicator variable taking the value of 1 if the management earnings forecast indicates an expected negative change in current period earnings and 0 otherwise (good or neutral forecasts).

GOOD is an indicator variable taking the value of 1 if the management earnings forecast indicates an expected positive change in current period earnings and 0 otherwise (bad or neutral forecasts).

ECHANGE is the natural logarithm of the absolute value of percentage change in earnings per share deflated by share price at the beginning of the financial year.

SIZE is the natural logarithm of the total assets at the end of the current financial reporting period[32].

XLIST is an indicator variable taking the value of 1 if the firm is cross-listed in a foreign exchange and 0 otherwise.

[31] Consistent with Lev and Penman (1990), Rogers and Stocken (2005), Atiase, Li, Supattarakul, and Tse (2005), and Hirst et al. (2008), the *ERROR* model only focuses on the range and point earnings forecasts due to the more straightforward measure of forecast error.

[32] The market value of equity (*MVE*) is also used as a firm size proxy in sensitivity analysis, yielding similar findings to those reported for total assets.

MVBV is the natural logarithm of the market value of equity divided by the book value of equity at the end of the current financial reporting period.

NREVENT is an indicator variable taking the value of 1 if the management earnings forecast is released through a non-routine announcement and 0 otherwise.

FNUM is the number of earnings forecasts released per financial year.

The three forecast characteristic variables *PRECISE1 (PRECISE2)*, *ERROR* and *FHORIZON* have been shown to interact with each other (Baginski et al., 2002, 2006; Chan et al., 2007) are therefore are included as independent variables in the H2 and H3 regression tests. *FNUM* is also included as an independent variable in model 3 since a greater number of earnings forecasts released per year is likely to shorten the forecast horizon of the last forecast update.

The independent variables *ECSIGN*, *BAD*, *GOOD*, *ECHANGE*, *SIZE*, and *MVBV* are those that have been commonly used in prior disclosure research (Skinner, 1994; Kasznik and Lev, 1995; Baginski et al., 2002; Gallery et al., 2002; Baginski et al., 2006; Chan et al., 2007) and control for firm-specific factors that lead to differences in forecasting behaviour across firms independently of the disclosure regime. Consistent with Hossain et al. (1995), the *XLIST* variable is included because a number of NZX-listed companies are also listed on the ASX and other foreign exchanges where more onerous disclosure rules have existed prior to the introduction of statutory sanctions[33]. These disclosure rules and the associated litigation risk for non-compliance are likely to lead to fewer but higher quality earnings forecasts relative to non-cross-listed companies. As cross-listed companies are not expected to have changed their disclosure policies in the post-statutory sanctions period, this group of companies provides a natural control from which to compare the impact of the new rules on domestic companies.

5. Results

5.1 Descriptive Statistics and Univariate Test Results

Descriptive statistics and results of univariate testing procedures are provided in Tables 2 and 3 and show statistics over the full study period and the pre- and post-statutory sanctions sub-samples. Table 2 displays the number of financial years of the 94 sample firms pre-empted by earnings forecasts and extends the forecast disclosure analysis to the materiality of earnings

[33] For example, the Australian CD rules have become increasingly more onerous since 1994, and the U.S. listing rules require quarterly financial reporting and the Form 8-K for certain events.

changes. If statutory sanctions are effective, more material earnings changes should be pre-empted with earnings forecasts[34]. The results are mixed. In the pre-statutory sanctions period, 163 out of 342 (47.66%) firm years are pre-empted. In the post-statutory sanctions period, 187 out of 290 (64.48%) firm years are pre-empted. Although consistent with an overall increase in the number of pre-emptions, the most significant increase is in the group above the 5% and below the 10% materiality threshold. The 5 to 10% materiality threshold group for positive earnings changes experiences an increase in pre-emption from 50% to 88.24%, while the group above 10% materiality threshold for positive earnings changes shows an increase of only about 7% from 49.09% to 56.25%. The negative earnings changes group exhibits a similar but less obvious trend. Thus there are still a large number of material earnings changes not pre-empted by a forecast disclosure following the introduction of statutory sanctions.

Table 3 presents summary statistics for the forecast and firm characteristics for all firm years (Panel A), for all management earnings forecasts (Panel B), and for all last range and point management earnings forecasts (Panel C). The parametric and non-parametric tests of the changes in the characteristics across the pre/post-statutory sanctions periods are also reported. Panel A provides the descriptive statistics for the control variables used in regression models. The summary statistics for firm-specific factors reveal considerable variation across sample firms which are typical of the nature of NZX-listed firms. However, the earnings change sign, the magnitude of earnings change, asset size, and cross-listing status, except for growth prospects (as measured by the market-to-book ratio) remain relatively stable and insignificantly different across the pre/post-statutory sanctions periods.

For the forecast characteristics, Panel A shows that out of the sample of 632 firm years, 350 firm years are pre-empted by at least one forecast (*FCAST1*)[35]. Of the 350 forecast firm years, 103 (16.3%) firm years are pre-empted by at least one non-routine forecast (*FCAST2*). As expected, the significant increase in pre-emption is primarily driven by the increase in non-routine forecasts (from 8.48% to 25.52%) rather than routine forecasts[36]. Additionally, untabulated results show that the average number of forecasts (*FNUM*) significantly increases for forecasting firms from a mean of 1.85 to 2.24 forecasts per year across the study periods.

[34] Skinner (1994) finds that US firms increase their pre-emptions for both positive and negative earnings changes as the materiality of the earnings changes increases.
[35] Among 350 forecasting firm years, 131, 115, 69, 25, 8, and 8 firm years are pre-empted by 1, 2, 3, 4, 5, and 6 earnings forecasts, respectively.
[36] The number of firm years pre-empted by routine earnings forecasts remain stable around 39% of firm years across the study period.

Panel B shows that out of the 720 earnings forecasts, 141 (19.58%) are associated with non-routine events (*NREVENT*), 401 (55.69%) are qualitative (*PRECISE1* = 0), 319 (44.31%) are quantitative (*PRECISE1* = 1 to 3) (i.e. 71 open-ended, 68 range and 180 point estimates), 129 (17.92%) are bad news forecasts (*BAD*), and the mean forecast horizon (*FHORIZON*) is 190 days. Reflecting institutional differences, these forecast characteristics vary considerably from those reported in other studies. The proportion of non-routine earnings forecasts is far lower than the 34.9% reported in Chan et al. (2007) for analyst followed Australian firms. The percentage of quantitative forecasts is also far lower than that reported for Australian (92.2%), U.S (88.9%), and Canadian firms (89%) in Chan et al.'s (2007) and Baginski et al. (2002) respectively. Additionally, the frequency of bad news forecasts is much lower than prior studies. In Chan et al. (2007), 22.1% of Australian forecasts are bad news and in Baginski et al. (2002), 35.1% of U.S forecasts and 35.7% of Canadian forecasts are bad news.

Consistent with Panel A, the Panel B results for the changes across the pre/post-statutory sanctions periods show a significant percentage change in the total earnings forecasts classified as non-routine (from 13.95% to 23.63%). Also evident is a significant decline in qualitative forecasts (from 70.1% to 45.35%) which is replaced by an increase in the three types of quantitative forecasts (from 7.97% to 11.22% for open-ended, from 3.65% to 13.6% for range, and from 18.27% to 29.83% for point forecasts). While these results are consistent with expected improvements in disclosure behaviour, contrary to expectation, the forecast horizon has declined (from a mean of 212 to 171 days for all earnings forecasts and from a mean of 132 to 126 days for the last pre-reporting date earnings forecasts) which suggests that managers are now slower at producing earnings forecasts and earnings forecast updates since the introduction of statutory sanctions[37].

In a continuous disclosure environment where firms provide multiple earnings forecasts during the reporting period, market participants and corporate regulators are likely to be most concerned about the accuracy and timeliness of the more quantitative forecasts prior to reporting date. Therefore, to further explore the changes in disclosure behaviour, Panel C provides statistics and test results for only the last pre-reporting date range and point earnings forecasts. The results for accuracy show a significant decline in the forecast error of range and point earnings forecasts (down from a mean of 0.219 to 0.017) across the two periods. Consistent with the results reported for forecast horizon in Panel B, the average forecast

[37] Untabulated results also show a significant shift of the last forecast updates to the last quarter and the preannouncement period after the introduction of statutory sanctions.

horizon of last forecast updates decline from 124 to 89 days. Given that we include the pre-announcement period (period between the balance date and the reporting date) in our measure of forecast horizon, these results suggests that in the post-CD regime, the last forecast updates tend to lose considerable timeliness to investors. The other forecast characteristics are not significantly different in pre- and post-statutory sanctions periods.

Taken together, the univariate results reported in Table 3 show that the introduction of statutory sanctions is associated with an improvement in forecast frequency, which is driven by an increase in non-routine forecasts, an improvement in forecast precision, and an improvement in forecast accuracy for the last range and point update prior to reporting date. However, contrary to the continuous disclosure principles, the introduction of statutory sanctions is associated with a decline in forecast horizon. Also, there remains a large number of periods with material earnings changes that are not pre-empted by earnings forecasts, and where forecasts are provided, a large number of these accompany routine events and lack specificity (i.e. take a qualitative form).

5.2 Multivariate Regression Results

The results from estimating the random effects logistic and linear regression models used to jointly test the hypothesised relationships are presented in Tables 4 to 8[38]. All tables show the regression results for the full model inclusive of all observations. These are supplemented in each table with results for the negative/positive earnings changes or bad/good news sub-samples to highlight any asymmetrical treatment which would be inconsistent with the provisions of the CD regime[39].

5.2.1 The Frequency of Management Earnings Forecasts (*H1a*)

Table 4 reports the results for the *FCAST1* logistic regression model. The binary *FCAST1* variable captures management's decision to pre-empt or not to pre-empt an expected earnings change with forecast disclosures to the NZX. As expected, the *REGIME* coefficient is positive and significant (p-value = 0.000). Consistent with the descriptive statistics and univariate analysis reported earlier, the increase in disclosure frequency is driven by both firms facing

[38] Random effects models are estimated to control for biases arising from the use of repeated observations across years. However, the Breusch and Pagan Lagrangian test results support the use of linear regression models for the *FHORIZON* and *ERROR* models in Tables 7 and 8.

[39] Prior to estimating the multivariate models, bivariate correlations between independent variables were examined. However, none appear to be sufficiently large to suggest multicollinearity.

negative and positive earnings changes (as indicated by the significant positive *REGIME* coefficient in both negative and positive earnings change models). Thus H1a is fully supported for both subsets of firms subject to either unfavourable or favourable earnings news[40].

Further evidence in Table 4 (main model) reveals the significant coefficients on the firm attribute controlled variables. These results are consistent with cross-sectional variation in the factors found to influence disclosure decisions in other disclosure regimes. The earnings change variable *ECHANGE* coefficient is significantly positive in the main model and in the positive earnings change model. This indicates that larger expected positive earnings changes are associated with more pre-emptive disclosures, which is consistent with the univariate results previously reported. The significantly positive *SIZE* coefficient also shows that larger firms are more likely to pre-empt earnings changes with forecast disclosures compared to smaller firms. The significantly negative *XLIST* coefficient is consistent with cross-listed firms providing fewer earnings forecasts than non-cross-listed firms to avoid potentially higher litigation costs in foreign jurisdictions if earnings forecasts subsequently prove to be inaccurate or misleading[41].

5.2.2 The Frequency of Non-routine Management Earnings Forecasts (*H1b*)

Table 5 presents the regression results from estimating the multinominal logit model with *FCAST2* as the dependent variable where *FCAST2* takes the value of 2, 1, or 0 if the current financial year's change in earnings is pre-empted by at least one non-routine earnings forecast, at least one routine earnings forecast, or no earnings forecast. The results show a significant negative *REGIME* coefficient variable for the 0/1 comparison ($p = 0.015$) and a significant positive coefficient for the 2/1 comparison ($p = 0.000$). Untabulated results also show a significant positive coefficient for the 2/0 comparison. Thus, these results indicate that in the post-sanctions period, firms are more likely to provide a forecast (routine and non-routine) and are more likely to provide a non-routine forecast rather than a routine forecast[42].

[40] Similar results are obtained when we replace *FCAST1* with *FNUM* (the number of earnings forecasts per financial year) in equation 1 and estimate a Tobit regression model.
[41] Also, quarterly reporting may contribute to the lower forecast frequency for cross-listed firms as untabulated results reveal a significant positive relationship between cross-listing status and the issuance of quarterly reports (Pearson chi-square = 67.447 and p-value = 0.000).
[42] Similar results are obtained from estimating an ordered logit instead of the multinominal logit regression model.

In accordance with H1b, these results suggest that firms are now less likely to delay their forecasts until the occurrence of a routine event. These findings are consistent with those reported by Chan et al. (2007) that the level of non-routine earnings forecast disclosures issued by Australian listed companies significantly increases following the increased in ASIC enforcement action and legislative changes to the continuous disclosure regime in the post-2000 period in Australia.

Additionally, there is no evidence of asymmetrical treatment of expected earnings increases or decreases in the management decision to issue non-routine earnings forecasts. The results for the firm attribute control variables are generally similar to those reported for the *FCAST1* model. The significant negative *SIZE* coefficient for the 0/1 comparison shows that larger firms are more likely to pre-empt earnings changes with routine earnings forecasts compared to smaller firms. Also, a marginally significant positive *SIZE* coefficient for the 2/1 comparison indicates that larger firms prefer to pre-empt earnings change with non-routine earnings forecasts compared to smaller firms. The highly positive significance of *XLIST* coefficient for the 0/1 comparison is consistent with cross-listed firms providing fewer routine earnings forecasts compared to non-cross-listed firms.

5.2.3 The Quality of Management Earnings Forecasts (*H2*)

Table 6 presents results obtained from estimating the forecast precision (*PRECISE1*) model using an ordered logit regression procedure. As predicted (H2), the results reveal a significantly positive *REGIME* coefficient ($p = 0.000$) indicating that forecast precision has improved across the regime periods. Also, the *REGIME* coefficient is consistently significant for both bad and good news earnings forecasts[43]. Our evidence is not consistent with Bamber and Cheon's (1998) proposition that increased litigation and regulatory activity will act as a disincentive for firms to issue more precise earnings forecasts.

Further evident in Table 6 is the highly significant negative *GOOD* coefficient. Regardless of the regulatory period, this result indicates that good news forecasts are less precise than bad or neutral news forecasts. This asymmetrical treatment is consistent with the findings of Gallery et al. (2002) and Chan et al. (2007) for Australian listed firms. As expected, larger firms facing bad news expectations are more likely to issue less precise forecasts and cross-listed

[43] Similar results are obtained when we collapse the *PRECISE1* categories into two categories: qualitative and quantitative (open-ended, range, and point) earnings forecasts and employ a random effects logit model.

firms tend to make more precise forecasts[44]. Also, earnings forecasts accompanying non-routine announcements and those with shorter horizons tend to be more precise. However, contrary to expectation, the significant positive *MVBV* coefficient suggests that firms with more growth prospects tend to provide more specific (quantitative) earnings forecasts. As the results are dominated by the good news sub-sample, a possible explanation is that firms facing positive growth prospects need to provide more precise earnings forecasts to convince the market of the informativeness and credibility of their forecast disclosures.

Table 7 shows results from estimating the OLS regression model with *ERROR* as the dependent variable where *ERROR* captures the forecast deviation magnitude (a measure of forecast accuracy) of the last range and point earnings forecasts. As expected (H2), the results reveal a significantly negative *REGIME* coefficient ($p = 0.003$), indicating that forecast error has declined following regime change. However, as the results are primarily driven by good news sub-sample (and the untabulated neutral news sub-sample), H2 is only partially supported for this forecast error test. The other results are generally as expected. The *ECHANGE* coefficient is positive and significant, indicating that the larger the expected earnings change, the larger the earnings forecast error; larger firms (*SIZE*) are more likely to have smaller forecast errors; and earnings forecasts associated with lower precision and shorter horizons tend to have smaller forecast errors[45].

5.2.4 The Timeliness of Management Earnings Forecasts (H3)

Table 8 provides results from estimating the *FHORIZON* model. The *FHORIZON* variable captures the timeliness of only the last forecast update prior to reporting date. Statutory sanctions are predicted (H3) to lead to timelier disclosures. However, contrary to expectation, (but consistent with the univariate results reported in Table 3), the significant negative *REGIME* coefficient ($p = 0.029$) indicates a decline in the timeliness of forecast updates following regime change. Although contrary to continuous disclosure principles, the results

[44] Baginski et al. (2002) argue that larger firms tend to provide less precise forecasts because they garner lower benefits relative to smaller firms from greater forecast specificity. Cross-listed firms are more likely to provide more precise forecasts, especially for firms cross-listed in the ASX because ASX CD Guidance discourages the release of qualitative earnings forecasts.

[45] We also examine forecast bias as measured by the signed forecast error and find no evidence of either positive or negative forecast bias in the pre- or post-statutory sanctions period.

are consistent with the argument that a more litigious environment leads to managers issuing earnings forecasts with shorter horizons (Baginski et al., 2002)[46].

Other results shown in Table 8 reveal evidence of an asymmetric treatment of forecasts based on news type. The significantly negative *BAD* coefficient indicates that bad news tends to be timelier than good or neutral news and this has not changed across the pre/post statutory sanctions periods. However, for good news sub-sample, the negative *REGIME* coefficient suggests the decline in forecast horizon is mainly driven by this group. Additionally, the significantly negative *SIZE* coefficient suggests that large firms issue forecasts later, but (as shown in Table 4) these are more frequent. This is further supported by the significant and negative *FNUM* coefficient which shows that as the frequency of forecasts updates increases within periods, the forecast horizon declines. The other firm-specific control variables have little influence on the timing of last forecast updates.

5.3 Robustness Check

Several sensitivity tests are undertaken to ensure the robustness of the results to various conditions and alternate specifications of variable constructs. First, interactions terms are included in the models. Models 1a and 1b are tested inclusive of the interaction variables between the *REGIME* variable and with one of these firm-specific factors, namely earnings change sign (*ECSIGN*), earnings change magnitude (*ECHANGE*), and cross-listing status (*XLIST*). All the interaction variables are reported as insignificant and the results obtained from these extended models do not reveal any significant differences to the main findings previously reported.

Second, prior research has shown that earnings volatility may adversely influence forecasting behaviour. We therefore test two alternative measures of earnings volatility in separate estimations of all models: *EVOL* (earnings per share volatility over the prior five financial years) and *ROAVOL* (return on assets volatility over the prior five financial years). Neither the *EVOL* nor *ROAVOL* coefficients are significant. Other results are not significantly different from the main findings except for the earnings change *ECHANGE* coefficient losing its significance. Correlation tests show that *ECHANGE* is highly correlated with *EVOL* and

[46] Gaynor (2003) provides three general reasons why companies may be slow in providing earnings forecast updates in New Zealand: (1) directors are reluctant to provide bad news in the hope of a positive turnaround; (2) earnings forecast updates can be delayed until approval is obtained at the next monthly board meeting; and (3) many companies find forecasting difficult outside the six-month reporting cycle.

ROAVOL which may explain the reduced significance. These results are also consistent with Baginski et al.'s (2002) assumption that the magnitude in earnings change acts as a proxy for the earnings volatility.

Third, the models are tested inclusive of industry dummy variables for the six major industry categories: (1) materials/mining/energy, (2) technology/telecommunication/biotechnology, (3) financial services, (4) utilities/airports/airlines/ports/shipping, (5) manufacturing/healthcare, and (6) consumer staples. The results are mixed. Firms in the financial services industry tend to release fewer forecasts, which is consistent with findings in other jurisdictions; whereas firms in manufacturing and healthcare tend to issue more earnings forecasts. However, none of the industry dummy variables are significant in any regressions testing forecast precision, forecast error, or forecast horizon.

Fourth, as statutory sanction came into effect on 1 December 2002 some firms may have either responded earlier or postponed their responses depending on the closeness of this date to their balance dates. To test whether our results are influenced by such behaviour, we retest the *FCAST1*, *FCAST2*, *PRECISE1*, *ERROR*, and *FHORIZON* models after dropping firm-periods that fall within six months of the effective date of the statutory sanctions (i.e. approximately 12 months around 1 December 2002). However, our results are quantitatively similar to those previously reported for the full sample of observations.

Fifth, in the *ERROR* model, only range and point earnings forecasts are used to measure *ERROR*. As a consequence, we restrict our sample and ignore the materiality of the forecast error. To address these constraints, we construct another dependent variable *ACCURACY* which takes the value of one if the forecast is proved *ex post* to be accurate and zero otherwise. A 10 percent materiality level is applied for range and point forecasts. This measure therefore allows us to evaluate the materiality of forecast error for all precision levels. In contrast to the previous findings for the *ERROR* model, the results from estimating the *ACCURACY* model do not reveal any significant improvement in the overall forecast accuracy in the post-sanctions period. The imposition of a materiality threshold for the quantitative forecasts is likely to have contributed to these contrary findings.

Sixth, we re-estimate the three *PRECISE1*, *ERROR*, and *FHORIZON* models after excluding neutral news earnings forecasts. As a result, we remove the independent *BAD* and *GOOD* variables and replace them with a new variable *ENEWS* which is coded zero and one for bad

and good news earnings forecasts, respectively. The results from these three models are similar to those reported in the original models.

Lastly, we re-estimate all models inclusive of an additional variable *ANALYST* which measures the number of analysts following the firm during the financial year[47]. The coefficients on the *ANALYST* variable are insignificant for all models. The results for the remaining variables remain unchanged.

Overall, the sensitivity analyses show that the main findings are robust to various alternative conditions and specifications except for forecast accuracy. In particular, the results on the *REGIME* variable continue to be significant.

6. Conclusion

The objective of this study has been to examine the impact of a statutory-backed continuous disclosure regime in New Zealand. Consistent with the intention of the corporate regulators, we expect that statutory sanctions would increase the costs for non-compliance leading to a positive impact on disclosure behaviour. Using management earnings forecasts as our proxy for measuring the change in disclosure behaviour, we hypothesise that the quantity (frequency), quality (precision and accuracy), and timeliness (horizon) of earnings forecasts would improve following the introduction of statutory sanctions. Collectively, our findings provide qualified support for the hypothesised effects of the statutory sanctions. The frequency (overall and non-routine) and the quality (precision and accuracy) of earnings forecasts have significantly improved. However, a large number of financial periods with material changes in earnings are either not pre-empted by an earnings forecast or are only made in conjunction with routine events, and many earnings forecasts are still qualitative in nature. Furthermore, the improvement achieved for forecast precision and accuracy has been accompanied by a decline in forecast horizon.

Based on a three and a half year period after the introduction of the statutory sanctions and restricted to an examination of management earnings forecasts, our findings provide only limited evidence a culture of continuous disclosure where the market is continuously updated with material information as soon as it arises as expected by the New Zealand corporate regulators. Nonetheless, the observed positive change in quantity and quality of earnings forecasts is superior to that observed in Australia after the introduction of statutory sanctions

[47] Approximately 55.38 percent of sample firm years have an analyst following.

in 1994. These findings have important implications for corporate regulators in their quest for a superior disclosure regime. Importantly, strong enforcement action may not necessarily be a precondition for achieving a change in corporate disclosure behaviour as argued in prior research.

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Table 1
Sample Selection Procedure

Selecting criteria	Number of observations
Sample Firms	
Total number of firms listed on NZX as on 3 December 2004	197
Less firms listed on NZX as on 3 December 2004 without IRG data	(44)
Less firms not surviving at least for the period 28 September 1999 to 13 September 2004	(59)
Total firms in final sample	94
Sample NZX Firm Years and documents lodged	
Total firm years by 94 firms	655*
Less firm years with missing documents or unusable earnings data for the firms	(23)
Total firm years in the final sample	632**
Total documents (with potential management earnings forecasts) examined in the final sample	2677
Less documents not containing management earnings forecasts	(1957)
Final sample of documents containing management earnings forecasts	720

* Total firm years including all firm years with ending balance date from 31 January 1999 to 31 December 2005.
** Among 632 firm years (342 pre- and 290 post-statutory sanctions), there are 350 firm years (163 pre- and 187 post-statutory sanctions) which include at least one management earnings forecast.

Table 2
Earnings Forecasts Classified by Negative and Positive Earnings Change Partitions
Pre- and Post-Statutory Sanctions

		All Firm Years		Pre-Statutory Sanctions Period		Post-Statutory Sanctions Period	
	Earnings Change	No. of Firm Years	No. (%) of Firm Years Pre-empted by an Earnings Forecast	No. of Firm Years	No. (%) of Firm Years Pre-empted by an Earnings Forecast	No. of Firm Years	No. (%) of Firm Years Pre-empted by an Earnings Forecast
Negative	=<-0.1	68	34 (50.00%)	35	16 (45.71%)	33	18 (54.55%)
	-0.1 to –0.05	42	21 (50.00%)	26	12 (46.15%)	16	9 (56.25%)
	-0.05 to –0.01	84	47 (55.95%)	50	24 (48.00%)	34	23 (67.65%)
	-0.01 to 0	57	30 (52.63%)	24	9 (37.50%)	33	21 (63.64%)
Positive	0 to 0.01	79	39 (49.37%)	40	16 (40.00%)	39	23 (58.97%)
	0.01 to 0.05	146	92 (63.01%)	76	41 (53.95%)	70	51 (72.86%)
	0.05 to 0.1	53	33 (62.26%)	36	18 (50.00%)	17	15 (88.24%)
	>=0.1	103	54 (52.43%)	55	27 (49.09%)	48	27 (56.25%)
N		632	350 (55.38%)	342	163 (47.66%)	290	187 (64.48%)

N is the number of total firm years with balance date ending from 31 January 1999 to 31 December 2005 for 94 firms (655 less 23 missing observations). A management earnings forecast is an announcement made to the NZX pre-empting a current period earnings change. A firm year is classified as a pre-statutory sanctions (post-statutory sanctions) firm year if its financial reporting period ends before (on or after) 1 December 2002. Earnings Change is the change in yearly earnings per share deflated by share price at the beginning of the current financial year.

Table 3
Descriptive Statistics Pre- and Post-Statutory Sanctions

Variables	Overall Sample Mean (Median)/Frequency (Percentage)	Pre Statutory Sanctions Period Mean (Median)/Frequency (Percentage)	Post Statutory Sanctions Period Mean (Median)/Frequency (Percentage)	*t*-stat (Mann Whitney *z*-value)/chi-square
Panel A: Descriptive statistics for all firm years				
	N = 632	N = 342	N = 290	
|Earnings Change|	0.177 (0.037)	0.209 (0.040)	0.139 (0.031)	-1.643^ (-1.183)
Log of |Earnings Change| (*ECHANGE*)	-3.323 (-3.306)	-3.239 (-3.214)	-3.422 (-3.474)	-1.351^ (-1.177)
Total Assets (millions)	3,118.1 (200.8)	3,202.1 (170.3)	3,019.0 (229.5)	-0.133 (1.141)
Log of Total Assets (*SIZE*)	19.038 (19.118)	18.977 (18.953)	19.109 (19.252)	0.755 (1.145)
Log of market to book ratio (*MVBV*)	0.376 (0.259)	0.290 (0.164)	0.477 (0.356)	2.947** (3.057**)
Management Earnings Forecast (*FCAST1*)	350 (55.38%)	163 (47.66%)	187 (64.48%)	17.971**
Non-routine Management Earnings Forecast (*FCAST2*)	103 (16.30%)	29 (8.48%)	74 (25.52%)	35.356**
ECSIGN	381 (60.29%)	207 (60.53%)	174 (60.00%)	0.018
XLIST	162 (25.63%)	85 (24.85%)	77 (26.55%)	0.237
Panel B: Descriptive statistics for all management earnings forecasts				
	N = 720	N = 301	N = 419	
NREVENT (*non-routine*)	141 (19.58%)	42 (13.95%)	99 (23.63%)	10.410**
PRECISE1 (*qualitative*)	401 (55.69%)	211 (70.10%)	190 (45.35%)	48.864**
PRECISE1 (*open-ended*)	71 (9.86%)	24 (7.97%)	47 (11.22%)	
PRECISE1 (*range*)	68 (9.44%)	11 (3.65%)	57 (13.60%)	
PRECISE1 (*point*)	180 (25.00%)	55 (18.27%)	125 (29.83%)	
BAD (*bad news*)	129 (17.92%)	51 (16.94%)	78 (18.62%)	0.333
GOOD (*good news*)	451 (62.64%)	197 (65.45%)	254 (60.62%)	1.745
FHORIZON	190 (189)	200 (212)	183.3 (171)	-2.360** (-1.650)
FHORIZON (*350 last management earnings forecasts*)	135 (128)	153 (132)	120 (126)	-3.580** (-3.007**)
Panel C: Descriptive statistics for all last range and point management earnings forecasts				
	N = 131	N = 43	N = 88	
Error	0.083 (0.003)	0.219 (0.010)	0.017 (0.003)	-1.030 (-3.659**)
ERROR	-5.628 (-5.687)	-4.708 (-4.653)	-6.077 (-5.884)	-3.392** (-3.659**)
PRECISE2 (*point*)	95 (72.52%)	35 (81.40%)	60 (68.18%)	2.531
BAD (*bad news*)	42 (32.06%)	10 (23.26%)	32 (36.36%)	2.279
GOOD (*good news*)	57 (43.51%)	19 (44.19%)	38 (43.18%)	0.012
FHORIZON	100 (107)	124 (124)	89 (75)	-2.317* (-1.924^)

^, *, ** Characteristics are significantly different at the 0.1, 0.05, and 0.01 levels, respectively (two-tailed). The pre-statutory sanctions period includes all financial years ending in the 31 January 1999 to 30 November 2002 period and the post-statutory sanctions period includes all those ending in the 1 December 2002 to 31 December 2005 period. |*Earnings Change*| is the absolute value of percentage change in earnings per share deflated by share price at the beginning of the financial year. *ECHANGE* is the natural logarithm of the absolute value of percentage change in earnings per share deflated by share price at the beginning of the financial year. *Total Assets* is the total assets at the end of the current financial reporting period. *SIZE* is the natural logarithm of total assets at the end of the current financial reporting period. *MVBV* is the natural logarithm of the market value of equity divided by the book value of equity at the end of the current financial reporting period. *Error* is the magnitude of forecast error measured by the difference of forecasted and actual earnings per share deflated by share price at the beginning of the financial year. *ERROR* is the natural logarithm of the magnitude of forecast error measured by the difference of forecasted and actual earnings per share deflated by share price at the beginning of the financial year. *FCAST1* is an indicator variable taking the value of 1 if the current financial year's change in earnings is pre-empted by at least one management earnings forecast and 0 otherwise. *FCAST2* is a variable taking the value 2, 1, and 0 if the current financial year's change in earnings is pre-empted by at least a non-routine earnings forecast, at least a routine earnings forecast, and no earnings forecasts, respectively. *ECSIGN* is an indicator variable taking the value of 1 for a positive current period earnings per share change and 0 otherwise. *XLIST* is an indicator variable taking the value of 1 if the firm is cross-listed in a foreign exchange and 0 otherwise. *FHORIZON* is the number of calendar days between the release date of management earnings forecast and the end date of the corresponding financial year. *FNUM* is the number of earnings forecasts released per financial year. *BAD* is an indicator variable taking the value of 1 if the management earnings forecast indicates an expected negative change in current period earnings and 0 otherwise. *GOOD* is an indicator variable taking the value of 1 if the management earnings forecast indicates an expected positive change in current period earnings and 0 otherwise. *PRECISE1* is level of forecast precision, coded as 0, 1, 2, and 3 for qualitative, open-ended, range, and point forecasts, respectively. *PRECISE2* is an indicator variable taking the value of 0 and 1 for range and point forecasts, respectively. *NREVENT* is an indicator variable taking the value of 1 if the management earnings forecast is released through a non-routine announcement and 0 otherwise.

Table 4
Factors Associated with Management Earnings Forecasts Pre- and Post-Statutory Sanctions

$$FCAST1_{i,t} = a_0 + a_1REGIME_{i,t} + a_2ECSIGN_{i,t} + a_3ECHANGE_{i,t} + a_4SIZE_{i,t} + a_5XLIST_{i,t} + a_6MVBV_{i,t} + (u_i + \varepsilon_{i,t})$$

		All Firm Years	Negative Earnings Change	Positive Earnings Change
Variable	Expected Sign	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Intercept		-7.264	-6.390	-6.610
		(0.004**)	(0.023*)	(0.023*)
REGIME	+	1.202	1.254	1.185
		(0.000**)	(0.001**)	(0.000**)
ECSIGN	?	0.019		
		(0.937)		
ECHANGE	+	0.143	0.045	0.220
		(0.044*)	(0.357)	(0.028*)
SIZE	+	0.408	0.342	0.390
		(0.002**)	(0.011*)	(0.007**)
XLIST	-	-0.964	-0.865	-1.114
		(0.067^)	(0.114)	(0.073^)
MVBV	+	0.008	-0.026	0.131
		(0.486)	(0.466)	(0.334)
lnsig2u		1.692	1.471	1.681
sigma_u		2.330	2.086	2.318
rho		0.623	0.570	0.620
Likelihood ratio test		162.350**	30.700**	73.060**
Model Chi-square		34.510**	12.740*	20.810**
N		632	251	381

^, *, ** Significant at the 0.1, 0.05, and 0.01 levels, respectively. One-tailed (two-tailed) test is used when coefficient sign is predicted (not predicted). Random effects logistic regression model is used where the dependent variable is *FCAST1*, an indicator variable taking the value of 1 if the current financial year's change in earnings is pre-empted by at least one management earnings forecast and 0 otherwise. *REGIME* is an indicator variable taking the value of 1 if the current financial reporting period ends in the post-statutory sanctions period (from 1 December 2002 to 31 December 2005) or 0 if it ends in the pre-statutory sanctions period (from 31 January 1999 to 30 November 2002). *ECSIGN* is an indicator variable taking the value of 1 for a positive current period earnings per share change and 0 otherwise. *ECHANGE* is the natural logarithm of the absolute value of percentage change in earnings per share deflated by share price at the beginning of the financial year. *SIZE* is the natural logarithm of the total assets at the end of the current financial reporting period. *XLIST* is an indicator variable taking the value of 1 if the firm is cross-listed in a foreign exchange and 0 otherwise. *MVBV* is the natural logarithm of the market value of equity divided by the book value of equity at the end of the current financial reporting period.

Table 5
Factors Associated with Non-routine Management Earnings Forecasts Pre- and Post-Statutory Sanctions

$$FCAST2_{i,t} = b_0 + b_1REGIME_{i,t} + b_2ECSIGN_{i,t} + b_3ECHANGE_{i,t} + b_4SIZE_{i,t} + b_5XLIST_{i,t} + b_6MVBV_{i,t} + \mu_{i,t}$$

			All Firm Years	Negative Earnings Change	Positive Earnings Change
Variable	Expected Sign	Comparison	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Intercept		0/1	3.372	3.963	2.772
			(0.000**)	(0.005**)	(0.018*)
		2/1	-3.088	-2.102	-3.932
			(0.017*)	(0.285)	(0.023*)
REGIME	+	0/1	-0.396	-0.523	-0.319
			(0.015*)	(0.037*)	(0.085^)
		2/1	1.095	0.637	1.481
			(0.000**)	(0.052^)	(0.000**)
ECSIGN	?	0/1	-0.280		
			(0.123)		
		2/1	-0.244		
			(0.319)		
ECHANGE	+	0/1	-0.063	-0.023	-0.093
			(0.124)	(0.394)	(0.095^)
		2/1	0.043	0.109	-0.009
			(0.278)	(0.162)	(0.465)
SIZE	+	0/1	-0.169	-0.192	-0.157
			(0.001**)	(0.006**)	(0.008**)
		2/1	0.092	0.070	0.097
			(0.088^)	(0.248)	(0.147)
XLIST	-	0/1	0.412	0.682	0.237
			(0.041*)	(0.039*)	(0.217)
		2/1	0.062	0.212	-0.055
			(0.424)	(0.338)	(0.450)
MVBV	+	0/1	-0.058	-0.098	-0.053
			(0.309)	(0.292)	(0.367)
		2/1	0.129	-0.136	0.328
			(0.212)	(0.291)	(0.066^)
Pseudo R2			0.050	0.042	0.062
Model Chi-square			64.180**	21.690**	47.850**
N			632	251	381

^, *, ** Significant at the 0.1, 0.05, and 0.01 levels. One-tailed (two-tailed) test is used when coefficient sign is predicted (not predicted). Multinominal logit regression model is used where the dependent variable is *FCAST2*, an ordinal variable taking the value 2, 1, and 0 if the current financial year's change in earnings is pre-empted by at least a non-routine earnings forecast, at least a routine earnings forecast, and no earnings forecasts, respectively. *REGIME* is an indicator variable taking the value of 1 if the current financial reporting period ends in the post-statutory sanctions period (from 1 December 2002 to 31 December 2005) or 0 if it ends in the pre-statutory sanctions period (from 31 January 1999 to 30 November 2002). *ECSIGN* is an indicator variable taking the value of 1 for a positive current period earnings per share change and 0 otherwise. *ECHANGE* is the natural logarithm of the absolute value of percentage change in earnings per share deflated by share price at the beginning of the financial year. *SIZE* is the natural logarithm of the total assets at the end of the current financial reporting period. *XLIST* is an indicator variable taking the value of 1 if the firm is cross-listed in a foreign exchange and 0 otherwise. *MVBV* is the natural logarithm of the market value of equity divided by the book value of equity at the end of the current financial reporting period.

Table 6
Factors Associated with Forecast Precision Pre- and Post-Statutory Sanctions

$$PRECISE1_{i,t} = c_0 + c_1 REGIME_{i,t} + c_2 BAD_{i,t} + c_3 GOOD_{i,t} + c_4 ECHANGE_{i,t} + c_5 SIZE_{i,t} + c_6 XLIST_{i,t} + c_7 MVBV_{i,t} + c_8 NREVENT_{i,t} + c_9 FHORIZON_{i,t} + \eta_{i,t}$$

		All Forecasts (including Neutral News)	Bad News	Good News
Variable	Expected Sign	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
REGIME	+	0.697	1.555	0.630
		(0.000**)	(0.000**)	(0.003**)
BAD	?	-0.130		
		(0.604)		
GOOD	?	-1.011		
		(0.000**)		
ECHANGE	+	-0.014	-0.030	0.049
		(0.392)	(0.395)	(0.233)
SIZE	-	-0.129	-0.363	-0.092
		(0.018*)	(0.005**)	(0.126)
XLIST	+	0.734	0.722	0.835
		(0.002**)	(0.198)	(0.008**)
MVBV	+	0.387	-0.270	0.479
		(0.001**)	(0.363)	(0.002**)
NREVENT	+	1.325	1.623	1.420
		(0.000**)	(0.000**)	(0.000**)
FHORIZON	-	-0.003	-0.001	-0.004
		(0.001**)	(0.322)	(0.002**)
Pseudo R2		0.116	0.137	0.120
Model Chi-square		187.620**	45.040**	111.470**
N		720	129	451

^, *, ** Significant at the 0.1, 0.05, and 0.01 levels. One-tailed (two-tailed) test is used when coefficient sign is predicted (not predicted). Ordered logit regression model is used where the dependent variable is *PRECISE1*, a measure of forecast precision, coded as 0, 1, 2, 3 for qualitative, open-ended, range, and point forecasts, respectively. *REGIME* is an indicator variable taking the value of 1 if the current financial reporting period ends in the post-statutory sanctions period (from 1 December 2002 to 31 December 2005) or 0 if it ends in the pre-statutory sanctions period (from 31 January 1999 to 30 November 2002). *BAD* is an indicator variable taking the value of 1 if the management earnings forecast indicates an expected negative change in current period earnings and 0 otherwise. *GOOD* is an indicator variable taking the value of 1 if the management earnings forecast indicates an expected positive change in current period earnings and 0 otherwise. *ECHANGE* is the natural logarithm of the absolute value of percentage change in earnings per share deflated by share price at the beginning of the financial year. *SIZE* is the natural logarithm of the total assets at the end of the current financial reporting period. *XLIST* is an indicator variable taking the value of 1 if the firm is cross-listed in a foreign exchange and 0 otherwise. *MVBV* is the natural logarithm of the market value of equity divided by the book value of equity at the end of the current financial reporting period. *NREVENT* is an indicator variable taking the value of 1 if the management earnings forecast is released through a non-routine announcement and 0 otherwise. *FHORIZON* is the number of calendar days between the release date of management earnings forecast and the end date of the corresponding financial year.

Table 7
Factors Associated with Forecast Error Pre- and Post-Statutory Sanctions

$$ERROR_{i,t} = d_0 + d_1REGIME_{i,t} + d_2BAD_{i,t} + d_3GOOD_{i,t} + d_4ECHANGE_{i,t} + d_5SIZE_{i,t} + d_6XLIST_{i,t} + d_7MVBV_{i,t} + d_8PRECISE2_{i,t} + d_9FHORIZON_{i,t} + \gamma_{i,t}$$

		All Forecasts (including Neutral News)	Bad News	Good News
Variable	Expected Sign	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Intercept		1.981	0.440	3.430
		(0.474)	(0.915)	(0.497)
REGIME	-	-1.136	-0.506	-1.099
		(0.003**)	(0.247)	(0.055^)
BAD	?	-0.267		
		(0.612)		
GOOD	?	0.228		
		(0.646)		
ECHANGE	+	0.319	0.513	0.549
		(0.002**)	(0.010**)	(0.002**)
SIZE	-	-0.304	-0.224	-0.331
		(0.012*)	(0.146)	(0.097^)
XLIST	-	0.767	0.370	0.896
		(0.123)	(0.667)	(0.254)
MVBV	?	0.244	0.612	0.166
		(0.361)	(0.262)	(0.689)
PRECISE2	+	-0.792	-0.728	-0.932
		(0.030*)	(0.147)	(0.087^)
FHORIZON	+	0.003	0.002	0.004
		(0.071^)	(0.293)	(0.154)
Adjusted R^2		0.194	0.106	0.189
F-value		4.480**	1.690	2.860*
N		131	42	57

^, *, ** Significant at the 0.1, 0.05, and 0.01 levels. One-tailed (two-tailed) test is used when coefficient sign is predicted (not predicted). Linear regression models are used where the dependent variable *ERROR* is the natural logarithm of the magnitude of forecast error measured as the difference between the forecasted and actual earnings per share deflated by share price at the beginning of the financial year. *REGIME* is an indicator variable taking the value of 1 if the current financial reporting period ends in the post-statutory sanctions period (from 1 December 2002 to 31 December 2005) or 0 if it ends in the pre-statutory sanctions period (from 31 January 1999 to 30 November 2002). *BAD* is an indicator variable taking the value of 1 if the management earnings forecast indicates an expected negative change in current period earnings and 0 otherwise. *GOOD* is an indicator variable taking the value of 1 if the management earnings forecast indicates an expected positive change in current period earnings and 0 otherwise. *ECHANGE* is the natural logarithm of the absolute value of percentage change in earnings per share deflated by share price at the beginning of the financial year. *SIZE* is the natural logarithm of the total assets at the end of the current financial reporting period. *XLIST* is an indicator variable taking the value of 1 if the firm is cross-listed in a foreign exchange and 0 otherwise. *MVBV* is the natural logarithm of the market value of equity divided by the book value of equity at the end of the current financial reporting period. *PRECISE2* is an indicator variable taking the value of 0 and 1 for range and point forecasts, respectively. *FHORIZON* is the number of calendar days between the release date of management earnings forecast and the end date of the corresponding financial year.

Table 8
Factors Associated with Forecast Horizon Pre- and Post-Statutory Sanctions

$$FHORIZON_{i,t} = e_0 + e_1 REGIME_{i,t} + e_2 BAD_{i,t} + e_3 GOOD_{i,t} + e_4 ECHANGE_{i,t} + e_5 SIZE_{i,t} + e_6 XLIST_{i,t} + e_7 MVBV_{i,t} + e_8 FNUM_{i,t} + \phi_{i,t}$$

		All Forecasts (including Neutral News)	Bad News	Good News
Variable	Expected Sign	Coefficient (p-value)	Coefficient (p-value)	Coefficient (p-value)
Intercept		319.410	294.768	373.887
		(0.000**)	(0.013*)	(0.000**)
REGIME	+	-15.284	-10.768	-16.626
		(0.029*)	(0.289)	(0.064^)
BAD	?	-45.244		
		(0.000**)		
GOOD	?	-15.125		
		(0.143)		
ECHANGE	+	-1.050	-4.476	-0.985
		(0.330)	(0.234)	(0.381)
SIZE	-	-4.319	-6.798	-7.295
		(0.062^)	(0.136)	(0.028^)
XLIST	+	18.949	9.238	34.094
		(0.110)	(0.713)	(0.041*)
MVBV	?	0.917	-14.283	3.839
		(0.873)	(0.353)	(0.614)
FNUM	-	-40.344	-31.142	-49.166
		(0.000**)	(0.000**)	(0.000**)
Adjusted R^2		0.293	0.164	0.311
F-value		19.090**	3.250**	16.700**
N		350	70	210

^, *, ** Significant at the 0.1, 0.05, and 0.01 levels. One-tailed (two-tailed) test is used when coefficient sign is predicted (not predicted). Linear regression models are used where the dependent variable is *FHORIZON,* the number of calendar days between the release date of the last management earnings forecast for the period and the end date of the corresponding financial year. *REGIME* is an indicator variable taking the value of 1 if the current financial reporting period ends in the post-statutory sanctions period (from 1 December 2002 to 31 December 2005) or 0 if it ends in the pre-statutory sanctions period (from 31 January 1999 to 30 November 2002). *BAD* is an indicator variable taking the value of 1 if the management earnings forecast indicates an expected negative change in current period earnings and 0 otherwise. *GOOD* is an indicator variable taking the value of 1 if the management earnings forecast indicates an expected positive change in current period earnings and 0 otherwise. *ECHANGE* is the natural logarithm of the absolute value of percentage change in earnings per share deflated by share price at the beginning of the financial year. *SIZE* is the natural logarithm of the total assets at the end of the current financial reporting period. *XLIST* is an indicator variable taking the value of 1 if the firm is cross-listed in a foreign exchange and 0 otherwise. *MVBV* is the natural logarithm of the market value of equity divided by the book value of equity at the end of the current financial reporting period. *FNUM* is the number of earnings forecasts released per financial year.