Are CEOs Paid for Performance? A Study of CEO's Compensation in the Public Sector Corporations

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ABSTRACT

This study provides insight into CEO compensation dynamics in the public sector and private sector publicly listed firms in New Zealand. This research uses descriptive statistics, OLS regression, and the difference-in-difference method to analyze the compensation-performance relationship for the period 2005 to 2012. Our findings show that CEOs in the private sector publicly listed firms are receiving higher remuneration benefits. Our results suggest that firm sales and past compensation are the most important determinants of CEO cash-based as well as total compensation. Firms with a larger board size and the presence of a formal remuneration committee are likely to provide higher cash compensation than those without.

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1. Introduction

Executive compensation has attracted attention from academics, politicians, and media commentators regarding excessive salaries and golden parachutes paid to top management in publicly listed companies. Evidence in public sector corporations reflects a similar trend (see Roberts, 2021; Hubbard, 2000; Langdon, 2002; Morton & Dickison, 2012). The concern among politicians, media commentators, and other stakeholders is whether CEOs' pay reflects performance.

Public sector entities in New Zealand were transformed into private sector lookalikes to align pay-to-performance and improve efficiencies (Burgess & Ratto, 2003; Lavy, 2007; Swiss, 2005). Public sector entities were transformed under the Companies Act of 1993 with the aim that CEO compensation packages in public sector entities will also be determined using similar performance-based criteria to that used by their private sector counterparts. More than 100 public sector entities (ranging from airports to educational institutions, electricity suppliers, hospitals, and ports) have been transformed into State-Owned Enterprises (SOEs) and Crown Research Institutes (CRIs). These entities operate under their own established legislative act (namely, the State-Owned Enterprises Act 1986, Crown Research Institute Act 1992, Energy Companies Act 1992, and Port Companies Act 1988) and are incorporated under the Companies Act of 1993.

Prior studies have linked the excessive compensation in public sector corporations in New Zealand to weak corporate governance practices (Cahan, Chua & Nyamori, 2005) and misalignment of pay to performance (Kaplan, 2008). Some studies have linked bureaucrats to being self-interest maximizers (Niskansen, 1975; Mueller, 2003) who are interested in advancing their goals by fostering the growth of their organizations. Failure to align CEOs' incentives is likely to result in rent extraction behavior (Boyle & Rademaker, 2012).

CEO compensation is an important indicator of board effectiveness since compensation decisions are important, frequent, and observable (Core, Holthausen, & Larcker, 1999). Although public sector corporations lack market-based incentives, boards of directors play a critical role in ensuring that CEO remuneration in these corporations is linked to CEOs' performance (Cahan et al., 2005). However, Haines (2012) argues that the board members in large corporations are too far removed from the realities of the day-to-day management of the business to make any significant contribution (Haines, 2012). Whether boards of directors are making a significant contribution to the companies regarding aligning pay-to-performance, remains unclear. Therefore, this study aims to examine whether boards of public sector entities in New Zealand have been effective in aligning pay-to-performance and more importantly, whether CEOs are penalized for poor performance.

This study makes several contributions to the literature relating to CEO compensation. In prior academic research in New Zealand, comparative studies are relatively limited in scope and number, especially between publicly listed companies, SOEs, and CRIs. By analyzing and comparing the pay-performance relationship in publicly listed companies, SOEs, and CRIs, this paper provides a better understanding of the relationship between CEO compensation, performance, and board characteristics in the public sector entities in the context of New Zealand. In addition, this study contributes to the international literature in the area of executive compensation by providing a New Zealand pay-performance relationship comparison between publicly listed companies and public sector corporations. This will benefit both the business community and regulators seeking to understand the determinants of CEOs' compensation and how compensation packages differ across sectors and countries. The findings of this study will help the policy and decisionmakers to achieve more with less by improving our productivity, and by ensuring that spending is targeted at achieving the Government's priorities.

Our results show that firm size is the most important determinant of CEO cash and total compensation in publicly listed companies, SOEs, and CRIs. The past year compensation for CEOs is an additional important determinant of current year compensation for CEOs in publicly listed companies and SOEs. The presence of female directors, a remuneration committee, and agency costs do exert a moderating effect on CEO cash compensation. Our

study has policy implications and inform regulators and decision-makers regarding the moderating variables that can have an impact on CEO compensation.

The rest of this study is organized as follows: Section 2 provides a brief review of the literature. Section 3 describes the data and the research method used and Section 4 discusses the empirical research results. Section 5 presents the conclusion and limitations of this study.

2. Literature Review

Prior research using the agency theoretic viewpoint posits two contrasting views concerning the observed pay structures of CEOs, namely, efficient contracting (Edmans & Gabaix, 2009; Murphy, 2012) and managerial power (Bebchuk & Fried, 2004; Bertrand & Mullainathan, 2000). Masulis and Zhang (2013) state that a high level of CEO pay disparity has been interpreted as an ability-matching mechanism (Masulis and Zhang, 2013) and to incite tournaments (Kale et al., 2009, Lazear and Rosen, 1981), both representing support for the efficient contracting argument. On the other hand, Bebchuk and Fried (2011) and Chen et al. (2013) attribute high pay disparity to powerful CEOs capturing the pay-setting process which is referred to the managerial power hypothesis. However, the debate between these two arguments have remained unresolved and this study is an attempt to fill the void.

Over five decades of research have examined the nature of the compensation-performance relationship in publicly listed companies and have largely reported mixed results. For example, Zhou (2000) examined CEO compensation in Canada and reported that compensation has a positive effect on firm performance in Canada, China (Conyon & He, 2011; Kato & Long, 2006), Japan (Kato & Kubo, 2006), Korea (Kato, Kim, & Lee, 2007), New Zealand (Andjelkovic, Boyle, & McNoe, 2002; Gunasekaragea & Wilkinson, 2002; Jiang, Habib, & Smallman, 2009; Lau & Vos, 2004), the Philippines (Unite, Sullivan, Brookman, Majadillas, & Taningco, 2008) and the US (Gu & Kim, 2009; Nourayi & Mintz, 2008). While other researchers have reported a positive relationship between CEO total compensation and financial performance in India (Ghosh, 2010) and the US (Canarella & Gasparyan, 2008). On contrary, some researchers have reported no evidence of any link between performance and the pay of top managers in the following countries: Italy (Brunello, Graziano, & Parigi, 2001; Gigliotti (2013), New Zealand (Elayan, Lau, & Meyer, 2003), the UK (Ozkan, 2011) and the US (Jeppson, Smith, & Stone, 2011). Ozkan (2011) reported that pay-performance elasticity for CEOs in the UK is lower than that for CEOs in the US.

Several researchers have reported that firm performance has a positive effect on CEOs' cash compensation in the US (Conyon & He, 2011; Gu & Kim, 2009; Kato & Kubo, 2006; Kato & Long, 2006; Nourayi & Daroca, 2008; Zhou, 2000), in China, Kato and Long (2006) reported a statistically significant positive relationship between CEO cash compensation and shareholder value for 937 publicly listed companies. Furthermore, Nourayi and Mintz (2008) considered the CEO's tenure for US companies and reported that during the first 3 years of a CEO's employment, there is a statistically significant positive relationship between firm performance and cash-based compensation.

Jeppson et al. (2011), divided CEO compensation into five categories: base salary, cash bonuses, perks, stock awards, and option awards. Their results show a statistically significant correlation between a CEO's base salary and total firm revenue but there is no statistically significant correlation between base salary and percentage of change in a company's net income, or percentage of change in total shareholder return. However, CEO cash bonuses are positively related to firm performance, including total revenue, changes in net income, and changes in total shareholder return. Gu and Kim (2009) and Kato and Kubo (2006) reported similar results, indicating that CEO cash compensation is sensitive to firm performance.

In addition, Canarella and Nourayi (2008) reported strong evidence of asymmetry and non-linearity in the relationship between executive compensation and firm performance. After analyzing the panel data set of 390 UK non-financial firms for the period 1999-2005, Ozkan (2011) reported that the relationship between CEO compensation and firm performance is misaligned. In 1998, Elayan et al. (2003) conducted t-tests of CEO total

compensation and Tobin's Q, return to shareholders, and return on assets for a sample of 73 New Zealand listed companies and reported no significant association between CEO compensation and performance measures. Nourayi and Mintz (2008) investigated 2601 CEO year observations from 1446 companies during the period 2001-2002 and reported that performance has a negative effect on CEO total compensation.

Murphy (1999), argued that the differences in firm size, industry type, and institutional structures in different countries lead to different pay-performance sensitivities. For example, Ghosh (2010) reported a significant pay-performance relationship in India's manufacturing firms in 2007. Zhou (2000), examined 755 Canadian firms between 1991 and 1995 and found that CEO compensation is tied to company performance and sales elasticity and is greater in larger firms. Canarella and Nourayi (2008), used a sample of 594 observations between 1997 and 2002 and showed that both accounting returns and market returns affect executive total compensation and that the relationship between executive compensation and firm performance is non-linear and asymmetric.

According to Rosen (1990), in market equilibrium, the marginal productivity of the most talented executives who occupy top positions in the largest firms tends to be greatly magnified by many people who are linked below them. A positive correlation between firm size and pay has been reported extensively in prior literature from all over the world. In addition, the findings of New Zealand studies show the relationship between firm size and CEO compensation is positive and significant. Andjelkovic et al. (2002), studied 49 listed firms on the NZ Stock Exchange in 1997 and found that the sole determinant of variations in CEO pay appeared to be the firm size. By testing samples from 1998 to 2002, Gunasekaragea and Wilkinson (2002) reported that the size of the firm significantly influences CEO compensation. Using data from 1998, Elayan et al. (2003) reported a positive relationship between firm size and pay. CEO pay rises with firm size (Lau & Vos, 2004), and CEO compensation is positively related to firm performance in firms with low ownership concentration structures (Jiang et al., 2009).

The findings of prior research do suggest that different compensation structures have the potential to influence the pay-performance relationship (Ozkan, 2011). Since the focus of prior studies has mainly been on the publicly listed firms in the US (see Canarella & Nourayi, 2008; Jeppson et al., 2011; Leone, Wu, & Zimmerman, 2006; Nourayi & Mintz, 2008), the literature relating to the pay-performance nexus in public sector corporations remains scant.

The literature that does exist regarding CEO compensation in public sector corporations is limited and the findings are inconsistent. Drawing on US data for the period 1950 to 1990, Tella and Fisman (2002) reported a positive relationship between US bureaucrats' performance and their compensation. Tuttle and Bumpass (2005), examined the determinants of governors' salaries for the 48 contiguous states from 1961 to 2001 and found a positive link between US state governor salaries and state economic performance. However, analyzing the effectiveness of management, CEO turnover, and compensation in English NHS Hospital Trusts from 1998 to 2005, Ballantine, Forker, and Greenwood (2008) found no association between CEO pay and performance. Boyle and Rademaker (2012), examined the situation of CEOs of local government agencies in New Zealand and reported no evidence of a positive relationship between pay and regional economic performance. Brickley and Van Horn (2002), and Brickley, Van Horn, and Wedig (2010) reported evidence suggesting both efficient contracting and rent-seeking forces at work.

There are several differences between publicly listed companies and public sector corporations. First, publicly listed companies are owned by shareholders but public sector corporations are owned by the government. Second, boards of public sector corporations report directly to the two ministers of the Crown, which is not the case for publicly listed companies. Third, the purpose of public sector corporations is to undertake activities that benefit New Zealand, while the purpose of publicly listed companies is to maximize shareholder wealth. Fourth, the existence of alienable residual claims reduces the incentive of the owners (government and taxpayers) to monitor the performance of public sector corporations. The incentive to monitor is further reduced by the existence of unidentifiable and diffused ownership structures and free-rider problems (Olson, 1971).

Based on the prior literature, the following hypotheses are developed:

H1: CEO total compensation in publicly listed companies is higher than that in CRIs and SOEs.

H2: Firm performance is positively related to CEO compensation in publicly listed companies but not in CRIs and SOEs.

Boards of directors are considered to have an important role in monitoring and establishing CEO compensation (Jensen, 1993). Bertrand and Mullainathan (2001), reported that there was a certain level of association between the strength of the board and CEO compensation. Ideally, the board designs a CEO's compensation package to minimize agency costs and to encourage CEOs to act on the shareholders' behalf. According to Bechuk and Fried (2005), boards have failed to carry out the ideal function of compensation review and control. Core, Holthausen, and Larcker (1999) argued that boards are influenced by CEOs and therefore cannot independently settle CEO compensation for their contribution. In some cases, CEOs can even be involved in the decision-making for their compensation.

Prior studies have reported that larger boards are less effective than smaller boards (Cahan et al., 2005; Core et al., 1999; Eisenberg, Sundgren & Wells, 1998; Jensen, 1993). Cahan et al. analyzed 80 New Zealand public sector corporations in 1999 and concluded that smaller boards are more effective at restraining CEO pay. Similarly, Core et al. (1999) reported that a larger board size is associated with higher CEO pay and Jensen (1993) stated that larger boards are seen as less effective. Eisenberg et al. (1998) reported a negative correlation between board size and profitability in small firms with small boards in Finland. Petra and Dorata (2008), suggested that to set lower CEO compensation, boards should have fewer than nine members.

Based on the prior literature, the following hypotheses are developed:

H3: Board size is larger in CRIs and SOEs than in publicly listed companies.

H4: Larger board size is positively related to CEO cash compensation in publicly listed companies but not in CRIs and SOEs.

Outside directors are considered to be more independent and objective and are expected to assert more control over CEO performance than inside directors (Fama & Jensen, 1983; Ozdemir & Upneja, 2012). Core et al. (1999) found that the presence of a smaller proportion of independent outside directors on boards is associated with greater CEO compensation in the US. Coakley and Iliopoulou (2006), also documented that less independent, larger boards awarded CEOs higher bonuses and salaries in UK companies over the period 1998-2001. However, Hermalin and Weisbach (1998) argued that outside directors were less effective in monitoring CEO compensation. Ozkan (2007), also found that the number of non-executive directors on boards resulted in higher CEO compensation, thus suggesting that non-executive directors do not play an effective monitoring role.

Based on the prior literature, the following hypotheses are developed:

H5: The proportion of independent directors on boards in CRIs and SOEs is higher than for publicly listed companies.

H6: The number of independent directors in publicly listed companies is positively related to CEO cash compensation but negatively related to CRIs and SOEs.

The importance of gender diversity on boards is explicitly stressed in many governance reform proposals. By investigating Fortune 1000 firms, Carter, Simkins, and Simpson (2003) found a significant, statistically positive relationship between the presence of women on boards and firm value as measured by Tobin's Q. Adams and Ferreira (2004) reported that firms with more diverse boards provide better pay-performance incentives.

New Zealand has strict board structure requirements. For example, according to the NZSX/NZDX Listing Rules ("NZSX and NZDX Listing Rules," 2012), boards of listed companies must maintain a minimum number of independent directors, either two or one-third of the total number. The rules require boards to identify and disclose information about their dependent and independent directors. Also, an independent director or associated person

may not hold more than 5% of the company's shares. The New Zealand Companies Act of 1993 ("Companies Act 1993," 1993) requires companies to disclose directors' shareholding and associated benefits from the company. Cahan et al. (2005) studied 80 public sector companies in New Zealand and found that board size, whether the CEO is a member of the board or not, and director quality are associated with CEO pay in the public sector.

Based on the prior literature, the following hypotheses are developed:

H7: The proportion of female directors on boards in CRIs and SOEs is greater than in publicly listed companies.

H8: The presence of female directors on the boards of publicly listed companies has a negative effect on CEO cash and total compensation but has a positive effect on CRIs and SOEs.

Boards delegate some of their responsibilities to board committees. The audit and remuneration committees act primarily as independent monitors (Klein, 1998). The main responsibility of the audit committee is to ensure internal controls are effective, that financial reporting is reliable, and applicable regulations are complied with. The function of the remuneration committee is to make recommendations on remuneration packages for directors and CEOs.

The arguments about the effectiveness of board committees in determining and monitoring CEO compensation are inconclusive. For example, Chhaochharia and Grinstein (2009) found that companies with remuneration committees have lower CEO compensation, while Newman and Mozes (1999) did not find CEO compensation to be greater in firms that had insiders on the compensation committee compared with firms that did not. Main and Johnston (1993), reported evidence that CEO compensation is significantly higher in companies that have independent remuneration committees. Xie, Davidson, and DaDalt (2003) pointed out that the audit or finance committee may have a more direct role in controlling earnings management. Klein (2002) examined whether audit committee and board characteristics were related to earnings management by the firm and reported that audit committee independence leads to a lower level of abnormal accruals.

Based on the prior literature, the following hypotheses are developed:

H9: Board committees have a negative effect on CEO compensation in both publicly listed companies, CRIs and SOEs.

3. Data

Our sample includes 140 publicly listed companies and 24 public sector corporations (that is, 16 SOEs and 8 CRIs) over the period 2005-2012. A list of the public sector corporations (SOEs and CRIs) included in our sample is provided in Appendix A. The information regarding CEO compensation is collected from the firms' annual reports filed in the New Zealand Stock Exchange company database and from the individual entities' websites.

Data for both, cash compensation and total compensation was collected. In public sector corporations, CEO cash compensation includes base salary only whereas in publicly listed companies, CEO compensation includes both base salary and risk-based compensation. Risk-based compensation includes cash bonuses, allowances, incentives, and other monetary benefits paid to CEOs during each financial year, as well as shares, options granted, and long-term incentive plans. For this reason, we have divided CEO compensation in publicly listed companies into cash compensation (COMPC) and CEO total compensation (COMPTC). COMPTC includes base salary plus all cash benefits paid during the financial year, such as cash bonuses, allowances, incentives, and other cash benefits. The total package (COMPTP) includes total cash compensation (COMTC) plus risk-based compensation including shares, options granted, and long-term incentive plans.

Some companies disclosed information relating to their CEO's remuneration clearly in their annual reports but others did not. If CEO remuneration was not specifically disclosed, we estimated the CEO's remuneration. For example, the New Zealand Companies Act of 1993 requires corporations to disclose the number of employees whose annual salary exceeds $100,000, in $10,000 increments. Hence it is possible to estimate CEO remuneration since

normally the CEO is the employee earning the highest pay in a company. This report takes the middle point of the highest pay band among employees as the CEO's cash pay. This method has been extensively employed by previous researchers in New Zealand, e.g. Jiang et al. (2009) and Gunasekaragea and Wilkinson (2002). For observations concerning organizations that do not have CEOs, we have used the remuneration information provided for the managing director instead.

The information about firm size, firm performance, and corporate governance variables is also collated from the companies' annual reports. Total net sales figures are used as a proxy for company size (SIZE), which is the natural logarithm of total net sales (ln (Sales)). The three firm performance variables used in this study include: return on assets (ROA) return on equity (ROE), and Tobin's Q. ROA is the ratio of the EBIT (earnings before interest and tax) to total assets. ROE is the ratio of net profit to total shareholder equity. Tobin's Q is a market-based indicator that is available only for publicly listed companies and is measured as the sum of long-term debt, the difference between current liability and current assets, and share price multiplied by shares outstanding, divided by total assets.

The corporate governance variables used in this study include board size (BDS), gender of the CEO (CEOFEM), whether the CEO is on the board (CEOBD), the proportion of independent directors on the board (IDIR), proportion of female directors on the board (FDIR), whether the company has audit or remuneration committees (ACOM or RCOM), and whether the CEO sits on the audit and/or remuneration committee (ONACOM or ONRCOM). The two ownership variables used in this study are the proportion of insider shareholding (IOWN) and the proportion of block holder ownership (BOWN). Leverage (LEV) helps the firm to invest or operate and firms with more debt than equity are considered to be highly leveraged. LEV is the proportion of total debt to equity. Cost (ACOST) is the operating expenses divided by total assets.

Overseas companies and equity trusts and funds are excluded from the sample. Our initial sample size was 1312 firm-year observations representing 164 companies over the period 2005-2012. With the elimination of overseas companies, equity trusts and funds, and companies without a CEO or managing director, the observations were reduced to 992. Furthermore, 194 firm-year observations were eliminated due to missing information concerning CEO or executive employee remuneration. Table 1 provides a summary of the sample size used in this study and Table 2 provides details about the method of estimating dependent and independent variables.

Table 1. Data Selection and Eliminations.

	Public Sector Corporations	Publicly Listed Companies
SOEs	16	-
CRIs	8	-
NZ Listed Companies		140
Eliminations:		
Dual Listing		11
Equity Trusts & Funds		5
Companies W/O CEOs or MDs		20
Missing Information		13
Data Unavailable		15
Total	24	76

3.1. Tests Relating to the Sample

We checked the data for the presence of outliers. First, the Grubbs test (maximum normed residual test) was undertaken and the results indicated there were no incoherent values in all the variables used in the regression. We used the Breusch-Pagan/Cook-Weisberg test to check for the homoscedasticity of errors. Our results indicate that

the error terms associated with the dependent variables (COMPC, COMPTC) are normally distributed and therefore there are no issues relating to heteroscedasticity in our sample.

Table 2. Variable Definitions.

COMPC	The natural logarithm of the CEO's cash compensation (base salary) (+)
COMPTC	The natural logarithm of the CEO's total cash compensation, i.e., COMPC plus cash bonus and other cash benefits (+)
COMPTP	The natural logarithm of the CEO's total package, i.e., COMPTC plus risk-based compensation (+)
BDS	The number of directors on the board at the end of the year (+)
FEMCEO	Equal to 1 if the CEO is a woman; otherwise 0 (+)
CEOBD	Equal to 1 if the CEO sits on the board; otherwise 0 (+)
ACOM	Equal to 1 if the company has an audit committee; otherwise 0 (+)
RCOM	Equal to 1 if the company has a remuneration committee; otherwise 0 (+)
ONACOM	Equal to 1 if the CEO sits on the audit committee; otherwise 0 (+)
ONRCOM	Equal to 1 if the CEO sits on the remuneration committee; otherwise 0 (+)
IDIR	The proportion of independent directors on the board (number of independent directors/number of directors on the board) (+)
FDIR	Proportion of female directors on the board (number of female directors/number of directors on the board) (+)
SIZE	The natural logarithm of the company's total sales
ROA	Earnings before interest and tax (EBIT) divided by total assets
ROE	Net profit divided by total equity
ACOST	Operating expenses divided by total assets
LEV	Total debt divided by total shareholder equity
Tobin's Q	[Price x shares outstanding + (current liability – current assets) + long-term debt]/total assets
IOWN	The proportion of beneficial shares held by the board of directors
BOWN	The proportion of shares held by the top 20 shareholders

3.2. Method

Following Cahan et al. (2005), we have first investigated the relationship between CEO compensation (both cash compensation and total compensation) and firm performance as given in Equation 1 below:

$$COMP_{it} = \alpha + \beta_1 COMP_{it-1} + \beta_2 SIZE_{it} + \beta_3 BDS_{it} + \beta_4 CEOBD_{it} + \beta_5 FEMCEO_{it} + \beta_6 IDIR_{it}$$
$$+\beta_7 FDIR_{it} + \beta_8 ACOM_{it} + \beta_9 RCOM_{it} + \beta_{10} ONACOM_{it} + \beta_{11} ONRCOM_{it}$$
$$+\beta_{12} PER_{it} + \beta_{13} ACOST_{it} + \beta_{14} LEV_{it} + \beta_{15} IOWN_{it} + \beta_{16} BOWN_{it} + \varepsilon_{it} \tag{1}$$

Where $COMP_{it}$ is the lag of the natural logarithm of CEO cash compensation (L1.COMPC) if it is a public Sector Corporation or lag of the natural logarithm of CEO total package (L1.COMTP) if it is a publicly listed company of the ith firm in the period t. PER is the firm lag of performance measure that represents either return on assets (L1.ROA), return on equity (L1.ROE), or Tobin's Q (L1.Q). ROA indicates the profitability of a firm relative to its total assets and is an accounting measure of firm performance. ROE measures a firm's profitability in terms of return generated for the shareholders for the funds used. Tobin's Q is a market-based indicator. A value greater than one indicates value creation and less than one indicates value being destroyed.

To test the hypotheses, the following expanded regression is used to examine the relationship between CEO compensation and firm performance in publicly listed companies as per Equation 2 below:

$$COMP_{it} = \alpha_{20} + \beta_{21} L1.COMP_{it-1} + \beta_{22} SIZE_{it} + \beta_{23} BDS_{it} + \beta_{24} CEOBD_{it} + \beta_{25} FEMCEO_{it} + \beta_{26} IDIR_{it}$$
$$+\beta_{27} FDIR_{it} + \beta_{28} ACOM_{it} + \beta_{29} RCOM_{it} + \beta_{30} ONACOM_{it} + \beta_{31} ONRCOM_{it} + \beta_{32} PER_{it-1}$$
$$+\beta_{33} ACOST_{it} + \beta_{34} IOWN_{it} + \beta_{35} BOWN_{it} + \beta_{36} LEV_{it} + \varepsilon_{it} \tag{2}$$

Where COMP is the lag of the natural logarithm of the CEO total package (COMPTP); PER is the lag of either

ROA, ROE, or Tobin's Q.

4. Results

4.1. Descriptive Statistics

Table 3 reports the descriptive statistics of publicly listed companies and public sector corporations. The mean (median) CEO total cash compensation (COMPTC) in publicly listed companies is NZ\$791,269 (NZ\$539,955) and the total package (COMPTP) is NZ\$813,041 (NZ\$525,000). These results indicate that the total compensation package for CEOs in publicly listed companies is higher than it is for the CEOs of SOEs and CRIs, thus supporting our hypothesis H1.

The mean (median) BDS in publicly listed companies is 6.12 (6) and 7.4 (8) in public sector corporations. These results indicate that board size in SOEs and CRIs is greater than it is for publicly listed companies, thus supporting our hypothesis H3.

The mean (median) ROA of 4.83% (7.24%) for publicly listed companies is significantly lower than the average (median) ROA of 7.04% (5.30%) for CRIs and the average (median) ROA for SOEs of 9.04% (6.04%). The mean (median) ROE for publicly listed companies is 8.66% (10.09%), significantly lower than the average ROE of 7.76% (8.79%) for CRIs and the average ROE of 15.43%% (11.48%) for SOEs. Our results show that the average ROA and ROE for SOEs and CRIs are significantly greater than that for publicly listed companies. The mean (median) Tobin's Q is 1.24 (1.09), thus indicating that publicly listed companies have created value for their shareholders during the sampling period.

The mean (median) leverage in publicly listed companies is 49.42% (36.06%), higher than the 33% (24.04%) for SOEs and 19.54% (16.56%) for CRIs. Since both SOEs and CRIs have less leverage, this suggests that SOEs and CRIs are discouraged from borrowing. The results for agency costs indicate that agency costs are higher for both SOEs and CRIs than for publicly listed companies. The average (median) agency cost for CRIs is 89.8% (84.36%) and for SOEs 64.79% (23.96%), significantly higher than the 49% (22%) for publicly listed companies. However, the agency cost for CRIs tends to be higher than for SOEs.

The average (median) proportion of independent directors in publicly listed companies is 60.51% (60%) which is much lower than the average for SOEs of 72.26% (75%) and CRIs of 72.20% (71.43%). The proportion of independent directors is higher for SOEs and CRIs because government tends to balance gender and indigenous and other minority group representation on the boards. Our results for board independence provide support for our hypothesis H5. The average (median) proportion of female directors in publicly listed companies is 7.23% (0%), which is much lower than the average for SOEs of 33.62% (33.33%) and CRIs of 37.04% (37.50%). The proportion of female directors is higher in SOEs and CRIs because of the government's policy to maintain balance in terms of gender and indigenous and other minority groups on the boards. Our results for board independence provide support for our hypothesis H7.

Our results show that a high proportion of publicly listed companies have an audit committee, 97% compared to 77% in SOEs and 60% in CRIs. Also, a high proportion of publicly listed companies have a remuneration committee, 85% compared to 76% in SOEs and 54% in CRIs. We also found that there is no CEO on audit or remuneration committees in public sector corporations, whereas there are CEOs on audit and remuneration committees in publicly listed companies. The proportion is low, however. Approximately 2.4% of companies in our sample have a CEO on their audit committee and 7% have a CEO on their remuneration committee.

Our results are much lower than those of Boyle and Roberts (2012), who reported that in a sample consisting of 447 companies for the period 1997-2005, 33% of companies had a CEO on their compensation committee. A plausible reason for the drop in the number of CEOs on board committees is an increased focus on the independence

of boards and board committees. There is a considerable difference between publicly listed companies on the one hand and SOEs and CRIs on the other regarding the percentage of CEOs on boards (65%). Our results indicate that the percentage of CEOs on boards is much higher than what was reported by Boyle and Roberts (2012), with 25% in their sample. The percentage of companies that had a female CEO is 1.83% for publicly listed companies, 1.10% for SOEs, and 1.39% for CRIs. Our results suggest that only a few CEOs are women.

Table 3. Descriptive Statistics for Publicly Listed Companies and Public Sector Corporations (SOEs & CRIs).

	Publicly Listed Companies		Public Sector Corporations SOE CRI			
	Mean	Median	Mean	Median	Mean	Median
FDIR (%)	7.23	0.00	33.62	33.33	37.04	37.50
IDIR (%)	60.51	60.00	72.26	75.00	72.20	71.43
BDS	6.12	6.00	7.53	8.00	7.28	7.00
Sales ($Mil)	$443.99	$105.03	$205.57	$347.00	$741.49	$602.08
ROA (%)	4.83	7.24	9.04	6.04	7.04	5.30
ROE (%)	8.66	10.09	15.43	11.48	7.76	8.79
Tobin's Q	1.24	1.09				
ACost (%)	49.00	22.00	64.79	23.96	89.80	84.36
LEV	49.42	36.06	33.0	24.04	19.54	16.56
COMPC	$640,318	$505,000	$759.794	$645,000	$399,600	$380,000
COMPTC	$791,268	$539,955				
COMPTP	$813,041	$525,000				
IOWN (%)	9.41	0.74				
BOWN (%)	70.73	74.22				
CEOBD	67.38		1.09		2.00	
FEMCEO	1.83		1.10		1.89	
ACOM	97.41		77.17		60.00	
RCOM	85.06		76.09		54.00	
ONACOM	2.44					
ONRCOM	7.01					

Results for Equation 1 in Table 4 report the coefficients of the regression of CEO cash compensation as the dependent variable for publicly listed companies, SOEs, and CRIs. It is to be noted that most public sector corporations are not publicly listed, and the information regarding Tobin's Q, insider ownership, and block holder ownership is not available. Moreover, during data collection, we found that the CEOs of SOEs and CRIs do not sit on their company's audit or remuneration committees.

Results for Equation 1 reported in Table 4 show COMPC (SOEs and CRIs) and COMPTCs (publicly listed companies) have a positive coefficient which is statistically significant at the 1% level. Our results suggest that CEO compensation for previous years is a strong determinant of the CEO's current year cash compensation level. SIZE has a positive coefficient and is statistically significant at the 1% level. This result indicates that firms that have higher sales levels tend to pay their CEOs higher levels of cash compensation in publicly listed companies, SOEs, and CRIs. Our findings are consistent with prior studies.

The coefficient of ROA is negative in column (2) of Table 4 and is statistically significant at the 1% level, thus indicating a higher ROA leads to lower CEO cash compensation in publicly listed companies. A plausible reason for this may be that CEOs in publicly listed companies are compensated according to market-based performance indicators rather than accounting-based measures. The coefficient of ROA and ROE is positive in columns (5) and (6) of Table 4, thus suggesting that a higher ROA and ROE in SOEs leads to higher CEO cash compensation.

On the other hand, the results for ROE and Tobin's Q (Q) are not statistically significant in columns (4) and (8), thus suggesting that past performance has no influence on CEO cash compensation in publicly listed companies and

CRIs. These findings are inconsistent with those reported by Andjelkovic et al. (2002) and Jiang et al. (2009). The coefficient of ACOST is negative and is statistically significant at the 10% level in columns (4), (7), and (8), thus suggesting that agency cost does affect CEO cash compensation levels in CRIs and publicly listed companies. Our results for ROA, ROE, and Tobin's Q do not provide support for hypothesis H2 that higher company performance leads to higher CEO cash compensation in publicly listed companies. Our results for ROA and ROE show that in SOEs, the performance measures of previous years are important for the current year's CEO cash compensation.

The coefficient of BDS is positive and is statistically significant at the 1% level, thus suggesting that larger boards in publicly listed companies lead to higher CEO cash compensation. Our results support our hypothesis H4. However, the results for SOEs and CRIs are not significant, suggesting that board size is not at an optimal level.

Our statistically significant findings revealed that CEO cash compensation in publicly listed companies is negatively related to the proportion of female directors on boards, indicating that a higher proportion of female directors leads to lower CEO cash remuneration. Our results provide support for hypothesis H8. Our findings for IDIR do not provide support for our hypothesis H6 since the results are not statistically significant. Moreover, when ROA and ROE act as performance indicators in publicly listed companies, the coefficient of RCOM is positive and is statistically significant at the 1% level.

Our results suggest that RCOM has a positive effect on CEO cash compensation in publicly listed companies, signalling that remuneration committees tend to reward CEOs based on the compensation of other CEOs in the industry, or that CEO RCOM membership leads to an increase in remuneration. Our results for RCOM do not support our hypothesis H9 for publicly listed companies. However, the coefficient of RCOM is negative and is statistically significant at the 1% level in columns (5) and (6) for SOEs. Our results suggest that the presence of remuneration committees leads to a decrease in CEO cash compensation in SOEs. Our results for RCOM support our hypothesis H9 for SOEs. The coefficient of LEV is positive and is statistically significant at 5% and 10% respectively for SOEs and CRIs. Our results suggest that an increase in leverage leads to an increase in CEO cash compensation in SOEs and CRIs. A plausible reason may be that CEOs are rewarded for taking higher risks.

Results for Equation 2 in Table 5 report the regression results for CEO total compensation package in publicly listed companies as the dependent variable. Results reported in Table 5 show that past CEO compensation (COMPTC), sales (SIZE), the proportion of female directors on the board (FDIR), CEO gender (FEMCEO), and the presence of the CEO on the remuneration committee (ONRCOM) have a statistically significant positive effect on CEO total compensation in publicly listed companies. Furthermore, when ROE is employed as a firm performance measure, a remuneration committee has a negative effect but the gender of CEOs has a positive effect on total CEO compensation. The CEO pay-performance relationship in publicly listed companies is significantly negative for ROE at the 5% level and significantly positive for Tobin's Q (Q) at the 1% level. Our results for firm performance measured by Tobin's Q support hypothesis H3 but performance measured by ROE does not provide support for H2. Moreover, the coefficient of LEV is statistically significantly negative at the 5% level when Q is employed as the performance measure, thus indicating that debt has a moderating effect on total CEO compensation.

4.2. Pay-Performance Sensitivity Analysis

To determine the direction of causality in the CEO compensation-firm performance nexus in public sector corporations we have undertaken regression involving differences as represented in Equation 3 below:

$$\Delta COMP_{it} = \alpha + \beta_1 \Delta SIZE_{it} + \beta_2 \Delta BDS_{it} + \beta_3 \Delta FEMCEO_{it} + \beta_4 \Delta CEOBD_{it} + \beta_5 \Delta IDIR_{it} + \beta_6 \Delta FDIR_{it}$$
$$+\beta_7 \Delta PER_{it} + \beta_8 \Delta ACOST_{it} + \beta_9 \Delta LEV_{it} + \varepsilon_{it} \tag{3}$$

Where $\Delta COMP_{it}$ is the natural logarithm of the difference in CEO cash compensation (for SOEs and CRIs) for the period t and t-1 and the difference in CEO total compensation (COMPTP) (for publicly listed companies) for the

period t and t-1. ΔBDSit, ΔFEMCEOit, ΔCEOBDit, ΔIDIRit, *ΔACOSTit, and ΔLEVit is the difference in the respective

Table 4. Regression of CEO Cash Compensation.

	Publicly Listed Companies			Public Sector Corporations			
				SOE		CRI	
	(1)	(2)	(3)	(1)	(2)	(1)	(2)
Const.	3.442***	3.317***	3.378***	9.854***	3.37***	8.974	8.11
	(5.05)	(5.17)	(5.67)	(6.69)	(5.10)	(1.33)	(1.25)
COMPC				0.203***	0.627***	0.150	0.135
				(10.18)	(10.22)	(0.89)	(1.23)
COMPTP	0.532***	0.522***	0.546***				
	(6.47)	(0.5.68)	(9.22)				
SIZE	0.129***	0.255***	0.118***	0.175***	0.169***	0.223†	0.256**
	(3.97)	(9.95)	(4.27)	(3.98)	(3.83)	(2.06)	(2.40)
BDS	0.623***	0.542***	0.214	0.025	0.199	1.317	0.512
	(3.45)	(3.37)	(1.41)	(0.99)	(0.58)	(0.14)	(0.67)
CEOBD	0.03	0.05	0.023	0.110†	0.081		
	(0.29)	(0.58)	(0.29)	(1.92)	(0.89)		
FEMCEO	0.24	0.26	0.215	-0.151	-0.126	-0.005	-0.005
	(1.16)	(1.26)	(1.06)	(-1.43)	(-0.86)	(-0.15)	(-0.10)
IDIR	0.15	0.21	0.013	0.155	-0.181	-0.511	-0.418
	(0.76)	(1.04)	(1.07)	(0.16)	(-1.20)	(-0.20)	(-0.17)
FDIR	-0.529***	-1.09***	-0.547***	-0.355	-0.226	-0.773	-0.756
	(-3.37)	(-3.62	(-2.99)	(-1.02)	(-1.27)	(-0.98)	(-0.96)
ACOM	0.60	0.62	-0.23	0.063	0.069	0.345†	-0.363†
	(0.23)	(1.29)	(-1.23)	(0.93)	(1.10)	(1.88)	(-1.95)
RCOM	0.145***	0.65***	0.17	-0.365**	-0.394***	-0.231	-0.012
	(2.41)	(4.37)	(1.15)	(-3.01)	(-4.02)	(-0.104)	(-0.03)
ONACOM	-0.06	0.02	-0.14				
	(-0.43)	(0.14)	(-0.98)				
ONRCOM	0.38	-0.33	-0.21				
	(0.61)	(-1.37)	(-1.56)				
ROA	-0.292***			1.009***		0.937	
	(-2.89)			(3.278)		(1.50)	
ROE		0.01			0.272**		-0.490
		(0.11)			(2.12)		(-1.42)
Q			0.006				
			(0.18)				
ACOST	-0.06	-0.042	-0.09†	-0.028	-0.026	-0.527†	-0.643†
	(-1.13)	(-0.69)	(-1.69)	(-1.11)	(-1.06)	(-1.96)	(-1.95)
LEV	0.01†	0.011**	0.01	0.139***	-0.399**	0.422†	0.412†
	(1.87)	(2.01)	(0.86)	(2.08)	(2.36)	(1.78)	(1.75)
IOWN	-0.03	-0.094	-0.02				
	(-0.29)	(-0.62)	(-0.15)				
BOWN	0.26	0.386**	0.28				
	(1.38)	(1.98)	(1.49)				
Adj.R2	0.79	0.78	0.78	0.75	0.76	0.56	0.55
(Root MSE)	(0.38)	(0.40)	(0.36)	(0.34)	(0.33)	(0.16)	(0.16)
F-statistic	114.49***	105.45***	41.60***	25.24***	31.40***	24.86***	4.22**
	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000	(0.016)
N		245				49	

Notes: t-statistics are reported in parentheses. *** Significant at 1%; ** significant at 5%; †significant at 10%.

variable for the period t and t-1. ΔPERit is the difference in performance, that is, ROA, ROE, and Tobin's Q (Q) for the

period t and t-1.

Table 5. Regression of CEO Total Compensation in Publicly Listed Companies.

	(1)	(2)	(3)
Const.	6.87*** (8.56)	6.88*** (6.50)	8.01*** (8.32)
COMPTC	0.555*** (9.32)	0.512*** (7.56)	0.545*** (8.26)
SIZE	0.32*** (4.76)	0.29*** (5.20)	0.141*** (4.22)
BDS	0.19 (1.26)	0.11 (1.27)	0.168 (1.08)
CEOBD	0.055 (0.78)	0.06 (1.01)	0.05 (0.77)
FEMCEO	0.496** (2.30)	0.443† (1.77)	0.501*** (3.38)
IDIR	0.169 (0.83)	0.39 (1.63)	0.37 (0.95)
FDIR	-0.073 (-0.26)	0.63 (0.68)	-0.062 (-0.25)
ACOM	0.125 (0.68)	-0.09 (-0.59)	0.121 (1.11)
RCOM	-0.041 (-0.25)	-0.22*** (-2.66)	-0.09 (-0.98)
ONACOM	-0.259† (-1.92)	-0.105 (-0.92)	-0.259*** (-3.89)
ONRCOM	0.225† (1.76)	0.16 (1.351)	0.256** (2.17)
ROA	0.134 (-0.74)		
ROE		-0.03** (-2.52)	
Q			0.11*** (3.88)
COST	-0.11 (-0.69)	0.07 (1.37)	-0.049 (-0.78)
IOWN	0.032 (0.91)	0.08 (0.47)	0.019 (0.54)
BOWN	-0.042 (-0.28)	0.02 (1.19)	-0.025 (-0.53)
LEV	-0.04 (-1.20)	-0.02 (-0.39)	-0.044** (-2.64)
R2	0.83	0.81	0.84
F-statistic	56.31*** (0.000)	65.77*** (0.000)	68.07*** (0.000)
N		245	

*Notes: t-statistics are reported in parentheses. *** Significant at 1%; ** significant at 5%; †significant at 10%.*

To determine the direction of causality in the firm performance-CEO compensation nexus in the public sector corporations we have undertaken regression involving differences as represented in Equation (4) below:

$$\Delta PER_{it} = \alpha + \beta_1 \Delta COMPC_{it} + \beta_2 \Delta SIZE_{it} + \beta_3 \Delta BDS_{it} + \beta_4 \Delta CEOBD_{it} + \beta_5 \Delta FEMCEO_{it} + \beta_6 \Delta IDIR_{it}$$
$$+ \beta_7 \Delta FDIR_{it} + \beta_8 \Delta ACOST_{it} + \beta_9 \Delta LEV_{it} + \varepsilon_{it} \qquad (4)$$

Where ΔPER_{it} is the difference in performance, that is, ROA, ROE, and Tobin's Q (Q) for the period t and t-1. $\Delta COMPC_{it}$ is the natural logarithm of the difference in CEO cash compensation (for SOEs and CRIs) for the period t and t-1 and the difference in CEO total compensation (COMPTP) (for publicly listed companies) for the period t and t-1. ΔBDS_{it}, $\Delta FEMCEO_{it}$, $\Delta CEOBD_{it}$, $\Delta IDIR_{it}$, *$\Delta ACOST_{it}$, and ΔLEV_{it} is the difference in the respective variable for the period t and t-1.

To determine the direction of causality in the CEO compensation-firm performance nexus in the publicly listed companies we have undertaken regression involving differences as represented in Equation (5) below:

$$\Delta COMPTC_{it} = \alpha + \beta_1 \Delta PER_{it} + \beta_2 \Delta SIZE_{it} + \beta_3 \Delta BDS_{it} + \beta_4 \Delta CEOBD_{it} + \beta_5 \Delta FEMCEO_{it} + \beta_6 \Delta IDIR_{it}$$
$$+ \beta_7 \Delta FDIR_{it} + \beta_8 \Delta ONACOM_{it} + \beta_9 \Delta ONRCOM_{it} + \beta_{10} \Delta ACOST_{it} + \beta_{11} \Delta LEV_{it} + \varepsilon_{it} \qquad (5)$$

Where $\Delta COMPTC_{it}$ is the natural logarithm of the difference in CEO total cash compensation plus cash bonus and other cash benefits for the period t and t-1. ΔPER_{it} is either the difference in performance, that is, ROA, ROE, and Tobin's Q (Q) for the period t and t-1. $\Delta SIZE_{it}$, ΔBDS_{it}, $\Delta CEOBD_{it}$, $\Delta FEMCEO_{it}$, $\Delta IDIR_{it}$, $\Delta FDIR_{it}$, $\Delta ONACOM_{it}$, $\Delta ONRCOM_{it}$, $\Delta ACOST_{it}$, $\Delta ALEV_{it}$ $\Delta IOWN_{it}$, and $\Delta BOWN_{it}$ is the difference in the respective variable for the period t and t-1.

To determine the direction of causality in the firm performance-CEO compensation nexus in the publicly listed

companies we have undertaken regression involving differences as represented in Equation (6) below:

$$\Delta PER_{it} = \alpha + \beta_1 \Delta COMPC_{it} + \beta_2 \Delta SIZE_{it} + \beta_3 \Delta BDS_{it} + \beta_4 \Delta CEOBD_{it} + \beta_5 \Delta FEMCEO_{it} + \beta_6 \Delta IDIR_{it}$$
$$+ \beta_7 \Delta FDIR_{it} + \beta_8 \Delta ONACOM_{it} + \beta_9 \Delta ONRCOM_{it} + \beta_{10} \Delta ACOST_{it} + \beta_{11} \Delta LEV_{it} + \varepsilon_{it} \qquad (6)$$

Where ΔPER_{it} is either the difference in performance, that is, ROA, ROE, and Tobin's Q (Q) for the period t and t-1. $\Delta COMPTC_{it}$ is the natural logarithm of the difference in CEO total cash compensation plus cash bonus and other cash benefits for the period t and t-1. $\Delta SIZE_{it}$, ΔBDS_{it}, $\Delta CEOBD_{it}$, $\Delta FEMCEO_{it}$, $\Delta IDIR_{it}$, $\Delta FDIR_{it}$, $\Delta ONACOM_{it}$, $\Delta ONRCOM_{it}$, $\Delta ACOST_{it}$, $\Delta ALEV_{it}$ $\Delta IOWN_{it}$, and $\Delta BOWN_{it}$ is the difference in the respective variable for the period t and t-1.

Results of Equation 3 in Table 6 report the regression results for the difference in CEO cash compensation in SOEs and CRIs between the periods t and t-1. Our results for $\Delta SIZE$ reported in columns (2) and (3) show that a change in sales has a positive effect on the change in CEO cash compensation in SOEs. Our results also suggest that an increase in the agency cost measured by $\Delta ACOST$ and an increase in leverage measured by ΔLEV will lead to a decline in CEO cash compensation in SOEs. Our results for $\Delta ACOST$ and ΔLEV show that salary increments are sensitive to increases in costs and debt repayment obligations in SOEs.

Results for $\Delta FEMCEO$ reported in columns (4) and (5) suggest that an increase in female CEOs in CRIs leads to a decline in CEO cash compensation. Moreover, an increase in agency costs measured by $\Delta ACOST$ leads to a decline in CEO cash compensation in CRIs. Our results for $\Delta FEMCEO$ and $\Delta ACOST$ suggest that female CEOs are more sensitive to increases in costs in CRIs. The results for ΔROA and ΔROE suggest that CEOs in CRIs are rewarded for achieving accounting-based performance measures.

Table 6. CEO Pay-Performance Sensitivity for Cash Compensation in SOEs and CRIs.

	SOE		CRI	
	(1)	(2)	(1)	(2)
Intercept	0.080 (1.14)	0.099 (1.38)	-0.258** (-2.58)	-0.284** (-2.90)
ΔSIZE	0.201*** (4.99)	0.191*** (4.78)	-0.171 (-0.88)	-0.179 (-0.96)
ΔBDS	0.160 (0.220	0.001 (0.22)	5.288 (0.80)	2.631 (0.40)
ΔFEMCEO			-0.267** (-2.89)	-0.219** (-2.37)
ΔCEOBD	-0.397 (-1.19)	-0.362 (-1.19)		
ΔIDIR	-0.911 (-0.63)	-0.727 (-0.63)	-1.538 (-0.88)	-11.952 (-0.49)
ΔFDIR	-0.361 (-0.65)	-0.363 (-0.65)	-0.523 (-0.90)	-0.592 (-1.02)
ΔROA	0.807 (1.46)		1.953** (2.30)	
ΔROE		0.153 (0.49)		1.250** (2.56)
ΔACOST	-0.131*** (-3.29)	-0.096*** (-3.07)	-0.460** (-2.20)	-0.458** (-2.36)
ΔLEV	-0.331** (-2.64)	-0.387** (-3.33)	0.313 (1.19)	0.280 (1.07)
F-statistics (P-value)	24.67*** (0.000)	26.34*** (0.000)	20.65*** (0.000)	65.81*** (0.000)
R2 (MSE Root)	0.82 (0.46)	0.81 (0.47)	0.62 (0.24)	0.64 (0.20)
N	48		21	

*Notes: t-statistics are reported in parentheses. *** Significant at 1%; ** significant at 5%.*

Results of Equation 4 in Table 7 report the regression results for the difference in CEO cash compensation in SOEs and CRIs contributing to the difference in their financial performance measured by ΔROA and ΔROE. The results for the difference in CEO cash compensation (measured by $\Delta COMPC$) show that changes in cash compensation have no effect on the financial performance of SOEs but have a statistically significant, positive effect on the financial performance of CRIs.

Results for variation in sales (measured by $\Delta SIZE$) show that it has a statistically significant, negative effect on SOE financial performance, whereas an increase in sales has a statistically significant, positive effect on CRI financial performance. The results for $\Delta COMPC$ and $\Delta SIZE$ in SOEs suggest that an increase in sales adds more to costs which

may be the result of requiring a larger than optimal asset base to deliver services. On the other hand, ΔCOMPC and ΔSIZE in CRIs suggest that an increase in sales adds more to financial performance, which may be the result of having a smaller asset base.

The coefficient of ΔACOST is positive and statistically significant at the 1% level for both SOEs and CRIs, suggesting that both SOEs and CRIs incur additional costs, resulting in better financial performance. The coefficient of ΔLEV is negative and is statistically significant at the 1% level for CRIs, thus suggesting that debt servicing has a negative effect on cash flows and restricts CRI investment opportunities.

Table 7. CEO Pay-Performance Sensitivity for Cash Compensation in SOEs and CRIs.

	SOE		CRI	
	ΔROA	ΔROE	ΔROA	ΔROE
Constant	0.021 (1.17)	0.011 (0.32)	0.073*** (3.95)	0.157*** (4.85)
ΔCOMPC	0.055 (1.56)	0.037 (0.53)	0.155† (1.81)	0.236** (2.03)
ΔSIZE	-0.025** (-2.47)	-0.018 (-0.99)	0.159*** (5.75)	0.246*** (5.24)
ΔBDS	-0.231 (-1.04)	-0.175 (-0.34)	-1.152 (-0.69)	0.474 (0.17)
ΔCEOBD	0.008 (0.11)	-0.291† (-1.96)	-0.039 (-0.88)	
ΔFEMCEO			0.068** (2.52)	0.062 (1.42)
ΔIDIR	0.289 (0.65)	0.149 (0.20)	4.339 (0.90)	-1.409 (-0.14)
ΔFDIR	0.332** (2.34)	0.399 (1.52)	0.102 (0.61)	0.237*** (0.87)
ΔACOST	0.059*** (5.52)	0.055** (2.98)	0.108** (2.35)	0.233*** (3.05)
ΔLEV	-0.032 (-0.71)	0.098 (1.03)	-0.074*** (-3.98)	-0.215*** (-2.37)
F-statistics (P-Value)	14.56** (0.000)	12.22*** (0.000)	10.14*** (0.000)	11.14*** (0.000)
R2 (Root MSE)	0.71 (0.12)	0.49 (0.23)	0.49 (0.23)	0.86 (0.09)
N		48		21

Notes: t-statistics are reported in parentheses. *** Significant at 1%; ** significant at 5%; †significant at 10%.

Results of Equation 5 in Table 8 columns (2) – (4) report the regression results for the differences in the independent variables contributing to the differences in CEO cash compensation (measured by ΔCOMPC) in publicly listed companies. Also, reports of Equation 6 in Table 8 columns (5) – (7) report the regression results for the differences in the independent variables contributing to the differences in publicly listed companies' financial performance (measured by ΔTobin's Q, ΔROA, and ΔROE). The coefficients of ΔSIZE, ΔBDS, ΔCEOBD, and ΔIDIR are positive and statistically significant at the 1% level in columns (2) – (4), thus suggesting that change in these variables contributes positively to CEO cash compensation in publicly listed companies. In addition, increases in market-based measures of company performance (ΔTobin's Q) lead to an increase in CEO cash compensation. However, the coefficients of ΔFDIR and ΔACOST are negative and are statistically significant at 5% and 1%, respectively, thereby suggesting that increases in costs and the number of female directors lead to a decline in CEO cash compensation.

The results reported in columns (5) – (7) show that increases in CEO cash compensation (ΔCOMPC), board size (ΔBDS), and agency costs (ΔACOST) lead to an increase in Tobin's Q. On the other hand, increases in sales ((ΔSIZE) and the presence of CEOs on remuneration committees (ΔONRCOM) lead to a decline in Tobin's Q.

5. Conclusion

This study examines: (i) whether CEO compensation in public sector corporations (SOEs and CRIs) is established on performance-based criteria similar to their private-sector counterparts; (ii) whether CEOs in public sector corporations are paid more than private-sector CEOs; and (ii) whether boards in public sector corporations are effective in aligning CEO compensation with performance-based criteria similar to those for their private-sector counterparts.

The descriptive statistics show that the CEOs of SOEs are paid more than the CEOs of publicly listed companies

Table 8. CEO Pay-Performance Sensitivity for Total Compensation in Publicly Listed Companies.

	ΔCOMPTC	ΔCOMPTC	ΔCOMPTC	ΔROA	ΔROE	ΔTobin's Q
Constant	0.044	0.032	0.015		-0.041	0.092
	(1.02)	(0.60)	(0.38)		(-1.55)	(1.13)
ΔCOMPTC				-0.128**	0.091	0.597***
				(-2.92)	(1.56)	(4.81)
ΔROA	-0.520***					
	(-3.38)					
ΔROE		0.742				
		(1.06)				
ΔQ			0.138***			
			(3.530			
ΔSIZE	0.329***	0.488***	0.327***	0.102***	-0.047	-0.405***
	(11.98)	(9.27)	(10.95)	(4.58)	(-1.30)	(-5.44)
ΔBDS	0.635***	0.110	0.506**	0.009	-0.240	0.827
	(3.08)	(0.34)	(2.33)	(0.08)	(-1.65)	(1.49)
ΔCEOBD	0.198†	-0.671**	0.216**	0.014	0.069	-0.211
	(1.97)	(-2.98)	(2.19)	(0.35)	(0.74)	(-1.24)
ΔFEMCEO	0.441**		0.531***	-0.181**		-0.034
	(2.40)		(3.06)	(-2.56)		(-0.12)
ΔIDIR	0.247	-1.788†	0.458**	-0.375***	-0.129	-0.162
	(1.16)	(-1.89)	(2.16)	(-3.13)	(-0.36)	(-0.43)
ΔFDIR	-0.495†	1.282	-0.590†	0.403**	0.106	-0.738
	(-1.66)	(1.21)	(-1.99)	(2.16)	(0.23)	(-1.27)
ΔONACOM	-0.367**		-0.593***	0.288**		0.616**
	(-2.52)		(-3.90)	(2.95)		(2.21)
ΔONRCOM	0.053	0.360**	0.357**	-0.188**	-0.009	-1.508***
	(0.32)	(2.57)	(2.11)	(-2.43)	(-0.31)	(-3.91)
ΔACOST	-0.060	-1.245***	-0.076	-0.039	0.374**	0.263**
	(-1.22)	(-3.30)	(-1.55)	(-1.47)	(2.52)	(2.64)
ΔLEV	-0.012***	0.010	-0.011***	-0.001	-0.009**	-0.002
	(-3.88)	(0.60)	(-3.62)	(-0.27)	(-2.05)	(-0.18)
ΔIOWN	-0.116	-0.473	-0.108	-0.104	-0.115	0.331
	(-0.75)	(-0.96)	(-0.70)	(-1.43)	(-0.70)	(1.06)
ΔBOWN	-0.692***	-1.089***	-0.591**	-0.242**	-0.132	0.250
	(-3.15)	(-3.73)	(-2.78)	(-2.64)	(-1.39)	(0.59)
F-statistics	50.03***	20.05***	52.72***	3.61***	2.88**	7.14***
(P-Value)	(0.000)	(0.000)	(0.000)	(0.000)	(0.050)	(0.000)
R2	0.81	0.87	0.82	0.47	0.64	0.41
(MSE Root)	(0.53)	(0.32)	(0.52)	(0.260	(0.11)	(1.09)
N	163	34	163	163	34	163

*Notes: t-statistics are reported in parentheses. *** Significant at 1%; ** significant at 5%.*

and CRIs. Also, the average annual sales of CRIs are higher than those of both publicly listed companies and SOEs but their CEOs are paid the least.

The empirical results show that firm size (sales) is the most important determinant of CEO cash and total compensation in publicly listed companies, SOEs, and CRIs. Our results also show that past year compensation for CEOs is an additional important determinant of current year compensation for CEOs in publicly listed companies and SOEs. The presence of female directors, a remuneration committee, and agency costs do exert a moderating effect on CEO cash compensation.

Furthermore, our results suggest that size, agency cost, and leverage are important mechanisms of CEO cash

compensation in SOEs and CRIs that indicate whether CEOs contribute to financial performance measured by ROA and ROE (accounting-based measures) in SOEs and CRIs. The market-based performance (Tobin's Q), size, board size, CEO board membership, and independent directors contribute positively to CEO cash compensation in publicly listed companies. However, the presence of female directors, the CEO on the audit committee, and agency costs contribute negatively to CEO cash compensation in publicly listed companies.

We caution researchers against generalizing the findings of this study as it is restricted to the New Zealand environment and the sample size is relatively small. The study is timely, comparing the CEO compensation structure in public sector corporations (CRIs and SOEs in particular) with that in publicly listed companies, and its findings will provide opportunities for future research.

Future researchers could extend this study by investigating the impact COVID-19 has had on the CEO pay-performance nexus (if any) and see if findings correspond with other countries.

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Declaration of Competing Interest

The author claims that the manuscript is completely original. The author also declares no conflict of interest.

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