

Is there a governance failure in corporatised Australian Government Business Enterprises? Evidence from their Chief Executive Officers' compensation.

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Abstract

Over the last three decades, governments have commercialised and corporatised many of their government business enterprises (GBEs) without privatising them under New Public Management (NPM) policy, which requires them to act as a corporate sector entity. These GBEs have independent boards that are responsible for the corporate governance of these entities, including the hiring of chief executive officers (CEOs) and determining their compensation. We examine the association between pay and performance for CEOs of GBEs and find that the levels and changes in CEO compensation are not associated with GBE performance despite being the explicit intent of NPM and regulatory policy. We suggest that this corporate governance failure could be due to the composition of the GBE boards. Our evidence shows that only 11.29% of directors appointed have public listed company experience with the balance of director appointments, being either senior public servants or political appointments who may lack the motivation or have any incentive to closely monitor CEO compensation. Accordingly, we suggest some possible policy changes to both the determination of CEO compensation and the composition of GBE boards.

1.0 Introduction

Over the last thirty years, governments worldwide have commercialised and corporatised traditional public sector business operations. This process is often referred to in the literature as “New Public Management” (NPM), (Hood 1989, 1991; Lane 2000; Gruening 2001). As a result of this process, some business enterprises have been fully privatised; some have been partially privatised and listed on a stock exchange with the government retaining a controlling interest in these entities¹. This paper focuses on government business enterprises (hereafter GBEs) that have been decoupled from traditional government controlled bureaucratic management and operating structures with the government retaining 100% ownership. These organisations have been transformed to operate in a manner consistent with corporate sector governance and management structures with the intention of improving their efficiency and effectiveness (Brignall and Modell, 2000).

The international academic community has provided evidence on different aspects of the economic consequences of these policies. A number of studies have focused on the determinants of CEOs’ compensation under different corporate governance mechanisms and the association between CEO pay and performance. For example Jaiswall and Bhattacharyya (2016) and Gunasekhar and Dinesh (2017) show that there is not a pay/performance relation for partially privatised Indian Central State Owned Enterprises, referred to as Public Sector Undertakings’ (PSUs), as CEO compensation is determined by a Central Pay Commission. Cao et al. (2018), provide evidence that CEOs of Chinese State Owned Enterprises (SOEs) are prepared to trade off their pay levels for political promotion. Further, political promotion is positively associated with the economic performance of the SOEs.

¹ For example in China, many of the State Owned Enterprises and in India Public Sector Undertakings have been partially privatised with a controlling interest retained by the government.

We build on these studies and ask the research question, ‘Is there a pay / performance relation for CEOs of GBEs in a setting where the enterprise is 100% government owned, all board members and the CEO require approval by the responsible government minister and CEO compensation is determined by the board?’ This setting for GBEs is evident in Australia, the European Union including the United Kingdom (European Commission 2016) and New Zealand (Cahan, Chua, Nyamori 2005; New Zealand Government 2018). Our evidence is based on the Australian setting.

Our motivation is twofold. First, evidence on the pay / performance relation for public listed companies is extensive and the findings indicate that on average there is a positive relation between CEO compensation and firm performance (Murphy 2013; Shan and Walter 2016). While some concerns have been expressed about these findings (Bebchuk and Fried 2003, 2004, 2005), more recent regulations have reinforced shareholder rights to reject executive compensation (Monem and Ng 2013; Grosse, Kean, Scott 2017).

In the Australian setting, the corporate governance mechanism for GBEs are unlike those for public listed companies (Shleifer and Vishny 1997). In particular, GBEs do not have public shareholders and management do not face the threat of discipline from mergers and acquisitions. Further, whilst they have borrowing rights, the government explicitly or implicitly guarantees their loans. The key elements of GBE corporate governance are as follows. Each member of the board of directors and the CEO have to be nominated to the relevant ‘shareholder minister’ of the day for final approval. The shareholder minister can override a nomination and has the regulatory authority to appoint his nomination to a board position or to be the CEO. The auditor general is primarily concerned with the economic performance of a GBE but is not consulted or involved in the determination of the CEO’s compensation. The annual reports of GBEs are tabled in parliament and politicians may ask questions about the CEOs’ compensation.

Given the limited external monitoring of GBEs, the financial press provides indirect monitoring of many board activities including CEO compensation. Articles published in the financial press, have questioned board appointments and the levels and growth in CEO compensation (Rajca 2017; Davies 2015; Silmalis 2013). Whether the current governance structure with its limited external monitoring of CEO compensation links CEOs compensation to the GBEs performance remains an empirical question, on which we provide evidence.

Our second motivation is that GBEs represent a significant proportion of the Australian economy. For example, between, 2006-2013, the average total assets “of all levels of Government Public Non-Financial Corporations” represented approximately 28% (approx. \$368 billion) of Gross Domestic Product (GDP).² Accordingly, governments and society, in general, have a vested interest in ensuring the effectiveness of asset utilisation and creating efficiencies in revenue generating capabilities leading to the maximisation of dividends it receives from GBEs. Consequently, both the government and board of directors need to ensure that CEO remuneration practices are designed to achieve optimal outcomes in accordance with legislative requirements that clearly specify quantifiable financial outcomes.

Based on hand collected data for a sample of 430 GBE years between 2006 and 2013 (inclusive), our results do not provide evidence of a systematic relation between the levels and changes of CEO compensation and independently verifiable financial performance measures. The only explanatory factor that is found to explain CEO pay levels consistently is GBE size, as measured by both revenues and total assets. Notably, CEO pay is also positively associated with board compensation, suggestive of ineffective compensation practices and the potential

² ABS Tables, 55120DO069_201314 Government Finance Statistics, Australia, 2013-14; 55120DO033_201314 Government Finance Statistics, Australia, 2013-14, Table 3 Total all levels of Government Public Non-financial Corporations Balance Sheet; 5206.0 Australian National Accounts: National Income, Expenditure and Product Table 34. Key Aggregates and analytical series, Annual - Gross domestic product: Current prices.

for cronyism (Brick, Palmon, Wald 2006). These results are consistent for both GBEs affected by community service obligations (CSOs) as well as those GBEs which do not have CSOs.

This paper makes a number of important contributions. First, we contribute to the growing academic literature on alternative governance mechanisms for GBEs, as compared to SOEs and PSUs. Our evidence is consistent with Jaiswall and Bhattacharyya (2016) and Gunasekhar and Dinesh (2017). They find that there is no relation between CEOs' compensation and the performance of PSUs, under the Indian model of corporate governance. In India PSUs are partially privatised and CEO compensation is determined by an external tribunal. Our evidence is also consistent with Matolcsy, Wells and Lee (2006) and Cao, Lemmon, Pan, Qian and Tian (2018) who find that the pecuniary component of CEOs' compensation has limited association with the performance of partially privatised SOEs in China.

Second, this paper also contributes to the public debate on the pay / performance relation of CEOs' compensation. For example, recent newspaper articles with the heading "Australia Post CEO Ahmed Fahour's salary unreasonable when compared to international peers" (Uhlmann, 2017) and "PM calls Aust Post chairman over CEO Pay" (Rajca 2017; Kelly 2017) are examples of the public interest in CEO compensation in GBE's. We investigate and provide evidence on whether the compensation paid to CEOs of GBEs is tied to financial performance measures and hence provides evidence relevant to this public and regulatory debate.³ Our findings suggests that, on average, CEO compensation is not associated with GBEs' financial performance. Hence, policy makers may be well served to reassess the experience, structure

³ Currently, policy makers have been debating whether CEO (Principal Executive Officer - PEO) compensation for GBEs needs to conform with and be approved by Government Remuneration Tribunals (Durie and Palmer 2017).

and composition of GBE boards and / or explicitly offer short term incentives in CEOs compensation based on publicly available financial and operational targets⁴.

The rest of this paper is set out as follows. Section 2 presents the literature review and theory development. Section 3 describes the sample and data used in the study and details the research design. Section 4 reports the main results of the study, section 5 provides summary results of sensitivity tests, and the conclusions, policy implications and suggestions for future research are detailed in section 6.

2.0 Institutional setting and hypothesis development

2.1 Institutional setting

In Australia, NPM gained traction in the 1980s enabling successive governments to enact legislation⁵ replacing large bureaucratic public sector departments with decentralised fully owned government business units.⁶ This process was applied in those situations where a unique identifiable consumer or geographic market existed. Consequently, governance structures were developed for GBEs that enabled the transfer of authority, accountability and responsibility to an independent board of directors under the umbrella of a separate, legally incorporated entity.

Australian Government legislation for GBEs is outlined in the ‘Public Governance, Performance and Accountability Act 2013’ (PGPA Act 2013).⁷ Section 5 of the PGPA Act

⁴ In our sample only 22% of CEO compensation observations received bonus payments and in most instances the targets on which they were based were not publicly disclosed.

⁵ Australian Government, Government Business Enterprises (Miscellaneous Reforms) Act 1988.

⁶ The Australian Capital Territory passed legislation in 1990 enabling the creation of ‘Territory Owned Corporations’(TOCs); New South Wales in 1989 enabling the creation of State Owned Corporations’ (SOCs); Queensland in 1993 and the Northern Territory in 2014 enabling the creation of ‘Government Owned Corporations’ (GOCs); Tasmania in 1995 and South Australia in 1996 enabling the creation of Government Business Enterprises (GBEs); Victoria in 1992 enabling the creation of State Owned Enterprises (SOEs); Western Australia in 1916 with the passing of the ‘State Trading Concerns Act’.

⁷ Australian Government, Public Governance, Performance and Accountability Act 2013 replaced the Financial Management and Accountability Act 1997 (FMA Act) and the Commonwealth Authorities and Companies Act 1997 (CAC Act) on 1 July 2014.

stipulates that Commonwealth companies are required to meet high standards of governance, performance and accountability. Further, in the Australian Government Department of Finance publication, “Resource Management Guide No. 126 (RMG 126) ‘Commonwealth Government Business Enterprise Governance and Oversight Guidelines’ (August 2015)” it is stated on page 3:

“1.8 A principal objective for each GBE is that it adds to its shareholder value. To achieve this it should ... operate and price efficiently... subject to the government imposing price conditions to satisfy CSOs ... earn at least a commercial rate of return, that leads to recovering the full cost of the resources employed, including the cost of capitalachieving a principal financial target and a dividend policy, agreed in advance with the Shareholder Ministers.”

The objectives, targets and performance measurement systems as specified by the Commonwealth government are also evident in the legislation created by the individual states and territories in Australia, which comprise an additional eight jurisdictions.⁸ Australian Government RMG 126, section 3 (table 4, page 12) specifies performance measures to be reported about (i) financial (ii) business efficiency (iii) leverage/solvency (iv) customers and stakeholders and (v) staff. Examples of RMG 126 performance measures include total shareholder return, dividend yield and return on capital employed, etc. Accordingly, we use

⁸ ACT Parliament, Territory-owned Corporations Act 1990. Northern Territory of Australia, ‘Government Owned Corporations’ Act 2014’. New South Wales Government Australia, State Owned Corporations Act 1989. Queensland Government, Government Owned Corporations Act 1993, (Current as at 1 July 2014); South Australian Government, “Government Business Enterprises (Competition) Act 1996’. Tasmania, ‘Government Business Enterprises Act 1995’. Victorian Government, State Owned Enterprises Act 1992. Western Australia, ‘State Trading Concerns Act 1916’.

accounting numbers extracted from financial statements as the foundation for evaluating the pay / performance relation for CEOs of GBEs.⁹

Corporate governance characteristics

For GBEs, there is a multi-tiered agency relationship comprising the public, the incumbent government, the shareholder minister(s) of the day, the board of directors and, finally, the CEO. Unlike the corporate sector, there are no direct residual equity ownership rights. The fact that the responsible minister(s) has overriding power may lead to actions that compromise good governance for political gain or bias (Ackerman 2006; Davies 2015). This overriding power is derived from ownership, which in accordance with RMG 126, (page 3), states that “ownership interest is generally represented by two ‘Shareholder Ministers’... being the responsible minister for the GBE and the Finance Minister” who then report to parliament on the performance of the GBEs. Hence, the shareholder minister(s) has the ultimate authority for the:

- (i) Appointment or dismissal and remuneration of the Chairman and Directors;
- (ii) Approval of board recommendation regarding CEO appointment, succession, termination and remuneration.¹⁰

The power of the shareholder minister(s) opens the possibility that Board and CEO appointments may be influenced by the applicants’ political status or their political affiliation.¹¹

⁹ A GBE’s accounting performance may be adversely affected by government imposed community service obligations (CSOs). We control for whether this affects the levels and growth in CEO compensation through the inclusion of an indicator variable for those GBEs affected by CSOs.

¹⁰ Australian Government Department of Finance publication, “Resource Management Guide No. 126 (RMG 126) ‘Commonwealth Government Business Enterprise Governance and Oversight Guidelines’ (August 2015)” paragraphs 2.7 to 2.11 (pages 5-6).

¹¹ In Australia, there are three main political parties, namely the Liberal, Labor and Green party. Along with these parties are a number of independents, who under certain conditions may wield the balance of power for one of the major parties. Appointments may be made on the basis of the ex-politician’s status irrespective of their affiliation or it may be a result of their political affiliation. That is, a Labor government may appoint ex-Liberal politicians and vice versa (for example, Peter Costello in December, 2009, ex treasurer and retired politician from the Liberal government being appointed by a Labor Government to the board / chairman of the Australian Government Future Fund).

Our evidence shows that 74% of CEO appointments comprise ex-politicians and / or senior government employees. Although one of the objectives of NPM is to remove politics from administration, this has not always been the case. A newspaper article titled, “Coalition government appoints its political friends and colleagues to boards”, disclosed that there have been “...more than 50 appointments of ex- Liberal or National politicians, relatives of politicians, or prominent conservative thinkers since October 2013 after the Coalition government came to power” (Davies, 2015). Additionally, it is not uncommon for politicians who lose their seat in an election or who retire from parliament to be appointed to boards of GBEs (Davies, 2015). Consequently, political interference in the appointment of board members may have implications that compromise good governance and effective monitoring. The Auditor General will assess the accuracy of the accounts and comment on economic performance, but does not participate in the determination of CEO compensation.

2.2 Empirical evidence on the pay / performance relation in the public sector

Cutler and Waine (2005) review performance-related-pay (PRP) in the United Kingdom public sector and conclude that there are two problematic aspects associated with the transparency of this practice, being (i) the complexity of pay determination and (ii) difficulties in finding “unproblematic” performance measures that can be linked to pay. Using meta-analysis¹² and a vignette study, Weibel, Rost and Osterloh (2009) find that the impact of financial rewards on extrinsic and intrinsic motivation leads to only “modest success of pay for performance in the public sector (page 19)”. Their vignette study finds that “Pay for Performance” (PFP) in some instances undermine performance in so far as it strengthens extrinsic motivation while weakening intrinsic motivation thus producing hidden costs by way of increased compensation.

¹² A meta-analysis uses statistical analytical techniques combining the results of multiple prior studies.

In the Indian setting Jaiswall and Bhattacharyya (2016), find no relationship between CEO compensation and firm performance for PSUs, however, CEO compensation increases with tenure, organisation size and the number of independent directors on the board. Sridhar and Kumar (2015) also investigate executive compensation in India and find that executive compensation for PSUs are significantly less than those in private firms and performance as measured by return on assets (ROA) is insignificant in the determination of levels and changes in CEO compensation. Further, Swami (2005) found that PSUs do not utilise incentive pay plans to reward managerial performance.

In China, the government is usually the largest shareholder of SOEs and retains ultimate control including the selection, appointment and dismissal of CEOs. Cao et al. (2018) investigate the relationship between pay and performance for Chinese SOEs and report that CEOs with a higher likelihood of political promotion have lower pay levels and lower pay / performance sensitivity. Additionally, they find that a positive relationship between pay and performance weakens when a CEO has a higher likelihood of receiving a political promotion, which is consistent with the idea that political advancement substitute for compensation incentives. Further, Li and Zhou (2005) find that a region's economic performance has a positive association with provincial leaders' promotions to central government positions.

Mengistae and Xu (2004) find that the pay/performance sensitivity of CEO compensation in Chinese SOEs increases with the marginal productivity of executive actions. They also document that the pay/performance sensitivity in Chinese SOEs is of a similar magnitude as found for regulated industries in the United States, which in turn, is lower than that found in unregulated firms.

Chen , Fan and Wong (2004) find that firms with politically connected CEOs underperform by 37% those firms without politically connected CEOs. They conclude that the appointment of

politically connected CEOs does not enhance firm efficiency but fulfill personal or political goals that are inconsistent with firm value maximization.

As far as we know, to date the pay/performance relation for CEOs have not been tested in a setting where the government owns 100% of the entity, with the board of directors being responsible for the determination of CEO compensation, with limited oversight by politicians of the GBEs activities. Accordingly, we provide evidence on the pay/performance relation of CEOs of fully owned GBEs utilising information contained in the financial statements of the annual reports prepared by Australian GBEs covering the period 2006 – 2013. The use of financial performance measures represents a core component of NPM in supporting the “philosophical drive for a more “efficient”, “effective” and “accountable” public sector” (Guthrie, Parker and English 2003, p. 3).

2.3 Theory Development and Hypothesis

Much of the literature on CEO compensation and firm performance is based on the concept of efficient contracting. The theoretical foundation of efficient contracting is agency theory (Jensen and Meckling, 1976). Agency theory posits that the separation of ownership and control of a business enterprise leads to agency costs, caused by the misalignment of incentives between shareholders and management. Shareholders aim to reduce a firm’s agency costs by utilising various corporate governance mechanisms including monitoring management decisions via the board of directors, independent auditors, periodic reporting and continuous disclosure requirements. Shareholders also aim to reduce agency costs by bonding the CEOs’ interest with their own interests through their compensation contracts. An efficient compensation contract includes structured incentives to optimize firm value (Murphy, 2013, p 214). The structured incentives include both short and long-term incentives based on financial

and market based targets and therefore, researchers predict a positive relation between CEO compensation and firm performance.

More recently, Bebchuk and Fried (2003, 2004, 2005) question the validity of efficient contracting theory. They argue that executives can capture their board and consequently influence the levels and composition of their own compensation through managerial power. However, a recent detailed review of the history of executive pay in the US by Murphy (2013) suggests that the efficient contracting and managerial power explanations are not necessarily mutually exclusive. He reconciles these two approaches by arguing that both theories ignore important political and taxation considerations and other intangible influences on managerial compensation. Furthermore, recently introduced legislation all around the world has enhanced shareholders' ability to reject excess CEO compensation (Monem and Ng 2013, Grosse et al. 2017).

Much of the empirical evidence on CEOs' compensation is consistent with efficient contracting theory (Murphy 2013; Shan and Walter 2016). However, there is also emerging evidence on the managerial power explanation of CEOs' compensation, primarily on how managers may influence the long-term incentive components of their compensation contract (Bebchuk, Grinstein and Peyer 2010; Abernathy, Kuang and Qin 2015).

Shleifer and Vishny (1997) identify the agency and governance issues associated with entities, which are ultimately owned by society, but are controlled by senior government bureaucrats and / or politicians. They argue that since bureaucrats and politicians do not have cash-flow rights, they have little incentive to align shareholders (that is, societal) interests with the GBEs performance. In Australia, GBEs are 100% government owned and their legal charter focuses on their financial performance which is primarily monitored by their board of directors and the relevant Auditor General. Parliaments and the shareholder minister(s) also provide oversight

of the GBEs performance as discussed in Section 2.1. However, levels and changes in the CEOs' compensation are determined by the board of the GBE without political oversight from the shareholder minister or external tribunal. Indirect monitoring comes from the financial press who report on what society may deem is overly generous CEO compensation. (Peatling 2012; Durie and Palmer 2017). Core Guay and Larcker (2008) investigates the effectiveness of media monitoring of CEO compensation and find little evidence that firms respond to negative press coverage by decreasing CEO compensation or increasing CEO turnover.

Given that GBEs do not have publicly traded shares, the composition of CEO compensation cannot include market based long-term incentives such as equity options. Further, short-term incentives such as bonuses are rare as only 22% of our observations include short term incentives in the form of cash bonuses. Therefore, the primary incentive available to CEOs of GBEs is the annual increase in their total compensation.

If the board of directors is an effective monitoring mechanism it is expected that CEO compensation in GBEs is efficient and reflects GBE performance. This leads to our first hypothesis:

H₀: There is a positive relation between GBEs' performance and the levels and changes in CEOs' compensation.

However, for 100% owned Australian GBEs, the absence of cash flow rights of the principal, being the government shareholder minister of the day, may be associated with a lack of incentives to monitor (Shleifer and Vishny 1997). Additionally, the powers of the shareholder minister over board and CEO appointments has led to many political appointments and dismissals, some of which has attracted media attention (Ackerman 2006; Peatling 2012). It is questionable whether these political appointments possess the expertise and experience to effectively monitor the GBE's performance and compensation practices. Given the current

governance structure of GBEs and the Chinese and Indian evidence of limited or no pay / performance relation our alternative hypothesis is:

H_{Alt}: There is no relation between GBEs' performance and the levels and changes in CEOs' compensation.

We provide evidence on our hypothesis in the remainder of the paper.

3.0 Sample, data and research design

3.1 Sample

The sample used in this study is based on hand-collected data for both Commonwealth (Australian Government), and State and Territory fully government owned GBEs for the years 2006 – 2013 inclusive. Observations were deleted in those instances where (i) the Annual report was not available, (ii) the remuneration report or the related party transaction note did not disclose compensation details for the CEO, (iii) the outgoing CEO is in their final year and the incoming CEO is in their first year due to the non-disclosure of termination payments and sign-on bonuses (Coulton and Taylor, 2002) and (iv) there were less than two consecutive years of operations.

The initial sample comprised 115 GBEs with 814 firm year observations as depicted in Table 1 – Panel A.

<Insert Table 1 – Panel A & B here>

The final sample comprised 83 Commonwealth, State and Territory GBEs and 430 firm year observations. The sample was also classified by jurisdiction comprising Commonwealth, State and Territory regions as well as the subsamples representing GBEs with and without CSOs, as detailed in Table 1 - Panel B. The state with the most observations is Victoria (VIC) with 27 GBEs and 140 observations comprising 32.56% of the sample.

3.2 Data

Compensation and governance data were hand collected from the annual reports of the GBEs. Financial statement data and operating statistics were also hand collected from the annual reports of the GBEs with the performance measures used based on accounting information. Although total remuneration paid to CEOs is ascertainable in most instances, the composition of the remuneration being salary, bonus, superannuation benefits, termination and sign-on payments in many instances were not disclosed separately. Consequently, the total dollar value of CEO compensation was used for the analysis. However, there were 94 observations disclosing bonus payments, and this sub-sample was analysed separately to test the pay/performance relation with the results included in the sensitivity analysis (Section 5).

As not all GBEs included in the analysis have the same number of annual observations, the data comprise an unbalanced panel data set. For example, the sample includes two contiguous ranges for Transgrid, a New South Wales (NSW) state owned GBE for the years 2006 – 2009 and 2012 – 2013, with 2010 and 2011 being excluded due to a departing CEO in 2010 and an incoming CEO in 2011.

The dependent and independent variables used for the analysis of the pay/performance modelling are summarised in Table 2.

<Insert Table 2 here>

The explanatory variables include three independent measures of performance that are used alternately, comprising: (i) return on assets (*ROA*) as an overall performance measure, (ii) profit margin (*PM*) as a measure of efficiency and (iii) asset turnover (*ATO*) as a measure of resource utilisation (Australian Government, 2015). Economic size variables used to control for size include total revenue (*Ln Total Revenue*) in the main tests and total assets (*Ln Total Assets*) in

the sensitivity analysis. Governance controls include board size (*Board Size*) being the total number of board members; the percentage of independent directors (*%Indep Directors*) being the percentage of non-executive directors to total directors; net board compensation¹³ (*Ln \$Net Board Comp*) excluding CEO compensation in those situations where the CEO is a board member. Two additional governance variables are included to test for board effectiveness and governance oversight, the first of which is the presence of ex-public sector employees (being senior public servants and/or politicians) (*Ex_Public Sector Dummy*), whilst the second was directors who concurrently sit on Australian Securities Exchange (ASX) listed corporate sector boards (*Corporate_Sector Dummy*). Institutional control variables used in the tests include indicator variables comprising government grants (*Gov_Grants_Dummy*), net loss (*Net Loss Dummy*), regulated price (*Regulated Price Dummy*) and community service obligations (*CSO Dummy*) mandated by regulation. The amounts received for government grants are included in total revenues. However, not all GBEs receive government grants. Hence the indicator variable (*Gov_Grants_Dummy*) was introduced to examine whether direct government funding impacted on CEO compensation. The net loss indicator variable (*Net Loss Dummy*) was introduced to examine whether a loss affected CEO compensation or changes in CEO compensation. The regulated pricing indicator (*Regulated Price Dummy*) variable is used to examine whether capped pricing of output impacts on CEO compensation and/or changes in CEO compensation. An indicator variable for GBEs with CSOs is included to test whether GBEs with CSOs pay their CEOs less (*CSO Dummy*).

Descriptive statistics for the data are included in Table 3.

<Insert Table 3 here>

¹³ Net Board Compensation was calculated by deducting Total CEO Compensation from total board compensation in those situations where the CEO was also a board member.

The average CEO compensation is \$435,800 with a standard deviation of \$381,700. The highest paid CEO earned an annual salary of \$4,751,831, and the minimum is \$67,500. CEO compensation growth is approximately 9.08% per annum, which is more than double the 4.45% growth in average annual earnings.¹⁴ CEO bonus compensation ranged from a maximum of \$1,998,950 to a minimum of \$2,000 with the average being \$165,000. However, from the total sample of 430 observations, there were only 94 instances where CEO bonus compensation disclosed.

The performance measures report mean (median) results of 2.61% (2.35%) for ROA, 7.23% (9.23%) for PM and 0.43 (0.21) for ATO. The standard deviation for each performance measure is quite large evidencing volatility in the results.

The two economic size controls being total revenue and total assets proxy for firm size and resource intensity respectively and both display significant dispersion for GBEs resulting from variations in (i) firm size, which may range from national coverage to major capital cities and smaller country towns and (ii) investment size due to the capital intensity requirements of GBEs. To reduce potential skewness, the natural logarithm of CEO compensation, economic size measures and net board compensation are used in the regression models.

The average board size was seven members, with the largest board comprising twelve members and the smallest being two, with the percentage of independent directors averaging 90.54%. We also find that 47.9% of the GBEs included in our sample have at least one director with public listed company experience. However, this represents only 11.29% of the total director appointments (see Table 1 – Panel C). Hence, the boards typically are dominated by ex-public servants and politicians. The lack of public listed company experience for more than half the sample of GBE board members may be of concern for the effective governance of GBEs.

¹⁴ As per ABS report: 6302.0 Average Weekly Earnings - Table 3: reference table A85002151A.

Additionally, the ex-public sector indicator variable reports that 73.7% of CEO appointments are either ex-public sector employees or ex-politicians.

Net board compensation (excluding CEO Compensation where the CEO is a board member) ranged from a maximum of \$1,440,000 to a minimum of \$23,380, with the average board compensation being approximately \$293,000. Board compensation growth is approximately 6.8% per annum, which, once again is at least 50% larger than the 4.45% growth in average annual earnings.

Approximately 41.6% of the sample reported receiving government grants, 19.8% reported losses, regulated pricing affected 62.3% of the sample and community service obligations (CSOs) were reported for 26.3% of the sample.

The correlations between the variables used to investigate the pay performance relation are reported in Table 4.

<Insert Table 4 here>

As expected, the size measures being total revenue and total assets, apart from being highly correlated with each other, also display high levels of correlation with both CEO compensation and net board compensation. Additional significant relationships disclosed in the correlation matrix exist between CEO compensation, board size and the performance measures of ROA, PM and ATO.

3.3 Experimental design

The pay/performance relationship is tested using a series of pooled panel data regressions. Model (1) examines the association between CEOs Total Compensation and GBEs performance based on four alternative performance measures.

$$\text{Ln CEO Total Comp}_{it} = \alpha_t + \beta_1 \text{Performance}_{it} + \beta_2 \text{Economic Size Control}_{it} + \beta_3 \text{Governance Controls}_{it} + \beta_4 \text{Institutional Controls}_{it} + \epsilon_i \quad (1)$$

Model (2) examines the association between the percentage change in CEO Total Compensation and the current year change in the GBEs' performance measures, size, net board compensation and indicator variables related to governance and institutional controls.

$$\% \Delta \text{CEO Comp}_{it} = \alpha_t + \beta_1 \Delta \text{Performance}_{it} + \beta_2 \% \Delta \text{Economic Size Controls}_{it} + \beta_3 \% \Delta \text{Governance Controls}_{it} + \beta_4 \text{Governance Controls}_{it} + \beta_5 \text{Institutional Controls}_{it} + \epsilon_i \quad (2)$$

Model (3) utilizes next year's performance measures as the dependent variable to test whether current levels of CEO compensation provide an adequate incentive for improving next year's performance.

$$\text{Performance}_{t+1} = \alpha_t + \beta_1 \text{Ln CEO Total Comp}_{it} + \beta_2 \text{Economic Size Control}_{it} + \beta_3 \text{Governance Controls}_{it} + \beta_4 \text{Institutional Controls}_{it} + \epsilon_i \quad (3)$$

The development and analysis of Model (3) may be subject to endogeneity concerns associated with reverse causality. The issue of reverse causality may exist, as it may be possible that CEO compensation influences performance measures and simultaneously performance measures may influence CEO compensation. That is, does pay drive performance or does performance drive pay? To control for endogeneity, an instrumental variable (IV) is developed based on the S&P Global Industry Classification Standard (GICS) codes, and a two-stage regression analysis (2SLS) is performed. We base our IV on GICS codes as different industries have different levels of CEO pay independent of their economic performance (Murphy 2013).

The IV (*IV Rec GICS*) is calculated as follows:

$$\text{IV Rec GICS} = 1 \div [\Sigma \text{GICS-GBE Cos} \div \Sigma (\text{GICS_GBE Cos} + \text{GICS_ASX Cos})]$$

The IV is based on the reciprocal¹⁵ of the total number of GBEs in a specific GICS industry category divided by the combined total of GBEs and ASX companies in that specific GICS industry. It is assumed that the scarcity¹⁶ of managerial talent within an industry group impacts on CEO compensation coupled with the fact that CEO compensation varies between different industries (Murphy 2013). As the GBEs can be classified using five GICS industry sectors, a unique IV measure is calculated for each GICS sector. The IV variables calculated are utilised for the panel data for all years and is utilised in the first stage of the two stage least squares regression.

First stage OLS regression:

$$\text{Ln CEO Total Comp}_{it} = \alpha_t + \beta_2 \text{Economic Size Control}_{it} + \beta_3 \text{Governance Controls}_{it} + \beta_4 \text{Institutional Controls}_{it} + \beta_5 \text{IV_Rec_GICS}_i + \epsilon_i$$

Second stage OLS regression:

$$\text{Performance}_{it} = \alpha_t + \beta_1 \text{Predicted Ln CEO Total Comp}_{it} + \beta_2 \text{Economic Size Control}_{it} + \beta_3 \text{Governance Controls}_{it} + \beta_4 \text{Institutional Controls}_{it} + \epsilon_i$$

The data, process and results are discussed in Section 4.

4.0 Main results

4.1 Results based on current levels of CEO Compensation driven by current performance measures

¹⁵ In order to consider both the IV variable and CEO Compensation on the basis of size, the reciprocal of the scarcity value was utilised in the models.

¹⁶ The scarcity of managerial talent is determined by the size of the GBE industry (as measured by the number of GBEs) divided by the total number of companies (comprising the sum of GBE and ASX companies in the industry) in each specific GICS category.

Table 5 reports the results for Model (1) detailing the impact of the three performance measures being (i) ROA (Col 1), (ii) PM (Col 2), (iii) ATO (Col 3), and the combination of PM and ATO (Col 4) on CEO total compensation. Additionally, an interaction variable combining the background of board members (ex-public sector or corporate sector) with each of the performance measures employed to test for board effectiveness in determining CEO compensation. Fixed effects (FE)¹⁷ regression with robust standard errors is applied to the panel data regressions.

<Insert Table 5 here>

The adjusted R-Squared and the *F* test statistic support the statistical significance of the model. Of the performance measures used, only asset turnover (ATO) (Col 3 and Col 4) return a significant result at the 10% and 5% level respectively, and in both instances, contrary to expectations, it negatively impacts CEO compensation. Hence, a 1% increase in ATO results in CEO compensation decreasing by 0.196% and 0.217% (Col 3 and 4 respectively).

The result for the economic size variable (Ln Total Revenue) is significant in all four regressions. These results confirm findings of prior research in both the private sector (Murphy, 2013; Matolcsy and Wright, 2007, 2011), the public sector (Cahan *et al.* 2005), for PSUs in India (Jaiswall and Bhattacharyya, 2016) and SOEs in China (Cao et al. 2018) that one of the major determinants of CEO Compensation is organisation size. Further, board compensation is positively associated with CEO compensation which is consistent with Brick et al (2006).¹⁸

¹⁷ The Hausman test was used to determine whether to apply Fixed or Random Effects; the results of which specified *Fixed Effects* to be more suitable.

¹⁸ Brick et al., (2006) find a significant positive relationship between CEO and director compensation with this excess compensation being associated with under-performance, which may be “due to mutual back scratching or cronyism”. Further, neither Jaiswall and Bhattacharyy, (2016) for Indian PSUs nor Cao et al. (2018) for Chinese SOEs included board compensation as a dependent variable.

The results for the ex-public sector or corporate board indicator variables do not support an association between CEO compensation and the background of non-executive directors. However, the results on the interaction variables are significant on two occasions. In both cases, the ATO and ex-public sector interaction variable positively impacts on CEO compensation 0.079% and 0.080 at the 10% level (Col. 3 and 4). This provides weak evidence supporting the notion that CEO pay is reduced when the majority of board members are ex-public sector employees.

Apart from the regulated price indicator variable positively impacting on CEO compensation, 0.165% and 0.164% at the 10% and 5% level respectively, (Col. 3 and 4) and the net loss indicator variable being significant on one occasion 0.053% at the 10% level (Col. 3), none of the other indicator variables are significant. Consequently, Model (1) does not provide any evidence supporting a pay/performance relation. In fact, there are instances where the evidence suggests a negative association between performance measures and CEO compensation.

4.2 Results for the impact of changes in performance measures on current changes in CEO Compensation

Table 6 reports the results for Model (2) investigating the association between changes in CEO total compensation (Δ CEO Total Comp) and changes in the GBEs performance measures (ROA, PM and ATO). In all cases, the use of random effects¹⁹ (RE) regressions with robust standard errors are applied to the panel data.

<Insert Table 6 here>

¹⁹ The Hausman test was used to determine whether to apply Fixed or Random Effects; the results of which specified *Random Effects* to be more suitable.

The overall R-Squared of the regressions and the Wald Chi² statistic confirm the models' statistical significance. On no occasion is a performance measure statistically significant, despite the fact that average annual CEO compensation increased by 9.08% annually over the period 2006 – 2013.²⁰ Once again, the main significant drivers of changes in CEO compensation are the changes in the economic size (%ΔTotal Revenue) and change in net board compensation (%ΔNet Board Comp). The percentage of independent directors (% Indep Directors) is also positive and significant at the 5% and 10% level. The positive and significant result may be counterintuitive, as an increase in board independence would be expected to be dilutive of CEO power. Our results suggest an increase in board independence may lead to board fragmentation providing the CEO with greater influence to capture the board (Bebchuk & Fried, 2005) and command salary increases irrespective of performance levels achieved.

In addition, neither the ex-public sector nor the corporate sector indicator variables are significant. However, on one occasion from 10 instances, the profit margin and corporate sector performance interaction variable counterintuitively return a significant negative result -0.087% (at the 10% level – Col 4), thereby indicating that the change in CEO compensation was negatively impacted by having a board member with corporate sector experience. This finding provides weak evidence that the current GBE governance practices are ineffective in tying CEO pay to performance.

4.3 Results based on future performance being driven by current levels of CEO compensation

²⁰ Table 3 – Descriptive Statistics discloses that the average annual increase in CEO compensation over the period 2006 -2013 was 9.29%.

Table 7 reports the results of estimating Model (3) examining the pay/performance relation from an incentives perspective. That is, do current levels of CEO compensation incentivise the CEO to achieve better future performance outcomes?

<Insert Table 7 here>

The R-Squared of the regressions and the Wald- χ^2 statistics indicate that the models are statistically significant. On no occasion does CEO Total Compensation have a significant positive impact on performance. As expected, the net loss indicator variable negatively impacts on CEO compensation when using the profit-based measures of ROA and PM (col. 1 and 2). Other significant results include: (i) negative impact of board size on CEO compensation on one occasion (Col 3), (ii) a positive impact of the ability to obtain government grants on CEO compensation on one occasion (Col. 2), (iii) the regulated price indicator variable as expected returns a negative result on one occasion (Col. 1).

A major concern with the estimation of Model (3) is endogeneity. To address this issue, an instrumental variable (IV) that is assumed to be exogenous and uncorrelated with the error generated in the original OLS²¹ model is introduced into the first stage of a two stage least squares (2SLS) regression (Larcker and Rusticus 2010).

In the first stage regression, the previously defined IV based on the GICS code is utilised. Further, the performance measures (ROA, PM and ATO) are excluded from the first stage (1SLS) as the objective is to generate a predicted value for CEO TOTAL COMPENSATION that is free from performance bias.

The results for the first stage least squares (1SLS) are disclosed in Table 8.

²¹ Ordinary Least Squares results as reported in Table 7.

<Insert Table 8 here>

The R^2 and Wald χ^2 signifies the statistical significance of the three versions of the 1SLS for, Model (3). As expected the main drivers of CEO total compensation are total revenue and net board compensation with both measures significant at the 1% for all occurrences. An interesting result is the significant negative impact of the ex-public sector indicator variable on two occasions (Col. 1 and 2) and the positive impact of the corporate sector indicator variable on CEO compensation (Col. 1 and 2). The percentage of independent directors is statistically significant on a single occasion and has a negative impact on CEO compensation (Col. 3). Also, the ability to obtain government grants has a significant positive impact on CEO total compensation, once again, only on a single occasion (Col. 3).

The negative significant result of -0.002% and -0.001% (Col 1 and Col 2 respectively) for the IV Rec_GICS variable provides support that the resultant predicted value of CEO total compensation is significantly affected by the IV and, accordingly, addresses the issue of endogeneity on two out of three instances. The determination of the impact of the IV is influenced by industry size²² and, as larger industries have greater access to managerial talent, the adjustment to CEO compensation to be used in the 2nd stage is smaller. This result is consistent with expectations and, consequently, adjusts the predicted value of CEO total compensation to cater for endogeneity in the second stage regression (2SLS).

The results of the 2SLS²³ are included in Table 9. In all cases, random effects (RE) regressions with robust standard errors are applied to the panel data set.

<Insert Table 9 here>

²² Industry size as measured by the sum of GBEs and ASX companies classified according to GICS codes.

²³ The results reported were determined using the XTIVREG command in Stata, which is the 2SLS command applicable for the analysis of endogeneity associated with panel data.

The results in Table 9 confirm the findings in Table 7. The results of Model (3) using both OLS (Table 7) and 2SLS (Tables 8 and 9) do not provide statistically significant evidence supporting the notion that future performance is enhanced by the incentives provided by current levels of CEO compensation. Further, endogeneity is not a major issue as there is very little evidence of reverse causality between future performance and current levels of CEO compensation in either direction. As such, the use of future financial performance measures as dependent variables driven by current levels of CEO compensation do not provide statistically significant evidence in support of the pay/performance relation.

5.0 Sensitivity Analysis

5.1 Alternative economic, performance measures and compensation measures

First, we substitute total assets and changes in total assets as the economic size measure to investigate whether an alternative economic size measure impacts on the pay/performance relation. Second, we use CEO bonus compensation in place of CEO total compensation to determine whether the reported bonus is linked to performance. Third, we substitute one year lagged performance measures to test whether the current year's level and changes in CEO compensation are a reward for past performance. Finally, we include indicator variables for the largest state and largest industry as additional controls. The tenor of the results from these additional tests is consistent with those reported for the main tests with very little evidence of a significant pay/performance relation.

6.0 Summary and some policy implications for the governance of GBEs

The objective of this paper has been to provide evidence on the effectiveness of corporate governance of Australian GBEs as evidenced by the association between CEO compensation and GBE financial performance. The use of financial measures as an exogenous performance measure is justified on the basis of the legislative pronouncements and regulatory requirements

specifying that the annual report of GBEs must include an “Annual Performance Statement” (Australian Government, RMG 126, paragraph 3.13(a) page 14) that includes commentary on actual results matched with publicly disclosed performance expectations.

The evidence provided in this paper is consistent with financial measures of performance being unrelated to the current level of CEOs’ compensation and the growth of CEOs’ compensation between 2006 and 2013. Our results are robust with respect to a number of alternative variable definitions and econometric specifications. In summary, our evidence does not support the hypothesis that “there is a positive relation between GBEs’ performance and the levels and changes of their CEOs’ compensation”.

Our results may provide some guidance to policy makers. First, policy makers could consider the composition of the board of directors by requiring that the majority of board members have public listed company based board experience. Further, boards could be required to have a compensation/remuneration sub-committee, where the chair of this subcommittee is required to have extensive corporate sector experience. Second, to overcome the possible cronyisms associated with ministerial and government changes (Davies, 2015), corporate governance reform for GBEs could incorporate the formation of a bipartisan committee comprising elected politicians from all sides of the political spectrum to act as a nomination committee for board appointments for GBEs. Third, the levels of and changes in the compensation of CEOs could either be determined by an external tribunal consistent with the determination of politicians’ salaries and benchmarked against relevant public listed companies. Finally, the compensation could be explicitly divided into fixed and bonus components. The bonus payment could be a significant proportion of the total compensation and tied to explicit, measurable financial benchmarks which are disclosed in the annual reports.

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Table 1: Panel A - Sample construction covering the period 2006 – 2013 inclusive**Sample Selection – Number of GBEs and GBE Years**

	GBEs	Observations
1. Number of GBEs - Commonwealth and State (116)	115	814
2. Exclude GBEs and observations where there is no Annual Report	-9	-51
3. Exclude GBEs and observations where there is inconclusive or missing remuneration data	-19	-142
Subtotal	87	621
4. Exclude Observations for Departing CEO in final year		-91
5. Exclude Observations for Incoming CEO in first year		-91
6. Exclude Observations for GBEs where there is less than 2 complete years of operations	-4	-9
Final Sample Size after exclusions	83	430

Table 1: Panel B – Sample observations by State and CSOs

Number of GBEs and Observations by Jurisdiction with / without CSOs					
Jurisdictions	Number of GBEs	Number of Observations	GBEs with CSOs	GBEs Without CSOs	% of Observations
Australian Capital Territory (ACT)	3	10	6	4	2.33%
Commonwealth Government	3	18	0	18	4.19%
New South Wales (NSW)	12	69	0	69	16.05%
Northern Territory (NT)	1	4	0	4	0.93%
Queensland QLD	14	71	0	71	16.51%
South Australia (SA)	1	6	0	6	1.40%
Tasmania (TAS)	4	10	0	10	2.33%
Victoria (VIC)	27	140	95	45	32.56%
Western Australia (WA)	18	102	12	90	23.72%
Total	83	430	113	317	100.00%

Table 1: Panel C – Background of Director Appointments

Background of Board Appointments	Numbers	Overall Averages
% Ex Senior Public Servant	2,482	79%
% Ex politician	300	10%
% Directors who sit on Public Listed Company boards	354	11%
Total	3,136	100%

Table 2 – Variables used in Empirical tests

Dependent Variables	
Total CEO Compensation	\$CEO Total Comp
% Change in CEO Compensation	% Δ CEO Comp
CEO Bonus Payment	\$CEO Bonus
Performance Measures	
Return on Assets = After Tax Operating Profit $\div$ Total (EOY) Assets	ROA % _t
Profit Margin = After Tax Net Profit $\div$ Total Operating Revenue	Profit Margin % _t
Asset Turnover = Total Operating Revenue $\div$ Total (EOY) Assets	Asset Turnover _t
Economic Size Controls	
Total Revenue	\$Total Revenue _t
Total Assets	\$Total Assets _t
Governance Controls	
Number of Directors	# Board Size _t
% Independent Variable (Ind Directors $\div$ Total Directors)	%Ind Director _t
Board member was either ex politician or ex public servant (=1)	Ex_Public Sector Dummy
GBE Board member also sits on a corporate sector board (=1)	Corporate Sector Dummy
Net Board Compensation (Total Board Comp - CEO Comp)	\$Net Board Comp _t
Institutional Controls	
Government Grants & CSO (1 = Gov Grants)	Gov Grants Dummy _t
Loss Dummy (To be included in all regressions) 1 = Loss	Net Loss Dummy _t
Regulated Pricing Dummy (1 = Legislated Pricing)	Reg Price Dummy _t
Community Service Obligations - CSO_Dummy	CSO_Dummy _t

Table 3 – Descriptive Statistics

Descriptive Statistics						
Statistics	Mean	Median	Std. Dev.	Minimum	Maximum	No. Obs.
Dependent Variables						
\$CEO Total Comp (\$000)	435.8	355.0	381.7	67.5	4,751.8	430
% Δ CEO Comp	9.08%	5.33%	19.09%	-44.31%	196.67%	331
CEO Bonus Compensation (\$000)	165.0	67.3	286.7	2.0	1,998.9	94
Performance Measures						
ROA %	2.61%	2.35%	5.77%	-45.69%	30.35%	430
Profit Margin % (PM)	7.23%	9.23%	27.85%	-294.64%	85.68%	430
Asset-Turnover (ATO)	0.43	0.21	0.61	0.02	3.67	430
Economic Size Controls						
\$Total Revenue (\$000)	734,000	217,000	1,170,000	5,938	6,830,000	430
\$Total Assets (\$000)	2,470,000	991,000	3,430,000	8,442	21,500,000	430
Governance Controls						
Number of Directors	7.04	7	1.43	2	12	430
%Ind Director	90.5%	87.5%	9.4%	50.0%	100.0%	430
Ex_Public Sector Dummy	73.7%	100.0%	44.1%	0.0%	100.0%	430
Corporate Sector Dummy	47.9%	0.0%	50.0%	0.0%	100.0%	430
\$Net Board Compensation (\$000)	293	250	227	23	1,440	430
%Δ\$Net_Board_Comp	6.8%	2.8%	25.9%	-87.8%	254.2%	331
Institutional Controls						
Government Grants Dummy	41.6%	0.0%	49.4%	0.0%	100.0%	430
Net Loss Dummy	19.8%	0.0%	39.9%	0.0%	100.0%	430
Regulated Price Dummy	62.3%	100.0%	48.5%	0.0%	100.0%	430
CSO Dummy	26.3%	0.0%	44.1%	0.0%	100.0%	430

Table 4 – Correlation Matrix – PEARSON & SPEARMAN (above the diagonal)

	Ln CEO Total Comp	% Δ CEO Comp	ROA %	Profit Margin %	Asset- Turnover	Ln Total Revenue	Ln Total Assets	# Board Size	% Indep Directors	Ln Net Board Comp
Ln CEO Total Comp	1	0.069	0.295*	0.131*	0.417*	0.825*	0.683*	0.115*	-0.021	0.626*
% Δ CEO Comp	0.177*	1	0.106	0.095	0.055	-0.034	-0.049	0.015	0.076	-0.087
ROA	0.165*	0.081	1	0.767*	0.528*	0.164*	-0.053	-0.111*	-0.019	0.133*
Profit Margin	0.085	0.054	0.736*	1	0.083	0.018	0.022	-0.086	-0.002	0.102
Asset-Turnover	0.258*	0.030	0.150*	-0.009	1	0.389*	-0.081	-0.123*	0.011	0.144*
Ln Total Revenue	0.772*	-0.010	0.101	0.051	0.258*	1	0.863*	0.218*	-0.050	0.664*
Ln Total Assets	0.588*	-0.043	-0.055	-0.015	-0.230*	0.843*	1	0.280*	-0.066	0.635*
Board Size	0.154*	-0.004	0.017	0.020	-0.063	0.237*	0.303*	1	0.134*	0.260*
% Indep Directors	-0.025	0.106	0.076	0.088	0.031	-0.058	-0.083	0.155*	1	-0.151*
Ln \$Net Board Comp	0.582*	0.007	0.026	0.021	0.049	0.608*	0.575*	0.189*	-0.213*	1

* Significant at 5% level.

Table 5

Model 1 investigating the association between CEO Total Compensation and performance.

$$\ln \text{ CEO Total Comp}_{it} = \alpha_t + \beta_1 \text{ Performance}_{it} + \beta_2 \text{ Economic Size Control}_{it} + \beta_3 \text{ Governance Controls}_{it} + \beta_4 \text{ Institutional Controls}_{it} + \varepsilon_i$$

Dependent Variable	Predicted Sign	ln CEO Total Comp (Col 1)	ln CEO Total Comp (Col 2)	ln CEO Total Comp (Col 3)	ln CEO Total Comp (Col 4)
Performance Measures					
ROA% _{it}	+	0.110 (0.185)			
Profit Margin %	+		-0.033 (-0.189)		-0.043 (-0.238)
Asset Turnover _{it}	+			-0.196* (-1.928)	-0.217** (-2.163)
ROA * Ex_Public Sector Dummy	+	-0.401 (0.709)			
ROA * Corporate Sector Dummy	+	0.156 (0.295)			
PM * Ex_Public Sector Dummy	+		-0.050 (-0.304)		-0.039 (-0.228)
PM * Corporate Sector Dummy	+		-0.041 (-0.536)		-0.055 (-0.691)
ATO * Ex_Public Sector Dummy	+			0.079* (1.691)	0.080* (1.760)
ATO * Corporate Sector Dummy	+			0.056 (1.142)	0.056 (1.133)
Economic Size Control					
Ln Total Revenue _{it}	+	0.252*** (5.768)	0.267*** (6.653)	0.271*** (4.726)	0.300*** (5.534)
Governance Controls					
Board Size _{it}	+	-0.013 (-1.246)	-0.012 (-1.172)	-0.015 (-1.403)	-0.014 (-1.326)
% Indep Directors _{it}	+	-0.056 (-0.241)	-0.050 (-0.209)	-0.109 (-0.453)	-0.084 (-0.344)
Ex_Public Sector Dummy	+/-	-0.032 (-0.688)	-0.033 (-0.743)	-0.059 (-1.234)	-0.055 (-1.183)
Corporate Sector Dummy	+/-	0.000 (0.005)	0.010 (0.358)	-0.005 (-0.161)	0.004 (0.123)
Ln \$Net Board Comp _{it}	+	0.219*** (3.126)	0.213*** (3.115)	0.206*** (2.936)	0.195*** (2.842)
Institutional Controls					
Gov Grants Dummy _{it}	+	0.059 (1.382)	0.055 (1.287)	0.053 (1.191)	0.048 (1.088)
Net Loss Dummy _{it}	-	0.038 (1.078)	0.014 (0.474)	0.053* (1.931)	0.016 (0.544)
Regulated Price Dummy _{it}	-	0.167 (1.362)	0.149 (1.245)	0.165* (1.860)	0.164** (2.015)
Constant		5.333*** (4.785)	5.117*** (4.727)	5.252*** (4.497)	4.822*** (4.258)
Adjusted R ²		0.343	0.353	0.349	0.362
F		7.758	7.77	8.977	7.779
Number of Observations		430	430	430	430
Fixed Effects		FE	FE	FE	FE
Note: (i) T-statistics are listed below the coefficient estimates. (ii) *, **, *** indicate two tailed statistical significance at the 10, 5 and 1 per cent levels					

Table 6

Model 2 investigating the association between changes in CEO Total Compensation and changes in GBEs performance.

$$\% \Delta \text{CEO Comp}_{it} = \alpha_t + \beta_1 \Delta \text{Performance}_{it} + \beta_2 \% \Delta \text{Economic Size Controls}_{it} + \beta_3 \% \Delta \text{Governance Controls}_{it} + \beta_4 \text{Governance Controls}_{it} + \beta_5 \text{Institutional Controls}_{it} + \varepsilon_i$$

Dependent Variable	Predicted Sign	%ΔCEO Total Comp (Col 1)	%ΔCEO Total Comp (Col 2)	%ΔCEO Total Comp (Col 3)	%ΔCEO Total Comp (Col 4)
ΔPerformance Measures					
ΔROA _{it}	+	-0.200 (-0.762)			
ΔProfit Margin _{it}	+		0.064 (0.676)		0.070 (0.708)
ΔAsset Turnover _{it}	+			-0.227 (-0.971)	-0.348 (-1.577)
ΔROA * Ex_Public Sector Dummy	+	-0.041 (-0.200)			
ΔROA * Corporate Sector Dummy	+/-	0.306 (1.253)			
ΔPM * Ex_Public Sector Dummy	+		-0.105 (-1.189)		-0.110 (-1.180)
ΔPM * Corporate Sector Dummy	+/-		-0.065 (-1.290)		-0.087* (-1.722)
ΔATO * Ex_Public Sector Dummy	+			0.062 (0.312)	0.128 (0.661)
ΔATO * Corporate Sector Dummy	+/-			0.128 (0.579)	0.230 (1.076)
ΔEconomic Size Control					
%ΔTotal_Revenue _{it}	+	0.107** (1.961)	0.127** (2.562)	0.114** (1.975)	0.144*** (2.719)
Governance Controls & ΔGovernance Controls					
Board Size _{it}	+	0.000 (0.050)	-0.001 (-0.013)	-0.001 (-0.010)	-0.001 (-0.015)
% Indep Directors _{it}	+	0.162** (1.979)	0.156* (1.909)	0.153* (1.916)	0.153* (1.904)
Ex_Public Sector Dummy	+	0.027 (1.066)	0.031 (1.201)	0.028 (1.136)	0.031 (1.241)
Corporate Sector Dummy	-	0.009 (0.539)	0.010 (0.554)	0.009 (0.508)	0.008 (0.442)
%Δ\$Net_Board_Comp _{it}	+	0.141* (1.923)	0.134** (2.066)	0.129* (1.774)	0.115* (1.913)
Institutional Controls					
Gov_Grants_Dummy _{it}	+	-0.004 (0.206)	-0.004 (-0.211)	-0.006 (-0.277)	-0.006 (-0.278)
Net Loss Dummy _{it}	-	0.004 (0.134)	-0.010 (-0.322)	0.011 (0.399)	-0.008 (-0.273)
Regulated Price Dummy _{it}	-	-0.013 (-0.587)	-0.008 (-0.377)	-0.013 (-0.618)	-0.011 (-0.483)
CSO Dummy _{it}	-	-0.015 (-0.560)	-0.011 (-0.390)	-0.017 (-0.612)	-0.013 (-0.441)
Constant	+	-0.096 (-1.375)	-0.096 (-1.346)	-0.085 (-1.215)	-0.089 (-1.246)
R ² (Overall)		0.210	0.221	0.213	0.232
Wald chi ²		41.800***	28.200***	19.610	30.690***
Number of Observations		331	331	331	331
Random Effects		RE	RE	RE	RE

Note: (i) The 'z' score statistics are determined using robust standard errors and are reported in brackets.
(ii) *, **, *** indicate two tailed statistical significance at the 10, 5 and 1 per cent levels.

Table 7

Model 3 - Test of whether the current level of CEO compensation provides an incentive for improving next year's performance.

$$\text{Performance}_{t+1} = \alpha_t + \beta_1 \text{Ln CEO Total Comp}_{it} + \beta_2 \text{Economic Size Control}_{it} + \beta_3 \text{Governance Controls}_{it} + \beta_4 \text{Institutional Controls}_{it} + \epsilon_i$$

Dependent Variable	Predicted Sign	ROA _{it+1} (Col 1)	Profit Margin _{it+1} (Col 2)	Asset Turnover _{it+1} (Col 3)
Ln CEO Total Comp _{it}	+	0.010 (0.577)	0.053 (1.625)	0.054 (0.732)
Economic Size Control				
Ln Total Revenue _{it}	+	0.002 (0.517)	-0.014 (-0.972)	0.109 (1.130)
Governance Controls				
Board Size _{it}	+	0.004 (1.559)	0.008 (0.952)	-0.027** (-1.989)
% Indep Directors _{it}	+	0.033 (0.895)	0.313 (1.509)	-0.039 (-0.199)
Ex_Public Sector Dummy	+	-0.016 (-1.488)	-0.047 (-1.619)	-0.070 (-1.231)
Corporate Sector Dummy	-	0.001 (0.133)	-0.042 (-1.711)	-0.005 (-0.106)
Ln_\$Net_Board_Comp _{it}	+	-0.006 (-1.458)	0.018 (0.851)	-0.061 (-0.646)
Institutional Controls				
Gov_Grants_Dummy _{it}	+	-0.001 (-0.221)	0.083** (2.216)	-0.071 (-1.783)
Net Loss Dummy _{it}	-	-0.023** (-2.185)	-0.210*** (-3.717)	0.017 (0.525)
Regulated Price Dummy _{it}	-	-0.033*** (-3.361)	-0.051 (-1.206)	0.073 (0.600)
CSO_Dummy _{it}	-	-0.001 (-0.134)	-0.044 (-0.935)	-0.272 (-1.925)
Constant		-0.099 (-0.599)	-0.803 (-1.460)	-1.231 (-1.322)
R ² (Overall)		0.149	0.129	0.133
Wald chi ²		50.350***	65.050***	20.580*
Number of Observations		331	331	331
Random Effects		RE	RE	RE
Note: (i) The 'z' score statistics are determined using robust standard errors and are reported in brackets. (ii) *, **, *** indicate two tailed statistical significance at the 10, 5 and 1 per cent levels.				

Table 8

Model 3 – First Stage Least Squares Regression (1SLS) regression with Ln CEO Total Comp being the Dependent variable and the introduction of the Instrumental Variable (IV Rec_GICS) as a regressor.

$$\text{Ln CEO Total Comp}_{it} = \alpha_t + \beta_1 \text{Economic Size Control}_{it} + \beta_2 \text{Governance Controls}_{it} + \beta_3 \text{Institutional Controls}_{it} + \beta_4 \text{IV_Rec_GICS}_i + \varepsilon_i$$

Dependent Variable	Predicted Sign	Ln CEO Total Comp (Col 1)	Ln CEO Total Comp (Col 2)	Ln CEO Total Comp (Col 3)
Economic Size Control				
Ln Total Revenue _{it}	+	0.170*** (9.050)	0.166*** (9.496)	0.192*** (6.964)
Governance Controls				
Board Size _{it}	+	-0.006 (-0.430)	-0.005 (-0.342)	-0.010 (-1.020)
% Indep Directors _{it}	+	-0.048 (-0.280)	0.015 (0.101)	-0.729*** (-2.658)
Ex Public Sector Dummy	+/-	-0.121*** (-2.740)	-0.126*** (-2.883)	-0.025 (-0.506)
Corporate Sector Dummy	+/-	0.061* (1.740)	0.087** (2.380)	0.032 (1.242)
Ln \$Net Board Comp _{it}	+	0.162*** (5.110)	0.152*** (5.600)	0.254*** (4.847)
Institutional Controls				
Gov Grants Dummy _{it}	+	-0.038 (-0.950)	-0.044 (-1.178)	0.097*** (3.080)
Net Loss Dummy _{it}	-	-0.054 (-1.630)	-0.098*** (-2.834)	0.034 (1.277)
Regulated Price Dummy _{it}	-	0.009 (0.140)	0.018 (0.285)	0.134 (1.330)
CSO_Dummy _{it}	-	-0.060 (-0.690)	-0.062 (-0.713)	-0.142 (-0.863)
IV Rec GICS	+ / -	-0.002* (-1.900)	-0.001* (-1.698)	-0.003 (-0.868)
Constant		7.750*** (16.490)	7.871*** (17.930)	6.658*** (8.972)
R ² (Overall)		0.628	0.656	0.634
Wald chi ² (G2SLS Stage 1)		170***	804***	170***
Number of Observations		331	331	331
Random Effects		RE	RE	RE
Note: (i) The 'z' score statistics are determined using robust standard errors and are reported in brackets. (ii) '*, **', '***' indicate two tailed statistical significance at the 10, 5 and 1 per cent levels.				

Table 9

Model 3 – Second Stage Least Squares Regression (2SLS) investigating the association between future performance based on the inclusion of the predicted value of CEO Total Comp (from 1SLS).

$$\text{Performance}_{it} = \alpha_t + \beta_1 \text{Predicted Ln CEO Total Comp}_{it} + \beta_2 \text{Economic Size Control}_{it} + \beta_3 \text{Governance Controls}_{it} + \beta_4 \text{Institutional Controls}_{it} + \epsilon_i$$

Dependent Variable	Predicted Sign	ROA _{it+1} (Col 1)	Profit Margin _{it+1} (Col 2)	Asset Turnover _{it+1} (Col 3)
Predicted CEO Compensation				
Predicted Ln CEO Total Comp _{it}	+	0.017 (0.174)	0.799 (1.311)	-1.653 (-0.914)
Economic Size Control				
Ln Total Revenue _{it}	+	0.001 (0.067)	-0.131 (-1.262)	0.374 (0.757)
Governance Controls				
Board_Size _{it}	+	0.004 (1.531)	0.008 (0.514)	0.079 (0.966)
% Indep Directors _{it}	+	0.033 (0.906)	0.327 (1.252)	-0.044 (-1.528)
Ex_Public Sector Dummy	+/-	-0.015 (-0.940)	0.053 (0.466)	-0.102 (-0.662)
Corporate Sector Dummy	+/-	0.000 (0.053)	-0.103 (-1.593)	0.051 (0.646)
Ln \$Net Board Comp _{it}	+	-0.006 (0.454)	-0.095 (-1.048)	-1.291 (-0.897)
Institutional Controls				
Gov Grants Dummy _{it}	+	-0.001 (-0.187)	0.117* (1.930)	0.099 (0.569)
Net Loss Dummy _{it}	-	-0.024* (-1.835)	-0.128 (-1.440)	0.447 (1.273)
Regulated Price Dummy _{it}	-	-0.033*** (-3.029)	-0.111 (-1.216)	0.354 (1.092)
CSO_Dummy _{it}		-0.001 (-0.075)	0.017 (0.116)	-0.437 (-1.331)
Constant		-0.154 (-0.195)	-6.793 (-1.365)	9.776 (0.793)
R ² (Overall)		0.152	0.039	0.004
Wald chi ² (G2SLS Stage 2)		56***	22**	8
Number of Observations		331	331	331
Random Effects		RE	RE	RE
Note: (i) The 'z' score statistics are determined using robust standard errors and are reported in brackets. (ii) '*', '**', '***' indicate two tailed statistical significance at the 10, 5 and 1 per cent levels.				