# Corporate governance and the variability of stock returns: Evidence from New Zealand companies

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## Abstract

In this paper, we document the beneficial impact of firm level corporate governance practices on the riskiness of firms' stock returns. Using a self-constructed corporate governance index, we show that well-governed New Zealand firms experience lower levels of unsystematic risk, ceteris paribus. In particular, our results show that corporate governance components such as board composition, shareholder rights, and disclosure practices are associated with lower levels of unsystematic risk.



**Key words**: Corporate governance, New Zealand, stock return variability

**JEL Classification**: G30, G32

## 1. Introduction

Most studies on the economic impact of firm-level corporate governance have focused on attributes such as performance, cost of capital or stock price informativeness. Few studies have examined the impact of corporate governance on risk. An exception is the recent work of Cheng (2008). In that study, he examines the impact of board size on the variability of corporate performance. He finds that board size is negatively related to the variability of monthly stock returns, annual accounting return on assets, Tobin's Q, accounting accruals, extraordinary items, analyst forecast inaccuracy, the level of R&D expenditures, and the frequency of acquisition and restructuring activities. Board size is but one aspect of corporate governance. Arguably, other aspects of corporate governance should have a significant impact on the riskiness. We therefore extend the work of Cheng (2008) by constructing a comprehensive index of firm level corporate governance and relate it to the risk of a firm's stock return. The main contribution of our paper is to examine the basic premise that the aggregate firm level corporate governance should have a bearing on the riskiness of a firm.

We believe that, investors are concerned not only about corporate performance but also about the variability in performance. We contribute to the literature by examining the impact of corporate governance features on variability of firm performance. We extend the literature in two directions. First, while prior work (Cheng, 2008) has examined only one aspect of corporate governance, namely, board size, we consider a whole range of corporate governance features that are ostensibly relevant and study the impact on these on the variability of firm performance. As such, variability of firm performance constitutes a risk measure and therefore informs the debate on whether corporate governance can affect risk. Second, we provide external validation for the notion that good governance can reduce risk by studying a different market than the original study by Cheng (2008), viz., New Zealand. New Zealand is an OECD country that has adopted the best practices in corporate governance

followed by other common law countries. Since earlier has shown that institutional features are a major determinant of financial development at the country level and firm level access to external finance[1], results obtained from New Zealand have implications for other OEC countries especially those under common law jurisdictions.

Our empirical results show that our overall measure of corporate governance has no impact on risk as measured by standard deviation of monthly market-adjusted returns for New Zealand firms. However, sub-indices based on board composition, shareholder rights, and disclosure policy significantly negatively influence risk.

The rest of the paper is organised as follows. In section 2, we describe the theoretical underpinnings that drive a relationship between specific corporate governance features and risk. Based on these, we develop a set of testable hypotheses that form the basis of our empirical tests. In section 3, we describe our data and methodology. Our empirical results are contained in section 4. Our conclusions are provided in the final section.

## 2.0 **Corporate Governance and Risk: Theoretical Underpinnings**

With the increasing attention being paid to corporate governance by investors, policy makers and other stakeholders, several information providers have begun to provide aggregate measures of corporate governance across firms. For instance, RiskMetrics provides comprehensive information on corporate governance practices for thousands of firms operating in OECD countries. Lacking a comprehensive source of corporate governance for New Zealand firms, we created our own measure of corporate governance. Our methodology for constructing firm-level corporate governance scores closely follows the system of McFarland (2002). A clear benefit of constructing our own governance indicator is that we are able to capture a wide variety of governance features

[1] See for instance the work of La Porta et. al (1997) and Love (2003).

employed by firms. A disadvantage of this approach is that the list of corporate governance features used and the weights assigned to each feature tend to be arbitrary.

As such, our overall corporate governance index encompasses four sub indices: (i) Board Composition, (ii) Shareholding and Compensation Policies, (iii) Shareholder Rights and Policies and (iv) Disclosure policies. Arguably, these corporate governance components should have an impact on the riskiness of a firm. We elaborate our motivation for using these components and the predicted impacts on risk below.

First, we construct the Board Composition sub index to capture board autonomy, structure and effectiveness. Autonomy is measured by board independence, and by the independence of audit and compensation committees. This sub index also contains measures of board effectiveness, regularity of meetings and the separation of CEO/ Chair positions. We argue that an effective board will prevent a firm from engaging in extremely risky investment and financial policies that jeopardize the future prospects of the firm. We therefore argue that a higher score on the board composition sub index will be associated with a lower level of unsystematic risk of the firm's stock returns.

Second, we compute the sub index of shareholding and compensation policies to measure the extent to which manager and the board members have incentives that align their interests with those of shareholders. Companies where the CEO and directors are required to take equity positions are given higher scores in constructing this sub index. Companies that give subsidized loans to managers are scored lower in this sub index. The impact of shareholding and compensation policies on unsystematic risk is unclear. On the one hand managers and board members are expected to behave like shareholders in avoiding policies that increase the risk of the firm. On the other hand, the non-linearity underlying option packages implies that managers are not exposed to the same level of downside risk as outside shareholders. Thus they have incentives to engage in high risk

investments in hopes of getting very high returns. Thus the resultant impact of shareholding and compensation policies on risk is an empirical issue.

Third, we measure shareholder rights based on the existence of dilutive employee stock options and the presence of subordinate shares. These features reduce shareholder rights vis-a-vis managers. As such, firms with high scores on this sub index are deemed to investor friendly. The negative effects of the existence of dilutive stock options and subordinate shares will exacerbate poor performance of the firm under condition of economic stress. As such, we expect a negative relationship between shareholder rights sub index and unsystematic risk.

The final sub index deals with disclosure policies. Companies that comply with the best practices stipulated by the regulatory bodies in terms of disclosing their corporate governance practices, other relevant details of their directors, auditor compensation, list of other boards on which directors sit, and attendance records of board members score higher on this sub index. Good disclosure policies attenuate the information risk faced by investors. Therefore, we expect a negative relation between disclosure policy scores and unsystematic risk of the firm.

We use the hypotheses developed in this section to conduct empirical tests, the results of which are reported in section 4.

## 3.0 Data and Methodology

### 3.1 Data

We construct a corporate governance index for New Zealand firms based on four sub-indices – board compensation, compensation policy, shareholder rights, and disclosure policy. The aggregate index is created by summing up the value of the four sub-indices for each firm. The criteria used for creating each of the sub-indices are similar to those of McFarland (2002) and is fully described in Klein et. al. (2005). The board composition sub-

index measures board independence, CEO duality, busyness of directors and the number of annual board meetings. The compensation policy sub-index is based on directors' share ownership and option plans. As such, this index captures the alignment of directors' interests with those of shareholders. The shareholder rights sub-index is based on dilutive features in option plans and voting rights and the presence of staggered boards. The disclosure sub-index measures the firms' commitment to disclose information regarding their corporate governance practices. We describe the detailed scoring scheme in the Appendix.

We collect financial data and corporate governance information from annual reports of firms listed in New Zealand from the NZX Deep Archive database for the 2004 to 2008 period. Price data is sourced from Datastream. After deleting firms for which we have no financial data, we have a final sample of 385 firm year observations.

We provide summary statistics and correlation matrices for the sample in Tables 1 and 2. In Table 1, we provide descriptive statistics for the aggregate governance index and its components. In Table 2, we present descriptive statistics and correlation matrices for selected variables. The average score of the aggregate corporate governance index (CGI) is 65.40 for our sample firms. This is about five points higher than that of the Canadian sample documented in Klein et. al. (2005). The average score of the board sub-index is 21.55 for our sample firms. This is about four points lower than that of the Canadian sample. The average score of the compensation sub-index (Comp) is 12.65 for our sample firms. This is about the same for the Canadian sample reported in Klein et. al. (2005). The average score of the rights sub-index is 19.44 for our sample firms. This is about 2.5 points higher than the Canadian sample. Finally, the disclosure sub-index averages 11.76 for our sample as compared to 6.41 for the Canadian sample of Klein et. al (2005). Overall our descriptive statistics indicate that New Zealand firms display higher corporate governance scores due to better scores on the rights and disclosure sub-indices as compared to Canadian firms.

The correlation matrix indicates high correlation between the aggregate index and its components. The components display low correlation between themselves (with the exception of board and disclosure sub-indices). Thus we are assured that the components of corporate governance computed assess the different aspects of corporate governance and do not cause serious measurement problems.

We provide descriptive statistics and correlation matrices for selected variables in Table 2. The dependant variables used in our study are standard deviation of monthly raw and market-adjusted returns. These variables measure the risk of the firm. The mean standard deviation of monthly raw return (Raw_SD) is 0.10. The other dependent variable, standard deviation of monthly market-adjusted return (Adj_SD) is also 0.10. The mean standard deviation of monthly market return (Mkt_SD) is 0.04. The mean return on assets is -0.33. The average leverage is 1.39 for our sample firms. The average market capitalization of our sample firms is NZ$391.71 million. The average age of our sample firms is 11.63 years. As expected there is very high correlation between our dependent variables - standard deviation of monthly raw return and standard deviation of monthly market-adjusted returns (0.98). The correlation matrix indicates few cases of high correlation with the exception of 0.85 between leverage (Lev) and market-to-book ratio (M/B). Interestingly, both the dependent variables have low correlation with the aggregate corporate governance index.

**3.2 Methodology**

We conduct panel data regressions using standard deviation of monthly raw and market-adjusted returns as dependent variables and corporate governance measures described in the previous section as independent variables. We follow Cheng (2008) in our choice of a suitable measure for risk at the firm level. We also include a number of control variables such as standard deviation of monthly market returns, Return on Assets (ROA), leverage

(Lev), Market-to-Book Ratio (M/B), Size, and Age. We follow the work of Klein et al. (2005) and Black et al. (2003) in choosing our control variables. As such, our control variables capture the potential impact of profitability, growth potential, leverage and size on riskiness of the firm. Thus the impact of corporate governance on risk may be measured after controlling for other factors which have a bearing on the riskiness of the firm.

**4.0 Empirical Results**

Our empirical results are presented in Tables 3 and 4. In Table 3, the standard deviation of monthly raw returns are regressed on corporate governance variable (s) and control variables. The aggregate corporate governance index (CGI) is not significant at conventional levels. We can therefore conclude that corporate governance measured in aggregate terms does not affect the riskiness of a firm. Firm level risk is positively related to market risk (Mkt_SD) and growth but negatively related to profitability and size.

We then replace CGI with its components – Board Composition (Board), Compensation Policy (COMP), Shareholder Rights (Rights) and Disclosure policy (DISC) using them one at a time. Board composition has a negative and statistically significant impact on riskiness. This result indicates that autonomous boards reduce the risk of the firm. Shareholder rights also has a negative and significant impact on risk. When shareholder rights are well-protected and managers are not unduly compensated at the expense of shareholders, firms tend to become less risky, ceteris paribus. The other governance variables – Compensation Policy and Disclosure Policy do not have a significant impact on risk.

In Table 4, we regress standard deviation of market-adjusted monthly returns on corporate governance measures and other control variables. As before, the overall measure, CGI, has no impact on risk. The Board, Rights and Disclosure sub-indices have significant

negative impacts on the level of risk. Our control variables have similar impacts as in Table 3.

Overall, our results are consistent with the view that firms with independent boards that protect its shareholders' rights and discloses its governance related policies experience lower firm-level risk, other things being equal.

**5.0 Conclusion**

Few studies have examined the impact of corporate governance on risk. Cheng (2008) finds that board size is negatively related to the variability of monthly stock returns, annual accounting return on assets, Tobin's Q, accounting accruals, extraordinary items, analyst forecast inaccuracy, the level of R&D expenditures, and the frequency of acquisition and restructuring activities. Board size is but one aspect of corporate governance. We argue that other aspects of corporate governance such as board composition, shareholder rights policy and disclosure practices should have a significant impact on the riskiness of the firm. We therefore extend the work of Cheng (2008) by constructing a comprehensive index of firm level corporate governance for New Zealand firms and relate it to the risk of a firm's stock return.

Our empirical results based on 385 firm years shows that the aggregate measure of corporate governance does not significantly influence the risk of a firm. However, sub-indices based on board composition, shareholder rights, and disclosure policy have a significantly negatively influence on risk. Our contribution to the emerging literature on the impact of corporate governance on risk is two-fold. First, we demonstrate that corporate governance features significantly impact risk at the firm level. Second, we show that not all features of corporate governance have a bearing on risk. Specifically, firms with independent boards, that protect its shareholders' rights and discloses its governance related policies experience lower firm-level risk, other things being equal.

**References**


Cheng, S., 2008, Board Size and the Variability of Corporate Performance, Journal of Financial Economics, 87, 157-176.

Kim, W., Black, B.S., Jang, H., 2006. Does Corporate Governance Predict Firms' Market Values? Evidence from Korea, Journal of Law, Economics, and Organization, 22, No. 2, Fall 2006, 366-413.

Klein, P., Shapiro, D., Young, J., 2005. Corporate Governance, Family Ownership and Firm Value: the Canadian Evidence, Corporate Governance: An International Review, 13 (6), 769-784.

La Porta, R., Lopez, -de Silanes, F., Shleifer, A., Vishny, R., 1997. Legal Determinants of External Finance, Journal of Finance 52, 1131-1155.

Love, I.,2003. Financial Development and Financing Constraints, Review of Financial Studies 16, 765-791.

McFarland, J., 2002. How ROB created the rating system. The Globe and Mail, 7 October, B6.

**Appendix: Components of Corporate Governance Index**

| *Sub-Index 1: Board composition* | *Maximum marks: 40 marks* |
|---|---|
| Independent | 8 marks for boards with at least 66% independent directors. |
| | 4 marks if 50% or more are independent. |
| | 0 mark if less than 50% are independent. |
| Audit committee | 6 marks if the committee is fully independent. |
| | 2 if there are one or more related directors. |
| | 0 if a member of management is on the committee. |
| Compensation committee | 4 marks if the committee is fully independent. |
| | 2 if there are one or more related directors. |
| | 0 if a member of management is on the committee. |
| Nominating committee | 3 marks if the committee is fully independent. |
| | 2 if there are one or more related directors. |
| | 0 if a member of management is on the committee. |
| | 0 if there is no nominating committee. |
| Duality | 5 marks if the jobs are split. |
| | 2 marks if the chairman is also a related director. |
| | 3 marks if the jobs are not split, but there is an independent lead director. |
| Relationship among directors | Start with 5 marks. |
| | Minus 3 if marks if the CEO swaps board with the CEO of another company. |
| | Minus 2 marks if 3 or more directors are together on the board of another public company. |
| | Minus 2 marks if any director who is on more than 8 other for-profit corporate boards. (score can go below zero). |
| CEO commitment | 2 marks if the CEO sits on 3 or fewer other boards of public company. |
| | 0 mark if more than 3. |
| Formal system of board performance | 2 marks if any. |
| | 0 if there is no such system. |

| | |
|---|---|
| Board meeting without management present | 2 marks if yes, 0 mark if no. |
| Number of board meetings | 3 marks if the information is disclosed and both the board and audit committee meets at least 4 times.<br><br>1 mark if they meet less often, or if only partial number information about the number of meeting.<br><br>0 mark if this information is not disclosed. |
| *Sub-Index 2: Shareholding and compensation issues* | *Maximum marks: 23 marks* |
| Directors required to own stock (stock option don't count) | 4 marks if share ownership is mandatory an equals at least 3 times the annual retainer paid to directors.<br><br>2 marks if mandatory but ownership is lower.<br><br>0 mark if ownership is not mandatory. |
| Director own stock | Start with 4 marks.<br><br>Minus 1 mark if each director has less than 1,000 shares after sitting on the board for at least a year. (Can go below zero). |
| CEO required to own stock (stock options don't count) | 3 marks if required, or if the CEO is the controlling shareholder of the firm. |
| CEO own shares | 3 marks if the CEO owns more than 50,000 shares after 2 years on the job.<br><br>2 marks if more than 20,000 shares.<br><br>0 mark if less than 20,000 shares. |
| Directors in their own separate option plan | 3 marks if yes or if directors don't get stock options |
| Loans to directors | 6 marks if there are no loans or company makes loans with interest payable.<br><br>0 mark if loans are interest free. |
| *Sub-Index 3: Shareholder rights policy* | *Maximum marks: 22 marks* |
| Re-election of directors | 2 marks for annual election of all directors.<br><br>0 mark for staggered boards. |
| Stock option dilutive | 8 marks if dilution is <5% of outstanding shares.<br><br>6 marks if dilution is between 5% and 10%. |

| | |
|---|---|
| | 0 mark if dilution is more than 10%. |
| Option re-priced, exercise date extended or exchanged for lower priced option | 4 marks if no.<br>0 mark if yes. |
| Voting shares | 8 marks if there are no non-voting or subordinate voting shares.<br>0 mark if voting control is 5 times greater than the ownership stake. |
| *Sub-Index 4: Disclosure policy* | *Maximum marks: 15 marks* |
| Full statement of corporate governance practices | 3 marks if the company fully addresses all topics required by New Zealand Securities Commission.<br>1 mark if the company gives partial answer or chooses to discuss some of the requirements.<br>0 mark if there is no statement on governance practices. |
| Information on related directors | 4 marks for full disclosure or relationship.<br>2 marks if information is missing. |
| Payment for auditors | 4 marks for disclosure. |
| Board member biographies | 1 mark for disclosure. |
| Information on other boards the company director's sit on | 1 mark for disclosure. |
| Attendance records of directors | 2 marks for disclosure, but minus 1 mark for poor attendance. |

**Table 1: Means and correlation matrices, governance indices**

| | Mean | Standard Deviation | Correlation Coefficients | | | | |
|---|---|---|---|---|---|---|---|
| | | | CGI | Board | Comp | Rights | Disc |
| CGI | 65.40 | 10.07 | 1.00 | | | | |
| Board | 21.55 | 7.95 | 0.69 | 1.00 | | | |
| Comp | 12.65 | 3.34 | 0.48 | 0.19 | 1.00 | | |
| Rights | 19.44 | 1.38 | 0.75 | 0.29 | 0.29 | 1.00 | |
| Disc | 11.76 | 2.59 | 0.59 | 0.40 | 0.23 | 0.33 | 1.00 |

**Table 2: Means and correlation matrices, selected variables**

| | Mean | Standard Deviation | Correlation Coefficients | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Raw_SD | Adj_SD | Mkt_SD | ROA | Lev | M/B | Size | Age | CGI |
| Raw_SD | 0.10 | 0.07 | 1.00 | | | | | | | | |
| Adj_SD | 0.10 | 0.07 | 0.98 | 1.00 | | | | | | | |
| Mkt_SD | 0.04 | 0.01 | 0.18 | 0.18 | 1.00 | | | | | | |
| ROA | -0.33 | 5.02 | -0.20 | -0.22 | 0.04 | 1.00 | | | | | |
| Lev | 1.39 | 3.54 | 0.31 | 0.32 | 0.06 | 0.09 | 1.00 | | | | |
| M/B | 2.47 | 6.26 | 0.27 | 0.27 | 0.01 | 0.24 | 0.85 | 1.00 | | | |
| Size | 391.71 | 1177.51 | -0.41 | -0.45 | 0.01 | 0.20 | 0.00 | 0.10 | 1.00 | | |
| Age | 11.63 | 11.44 | -0.01 | -0.03 | 0.10 | 0.07 | 0.14 | 0.15 | 0.18 | 1.00 | |
| CGI | 65.40 | 10.07 | -0.10 | -0.12 | 0.16 | 0.03 | -0.02 | 0.01 | 0.44 | 0.05 | 1.00 |

**Table 3: Standard deviation of monthly raw returns and corporate governance components**

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|---|---|---|---|---|
| CGI | -0.07 | _ | | | |
| | (-1.48) | | | | |
| Board | _ | -0.03 | | | |
| | | (-2.11) | | | |
| COMP | _ | _ | -0.01 | | |
| | | | (-0.38) | | |
| Rights | _ | _ | _ | -0.21 | |
| | | | | (-2.51) | |
| DISC | _ | _ | _ | _ | -0.05 |
| | | | | | (-1.71) |
| Mkt_SD | 1.33 | 1.36 | 1.29 | 1.29 | 1.31 |
| | (4.47) | (4.59) | (4.33) | (4.38) | (4.44) |
| ROA | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | (-7.92) | (-8.06) | (-7.81) | (-7.86) | (-7.66) |
| LEV | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.21) | (0.10) | (0.31) | (-0.13) | (0.45) |
| M/B | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | (2.87) | (3.12) | (2.81) | (3.22) | (2.49) |
| Size | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 |
| | (-9.68) | (-9.87) | (-10.92) | (-11.09) | (-8.38) |
| Age | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | (-0.10) | (-0.27) | (-0.01) | (-0.01) | (-0.05) |
| Intercept | 0.35 | 0.27 | 0.25 | 0.51 | 0.27 |
| | (4.64) | (10.65) | (7.47) | (4.65) | (9.37) |
| Adjusted $R^2$ | 0.4335 | 0.4368 | 0.4304 | 0.4395 | 0.4345 |

**Table 4: Standard deviation of market adjusted monthly returns and corporate governance components**

| | Model 1 | Model 2 | Model 3 | Model 4 | Model 5 |
|---|---|---|---|---|---|
| CGI | -0.07 | _ | | | |
| | (-1.70) | | | | |
| Board | _ | -0.03 | | | |
| | | (-2.03) | | | |
| COMP | _ | _ | -0.02 | | |
| | | | (-1.07) | | |
| Rights | _ | _ | _ | -0.16 | |
| | | | | (-2.06) | |
| DISC | _ | _ | _ | _ | -0.06 |
| | | | | | (-2.04) |
| ROA | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | (-8.27) | (-8.38) | (-8.13) | (-8.18) | (-7.97) |
| LEV | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | (0.54) | (0.26) | (0.67) | (0.27) | (0.81) |
| M/B | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | (2.56) | (2.79) | (2.48) | (2.84) | (2.12) |
| Size | -0.02 | -0.02 | -0.02 | -0.02 | -0.02 |
| | (-11.36) | (-11.70) | (-12.84) | (-12.90) | (-9.79) |
| Age | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| | (-0.08) | (-0.08) | (0.28) | (0.14) | (0.12) |
| Intercept | 0.43 | 0.27 | 0.34 | 0.53 | 0.35 |
| | (6.04) | (10.65) | (11.49) | (5.01) | (13.63) |
| Adjusted $R^2$ | 0.4645 | 0.4663 | 0.4620 | 0.4664 | 0.4663 |