

Board Leadership Structure, Audit Committee and Audit Quality: Evidence from Manufacturing Companies in Sri Lanka

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Abstract

Purpose: This paper aims to analyze whether the corporate governance attributes such as board leadership structure, audit committee meetings held, size of independent non-executive directors and size of non-executive directors have significant impact on audit quality of manufacturing companies listed on Colombo Stock Exchange, Sri Lanka during 2011 to 2013.

Research Design: The study takes 32 manufacturing companies listed in Sri Lanka out of 36 as sample and employs binary logistic regression method for modeling the association between a binary dependent variable such as audit quality and multiple independent variables such as board leadership structure, audit committee meetings held, size of independent non-executive directors, and size of non-executive directors.

Findings: The study finds the logistic regression model for overall evaluation, statistical tests of individual predictors and goodness-of-fit. As per the output, Hosmer and Lemeshow test reveals the model for goodness of fit with chi-square of 17.503 and with probability value of 0.008, which is significant at five percent levels. Cox & Snell R Square reveal 56.2 % of the variance in audit quality. Whereas board leadership structure and audit committee meetings held have significant relationship with audit quality, size of non-executive directors and size of independent non-executive directors have shown insignificant association.

Research Limitation-As sample size is relatively small, there may be a challenge to generalize the results of this study widely.

Originality-This research contributes to the literature by adding the significant association between some corporate governance variables and audit quality. The findings from this research could be generalized to the companies similar to this category.

Keywords: board leadership structure (BLS), audit committee (AC), audit quality (AQ), corporate governance (CG), binary logistic regression (BLR)

1. Introduction

Corporate governance (CG) takes leadership role in a country's economic development through private sector's economy, which provides large contribution to the growth. Hence, sound corporate governance practices are vital for a country to ensure the economy's sustainable development and growth. There are numerous explanations about CG. In this way, CG is trying to minimize the loss of value that results from the separation of ownership and control. This is concerned with the ways by which suppliers of capital to firms assure themselves of getting returns on their investment, according to Shleifer and Vishny (1997). Deakin and Hughes (1997) defined that CG is concerned with the relationship between the internal governance mechanisms of corporations and society's conception of the scope of corporate accountability, whereas the Cadbury Committee defines a governance system as the system by which companies are directed and controlled (Cadbury, 1992). Morin and Jarrell (2001) argued that corporate governance mechanism is a framework that controls and safeguards the interest of the relevant players in the market which include managers, employees, customers, shareholders, executive management, suppliers, and the board of directors. According to Ruin (2001) and Velnampy (2013), corporate governance has been referred to as a collective group of people united as one body with power and authority to direct, control and rule an organization. The Australian Standard (2003) defines the corporate governance as the process, by which organizations are directed, controlled, and held to account. This implies

that corporate governance encompasses the authority, accountability, stewardship, leadership, direction, and control exercised in the process of managing organizations. Moreover, while internal mechanisms of CG concentrates more on board size, board independence, board leadership structure, board committees, executive compensation and ownership structure, external mechanisms focus on external auditors, debt and equity market and legal and regulatory system.

With regard to CG reforms in Sri Lanka, Senaratne (nd.) noted that CG reforms were introduced in Sri Lanka from late 1990s by way of codes on the best practices of corporate governance. Therefore, companies listed in Sri Lanka were requested to include a CG report in companies' annual report with effect from 1.04.2007. Following this, Institute of Chartered Accountants of Sri Lanka (ICASL) issued the first code of best practices on matters related to financial aspects of corporate governance in December 1997 for providing the operational structure and processes for discharging corporate governance activities in Sri Lanka. The necessary amendments were subsequently made by ICASL jointly with the Securities and Exchange Commission of Sri Lanka (SEC). The adherence to the code of best practices on CG by all listed companies made compulsory from 01.04.2008.

In the current study, the researcher addresses the fundamental question: "to what extent do the board leadership structure and features of audit committee have an impact on audit quality of the manufacturing companies listed on Colombo Stock Exchange (CSE) during over a three-year period from 2011 to 2013?" The objective of the study is to assess existing board leadership structure types among companies, attributes of audit committee and how these have impact on audit quality. More specifically, this study tries to identify the association between board leadership structure and audit quality, association between features of audit committee and audit quality, and the overall impact on audit quality. The rest is set out as follows: Section 2 reviews previous studies with hypotheses development and section 3 provides the methodology. Section 4 discusses the results of the study. Finally, section 5 provides a summary of findings with conclusion.

2. Literature Review and Hypotheses Development

All companies strive to achieve higher level of corporate governance. For a company to merely be profitable, it needs to demonstrate good corporate citizenship and impose strong corporate governance practices. A few studies have been undertaken and published in Sri Lanka about corporate governance, linking with firm performance, working capital management and capital structure (Achchuthan & Kajanathan, 2013a; Achchuthan & Kajanathan, 2013b; Achchuthan et al., 2013; Kumudini, 2011; Senaratne, Velnampy, 2013; Velnampy & Pratheepkanth, 2013; Velnampy & Nimalthasan, 2013). Simultaneously, this study mainly focuses on audit quality of manufacturing companies relating to leadership structure of board of directors and audit committee.

2.1 Board Leadership Structure and Audit Quality

The Cadbury Committee (1992) is clear that good corporate governance requires separately two positions such as Chairman and Chief Executive Officer and considered leadership structure of board as a significant mechanism of corporate governance. The Sri Lankan code issued by the ICASL also required for effective corporate governance was the separation of the top two positions of the board (Kumudini, 2011). Fama and Jensen (1983) argue that decision management and decision control functions of a firm should be separate. This feature is viewed as important modern corporate governance. Alternatively, it could also be argued that when one person is in charge of both tasks, favorable decisions are reached faster provided that person is well aware of the decisions needed to improve the performance of the firm (Abdullah, 2004). The governance literature has only just begun to consider the role of the audit as a component of governance tool (Anderson et al., 1993). Conceptually, audit quality was defined as the market-assessed joint probability that the auditor discovers an anomaly in the financial statements, and reveals it (DeAngelo, 1981). Many researchers have used the big 4 or non-big 4 auditing entities as a benchmark for audit quality. Audit quality was defined as the willingness to report any material manipulation or misstatements that will increase the material uncertainties and/or going concern problems (Bradshaw et al., 2001). Baotham (2009) notified as the probability that an auditor will not issue an unqualified report for statements containing material errors. As a profession holding considerable responsibility in carrying the trust of the people, auditor needs to ensure the resulted audit quality (Frohen & Clarke, 2002). Cheng et al., (2009) remarks that audit quality is one of the most widely discussed areas in the profession of audit. Vanstraelen (2000) state that quality audit means the ability of an auditor to find and report material misstatement in an investigated sample during auditing process, furthermore he claims that public editor is not only demanded to detect but also to report occurring material misstatement. Turley and Willekens (2008) states that audit quality is normally related to the ability of the auditor to identify material misstatement in the financial statements and their willingness to issue an appropriate and unbiased audit report based on the audit result. The independent auditor

is responsible for expressing his opinion as to financial statement is free from material misstatements and this opinion improves financial statements' credibility by providing a reasonable assurance. Semiu and Temitope (2010) jointly researched the audit quality, CG and firm characteristics in Nigeria using 58 companies' audited financial reports and found that duality of CEO is negatively correlated with audit quality. According to Evelyn and Christine (2001), separating the functions of Chairman and CEO is positively significant, indicating that companies without a CEO–Chairman are more likely to demand external monitoring in the form of a Specialist auditor rather than be satisfied with auditors of a lower quality.

H₁: Board leadership structure has significant relationship with audit quality.

2.2 Audit Committee and Audit Quality

The availability of audit committee is seen as a device for reducing information asymmetry between management and shareholders and also protects investors (McDaniel et al., 2002; McMullen, 1996; Mishiel et al., 2013). Possibility of earnings management may be reduced by independent audit committee's existence, which improves transparency (Klein, 2002). It's necessary for an audit committee be totally independent from chief executive officers, as Braiotta (1999). In an examination done by M. L Lordal, using 13 companies' audit committees quoted on the New York Stock Exchange (NYSE), it was found that effective audit committees permit the CEO to attend committee meetings on invitation only (Braiotta, 1999). Further, the scholar notified that establishing a working relationship between audit committee and the internal auditor is not counterproductive. Evelyn and Christine (2001) examined the governance and audit quality and indicated that audit committee is weakly significant and is negatively related with the choice of a specialist auditor comparing to a non-big six. Menon and Williams (1994b) investigated audit committees' use for the purpose of monitoring and Pincus et al. (1989) analyzed about voluntary formation of corporate audit committees among NASDAQ Firms. Both researchers were contrary to that of Evelyn and Christine (2001). Bradbury (1990) examined the incentives required for a voluntary formation of audit committee and found a result consistent with Evelyn and Christine (2001). Findings from Mohamed and Mohamed (2012) suggested that existence of audit committee has a positive association with audit quality of listed companies in Egypt.

H₂: Audit committee meetings have significant relationship with audit quality.

2.3 Members of Audit Committee and Audit Quality

According to the code of best practices on issues in relation to corporate governance's financial aspects issued by ICASL, a minimum of two independent non-executive directors or exclusively by non-executive directors, a majority of whom should be independent in an audit committee. The board should appoint a non-executive director as a chairman of the committee. Majority or if not, all members should be independent for an audit committee being effective (Cadbury, 1992). Bean (1999) argued that an audit committee should be served only by independent directors and independent director is the one who is free of any relationship that could influence his or her judgment as a committee member. The Blue Ribbon Committee also recommends that only independent directors should serve on the audit committees, a recommendation that was adopted in Kenya by the CMA in 2002 (Hussein, 2003). Non-executive directors are cornerstone of modern corporate governance. The proportion of non-executive directors had a significant positive impact on audit quality (O'Sullivan, 2000; Salleh et al., 2006). It was further suggested that non-executive directors encouraged more intensive audits as a complement to their own monitoring role while the reduction in agency costs expected through significant managerial ownership resulted in a reduced need for intensive auditing. Mohamed and Mohamed (2012) noted that board independence is positively correlated with quality of audit and members of audit committee are expected be financially literate. This was recommended by the Blue Ribbon Committee also. Financial literacy means the ability to read and understand fundamental financial statements including balance sheet, income statements, and cash flow statements (Zabihollah, 2003).

H₃: There is a significant relationship between number of independent non-executive directors and audit quality.

H₄: There is a significant relationship between number of non-executive directors and audit quality.

2.4 Corporate Governance Framework in Sri Lanka

Listed companies in Sri Lanka are expected to adopt the code of best practices on corporate governance issued jointly by the Securities and Exchange Commission of Sri Lanka and the Institute of Chartered Accountants of Sri Lanka (ICASL). While the legal framework for CG is adhered, the code is used as guidelines for operational structures and processes for discharging CG.

Sample framework of corporate governance is shown in figure 1.

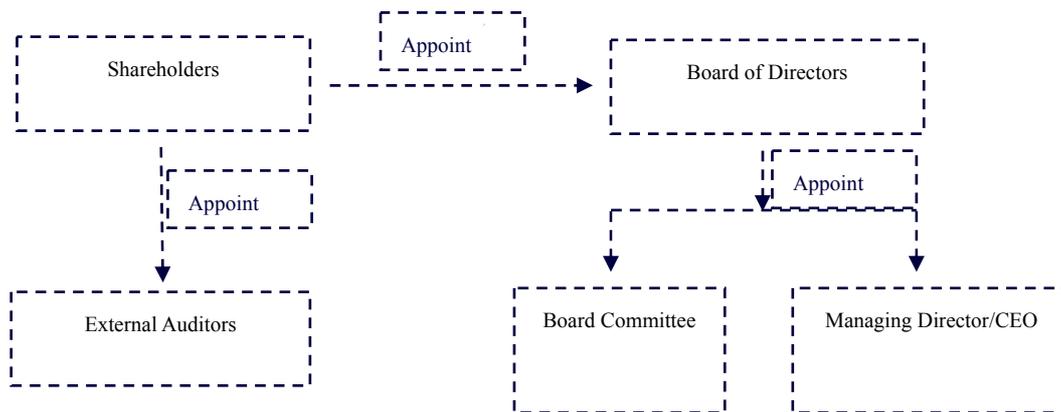


Figure 1. Sample framework of corporate governance

Source: Colombo Stock Exchange.

3. Research Methodology

The study analyzes the impact of leadership structure of the board and audit committee on audit quality of 36 manufacturing companies quoted on Colombo Stock Exchange (CSE). Following Titman and Wesseles (1988), this study used three year averages starting from the year 2011 to 2013.

3.1 Sample Size Determination

This study focuses only the manufacturing sector out of 20 business sectors listed on CSE as of 8th July 2013. The data was obtained from annual reports of selected companies for the reporting year ended 2011, 2012, and 2013 from the link available in the website of CSE. As of 8th July 2013, Colombo Stock Exchange consists of around 36 manufacturing companies out of which annual reports for 32 companies were retrievable for the research purpose. Table given below shows the sample size determined and used for the study.

Table 1. Sampling framework

Description	Number
Listed manufacturing companies	36
Companies with no annual reports	4
Number of samples taken for the study	32
Proportion of sample to total listed manufacturing companies	88 %

3.2 Dependent Variable

The dependent variable used is audit quality which was measured by the external auditors' size (Semiu & Temitope, 2010). The proxy for the audit quality is the size of the audit firm, which has been categorized into big four and non-big four. Big four audit firms are Pricewaterhouse Coopers, Ernst and Young, KPMG and Akintola Williams Deloitte, whereas non-big four audit firms are other independent auditors. The table given below provides how audit quality is measured. Each Big four accounting firms has developed its own proprietary testing software designed to address these segregation of duties and data security risks (Lightle & Vallario, 2003). This operationalization follows the approach used by Kane and Velury (2002) and Semiu and Temitope (2010) where big audit firms are assumed to have quality audit services than other smaller audit firms.

Table 2. Design of dependent variable

No	Variable	Measure/Condition Used	Data Type
1	Audit Quality (AQ)	if companies audited by big four audit firms, assign "1" if companies audited by non-big four, assign "0"	Binary Variable

3.3 Independent Variables

The current study employs four explanatory variables to identify the impact of audit quality of manufacturing companies. These are: board leadership structure, number of audit committee meetings held, size of non-executive directors of audit committee, and size of independent non-executive directors of audit committee. The following table shows their measures.

Table 3. Design of independent variables

No	Variable	Measure/Condition Used	Data Type
1	Board leadership structure (BLS)	1 for separate board leadership structure and 0 for combined board leadership structure	Binary Variable
2	Audit Committee Meeting (ACM)	No of audit committee meetings held	Continuous Variable
3	Non-executive directors of audit committee (NEDAC)	No of non-executive directors of audit committee	Continuous Variable
4	Independent non-executive directors of audit committee (INEDAC)	No of independent non-executive directors of audit committee	Continuous Variable

3.4 Model Specification and Mode of Analysis

The statistical model employed in this study is the binary logistic regression. Binary logistic regression is typically used, when the dependent variable is dichotomous and the independent variables are either continuous or categorical (Park, 2013). The model is given below:

$$AQ_{i,t} = \beta_0 + \beta_1 BLS_{i,t} + \beta_2 ACM_{i,t} + \beta_3 NEDAC_{i,t} + \beta_4 INEDAC_{i,t} + \varepsilon$$

Where:

AQ = Audit Quality.

BLS = Board leadership structure.

ACM = Audit Committee Meeting.

NEDAC = Non-Executive Directors (Audit Committee).

INEDAC = Independent Non-Executive Directors (Audit Committee).

$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ Model coefficients.

E = Error term.

i, t = for firm i in period t .

In this study, both descriptive and inferential statistics specifically binary logistic regression analysis have been employed. The upper level of statistical significance for hypotheses testing was set at 5%. All statistical test results were computed at the 2-tailed level of significance.

4. Results and Discussion

4.1 Descriptive Statistics

Table given below provides the frequency and % of companies with the leadership structure of board. The table indicates that around 88 % of the selected companies have a clear division of responsibilities such as chairman who conducts the business of the board and CEO, facilitating the managerial responsibility for management of the entity's business.

Table 4. Descriptive statistics of board leadership structure

Type of Structure	Frequency	Percent (%)
Separate Leadership	28	87.5
Combined Leadership	4	12.5
Total	32	100.0

Further, all sample companies have established audit committee as internal auditors.

4.2 Multi-Collinearity Analysis

Before conducting logistic regression analysis, multi-collinearity needs to be checked. There are methods utilized in this study, in order to find out the occurrence of multi-collinearity among variables, which are independent. Both Tolerance test and Variance Inflation Factor (VIF) have been calculated to measure the above (Kleinbaum et al., 1988). If a tolerance value less than 0.1 almost certainly, such value indicates a serious collinearity problem (Menard, 1955). Furthermore, According to Myers (1990), a VIF value greater than 10 calls for concern of multi-collinearity. As per the data shown in table 5, variables used in this study do not propose multi-collinearity problem.

Table 5. Collinearity statistics

Independent Variables	Tolerance	VIF
Board Leadership Structure	.908	1.101
Non-Executive Directors(Audit Committee)	.747	1.338
Frequency of Audit Committee Meetings held	.825	1.212
Independent Non-Executive Directors (Audit Committee)	.859	1.164

4.3 Binary Logistic Regression Results

According to Park (2013), logistics model for overall evaluation, statistical tests of individual predictors and goodness-of-fit should be included in the logistic regression results. As suggested by Park (2013) relating to the results of logistic regression, this study also tries to present the outcomes in table 6 and 7.

4.3.1 Overall Model Evaluation

Table 6 presents the inferential information for overall model evaluation, which includes likelihood ratio and Wald tests.

Table 6. Overall model evaluation

Test	Categories	X ²	df	P-Value
Overall Model Evaluation	Likelihood ratio test	9.638	1	.002
	Wald Test	7.590	1	.006

As shown above, statistics for likelihood ratio and Wald test were 9.638 and 7.590 respectively. These tests yield similar conclusion for the given data ($P < 0.05$).

4.3.2 Goodness-of-Fit Statistics

Hosmer-Lemeshow test indicates the extent to which the model provides better fit than a null model with no predictors, or, in a different interpretation, how well the model fits the data, as in log-linear modeling. If chi-square for goodness of fit is not significant, then the model has sufficient fit. The result is presented below.

Table 7. Hosmer-Lemeshow test

Test	Chi-Square	df	P-Value
Goodness-of-fit test	17.503	6	.008

The above test points out the goodness of fit of the model with chi-square value of 17.503 and with probability value of 0.008, which provides significant at 5 % levels. Overall model is statistically significant, suggesting it does not fit the data.

4.3.3 Statistical Tests of Individual Predictors

Table 8 provides the statistical consequence of individual regression co-efficient checked by Wald Chi-square statistics. According to table 8, the Wald statistic is significant where the p-value of board leadership structure and audit committee meetings is less than 0.05. Of the independent variables, board leadership and audit committee meetings have significantly affected the results of the audit quality. Therefore, H1 and H2 are accepted. The slope coefficient 3.271 and 0.194 represent the change in the log odds for a one unit increase in board leadership structure and audit committee meetings respectively. In this way, odd ratio 26.326 and 1.214 indicate that the odds for an event increase 26.326 and 1.214 times, when the values of board leadership structure and audit committee meetings are increased by 1 unit.

Table 8. Statistical tests of individual predictors

Independent Variables	B	S.E (Standard Error)	Wald (X ²)	Sig. (p-Value)	Exp (B) (Odd Ratio)	95.0% Confidence Level for EXP(B)	
						Lower	Upper
Board Leadership Structure	3.271	1.507	4.712	.030	26.326	1.374	50.514
Non-Executive Director	-.512	.807	.402	.526	.599	.123	2.915
Audit Committee Meetings	.194	.096	4.036	.045	1.214	1.005	1.466
Independent Non-Executive Director	.354	.882	.161	.688	1.425	.253	8.032
Constant	-11.538	5.419	4.533	.033	-	-	-
Cox and Snell R Square	.562	-	-	-	-	-	-
Nagelkerke R Square	.750	-	-	-	-	-	-

Further, non-executive director and independent non-executive director have insignificant relationship with audit quality, rejecting H3 and H4. Instead of R² which is used as the statistics for overall fit of the linear regression model, deviance between observed values from the expected values is used (Park, 2013). Cox and Snell R Square can be interpreted as R² used in linear multiple regression and it cannot reach a maximum value of 1 (Karl, 2011). Hence, all independent variables incorporated in this model explain 56.2% of the variance in audit quality.

Four hypotheses have been formulated in this study and table given below provides the summary of acceptance or rejection of them.

Table 9. Testing of hypotheses

	Hypotheses	Results	Tools
H ₁	Board leadership structure has significant relationship with audit quality.	Accepted	Logistic Regression (Binary)
H ₂	Audit committee meetings have significant relationship with audit quality.	Accepted	Logistic Regression (Binary)
H ₃	There is a significant relationship between number of independent non-executive directors and audit quality.	Rejected	Logistic Regression (Binary)
H ₄	There is a significant relationship between number of non-executive directors and audit quality.	Rejected	Logistic Regression (Binary)

5. Conclusion

Corporate governance can greatly assist Companies by infusing better management practices, effective control and accounting systems, stringent monitoring and etc (Achchuthan et al., 2013). This paper examined the significant association between board leadership structures, audit committee and audit quality of listed manufacturing companies for the period 2011–2013 by using binary logistic regression analysis. Overall, findings revealed those board leadership structure and audit committees' characteristics contribute to audit quality at the rate of 56.2%. This was explained by Cox and Snell R Square, indicating that all independent variables incorporated in this model explains 56.2% of the variance in audit quality. Board leadership structure which has categorized into separate and combined structure has significant relationship with audit quality. Further, audit committee meetings also have significant relationship with audit quality. On the other hand, variables such as number of non-executive directors and number of independent non-executive directors have shown insignificant association with it. Moreover, Hosmer and Lemeshow test point out the goodness of fit with chi-square value of 17.503 and with probability value of 0.008, which provides significant at 5% levels. While the study is limited to the population of companies engaged in manufacturing, the results from this could be generalized to the companies, engaging in same business.

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