

THE RELATIONSHIP BETWEEN SELECTED CORPORATE GOVERNANCE MECHANISMS AND LEVEL OF FIRM RISK IN SRI LANKAN LISTED COMPANIES

Banuya Balasuntharam

Department of Accounting, University of Sri Jayewardenepura

Janith Nanayakkara

Department of Accounting, University of Sri Jayewardenepura

Lahiru Hettiarachchi

Department of Accounting, University of Sri Jayewardenepura

Nithusha Jeyakumar

Department of Accounting, University of Sri Jayewardenepura

Piumi Mekhala

Department of Accounting, University of Sri Jayewardenepura

Roshan Ajward

Department of Accounting, University of Sri Jayewardenepura

Abstract

The main purpose of this research study is to examine the relationship between selected corporate governance mechanisms and the level of firm risk in Sri Lankan listed companies during the period 2015 to 2017. Ten board characteristics (i.e., board size, non-executive independent directors, duality, board meetings, audit meetings, existence of a nomination committee, existence of a remuneration committee, diversity and total skill base of the board) and firm risk (i.e., measured in terms of standard deviation of monthly stock returns) were selected while controlling for three control variables (i.e., growth, leverage and ROA of firms). This study first assessed the level of selected corporate governance characteristics and level of firm risk, and then examined how these selected corporate governance characteristics impacted the level of firm risk in listed companies in Sri Lanka. In terms of findings, most of the corporate governance mechanisms considered in this study have complied with the baseline stipulations of corporate governance best practices as well as findings of similar studies in Sri Lanka related with listed companies. Further, board size, audit meetings, and existence of a remuneration committee and nomination committee, number of independent directors and total skill base have a negative relationship with firm risk level under $p < 0.10$ as per certain analyses, indicating a reduced level of firm risk, while other selected corporate governance mechanisms did not affect the level of firm risk, which shows mixed evidences. These findings are expected to have significant policy implications.

Key words: Board Characteristics, Corporate Governance, Volatility, Firm risk

1. Introduction

Greater attention to corporate governance developed out of the background of agency theory and is based on the premise of shareholder value maximization (Li, Jahera & Yost 2013). Corporate agency conflicts have been the subject of extensive researches over the past 40 years, with much of it focused on the alignment of interests between shareholders and corporate management (Eling & Marek 2014). In the case of a corporation, the shareholders are the principals contracting with management, who serve as the agents. Since the goal of the company is shareholder value maximization, a potential for agency conflicts exists (Li, Jahera & Yost 2013). Several large-scale firms such as Enron and WorldCom collapsed as a result of inefficient corporate governance practices and poor quality financial reporting (Leventis & Dimitropoulos 2012, as cited in Silva, Manawaduge & Ajward 2017). In Sri Lanka, Pramuka Savings and Development Bank and Golden Key Credit Card Company collapsed as a result of poor corporate governance mechanisms (Edirisinghe 2015, as cited in Silva, Manawaduge & Ajward 2017). Therefore, the primary mechanism for achieving alignment are found within the domain of corporate governance (Eling & Marek 2014).

The effect of corporate governance on equity prices and the distribution of returns is an important issue in corporate finance (Li, Jahera & Yost 2013). Li, Jahera and Yost (2013) state that corporate risk is significantly inversely related to the strength of CG indicated by governance index. Studies carried out on New Zealand listed firms (Koerniadi, Krishnamurti & Tourani-Rad 2014) indicate that well-governed New Zealand firms experience lower levels of risk, *ceteris paribus*. In particular, this study indicates that corporate governance aspects such as board composition, shareholder rights, and disclosure practices are associated with lower levels of risk. Chintrakarn, Jiraporn and Jiraporn (2013) state that managers entrenched by the staggered board (i.e., conventional management) adopt significantly less risky strategies, consistent with the quiet life hypothesis. In particular, the presence of a staggered board reduces the volatility of stock returns.

However, there are also studies that are contrary to the above findings, suggesting a positive impact of corporate governance characteristics on firm risk level. According to Zhou and Li (2016), in China, a higher quality of board governance leads to more managerial risk taking behavior. Kouwenberg, Salomons and Thontirawong (2014) indicate that a portfolio of poorly governed firms has a higher market beta, higher expected return and higher realized return, compared with a good governance portfolio. The extant literature on certain corporate governance practices and corporate risk level provide mixed evidence.

Accordingly, in light of mixed evidence available and dearth of literature pertaining to the Sri Lankan context, the problem statement of this study could be termed as investigating whether the corporate governance mechanisms in terms of board characteristics will impact on firm's risk level of listed companies in Colombo Stock Exchange in Sri Lanka. Accordingly, there are two main research objectives dealt with in this research; assess the level of corporate governance in terms of board characteristics and the risk level; and to analyze the impact of corporate governance in terms of board characteristics on firms' risk level of listed companies in Sri Lanka.

In terms of the significance of this study, it would have substantial implications from both practical and empirical viewpoints. Empirically, this study fills the empirical gap since there is a dearth of studies on this matter in the context of Sri Lanka. Practically, the findings of the study are important for shareholders, regulators and academicians, as it identifies the factors that are significantly related to firm risk.

The remainder of this study is organized as follows. The second section reviews the extant literature and develops the research hypotheses. The third section describes the conceptual framework and methodology adopted in this study. The fourth section covers the data analysis and results. The conclusions are explained in the last section.

2. Literature Review

This section on the literature review first defines the main concepts; corporate governance and firm risk, and then discusses the literature on corporate governance and firm risk level in order to ascertain the empirical relationship between corporate governance mechanisms and firm risk level. Finally, it identifies the gap in the existing literature, which will be addressed in this study.

2.1 Definition of concepts

The definition of firm risk and corporate governance is discussed below.

Firm Risk

According to Li, Jahera and Yost (2013, p.4), in finance, risk is the probability that an investment's actual return will be different than expected. They further state that corporate risk is commonly measured using historic equity price volatility, that is, the standard deviation of the stock price of a publicly listed company. John, Litov, and Yeung (2008) indicate that riskier corporate operations have more volatile returns to capital and they develop three proxies for the degree of risk-taking in firms' operations based on the volatility of corporate earnings. According to Kouwenberg, Salomons and Thontirawong (2014), if the volatility of the portfolio returns is significantly high, it has higher systematic risk (higher market

beta and size beta). On the other hand, managerial risk taking is defined as the allocation of investment dollars between R&D (high-risk investments) and capital expenditure (low-risk investments) (Zhou & Li 2016). They further state that Research and Development (R&D) activities are inherently risky (Barker & Mueller 2002, as cited in Zhou & Li 2016) with a high failure rate (Finkelstein & Boyd 1998, as cited in Zhou & Li 2016) and uncertain outcomes, and therefore, compared to capital expenditures, R&D investments entail more risk. Accordingly, this review of literature indicates that the volatility of stock returns can be used as a common factor to assess firms' risk level in the context of listed companies in CSE. This reflects the market's perception about the risks inherent in the firm's assets and liabilities (Mathew Ibrahim & Archbold 2017).

Corporate governance

Corporate governance is defined by many authors and it is observed that there is no universally accepted definition of corporate governance. According to the Cadbury Report (1992, p.14), corporate governance is 'the system by which companies are directed and controlled'. On the other hand, corporate governance is 'the structure and systems of control by which managers are held accountable to those who have a legitimate stake in an organization' (Johnson et al. 2008, p.133, as cited in Senanayake & Ajward 2017). This definition focuses on the managers' responsibility towards the stakeholders. In other words, corporate governance refers to the manner in which power of a corporation is exercised in the stewardship of the corporation's total portfolio of assets and resources with the objective of maintaining and increasing shareholder value and satisfaction of other stakeholders through its corporate mission (Okeahalam & Akinboade 2004, as cited in Weersinghe & Ajward 2017). According to the OECD (2004, p.9), corporate governance is 'the rules and practices that govern the relationship between managers and shareholders as well as stakeholders like employees and creditors that contributes to growth and financial stability by underpinning market confidence, financial market integrity and economic efficiency'. In these definitions, Cadbury (1992) emphasizes control and direction aspects of governance while latter definitions provide more comprehensive view on corporate governance.

2.2 Corporate governance in Sri Lanka

Sri Lankan corporate governance code had been developed in line with the Anglo-Saxon model (Senaratne 2011, as cited in De Silva, Manawaduge & Ajward 2017). In 1996, the Institute of Chartered Accountants of Sri Lanka formed a committee to create the first code of best practices relating to the financial aspects of the corporate governance, which was introduced as a voluntary code (Manawaduge 2012, as cited in Senanayake & Ajward 2017). Senaratne and Guneratne (2008) point out that the existing set of rules on corporate governance in Sri Lanka is a mixture of both mandatory (e.g., Companies Act, Listing Rules,

Central Bank Directions) and voluntary (e.g., ICASL-SEC Code of Best Practice) rules. They also note that the mandatory listing of rules on corporate governance is a significant move towards the development of governance practices of listed companies in Sri Lanka in the context of significant variations in compliance with the previous voluntary code of best practice (Senaratne and Gunaratne 2008).

2.3 Corporate governance and firm risk

2.3.1 Theoretical relationship between corporate governance and firm risk

Greater attention to corporate governance developed out of the background of agency theory and is based on the premise of shareholder value maximization (Li, Jahera & Yost 2012). That is, appropriate corporate governance should result in a focus on maximization of shareholder wealth. Jensen and Meckling (1976) define an agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. If both parties to the relationship are utility maximizers, there is a good reason to believe that the agent may not always act in the best interest of the principal. In the case of a corporation, the shareholders are the principals contracting with management, who serve as the agents. Since the goal of the company is shareholder value maximization, a potential for agency conflicts exists (Li, Jahera & Yost 2012). Many corporations have adopted corporate governance as a mechanism to restrain managers from following value-reducing policies and encourage them to maximize the firm's value (Chalevas & Tzovas 2010, as cited in Silva, Manawaduge & Ajward 2017). Accordingly, it is apparent that agency theory provides a theoretical basis for the need for corporate governance mechanism to reduce agency conflicts and ensure that shareholder wealth is maximized in taking risk related corporate decisions.

2.3.2 Empirical studies on corporate governance and firm risk

This section discusses the extant literatures related to the research topic. They are categorized into studies that show a negative relationship and a positive relationship between the selected board characteristics and the firm's risk level.

Mathew, Ibrahim and Archbold (2017) found that the governance index that aggregates the four sets of board attributes (board composition, board leadership structure, board characteristics, board process) is significantly and negatively related to firm risk. Li, Jahera and Yost (2012) indicate that corporate risk is significantly inversely-related with the corporate governance measured by the Gompers governance index (gindex). Eling and Marek (2013) conducted a study to analyze the impact of factors related to corporate governance (i.e., compensation, monitoring, and ownership structure) on risk taking in the insurance

industry pertaining to U.K and German, and their findings suggested that higher levels of compensation, increased monitoring (more independent boards with more meetings), and more block holders are associated with lower risk taking. Confirming these findings, Chintrakarn, Jiraporn and Jiraporn (2013) provided evidence that managers entrenched by the staggered board adopt significantly less risky strategies. In particular, results of this study indicated that the presence of a staggered board reduces the volatility of stock returns by 4.46%. In addition to these studies, Kouwenberg, Salomons and Thontirawong (2014) who investigated the returns of governance-based trading strategies in Asia found that a portfolio of poorly governed firms has a higher market beta, higher expected return and higher realized return, compared with a good governance portfolio.

Contrary to these findings, some researchers have found out a positive relationship between corporate governance mechanism and firm's risk. John, Litov and Yeung (2008) revealed that better investor protection could lead corporations to undertake riskier but value enhancing investments. For example, better investor protection mitigates the taking of private benefits leading to excess risk-avoidance. This study further stated that in better investor protection environments, stakeholders like creditors, labor groups, and the government are less effective in reducing corporate risk-taking for their self-interest. Zhou and Li (2016) conducted a study on the relationship between board governance and managerial risk taking. They considered that the allocation of investment dollars between R&D (high-risk investments) and capital expenditure (low-risk investments), as a reflection of managers' inclination to take risks, is an important issue in the field of corporate governance and corporate finance because of the different interests and responsibility orientations of key stakeholders. The results of this study showed that board governances have positive effects on managerial risk taking; that is, board governance would lead to higher investment in R&D expenditures and lower investment in capital expenditures.

In the literature above, it is observed that most of the researchers have used a corporate governance index that include several board characteristics such as board size, board meetings, number of non-executive directors, and audit committee meetings, while some researchers have used certain governance practice(s) such as staggered board in investigating the relationship between corporate governance and firm's risk. However, the results of these studies are mixed.

2.3.3 Control variables and firm risk

In terms of control variables, researches have used several control variables including Leverage, Sales Growth and Return on Assets in assessing the relationship between corporate governance mechanisms

and firm risk level. The effect of the leverage is controlled as high financial leverage is associated with less firm risk owing to the burden of repayment (Cheng 2008). According to Mathew, Ibrahim and Archbold (2018), firms that have more growth opportunities will take that opportunity to expand and take on new projects which might impact firm risk. Hence Sales growth also has been included as control variable. Return on Assets is included, as firms can change risk taken in a particular year through investment choices depending on the previous performance of the firm (Cheng 2008). It should also be noted that there is mixed evidence of the effect of these control variables on firm's risk.

2.4 Literature Gap

The above literature review shows that evidence regarding the relationship between board characteristics and firm's risk is mixed with some studies indicating a positive relationship and other studies depicting negative relationship. Thus, the relationship observed between board characteristics and the firm's risk is inconclusive. Moreover, most of the previous studies have investigated the relationship between corporate governance and firm's risk in different countries but, based on the researchers' observation, there is a dearth of studies in Sri Lanka. The purpose of this research is to fill the gap identified in the literature and investigate the relationship between selected corporate governance characteristics and firm's risk in selected listed companies in Sri Lanka. According to the above analysis, ten board characteristics have been identified as having a significant impact on firm's risk. Hence, hypotheses can be developed that there is an association between selected corporate governance mechanisms and the firm risk level, which is dealt with in the next section on the research methodology.

3. Research methods

This section discusses the research approach, population and study sample, conceptual diagram, hypothesis, operationalization, data collection and data analysis strategies adopted in this study.

3.1 Research approach

Since the study examines the relationship between selected board characteristics and firm's risk level, a quantitative approach was adopted. Furthermore, most of prior research studies (Kouwenberg, Salomons & Thontirawong 2014, Mathew, Ibrahim & Archbold 2017, Hao, John, Jahera & Yost 2013) have used a similar quantitative approach in investigating the relationship between board characteristics and firm's risk level.

3.2 Population and sample

The population for this study consists of companies listed in Colombo Stock Exchange (CSE), except banks, finance and insurance companies because they are highly regulated and follow a different form for their financial statements. 100 companies were selected from the above population as the research sample. It was based on the highest market capitalization as at 31 March 2017. They were listed companies on Colombo Stock Exchange for the period from 2015 to 2017, where the financial period ended on March 31. Accordingly, the sample of the study consisted of 300 observations. The data on corporate governance characteristics and firm's risk were gathered from the published annual reports of the companies, and reports downloaded from the Colombo Stock Exchange (CSE) website.

3.3 Conceptual diagram

The conceptual diagram is shown in Figure 1 below based on the literature review. This depicts the relationship between selected board characteristics and firm's risk level.

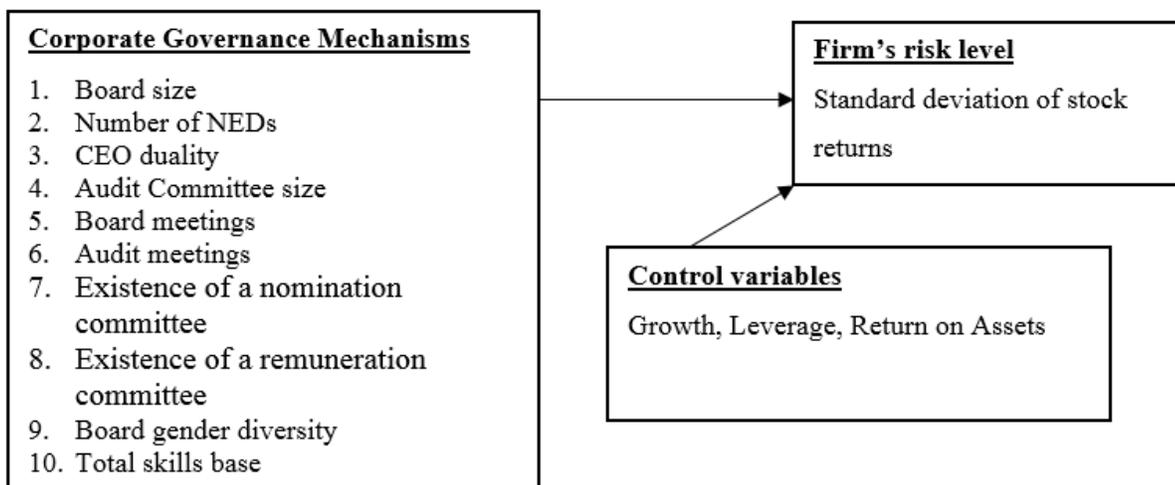


Figure 1: Conceptual diagram
Source: Developed by authors

3.4 Hypotheses

In the literature certain board characteristics were identified as significant predictors of firm risk level, which included: board size (Koerniadi, Krishnamurti & Tourani-Rad 2014), number of non-executive independent directors, CEO duality, audit meetings, remuneration committee, nomination committee, diversity (Mathew, Ibrahim & Archbold (2017)). Accordingly, the following hypotheses were developed:

H₁: The number of directors on the board has an association with the firm risk.

H₂: The number of non-executive independent board directors has an association with the firm risk.

- H₃: Separation of CEO and Chairperson (CEO-Chair Duality) has an association with the firm risk.
- H₄: Number of members in the audit committee has an association with the firm risk.
- H₅: Total number of board meetings has an association with the firm risk.
- H₆: Total number of audit meetings has an association with the firm risk.
- H₇: Existence of a nomination committee has an association with the firm risk.
- H₈: Existence of a remuneration committee has an association with the firm risk.
- H₉: Board gender diversity has an association with the firm risk.
- H₁₀: Total skills base of the directors has an association with the firm risk.

The next section discusses the operationalization of the variables stated in Sections 3.3 and 3.4 above.

3.5 Operationalization

The following table elaborates on the operationalization of the variables considered in this study.

Table 1 – Operationalization

Variables	Measurements	Related Studies
Dependent variable		
Firm risk ($FR_{i,t}$)	Standard deviation of monthly stock returns for the firm i in year t .	Chintrakarn , Jiraporn and Jiraporn (2013), Mathew Ibrahim and Archbold (2017), Koerniadi, Krishnamurti and Tourani-Rad (2014)
Independent variables		
Board size ($BSIZE_{i,t}$)	The number of directors on the firm's board for the firm i in year t	Mathew Ibrahim and Archbold (2017)
Number of NEDs ($NED_{i,t}$)	The number of non-executive independent board directors for the firm i in year t	Eling and Marek (2014), Koerniadi, Krishnamurti, and Tourani-Rad (2014)
CEO duality ($DUALITY_{i,t}$)	Indicated as '1' if there is a separation of CEO and Chairperson of the Board, and '0' if not, for the firm i and period t .	Koerniadi, Krishnamurti, and Tourani-Rad (2014), Boateng, Cai, Borgia, Bi and Ngwu (2017)
Audit Committee size ($AUDCSIZE_{i,t}$)	Number of members in the audit committee for firm i and year t .	De Silva, Manawaduge and Ajward (2017)
Board meetings ($BMEET_{i,t}$)	Total number of board meetings during year for the firm i in year t	Mathew, Ibrahim and Archbold (2017)
Audit meetings ($AMEET_{i,t}$)	Total number of audit committee meetings during year for the firm i in year t	Eling and Marek (2014),

Nomination committee (<i>NOMCOM</i> _{<i>i,t</i>})	Indicated as ‘1’ if there is a nomination committee or else ‘0’ for the firm <i>i</i> in year <i>t</i>	Senanayake and Ajward (2017)
Remuneration committee (<i>REMCOM</i> _{<i>i,t</i>})	Indicated as ‘1’ if there is a remuneration committee or else ‘0’ for the firm <i>i</i> in year <i>t</i>	Senanayake and Ajward (2017)
Board gender diversity (<i>DIVERSITY</i> _{<i>i,t</i>})	Indicated as ‘1’ if there is one or more women directors on the board or else ‘0’ for the firm <i>i</i> in year <i>t</i>	Senanayake and Ajward (2017)
Control variables		
Growth (<i>GROWTH</i> _{<i>i,t</i>})	Calculated as: $\frac{Sales_{i,t} - Sales_{i,t-1}}{Sales_{i,t-1}}$	Senanayake and Ajward (2017)
Leverage (<i>LEV</i> _{<i>i,t</i>})	Calculated as: $\frac{Total\ Liability_{i,t}}{Total\ Assets_{i,t}}$	li, Jahera and Yost (2013)
Return on Assets (<i>ROA</i> _{<i>i,t</i>})	Calculated as: $\frac{Net\ Income_{i,t} + Interest\ Expense_{i,t}}{Total\ Assets_{i,t}}$	Suggar and Singh (2017), Senanayake and Ajward (2017)

3.6 Analytical strategies

In terms of analytical strategies, first, data screening and cleaning will be performed to avoid the errors which can be occurred due to missing values and outliers. Then, to achieve the first objective of the present study (Section 1), i.e., assessing the degree of selected board characteristics and the level of firm risk, descriptive statistics such as mean, median, maximum, minimum and standard deviation will be used; and in the achievement of the second objective, i.e., examining the relationship between those selected board characteristics, and firm’s risk level, bivariate correlation analysis will be applied. Further, using both the OLS linear and panel versions of the regression analyses, along with Hausman test in assessing the random or fixed effect, this relationship will be examined, while controlling the effect of growth, leverage and earnings of the company as control variables. The regression model that will be applied is as follows:

$$FR_{i,t} = \alpha + \beta_1 BSIZE_{i,t} + \beta_2 NED_{i,t} + \beta_3 DUALITY_{i,t} + \beta_4 AUDCSIZE_{i,t} + \beta_5 BMEET_{i,t} \\ + \beta_6 AMEET_{i,t} + \beta_7 NOMCOM_{i,t} + \beta_8 REMCOM_{i,t} + \beta_9 DIVERSITY_{i,t} + \beta_{10} SKILL_{i,t} \\ + \beta_{11} GROWTH_{i,t} + \beta_{12} LEV_{i,t} + \beta_{13} ROA_{i,t} + \varepsilon$$

Definitions of each variable are provided in Table 1 on operationalization. The findings obtained by the application of these analysis strategies are discussed in the next section.

4. Findings and discussion

This section contains the results obtained from the statistical analysis suggested under Section 3 above as well as a discussion of the findings. Accordingly, the results of the descriptive analysis, correlation analysis and the OLS and panel versions of regression analyses are presented with the resulting discussion in this section.

4.1 Descriptive statistics

Table 2 below provides the results of descriptive statistics for the selected sample.

Table 2: Descriptive statistics

Variables ^a	N	Minimum	Maximum	Mean	Median	Std. Deviation
Risk measure						
$FR_{i,t}$ ^d	300	0.04	0.13	0.073	0.066	0.027
Index variables						
$BFSIZE_{i,t}$ ^b	300	4	12	8.26	8	2.001
$NED_{i,t}$ ^b	300	0	7	3.24	3	1.214
$DUALITY_{i,t}$	300	0	1	0.77	1	0.422
$BMEET_{i,t}$ ^c	265	1	16	6.452	5	3.233
$AUDCSIZE_{i,t}$ ^c	290	2	5	3.193	3	0.751
$AMEET_{i,t}$ ^d	284	3	9	4.644	4	0.164
$NOMCOM_{i,t}$	300	0	1	0.4	0	0.491
$REMCOM_{i,t}$	300	0	1	0.98	1	0.140
$DIVERSITY_{i,t}$	300	0	1	0.42	0	0.494
$SKILL_{i,t}$ ^c	300	0.11	0.80	0.426	0.428	0.186
Control variables						
$GROWTH_{i,t}$ ^d	290	-0.20	0.37	0.058	0.053	0.164
$LEV_{i,t}$ ^c	300	0.02	0.85	0.389	0.391	0.243
$ROA_{i,t}$ ^d	300	-0.01	0.17	0.078	0.077	0.054

^a Definitions of these variables are indicated in Table 1.

^b These variables were winsorized at 1% due to the presence of outliers.

^c These variables were winsorized at 5% due to the presence of outliers.

^d These variables were winsorized at 10% due to the presence of outliers.

The average value of firm risk ($FR_{i,t}$) is 0.073 and the median value is 0.066; while the standard deviation of this variable is recorded as 0.027. The results indicate that there are no significant variations. In terms of board size ($BFSIZE_{i,t}$), the average number of directors on the board was found to be eight directors and

three of them are independent non-executives ($NED_{i,t}$). Further, 77% of firms are observed to have CEO Chairman duality ($DUALITY_{i,t}$), where these firms had complied with corporate governance best practices. Six board meetings ($BMEET_{i,t}$) have been conducted by those selected firms, which is in compliance with the baseline requirements of the code of best practices. When considering descriptive statistics on audit committee characteristics of the selected sample, there are three directors ($AUDCSIZE_{i,t}$) on the audit committee, and the average numbers of audit committee meetings ($AMEET_{i,t}$) is 5 (approx.). The variable representing the presence of nomination committees ($NOMCOM_{i,t}$) shows an average of 0.4, indicating that only 40% of the companies in the sample have a nomination committee, and remuneration committees ($REMCOM_{i,t}$) score an average of 0.98, indicating that 98% of the firms in the sample have a remuneration committee. The variable representing diversity ($DIVERSITY_{i,t}$) indicates an average of 0.42 indicating that only 42% of the companies in the sample have female director(s) on the board of directors, which is considered to be quite low. Total skills base of the board ($SKILL_{i,t}$), the average is 0.426 indicating that 42.6% of board members have skills in the field of accounting, business and finance in terms of Master's and higher qualifications and/or related professional qualifications, which is quite low.

In terms of control variables, The mean and standard deviation respectively for leverage ($LEV_{i,t}$) is 0.389 and 0.243, indicating that companies have low levels of liability compared to their total assets, with an 24% deviation. On average, the sales growth ($GROWTH_{i,t}$) and return on assets ($ROA_{i,t}$) of the selected sample are respectively 5.8% and 7.8%.

4.2 Relationship between corporate governance characteristics and firm risk level

Correlation analysis

Pearson's bivariate correlation indicates the relationship between two variables. Table 3 depicts the results of this bivariate analysis, which enables identifying the corporate governance characteristics which have a significant systematic relationship with the level of firm risk.

Table 3: Correlation matrix

Variables ^a	<i>FR</i> _{<i>i,t</i>}	1	2	3	4	5	6	7	8	9	10	11	12	13
1 <i>B</i> <i>S</i> <i>I</i> <i>Z</i> <i>E</i> _{<i>i,t</i>}	-0.184***	1												
2 <i>N</i> <i>E</i> <i>D</i> _{<i>i,t</i>}	-0.123**	0.587**	1											
3 <i>D</i> <i>U</i> <i>A</i> <i>L</i> <i>I</i> <i>T</i> <i>Y</i> _{<i>i,t</i>}	0.066	0.131*	0.049	1										
4 <i>B</i> <i>M</i> <i>E</i> <i>E</i> <i>T</i> _{<i>i,t</i>}	-0.017	0.151*	0.246**	0.163**	1									
5 <i>A</i> <i>U</i> <i>D</i> <i>C</i> <i>S</i> <i>I</i> <i>Z</i> <i>E</i> _{<i>i,t</i>}	-.022	0.316**	0.297**	-0.104	-0.008	1								
6 <i>A</i> <i>M</i> <i>E</i> <i>E</i> <i>T</i> _{<i>i,t</i>}	-0.162***	0.202**	0.174**	0.005	0.112	0.120*	1							
7 <i>N</i> <i>O</i> <i>M</i> <i>C</i> <i>O</i> <i>M</i> _{<i>i,t</i>}	-.099*	0.347**	0.220**	0.107	-0.004	0.207**	0.126*	1						
8 <i>R</i> <i>E</i> <i>M</i> <i>C</i> <i>O</i> <i>M</i> _{<i>i,t</i>}	-0.139**	0.102	0.166**	-0.078	0.059	0.102	0.021	0.117*	1					
9 <i>D</i> <i>I</i> <i>V</i> <i>E</i> <i>R</i> <i>S</i> <i>I</i> <i>T</i> <i>Y</i> _{<i>i,t</i>}	-0.039	0.224**	0.188**	0.096	0.187**	0.094	-0.084	0.119*	0.025	1				
10 <i>S</i> <i>K</i> <i>I</i> <i>L</i> <i>L</i> _{<i>i,t</i>}	-0.108*	0.136*	0.041	0.011	-0.184**	0.029	0.002	0.285**	0.118*	-0.083	1			
11 <i>G</i> <i>R</i> <i>O</i> <i>W</i> <i>T</i> <i>H</i> _{<i>i,t</i>}	0.002	0.033	0.037	-0.040	0.061	0.014	0.058	-0.031	-0.022	0.092	0.048	1		
12 <i>L</i> <i>E</i> <i>V</i> _{<i>i,t</i>}	0.034	-0.012	-0.169**	0.147*	0.097	-0.134**	0.033	0.025	-0.083	-0.071	-0.078	-0.011	1	
13 <i>R</i> <i>O</i> <i>A</i> _{<i>i,t</i>}	-0.103*	0.088	0.099	-0.016	0.013	0.170**	0.053	0.138*	0.028	0.082	0.159**	0.269**	-0.081	1

^a Definitions of these variables are indicated in Table 1.

*p<0.10; **p<0.05; ***p<0.01

It is noted that number of directors on the board ($BSIZE_{i,t}$) and numbers of audit committee meetings ($AMEET_{i,t}$) show systematic (weak) significant ($p < 0.01$) negative relationships with firm risk level. It shows that when the board has more directors and audit committee meetings firm risk is less. Further, number of non-executive independent directors on the board ($NED_{i,t}$) and existence of a remuneration committee ($REMCOM_{i,t}$) show negative associations ($p < 0.05$) with firm risk level, which may indicate that when the board has more non-executive independent directors and the company has remuneration committee in order to assist and advise the Board on matters relating to the remuneration of the Board, those will affect the firm's risk negatively. Moreover, it is noted that existence of a nomination committee ($NOMCOM_{i,t}$) and total skill base of the directors ($SKILL_{i,t}$) show a negative association ($p < 0.10$) with firm risk, which may indicate that the careful selection of board members via a qualified committee and a board with members having skills in the field of accounting, business and finance, will lead to reduce the level of firm risk.

The other board characteristics have no significant systematic relationship with the firm risk at any of the significant levels of ($p > 0.10$). In terms of control variables, it is observed that the firm's leverage and growth are not systematically related with firm risk level. On the other hand, there is a systematic significant ($p < 0.10$) negative relationship between return on assets and firm risk level. It shows that a higher level of return for assets results in a lower level of risk.

As per Pearson's correlation analysis, seven variables, namely, number of directors on the board, numbers of audit committee meetings, number of non-executive independent directors on the board, existence of a remuneration committee, existence of a nomination committee, total skill base and return on assets show a systematic negative relationship with firm risk level.

Regression analysis

OLS multivariate regression analysis

Table 4 gives the OLS multivariate linear regression results on the firm risk level as the dependent variable and corporate governance characteristics as the independent variables.

Table 4: OLS multivariate regression analysis

	Coef.	<i>t</i>	Collinearity Statistics	
			Tolerance	VIF
Intercept	0.116*	7.780		
<i>BFSIZE</i> _{<i>i,t</i>}	-0.002*	-2.116	0.557	1.796
<i>NED</i> _{<i>i,t</i>}	- 0.000	-0.014	0.584	1.712
<i>DUALITY</i> _{<i>i,t</i>}	0.006	1.515	0.909	1.100
<i>BMEET</i> _{<i>i,t</i>}	0.000	0.077	0.858	1.166
<i>AUDCSIZE</i> _{<i>i,t</i>}	0.003	1.372	0.824	1.214
<i>AMEET</i> _{<i>i,t</i>}	-0.002*	-0.290	0.919	1.089
<i>NOMCOM</i> _{<i>i,t</i>}	0.000	-0.098	0.780	1.281
<i>REMCOM</i> _{<i>i,t</i>}	-0.021**	-1.869	0.942	1.062
<i>DIVERSITY</i> _{<i>i,t</i>}	-0.002	-0.481	0.871	1.148
<i>SKILL</i> _{<i>i,t</i>}	-0.009	-1.018	0.835	1.197
<i>GROWTH</i> _{<i>i,t</i>}	0.007	0.737	0.909	1.101
<i>LEV</i> _{<i>i,t</i>}	0.001	0.182	0.899	1.112
<i>ROA</i> _{<i>i,t</i>}	-0.044	-1.480	0.870	1.150
F – value	2.126			
Sig. of F-value	0.013			
<i>R</i> ²	0.088			
<i>N</i>	300			

^a Definitions of these variables are indicated in Table 1.

*p<0.10; **p<0.05

According to the multivariate regression analysis, Number of Directors on the board (p<0.05), Number of Audit Committee Meetings (p<0.05) and Existence of a Remuneration committee (p<0.10) have a negative impact on the firm risk level as was the case in the results under correlation analysis. However, other corporate governance characteristics show no significant impact with firm risk.

Furthermore, there is no systematic relationship between sales growth and firm risk, and also the situation is the same with leverage and return on assets.

From the above analysis, it can be concluded that only three variables, namely, number of directors on the board, numbers of audit committee meetings, existence of a remuneration committee have shown a systematic negative relationships with the firm risk.

Panel regression

Table 5 below presents the panel regression analysis of this study.

Table 5: Panel regression analysis

Variables^a	Coefficients	Std. Err
Intercept	0.078	0.024
<i>BSIZE</i> _{<i>i,t</i>}	0.001	0.002
<i>NED</i> _{<i>i,t</i>}	-0.002	0.003
<i>DUALITY</i> _{<i>i,t</i>}	0.005	0.004
<i>BMEET</i> _{<i>i,t</i>}	0.000	0.000
<i>AUDCSIZE</i> _{<i>i,t</i>}	-0.000	0.000
<i>AMEET</i> _{<i>i,t</i>}	0.000	0.000
<i>NOMCOM</i> _{<i>i,t</i>}	-0.015*	0.008
<i>REMCOM</i> _{<i>i,t</i>}	-0.019	0.014
<i>DIVERSITY</i> _{<i>i,t</i>}	0.008	0.003
<i>SKILL</i> _{<i>i,t</i>}	-0.033	0.026
<i>GROWTH</i> _{<i>i,t</i>}	-0.000*	0.000
<i>LEV</i> _{<i>i,t</i>}	0.020	0.020
<i>ROA</i> _{<i>i,t</i>}	0.014	0.048
Prob>chi2	0.001	
<i>R</i> ²	0.018	
<i>N</i>	300	

a Definitions of these variables are indicated in Table 1.

*p<0.10; **p<0.05

The panel regression results show that only one independent variable (i.e. existence of a nomination committee) has significant association (p<0.10) with firm risk level and other corporate governance characteristics do not have significant associations with firm risk. Even though previous analyses suggest that growth rate is not associated with firm risk level, this analysis shows an *unexpected* negative and significant association (p<0.10) between growth and firm risk.

From the results obtained under the above analyses, it is apparent that certain hypotheses (see Section 3.4: H₁ to H₁₀) are supported under certain analyses. Accordingly, governance characteristics of number of directors on the board, numbers of audit committee meetings and existence of a remuneration committee had a negative relationship with the firm risk with a significance of p<0.10 (under correlation and multivariate regression analyses), while existence of a nomination committee shows a negative association with firm risk (under correlation and panel regression analyses) with a significance of p<0.10. Further, number of non-executive independent directors on the board and total skill base of the directors show a negative association with the firm risk (under correlation analysis) with a significance of p<.05. However, it should be noted that, since all analyses do not provide consistent results on the board characteristics and firm risk, it is safe to conclude that there is mixed evidence on the association between the selected board characteristics and the firm risk level. The next section discusses the study findings.

4.3 Discussion

According to the descriptive statistical analyses, the average number of directors on a board is eight in companies in Sri Lanka, which is observed to be similar compared to extant literature that suggests nine board members (Senanayake & Ajward 2017). Further, the results suggest that the number of non-executive independent directors is 3 in the Sri Lankan companies and the supporting literature suggests this to be 3 (De Silva, Manawaduge & Ajward 2017), which is very similar. On the other hand, 77% of firms are observed to have CEO Chairman Duality, while extant local literature indicates that separation between CEO and Chairperson Functionalities shows an average of 50% (Senanayake & Ajward 2017), which is quite different results. Although this is a high number in Sri Lanka, the extant international literature suggests an average of 18% (Mathew, Ibrahim & Archbold 2017). The descriptive results of this study on the audit committee meetings shows an average of 5 (approx.) while the extant literature indicates that frequency of audit meetings is 4 (De Silva, Manawaduge & Ajward 2017), which is quite similar. The variable representing the presence of nomination committees ($NOMCOM_{i,t}$) shows an average of 0.4, indicating that only 40% of the companies in Sri Lanka have a nomination committee, and remuneration committees ($REMCOM_{i,t}$) score an average of 0.98, indicating that 98% of the firms in have a remuneration committee. The quite similar results can be found in the local literature as well (Senanayake & Ajward 2017).

It was noted that number of directors on the board ($p < 0.05$), number of audit committee meetings ($p < 0.05$), existent of a remuneration committee ($p < 0.10$), number of non-executive independent directors ($p < 0.05$) existence of a nomination committee ($p < 0.10$) and total skill base of the directors ($p < 0.10$) have a negative impact on the firm risk under certain analysis (i.e. correlation and OLS linear and panel regression analysis). Supporting the results of this study, Mathew, Ibrahim and Archbold (2017) indicated that the governance index that aggregates the four sets of board attributes (board composition, board leadership structure, board characteristics, board process) is significantly and negatively related to firm risk, while Eling and Marek (2013) suggested that higher levels of compensation, increased monitoring (more independent boards with more meetings) are associated with lower risk taking. Accordingly, the results on the relationship between above mentioned corporate governance characteristics and firm risk are consistent with the extant literature. However, other corporate governance characteristics do not have significant association with firm risk level.

Based on the discussion above, it is observed that certain hypotheses (see Section 3.4: H_1 to H_{10}) are supported under certain analyses but do not provide consistent results. Accordingly, corporate governance

characteristics of number of directors on the board, numbers of audit committee meetings and existence of a remuneration committee had a negative relationship with the firm risk with a significance of $p < 0.10$ (under both correlation and multivariate regression analyses), while existence of a nomination committee shows a negative association with firm risk (under both correlation and panel regression analyses) with a significance of $p < 0.10$. Further, number of non-executive independent directors on the board and total skill base of the directors show a negative association with the firm risk (under correlation analysis) with a significance of $p < 0.05$. However, since all analyses do not provide consistent results on the board characteristics and firm risk, it is safe to conclude that there is mixed evidence on the association between the selected board characteristics and the firm risk level. The next section gives the conclusion to the study.

5. Conclusion

It was evidenced that many global as well as local companies collapsed due to the inefficient corporate governance practices and poor quality financial reporting. In Sri Lanka, Pramuka Savings and Development Bank and Golden Key Credit Card Company collapsed as a result of poor corporate governance mechanisms (Edirisinghe 2015, as cited in Silva, Manawaduge & Ajward 2017). On the other hand, extant studies indicate that the effect of corporate governance on equity prices and the distribution of returns is an important issue in corporate finance. Accordingly, this study was carried out to assess the level of board-related corporate governance characteristics and to examine whether such board characteristics have an impact on the firm's risk in the listed Sri Lankan companies. The sample consisted of 100 companies listed in the Colombo Stock Exchange (CSE) except banks, finance and insurance companies, and it was based on the highest market capitalization for the period from 2015 to 2017.

This study first examined the selected board governance characteristics as well as assessed the level of firm risk in the selected Sri Lankan listed companies by using descriptive statistics. Then, by using correlation, multivariate linear regression analyses and panel regression models, the study examined the relationship between these selected board characteristics and risk level in the selected Sri Lankan listed companies.

In terms of the corporate governance characteristics, the results of the descriptive statistics indicated that most of the selected governance features (i.e. number of directors on the board, number of non-executive independent directors, CEO Duality, board meetings, audit meetings, audit committee size and existence of a remuneration committee) complied with the stipulated corporate governance best practices at least at the baseline levels as well as findings of similar studies in Sri Lanka related listed companies. The results

of this study also indicated that corporate governance characteristics of number of directors on the board, numbers of audit committee meetings and existence of a remuneration committee show a negative relationship ($p < 0.10$) with the firm risk (under both correlation and multivariate regression analyses), while existence of a nomination committee shows a negative association ($p < 0.10$) with firm risk (under both correlation and panel regression analyses). Further, number of non-executive independent directors on the board and total skill base of the directors show a negative association with the firm risk (under correlation analysis) with a significance of $p < .05$. Accordingly, it can be concluded that when a company complies with these board related corporate governance characteristics, there is a lower level of risk, which was also observed in the literature as well. However, since all analyses do not provide consistent results on the board characteristics and firm risk, it is safe to conclude that there is mixed evidence on the association between the selected board characteristics and the firm risk level.

The findings of this study are expected to benefit policy makers and contribute to the process of corporate governance development in Sri Lanka. Policy makers could take necessary action to promote women representation on the board and establishment of a nomination committee within the firms, as these were observed to be below par of the stipulated corporate governance best practices. Further, since this study identifies that certain corporate governance characteristics have an impact on firm risk negatively, policy makers and regulators should consider this association when they implement regulations on listed companies in Sri Lanka.

Finally, it should be noted that this research study is subject to certain limitations. Firstly, this study has selected only certain board characteristics to assess the impact on firm risk level. However, there are many other corporate governance aspects that may have an impact on the level firm risk. Future researches could incorporate other corporate governance characteristics in order to examine their relationship to firm risk. Secondly, banks, finance and insurance companies are not concerned. Future researches could expand the scope of the study towards banks, finance and insurance companies as well. Moreover, sample will be selected based on highest market capitalization and results may not hold for smaller firms. Therefore, future researchers can expand the sample size and overcome the limitation of generalizability of the results.

References

Abu-Ghunmi, D, Bino, A & Tayeh, M 2015, 'Idiosyncratic risk and corporate governance: evidence from Jordan', *Emerging Markets Finance and Trade*, vol. 51, no. 4, pp. 40-50.

Antonczyk, R.C & Salzmann, A.J 2014, 'Corporate governance, risk aversion and firm value' *Applied Financial Economics*, vol. 24, no. 8, pp. 543-556.

Boateng, A, Cai, H, Borgia, D, Bi, E.G & Ngwu, F.N 2017, 'The influence of internal corporate governance mechanisms on capital structure decisions of Chinese' listed firms', *Review of Accounting and Finance*, vol. 16, no. 4, pp. 444-461.

Bokpin, G.A & Arko, A.C 2009, 'Ownership structure, corporate governance and capital structure decisions of firms: empirical evidence from Ghana', *Studies in Economics and Finance*, vol. 26, no. 4, pp.246-256.

Chintrakarn, P, Jiraporn, N & Jiraporn, P 2013, 'The effect of entrenched boards on corporate risk-taking: testing the quiet life hypothesis', *Applied Economics Letters*, vol. 20, no. 11, pp. 1067-1070.

Colombo Stock Exchange, viewed 13 October 2018,
<https://www.cse.lk/home/financial-announcement-details>

Eling, M & Marek, S.D 2014, 'Corporate governance and risk taking: evidence from the U.K. and German insurance markets', *The Journal of Risk and Insurance*, vol. 81, no. 3, pp. 653-682.

Faccio, M, Marchica, M.T & Mura, R 2011, 'large shareholder diversification and corporate risk-taking', *The Review of Financial Studies*, vol. 24, no. 11, pp. 3601-3641.

Gugler, K, Mueller, D.C & Yurtgoglu, B.B 2004, 'Corporate governance and risk on investments', *Journal of Law and Economics*, vol. 47.

Hao, L, John, S, Jahera, J & Yost, K 2013, 'Corporate risk and corporate governance: another view', *Managerial Finance*, vol. 39, no. 3, pp. 204-227.

John,K, Litov,L & Yeung, B 2008, 'Corporate governance and risk-taking', *The Journal of Finance*, vol. 32, no. 4, pp. 378-106.

Koerniadi, H, Krishnamurti, C & Tourani-Rad, A 2014, 'Corporate governance and the variability of stock returns', *International Journal of Managerial Finance*, vol. 10, no. 4, pp. 494-510.

Kouwenberg, R, Salomons, R & Thontirawong, P 2014, 'Corporate governance and stock returns in Asia', *Quantitative Finance*, vol. 14, no. 6, pp. 965-976.

Leventis , S & Dimitropoulos, P 2012, 'The role of corporate governance in earnings management: experience from US banks', *Journal of Applied Accounting Research*, vol. 13, no. 2, pp.161-177.

Mathew, S, Ibrahim, S & Archbold, S 2017, 'Corporate governance and firm risk', *Corporate Governance: The International Journal of Business in Society*, vol. 18, no. 1. pp. 42-54

Senanayake, P, M, C, H, K & Ajward, R 2017, 'Selected board characteristics of listed hospitality firms in Sri Lanka', *CA Journal of Applied Research*, vol. 1, pp. 20-36.

Seneratne, S & Gunaratne, P 2008, 'Corporate governance development in Sri Lanka: Prospects and problems', Conference Proceedings, International Research Conference on Management and Finance, Faculty of Management and Finance, University of Colombo.

Shieifer & Vishny 1997, 'A survey of corporate governance', *The Journal of Finance*, vol. 52, no. 2. pp. 738.

Zhou, T & Li, W 2016, 'Board governance and managerial risk taking: dynamic analyses', *The Chinese Economy*, vol. 49, no. 2. pp. 60-80.