THE IMPACT OF BOARD CHARACTERISTICS ON FIRM PERFORMANCE OF LARGEST LISTED COMPANIES IN SRI LANKA

Dilrukshika DS

Department of Accounting, University of Sri Jayewardenepura

Senarathne S

Department of Accounting, University of Sri Jayewardenepura

ABSTRACT

The purpose of this study is to examine the relationship between selected board characteristics and firm performance on listed companies on the Colombo Stock Exchange (CSE) in Sri Lanka. The study is performed on 41 non-financial and financial year's ended on 31st March listed companies of CSE according to the highest market capitalization as of 20th January 2020. Descriptive statistics, correlation analysis and multivariate regression analysis are used to analyze the relationship between selected board characteristics and firm performance. As per the findings of this study, board composition is positively associated with Return on Asset (ROA) and Return on Equity (ROE). However, the gender diversity of the board shows a negative relationship between ROA and ROE. Other selected board characteristics of this study (Board size, CEO duality, frequency of board meetings, directors' shareholding, presence of nomination committee) demonstrate ambiguous results with ROA and ROE. The findings of the study are supportive for policymakers, especially the top-level management, and decision-makers in respect of obtaining strategic decisions about the firm to establish an effective board and evaluate the effectiveness of the board inside the firm. Moreover, it will be useful for regulators to strengthen prevailing governance mechanisms attributed to the board of directors (BOD). Additionally, the finding will contribute to narrowing the existing indefinite results regarding the relationship between board characteristics and firm performance.

Keywords: Board Composition, Board Size, CEO Duality, Frequency of Board Meetings, Gender Diversity of Board, Directors' Shareholding, Presence of Nomination Committee, ROA, ROE

1 INTRODUCTION

The world is drastically changed since the industrial revolution. As a result, the structures of the businesses have differed magnificently in comparison to the initial stage of the businesses. On the other hand, malpractices have been recorded such as Enron, Waste Management, Tyco, WorldCom, Satyam (Indian Enron) and so on. Those failures have emphasized the necessity of a particular discipline to lesson further such failures. Since those have tarnished the reputation not only of companies but also of countries. Thus, Corporate Governance (CG) was recognized from 1980 onwards as an effective solution.

Cadbury (1992) demonstrates CG as a procedure by which entities are led and controlled. Better governance creates numerous benefits to a company including an impact on the prices of shares, firm performance and so on. The Board of Directors (BOD) guides the business in the right direction. In addition, BOD is a policy and strategy formulator within the firm. Hence, a significant role is performed by BOD inside the company.

In this study, the relationships between board characteristics (Board composition, board size, CEO duality, gender diversity of board, frequency of board meetings, directors' shareholding, and presence of nomination committee) and firm performance were analyzed. Though these relationships have been tested on numerous occasions, prior studies show ambiguous results. These inconsistent findings encourage researchers to re-examine the relationship between board characteristics and firm performance.

This study is based on the top 41 non-financial listed companies based on the highest market capitalization as of 20th January 2020 for four years. Their financial year ended on 31st March.

Furthermore, the relationships between board characteristics (Board composition, board size, CEO duality, frequency of board meetings, gender diversity of board, directors' shareholding & presence of nomination committee) and firm performance were examined as research objectives of this study. Hence, this study will contribute to lessening the inconsistent results of the relationships between board characteristics and firm performance.

The next sections of this paper are organized as follows: Previous works of literature and hypotheses developments are demonstrated in the second section. The third section describes the research methodology. Analysis and discussion are shown in the fourth section. The final section highlights the conclusion of this study.

2 LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

This section mainly describes the concept of corporate governance (CG) and the findings of prior studies in respect of the relationships of designated board characteristics of this study on firm performance. Based on previous studies, hypotheses developments are shown in this section. In addition, the research gap for further study has been recognized in respect of existing studies.

2.1 The Concept of Corporate Governances (CG)

The concept of Corporate Governance (CG) has been interpreted by different scholars from different perspectives. For instance, according to Demb and Neubauer (1992) (Cited in Deng 2019) describe CG from a stakeholder perspective as a procedure that is used to address the rights and interests of stakeholders, on the other hand, Shleifer and Vishny (1997) explain CG from a financial perspective as providing some assurance to fund suppliers concerning return on their investment. Therefore, there is no unique definition of the concept of CG. However, the definition provided by Sir Adrian Cadbury, who is a prominent scholar in CG, is known as the most fundamental definition for CG. Cadbury report (1992) points out CG is 'the system which Companies are directed and controlled'.

Within the past two decades, significant corporate scandals have occurred especially because of the absence of an effective board of directors inside the firm. As an illustration, the Enron scandal is known as the massive corporate and accounting scandal in the USA. Employees and shareholders were victims of the greedy decisions obtained by executives of Enron. As well, the Parmalat scandal had become Europe's biggest bankruptcy. It is known as

Europe's Enron and Satyam scandal is called Indian Enron as well. Golden Key and Edirisinghe Trust Investment incidents are key scandals in the Sri Lankan context. Ultimately, the board of directors has been nominated as the responsible party for these scandals. Hence, the board of directors are predominant in achieving a better corporate governance environment inside the firm. Internal control mechanisms, market mechanisms, regulatory mechanisms and informal governance mechanisms could be known as the mechanisms of corporate governance. Besides, regulations, legislations and codes are the components of the regulatory framework for corporate governance.

As a result of consequential corporate corruption, countries have strengthened their regulatory requirements toward corporate governance to mitigate further future corporate and accounting failures. For instance, the Sarbanes–Oxley Act of 2002 was introduced by the USA after notable experiences from Enron, World Com, Tyco International, Arthur Andersen and so on. Moreover, the UK introduced the first world corporate governance code in 1992. In the UK context, UK firms are indispensable to comply with Company Act 2006. In addition, the corporate governance code is a voluntary regulatory framework for corporate governance. Therefore, UK firms can justify their deviations from the corporate governance code.

When it comes to the Sri Lankan context, Companies Act No 07 of 2007, listing rules and directives are mandatory requirements and the code of best practice on corporate governance introduced by CA Sri Lanka is a voluntary requirement concerning corporate governance, quite similar to the UK context. Further, Company Act No 07 of 2007 has given significant consideration to the board of directors. According to CSE listing rules effective from 01st April 2008, listed entities are essential to comply with corporate governance rules. Besides, relevant affirmative must be appended in the annual report as well. Thus, regulations on CG have strengthened due to the significance of CG such as the well-being of entities, mitigation of corruption, addressing multiple interests of stakeholders and so on.

Moreover, the code of best practices on corporate governance has suggested recommendations on board composition, board size, CEO duality, frequency of board meetings, gender diversity of the board, directors' shareholding, and presence of a nomination committee to achieve better corporate governance inside the firms. Besides, prior studies have examined the impact of these variables on firm performances on numerous occasions. However, findings show equivocal results. Therefore, board composition, the board size, CEO duality, frequency of board meetings, gender diversity of the board, directors' shareholding and presence of nomination committee are designated as independent variables of this study to re-examine their relationship with the firm performances in the Sri Lankan context.

2.2 Board Composition and Firm Performance

In general, the board consists of executive directors and non-executive directors. Directors, who involve in daily operations and possess employment contracts with the firm, are called executive directors. Non-executive directors are appointed because of reputation and financial or blood relationships. Ordinarily, they do not engage in the daily operations of the firm and comprise expertise business knowledge and experiences as well. Therefore, careful attention should be given to making appointments of non-executive directors (Muchewa et al. 2016).

According to Fama (1980) (Cited in Bonn et al. 2004), non-executive directors are more independent than executive directors since executive directors are employees of the firm (Jermias & Gani 2014). Thus, independent non-executive directors are more significant among other board members in the USA context. Because board dependence makes a negative impact on firm performance (Jermias & Gani 2014). As solutions, appointing university professors, government officers, directors and CEO of other firms are possible options concerning the mitigation of board dependence (Jermias & Gani 2014).

In prior studies, the relationship between board composition and firm performance has been tested on numerous occasions. The number of independent non-executive directors inside the board is known as board composition (Adewuyi & Olowookere 2013).

According to Pfeffer (1978) (Cited in Bonn et al. 2004), there is a higher number of outside directors in an effective board. Further, non-executive directors can mitigate the principal-agency problem (O'Connell and Crammer (2010).

In South African firms, Muchewa et al (2016) highlight a positive association between board composition and firm performance regarding ROE. Bonn et al. (2004) emphasize a direct relationship in Australian and Japanese firms. Further, O'Connell and Crammer (2010) add a positive relationship concerning Irish firms. Concerning UK firms, 50% of non-executive directors' composition has been suggested by Hampel's observation in 1998 and Higg's observation in 2003 (Cited in O'Connell & Crammer 2010). Moreover, an increasing number of non-executive directors' composition of the board lead to better firm performance (Dahya & McConnell 2007). Bebenrotha and Donghaob (2007) point out the higher ratio of non-executive directors is a consequence to achieve higher firm performance as well. Thus, some prior studies explain a positive relationship between board composition and firm performance.

In contrast, Muchewa et al. (2016) suggest an inverse relationship while firm performance is being measured from ROA and Tobin's Q concerning the South African context. Further, De Andres et al. observation in 2005 (cited in O'Connell & Crammer 2010) asserts no statistical relationship. In the US context, Hermalin and Weisbach (1991) theorize no relationship as well. Thus, there are ambiguous results about the relationship between board composition and firm performance.

In this study, the hypothesis has been developed as follows for board composition and firm performance.

H_1: There is a positive relationship between board composition and firm performance.

2.3 Board Size and Firm Performance

The combination of executive and non-executive directors is known as board size (O'Connell & Crammer 2010). Previous studies about the relationship between board size and firm performance demonstrate ambiguous results.

Dalton et al. (1999) point outboard size increases firm performance. Attracting higher qualified professionals and developing social networks are more convenient for a large board (Pfeffer 1972) (Zahra & Pearce 1989, cited in O'Connell & Crammer 2010) (Kiel & Nicholson 2003). In the Australian context, Bonn et al. (2004) highlight large board creates multiple benefits since the board consists of numerous experts. Thus, some prior studies show the relationship between board size and firm performance is positive.

However, Lipton and Lorsch (1992) dispute maintaining sound communication would be quite difficult and might result to increase conflicts inside the board as well (Goodstein et al.1994, cited in O'Connell & Crammer 2010). A large board leads to poor cohesion (Evans & Dion 1991, cited in O'Connell & Crammer 2010). On the other hand, Bonn et al. (2004) theorize a negative relationship between board size and firm performance in the Japanese context since lower cohesiveness and difficulties in communication. Further, directorship is offered as an honour to senior employees in Japanese firms. Therefore, Japanese firms do not concentrate on the prominent western concept of wealth maximization (Bonn et al. 2004). In Irish firms, O'Connell and Crammer (2010) highlight a negative association. Yermack's observation in 1996 (cited in O'Connell & Crammer 2010) demonstrates a negative association for US firms as well. Moreover, Canyon and Peck (1998) (cited in O'Connell & Crammer 2010) discuss a negative association concerning European firms. Board size will be determined by several factors; for example, the company specifies, and the concept of "One size fits all" could not be applied to every circumstance (Rodríguez-Fernandez 2015). Further, Golden and Zajac (2001) explain small board is acceptable for small firms because provided that small firms consisted of a large board of directors, it may be a burden to firm performance. Thus, some previous research papers identify a negative relationship between board size and firm performance.

In addition, several studies suggest that there is no relationship between board size and firm performance. For instance, Bebenrotha and Donghaob (2007) explain board size does not create a value addition on firm performance in Japanese firms

because of no significant performance variations in companies that possess small and large boards of directors. Further, Muchenwa et al. (2016) find board size does not make an impact on firm performance in South African firms. Hence, previous findings on the relationship between board size and firm performance are unclear.

In this study, the hypothesis has been developed as follows for board size and firm performance

H_2: There is a positive relationship between board size and firm performance.

2.4 CEO Duality and Firm Performance

When the same person holds both CEO and chairman positions of the firm, it is known as CEO duality. Segregation of the roles of CEO and chairman are always being encouraged to eliminate the situation where one person enjoys excess power inside the firm. Generally, CEO duality is demotivated everywhere in the world. In the Sri Lankan context, companies, which are following CEO duality, are required to justify their reasons in the annual report regarding the application of CEO duality inside the company as per the ICASL Code of Best Practices on Corporate Governance.

Numerous previous studies emphasize CEO duality makes a negative impact on firm performance. For instance, Jermias and Gani (2014), Chahine and Goergen (2011), Veprauskaite and Adams (2013), Tsui et al. (2001) and Bozec (2005) point out a negative relationship. Prevost et al. (2002) assert an inverse relationship in New Zealand firms as well. Further, Gul and Leung (2004) highlight that CEO duality adversely affects the decision-making process. Therefore, many prior studies identify a negative relationship.

However, CEO duality is being applied. For instance, Jermias and Gani (2014) find that 78% of US sample companies are even now following CEO duality. Even in Sri Lanka, CEO duality is being utilized and documented justifications in annual reports about the application of CEO duality. Therefore, re-performance of the relationship between CEO duality and firm performance is advisable.

In this study, the hypothesis has been constructed as follows regarding CEO duality and firm performance

H_3: There is a negative relationship between CEO duality and firm performance.

2.5 Frequency of Board Meetings per year and Firm Performance

Eluyela et al. (2018) affirm frequency of board meetings creates efficiency and effective board. Since board members can share their own opinions on matters of the company and engage in the process of decision-making appropriately. Also, regulatory bodies have given considerable attention regard to the number of board meetings because of their significance. As an illustration, the ICASL code of best practice states board meetings should be held at least once a quarter and the number of board meetings should be mentioned in the annual report as well. According to Lipton & Lorsch (1992), it is an indication of the effectiveness of the board, and it is highly supportive to reach duties of directors, performance, and conformance roles. Further, Sonnenfeld (2002) remarks board attendance is a parameter in the case of the dedication of directors towards the relationships of the company. Even though the relationship between the frequency of board meetings and firm performance has been tested in numerous instances, the results are ambiguous.

Vafeas (1999) holds the view that enhancing board meetings is a low-cost method for improving the firm value. According to Ntim (2009), the supervision level of management of the company grows because of a greater level of frequency of board meetings and finally, increases the firm performance. Directors can establish strategies, supervise the management, and evaluate their progress since directors have adequate time due to the higher number of board meetings (Vafeas 1999). Lower rate board meeting drops firm performance because of inadequate time for monitoring and sharing opinions among board members as per Lipton and Lorsch (1992). In a higher number of board meetings, Mangena and Tauringana (2008) emphasize recognizing the most critical sections of the business and allocating resources towards minor productive segments are possible. Besides, a higher number

of board meetings improve collaboration among board members (Lipton & Lorsch 1992). Francis et al. (2012) identify a low performance in companies which consist from less number of the board meeting. Consequently, some prior works of literature demonstrate a positive relationship between the frequency of board meetings and firm performance.

Conversely, some prior studies debate an inverse relationship. A lower rate of board meetings is essential to dwindle worthless resource consumption from the point of view of Illaboya and Obaretin (2015). According to Vafeas (1999), the board meeting is a charge because of food, beverage, transport, and directors' remuneration. Jensen (1993) suggests board meeting should be only arranged based on requisitions of the business, otherwise, board meeting becomes needless, provided that maintain a fixed number of board meetings per period (cited in Ntim & Osei 2011). Further, Ghosh, Moon and Tandon (2007) describe the relationship in the same fashion. Hence, some previous works of literature find the relationship between the frequency of board meetings and firm performance as inverse.

Additionally, some studies point out a zero-relationship situation. For example, Mehdi (2007) contends firm performance will be determined by daily operation and there is a lower level of possibility about firm performance will be based on the frequency of board meetings (cited in Ntim & Osei 2011). Kanjananthan and Achchuthan (2013) demonstrate no relationship between these two variables. Thus, findings are inconsistent about the relationship between the frequency of board meetings per year and firm performance.

In this study, the hypothesis has been developed as follows regarding the relationship between the frequency of board meetings per year and firm performance.

H_4: There is a positive relationship between the frequency of board meetings per year and firm performance.

2.6 Gender Diversity of Board and Firm Performance

In present days, female representation is being encouraged in every field. The number of female directors on the board is known as gender diversity of the board (Erhardt, Werbel & Shrader 2003). According to the observation of Ibid in 2007 (Cited in Ekadah et al. 2010), a higher level of innovation is created by a gender-diversified board. As well, gender diversification inside the board supports solving matters of the firm as speedily as possible (Smith et. al 2006). Since multiple solutions are considered from different points of view and females do not hesitate to inquire which male hesitates to notify directly (Carter et al. 2003). Additionally, female works more collectively than males (Nowell & Trinker 1994). Moreover, gender diversity inside the board enhances the reputation of the firm as well (Smith et al. 2006) since it is also an indication for concerning the interest of various stakeholders (Ibid 2007, cited in Ekadah et al. 2010).

Robinson and Dechant (1997) find companies with more gender diversity on the board show greater performance. Minguz-vera and Campbell (2008) identify a direct relationship in Spanish firms. Further, Smith et al. (2006) assert a positive relationship concerning Danish firms. Erhardt et al. (2003) and according to the observation of Catalyst in 2004 (cited in Ekadah et al. 2010) point out a positive association as well. Hence, some previous studies identify a direct relationship between gender diversification inside the board and firm performance.

On the other hand, some studies bring an inverse opinion. For example, people from similar groups tend to share ideas conveniently (Earley & Mosakowski 2000), increase corporation within the groups and avoid unnecessary conflicts (Willams and O'Reilly 1998, cited in Ekadah et al. 2010) and (Tajfel & Turner 1985). Therefore, several prior studies emphasize board diversification because of the reduction of firm performance. According to Lau and Murnighan in 1998 (cited in Ekadah et al. 2010), there is high resource consumption in reaching the conclusion and lower effectiveness because of diversification inside the board. Jianakolpos and Bernasek (1998) clarify a higher gender diversified board plunge firm performance since,

technically, female does not accept risk (Cited in Ekadah et al. 2010). In the Norwegian context, Bohren and Strom (2005) demonstrate a negative relationship. Hence, some studies suggest an inverse relationship between these two variables.

In addition, some studies are silent about the relationship between the gender diversity of the board and firm performance. As illustrations, Randoy et al. (2006) describe zero relationships, besides, Kochan et al. in 2003 and Shrader et al. in 1997 (cited in Ekadah et al. 2010) imply zero relationships in the US context. Thus, previous studies suggest contradictory results about the relationship between these two variables.

In this study, the hypothesis has been constructed as follows regarding the relationship between gender diversity of the board and firm performance.

H_5: There is a negative relationship between the gender diversity of the board and firm performance.

2.7 Directors' Shareholding and Firm Performance

The percentage of ordinary shares owned by directors of the board could be defined as directors' shareholding according to the study of Sanda et al (2010). The ownership structure of the firm will be decided by factors such as policies, rules, and regulations of the stock market (Porta et al.1999). Besides, the enactment of corporate laws of the country determines the ownership structure of the firm as well. For instance, controlled ownership is followed by European countries whereas spread ownership is followed by UK and USA companies (Porta et al 1999). Therefore, ownership structure changes as per the geographical context. According to Jenson and Meckling in 1976 (cited in Javid & Iqbal 2008), large shareholders improve the value of shareholders because of the power and capability, inherently, received from many shares. As per the ICASL Code of Best Practice, directors should declare their independence about shareholding.

Directors' shareholding could be known as one incentive method for improving the motivation of directors towards monitoring and supervising functions of management (Francis et al. 2012). Cai et al. (2009) add as directors' shareholding is a parameter to observe

the behaviour of the managers. Shivadasini in 1993 (cited in Francis et al. 2012) explains board becomes most efficient through the board of directors. Ozkan (2009) points out that decisions taken by directors are reconsidered before implementation because of directors' shareholding since provided that it could go wrong, ultimately, directors are suffering as well. Further, Ehikioya (2009) assert financial autonomy of the firm will be protected by directors' shareholding since restrictions could be imposed by some external fund providers, especially financial institutions. Hence, some prior studies elaborate on a positive relationship between directors' shareholding and firm performance (DeAngelo & Angelo 1985), (McConnell & Servaes 1990), (Djankov & Pobl in 1996, cited in Javid & Iqbal 2008). In addition, Fama and Jensen in 1983 (Cited in Javid & Iqbal 2008) demonstrate a direct and significant association between family shareholding and firm performance.

However, some studies suggest an inverse relationship between these two variables. According to Cai et al. (2009), directors who have large share ownership can vote for themselves. Sanda et al. (2010) show an inverse association. Directors may weaken the company's performance and directors' shareholding is an irrelevant factor in determining firm performance from the point of Sanda et al. (2010).

Additionally, Nor et al. (1999) demonstrate a curved association and Loderer and Martin (1997) remark that there is no such kind of relationship. Thus, previous studies show ambiguous results about the relationship between directors' shareholding and firm performance.

In this study, the hypothesis has been developed as follows regarding the relationship between directors' shareholding and firm performance.

H_6: There is a positive relationship between directors' shareholding and firm performance.

2.8 Presence of Nomination Committee and Firm Performance

Whether or not the firm has a nomination committee is defined as the presence of a nomination committee (Issarawornrawanich 2015). This committee supports making board appointments appropriately. Therefore, the committee should be comprised of the essential level of education, skills, qualifications, and experiences. ICASL code of Best Practice highlights the significance of the nomination committee in making board appointments and the requirement of a separate disclosure in the annual report. Mintah (2015) explains nomination committee plummets principal-agent conflict as well. Most of the directors in the nomination committee should be non-executive directors. Further, Mintah (2015) points out that there are less studies on the relationship between the presence of a nomination committee and firm performance.

In past, board appointments had been determined by personnel contacts. Consequently, it was difficult to appoint the most suitable persons to the nomination committee (Callahan et al.2003). However, appointments to the nomination committee have taken a formal view now (Mintah 2015). Issarawornrawanich (2015) affirm the nomination committee grows firm performance since the committee can drop the conflict of interest and recruit the most suitable professionals. Conyon and Mallin (1997) demonstrate reaching governance instruments without a nomination committee is arduous in UK firms. The presence of a nomination committee may be expensive. It is not mandatory, whereas many CG codes suggest the application of the nomination committee concerning new board appointments because of its benefits over cost. Callahan et al. (2003) and Mintah (2015) identify a positive relationship while Vafeas (1999) demonstrates the relationship as direct indicating this committee improves the worth of the board.

In this study, the hypothesis has been constructed as follows regarding the relationship between the presence of a nomination committee and firm performance.

H_7: There is a positive relationship between the presence of the nomination committee and firm performance.

3 RESEARCH METHODOLOGY

Research approach, population and sample, conceptual framework, hypotheses, operationalization, sources and collection of data and data analysis strategies are demonstrated in this section.
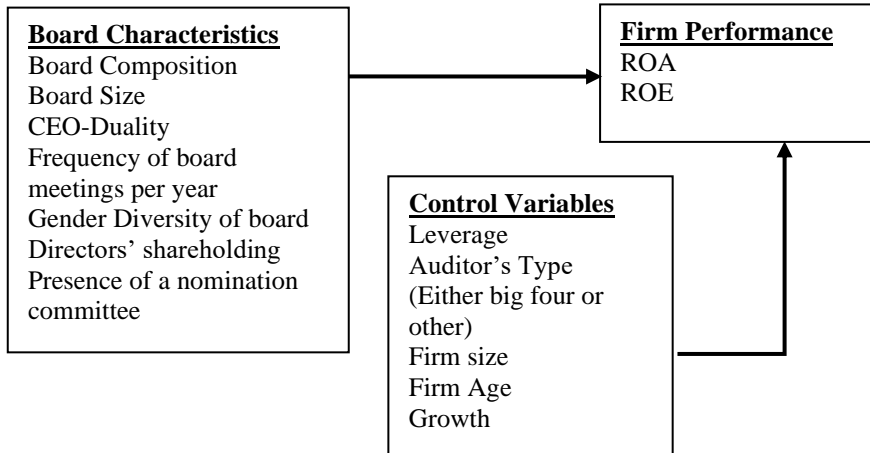
3.1 Research Approach

Prior researchers have applied a positivistic approach (Kiel & Nicholson 2003, Jermias and Gani 2014, O'Connell & Crammer 2010) to examining the relationship between CG mechanisms and firm performance. Therefore, a quantitative approach is followed in this study.

3.2 Population and Sample

The population of this study is companies that are listed on the CSE as of 20th January 2020. Effective from 20th January 2020, CSE desisted the prevailing industry classification and newly endorsed the Global Industry Classification Standard (GICS) accompanying Standard and Poor's (S&P)/CSE co-branded sector indices to categorize listed companies in Sri Lanka. Thus, this study is based on the top 41 non-financial listed companies and companies whose financial years ended on 31st March due to a comparison of ROA and ROE (Appendix 1) for four years (2015/2016, 2016/2017, 2017/2018, 2018/2019) according to the highest market capitalization as of 20th January 2020. The highest market capitalization companies could be known as the key players in the market. Therefore, the sample of this study has been identified based on the highest market capitalization.

3.3 Conceptual Framework

The conceptual framework of the study is as follows (Figure 1).

```
┌─────────────────────────────┐                      ┌──────────────────────────┐
│ Board Characteristics       │                      │ Firm Performance         │
│ Board Composition           │─────────────────────▶│ ROA                      │
│ Board Size                  │                      │ ROE                      │
│ CEO-Duality                 │                      └──────────────────────────┘
│ Frequency of board          │                                   ▲
│ meetings per year           │      ┌──────────────────────────┐ │
│ Gender Diversity of board   │      │ Control Variables        │ │
│ Directors' shareholding     │      │ Leverage                 │ │
│ Presence of a nomination    │      │ Auditor's Type           │ │
│ committee                   │      │ (Either big four or      │ │
└─────────────────────────────┘      │ other)                   │ │
                                     │ Firm size                │─┘
                                     │ Firm Age                 │
                                     │ Growth                   │
                                     └──────────────────────────┘
```

Figure 1: Conceptual Framework
Source: Author Constructed

3.4 Hypotheses

Hypotheses of this study have been developed based on previous literature about the relationship between board characteristics (board composition, board size, CEO duality, frequency of board meetings, gender diversity of board, directors' shareholding, and presence of the nomination committee) and firm performances. Accordingly, seven hypotheses have been constructed and examined.

3.5 Operationalization

The operationalization of the selected variables of this study has been depicted in Table 1 as follows.

Table 1: Operationalization

#	Variable & Denotation	Working Definition	Measurement
Board Characteristics (*Independent Variables*)			
1.	Board Composition (INED %)	Amount of independent non-executive directors inside the board (Adewuyi & Olowookere 2013).	$\dfrac{\text{Independent Non-Executive Directors}}{\text{(Executive Directors + Non-Executive Directors)}}$
2.	Board Size (BRDSZE)	Total of executive directors and non-executive directors (O'Connell & Crammer 2010).	(Executive+ Non-Executive Directors) (O'Connell & Crammer 2010).
3.	CEO Duality (CEODLTY)	Whether CEO acts as the board's chairman or not (Jermias & Gani 2014).	Equal to 1 if CEO acts as the board's chairman, if not 0 (Jermias & Gani 2014)
4.	Frequency of Board Meetings Per Year (MEETI)	Total amount of the board meetings organized throughout the financial year (Jermias & Gani 2014).	Number of board meetings held during the year
5.	Gender Diversity of Board (DVSB)	Number of female directors on the board (Erhardt, Werbel & Shrader 2003).	$\dfrac{\text{Female directors on the board}}{\text{Executive and Non-Executive Directors}}$
6.	Directors' Shareholding (DSHRE)	Percentage of ordinary shares owned by directors of the board (Sanda et al. 2010)	$\dfrac{\text{Shares Owned by Directors}}{\text{Total Number of Ordinary Shares}}$
7.	Presence of the Nomination Committee (NMNCOM)	Whether the firm has a nomination committee or not (Issarawornrawanich 2015)	Equal to 1 if the firm has a nomination committee, otherwise 0
Firm Performance (*Dependent Variable*)			
1.	Return on Asset (ROA)	Profit before interest and tax over total asset (O'Connell & Crammer 2010).	$\dfrac{\text{Profit before Interest and Tax}}{\text{Total Asset}}$ (O'Connell and Crammer 2010).
2.	Return on Equity (ROE)	Profit after tax divided by total equity (Adewuyi & Olowookere 2013)	$\dfrac{\text{Profit after tax}}{\text{Total equity}}$

	Control Variables		
1.	Growth (GWTH)	The variance of current year sales and previous year sales, divided by previous year sales	$\dfrac{\text{Sales}_{T+1} - \text{Sales}_T}{\text{Sales}_T}$ (Jermias & Gani 2014)
2.	Leverage (LVRGE)	Debt divided by total asset	$\dfrac{\text{Debt}}{\text{Total Asset}}$ Jermias and Gani (2014), (O'Connell & Crammer 2010)
3.	Auditor's Type (AUDITOR)	Whether or not auditor is four big firms.	Equal to 1 if the firm is audited by EY, KPMG, PWC or Deloitte and otherwise 0 (Jermias & Gani 2014)
4.	Firm Size (FMSIZ)	Natural logarithm of the total asset as at the ending date of the accounting year	Natural logarithm of the total asset as at the ending date of the accounting year Hidayat and Utma (2016) (Cited in (Senanayake & Ajward 2017)
5.	Firm Age (FAEG)	Natural logarithm of years company has been conducting its businesses since incorporation.	Natural logarithm of years' company has been conducting its businesses since incorporation. (Leung et al. 2014)

Source: Author Constructed

Note 1: In this study, firm performances have been only measured from the financial aspect. ROA and ROE could be known as the fundamental financial performance parameters. Therefore, ROA and ROE have been utilized to examine the firm performance. Further, utilized ROA and ROE in this study could be recognized as the most common ROA and ROE formulas in accounting.

Note 2: The current portion plus the non-current portion of interest-bearing loans is considered as 'Debt' under the leverage computation of this study.

3.6 Sources and Collection of Data

This study is carried on, secondary data, the annual reports of the top 41 highest market capitalized companies as of 20th January 2020 for the past four years (2015/2016, 2016/2017, 2017/2018, 2018/2019), published in the CSE website.

3.7 Data Analysis Strategies

As a diagnostics instrument, Cronbach's Alpha (reliability test) is tested. Descriptive statistics are performed to describe the sample. Mean and median are utilized to recognize the central tendency of the data set, while, minimum, maximum and standard deviation are examined to determine the dispersion of data. Finally, skewness and kurtosis are performed to recognize the distribution of the data set under descriptive statistics.

Pearson's correlation analysis and scatterplot diagrams are performed to detect significant relationships between independent variables and dependent variables of this study under correlation analysis. In addition, OLS linear regression and panel regression analysis are performed under multivariate regression analysis. The random effect model is followed to perform panel regression of this study since Prob > chi2 of the Hausman test for ROA and ROE is greater than 0.05 in this study. IBM Statistical Package of Social Science (SPSS 23) is utilized to perform descriptive statistics, correlation, and OLS linear regression, while Stata data analytical software is performed for panel regression analysis.

Further, the following regression models are applied to test the hypotheses of this study and definitions are given in Table 1.

$$ROA_{i,t} = \alpha + \beta_1 INED\%_{i,t} + \beta_2 BRDSZE_{i,t} + \beta_3 CEODLTY_{i,t} + \beta_4 MEETI_{i,t} + \beta_5 DVSB_{i,t} + \beta_6 DSHRE_{i,t} + \beta_7 NMNCOM_{i,t} + \beta_8 GWTH_{i,t} + \beta_9 LVRGE_{i,t} + \beta_{10} AUDITOR_{i,t} + \beta_{11} FMSIZ_{i,t} + \beta_{12} FAEG_{i,t} + \mathcal{E}$$

Equation 1

$$ROE_{i,t} = \alpha + \beta_1 INED\%_{i,t} + \beta_2 BRDSZE_{i,t} + \beta_3 CEODLTY_{i,t} + \beta_4 MEETI_{i,t} + \beta_5 DVSB_{i,t} + \beta_6 DSHRE_{i,t} + \beta_7 NMNCOM_{i,t} + \beta_8 GWTH_{i,t} + \beta_9 LVRGE_{i,t} + \beta_{10} AUDITOR_{i,t} + \beta_{11} FMSIZ_{i,t} + \beta_{12} FAEG_{i,t} + \mathcal{E}$$

Equation 2

4 ANALYSIS AND DISCUSSION

Initially, this section demonstrates the results of descriptive statistics. Secondly, correlation analysis and multivariate regression analysis have discussed the relationship between selected board characteristics and firm performance. In this study, firm performance is measured using ROA and ROE. In addition, growth, leverage, auditor's type, firm size, and firm age are considered as the control variables of the study. The outcomes of the analysis are highlighted at the end of this section.

4.1 Descriptive Statistics

Descriptive Statistics provide an overview of the sample of the study. Therefore, mean, median, minimum, maximum, standard deviation, skewness, and kurtosis are performed, and the results have been depicted in Table 2.

The average board composition (*INED*) is 41.2% indicating that companies have slightly concentrated on independent non-executive directors about establishing a better governance body for the companies. The maximum board composition is 66.7% showing that the board has consisted of a higher proportion of independent non-executive directors and the minimum is 22.2%.

In terms of the board size (*BRDSZE*), the average number of executive directors and non-executive directors is nine directors. Whereas the highest number of directors on the board is twelve and the lowest is six.

In this study, CEO duality has been measured by assigning one, provided that the same person performs the roles of CEO and chairman, otherwise zero. The mean of CEO duality (*CEODLTY*) is 20% indicating that many companies have complied with the segregation of the duties of the CEO and chairman, which is a recommendation of the code of best practice. Further, the standard deviations of board composition, board size, and CEO duality are 0.141, 2.003 and 0.402 respectively indicating the distribution level from the average of board composition, board size and CEO duality.

Table 2: Descriptive Statistics

	N	Mean	Median	SD	Min	Max	Skewness	Kurtosis
BRDSZE	164	8.630	8.000	2.003	6.000	12.000	0.315	-1.097
INED	164	0.412	0.375	0.141	0.222	0.667	0.711	-0.628
CEODLTY	164	0.200	0.000	0.402	0.000	1.000	1.504	0.266
MEETI	164	5.520	4.500	2.346	4.000	11.000	1.620	1.161
DVSB	164	0.103	0.111	0.086	0.000	0.333	0.310	-0.695
DSHRE	164	0.436	0.415	0.247	0.018	0.981	0.337	-0.520
NMNCOM	164	0.600	1.000	0.492	0.000	1.000	-0.402	-1.862
ROA	164	0.155	0.097	0.163	0.026	0.549	1.698	1.472
ROE	164	0.154	0.110	0.131	0.021	0.418	1.010	-0.284
GWTH	164	0.060	0.057	0.143	-0.154	0.285	0.023	-1.113
LVRGE	164	0.122	0.083	0.126	0.000	0.338	0.554	-1.234
AUDITOR	164	0.990	1.000	0.110	0.000	1.000	-8.971	79.450
FMSIZ	164	16.398	16.408	0.664	15.305	17.346	-0.146	-1.135
FAEG	164	3.901	3.892	0.857	1.609	5.165	-0.294	-0.666

Source: Author Constructed

Furthermore, the average frequency of board meetings is six indicating that the board meets regularly. Code of best practice has recommended holding board meetings at least one time every quarter. The mean value of frequency of board meetings in this study has shown that many companies have adhered to board meeting recommendations of the ICASL Code of Best Practice on Corporate Governance. The maximum and minimum values of frequency of board meetings per year are eleven and four respectively.

Moreover, the average gender board diversity of board (*DVSB*) is 10.3%. The minimum value of gender diversity of boards is zero indicating that some boards have consisted of only male directors. The maximum is 33.33%. These results indicate female participation toward members of the board is quite lower in Sri Lanka than in Western countries

The average of directors' shareholding (*DSHRE*) is 43.6% indicating that few directors' shareholding situations in the sample companies of the study. The maximum value is 98%

indicating most of the company shares belong to directors of the company and the minimum is 1.8%.

In this study, the presence of the nomination committee (*NMNCOM*) had been observed by assigning 1, provided that there is a nomination committee inside the company and otherwise 0. The mean presence of the nomination committee is 60% indicating that many companies have a nomination committee. In addition, it is an indication of adherence to the ICASL Code of Best Practice on Corporate Governance concerning the recommendation of the nomination committee.

The mean values for ROA and ROE are 0.155 and 0.154 respectively. Additionally, sales growth has been considered as growth in this study. The mean of growth (*GWTH*) is 6% indicating small sales growth in companies during the past four years. Minimum and maximum growths are -15.4% and 28.5% respectively. Further, the average leverage is 12.2%. It demonstrates assets have been obtained using a lesser level of total debts as well as its standard deviation is 0.083. If the auditor is one of the big four audit firms, one was assigned and otherwise, zero. The average of the auditor is 99% indicating that the auditor of many sample companies is one of the Big Four audit firms, and the standard deviation is 0.110. Moreover, the natural logarithm of total assets as of the 31st of March was considered as the firm size (*FMSIZ*). The average firm size (*FMSIZ*) is 16.398 and the minimum and maximum are 15.305 and 17.346 respectively. Mean, minimum and maximum values of firm size are quite similar in this study. Natural logarithm of years in which a company has been conducting its businesses since incorporation was obtained as firm age (*FAEG*). The average firm age is 4 years, and the standard deviation is 0.857. The minimum value of firm age is 2 years, and the maximum value of firm age is 6 years in this study.

4.2 Relationship between Selected Board Characteristics and Firm Performance

4.2.1 Correlation Analysis

Correlation analysis is the bivariate analysis of this study. Results have been depicted in Table 3.

Table 3 shows a strong direct relationship between board composition (INED) and ROA (r=0.637, $p<0.01$). Board composition (*INED*) shows a moderate positive relationship with ROE (r=0.515, $p<0.01$). These positive relationships indicate that companies receive advantages from the presence of independent non-executive directors on the board.

The relationship between board size (*BRDSZE*) and ROA (r=0.295, $p<0.01$) is a weak positive relationship and board size (*BRDSZE*) is positively connected with ROE (r=0.414, $p<0.01$). That association could be known as a positive moderate relationship. It indicates that a large board adds value to the firm.

CEO duality (*CEODLTY*) shows an inverse weak relationship with ROA (r=-0.177, $p<0.05$) indicating that the performance of companies in which the same person holds CEO and chairman positions is quite lower than in companies which segregate the CEO and chairman roles. However, the relationship between CEO duality (*CEODLTY*) and ROE is insignificant ($p>0.05$).

Gender diversity of board (*DVSB*) is negatively associated with ROA (r=-0.094, $p<0.05$) as well as ROE (r=-0.299, $p<0.01$). The relationship of directors' shareholding (*DSHRE*) with ROA and ROE is insignificant ($p>0.05$) in this study.

A weak positive relationship exists between the presence of the nomination committee and ROA (r=0.272, $p<0.01$) as well as ROE (r=0.165, $p<0.05$) in this study indicating that it causes to make effective board appointments.

Table 3: Correlation Matrix

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1.INED	1													
2.BRDSZE	.201[*]	1												
3.CEODLTY	-.117	.077	1											
4.MEETI	.065	.354[**]	.063	1										
5.DVSB	.135	-.248[**]	-.061	-.124	1									
6.DSHRE	-.084	-.302[**]	-.012	-.245[**]	-.011	1								
7.NMNCOM	.387[**]	.304[**]	-.177[*]	.115	.067	-.119	1							
8.ROA	.637[**]	.295[**]	-.177[*]	.115	-.094[*]	-.004	.272[**]	1						
9.ROE	.515[**]	.414[**]	.052	.239[**]	-.299[**]	-.058	.165[*]	.792[**]	1					
10.GWTH	-.004	.006	.071	.017	-.071	.097	-.103	.091	.060	1				
11.LVRGE	-.225[**]	.346[**]	.223[**]	.261[**]	-.202[**]	.106	-.325[**]	-.088	.109	.191[*]	1			
12.AUDITOR	.038	-.132	.056	-.001	-.102	.026	.-.091	.022	-.021	-.033	.020	1		
13.FMSIZ	.025	.106	.127	-.003	-.046	.077	.144	-.006	.013	.132	.205[**]	-.038	1	
14.FAEG	.348[**]	.234[**]	.070	.171[*]	.204[**]	.117	.230[**]	.350[**]	.308[**]	-.132	-.094	.047	-.103	1

[*]$p<.05$, [**]$p<.01$

Source: Author Constructed

4.2.2 Regression Analysis

Regression analysis, multivariate analysis, has been performed to construct a model to predict the dependent variable of the study and it enhances the predictions as well. Regression analysis could be categorized as simple regression analysis and multiple/ multivariate regression analysis. In this study, there is more than one independent variable. Therefore, simple regression analysis could not be performed, and multivariate regression analysis was utilized.

Firstly, ordinary least squares (OLS) linear regression analysis was performed using IBM SPSS statistics 23. The research design of this study took a cross-sectional and a longitudinal view. As a result, a panel data view is created. Therefore, secondly, panel regression analysis was performed using Stata data analytics software.

4.2.2.1 Ordinary Least Squares (OLS) Linear Regression Analysis

Table 4: OLS Linear Regression Analysis

Models	ROA			ROE		
	Coeff.	Std.Error	VIF	Coeff.	Std.Error	VIF
INED	.654**	.077	1.378	.485**	.062	1.378
BRDSZE	.011	.006	1.948	.010*	.005	1.948
CEODLTY	-.062**	.024	1.120	.013	.020	1.120
MEETI	.001	.004	1.261	.004	.004	1.261
DVSB	-.334**	.121	1.255	-.521**	.098	1.255
DSHRE	.030	.043	1.290	.014	.034	1.290
NMNCOM	-.011	.024	1.679	-.019	.020	1.679
GWTH	.128	.068	1.095	.031	.055	1.095
LVRGE	-.023	.099	1.786	.078	.080	1.786
AUDITOR	.002	.088	1.079	-.089	.071	1.079
FMSIZ	-.004	.015	1.196	-.007	.012	1.196
FAEG	.034**	.013	1.494	.026**	.011	1.494
F-Value	13.141			12.795		
F-Value (Sig)	.000			.000		
R Square	.511			.504		
N	164			164		

*$p<.05$, **$p<.01$

Source: Author Constructed

In general, R^2 states to what extent the dependent variable is described by independent variables of the study and a higher R^2 is better. Lower R^2 indicates that there may be other variables affected by dependent variables other than considered variables of the study. In this study, R2 of ROA and ROE models are 51.1% and 50.4% respectively. It is quite lower R^2 values. However, it is higher than 50%. Therefore, it is quite better. F-value indicates the overall validity of the model, and its sig. value should be less than 0.05 to accept the model as valid. In this study, both sig. values of F-values are less than 0.05 and it indicates the overall validity of the models of the study even though models show quite lower R^2 values. Variance inflation factors (VIF) demonstrate the multicollinearity of the data set. Normally, it should be less than 10. In this study, all VIFs are less than 10 indicating no multicollinearity issue in the data set of this study. The coefficient explains the degree of variance of the dependent variable when the independent variable changes from one unit.

According to Table 4: OLS Linear Regression Analysis, a positive association exists between board composition (*INED*) and ROA as well as ROE indicating the significance of the presence of independent non-executive directors on the board. CEO duality (*CEODLTY*) has a negative association with ROA indicating the necessity of separating the CEO and chairman roles. The association between board size (*BRDSZE*) and ROE is positive indicating a large board assists to add value to the performance of the companies. Gender diversity of board (*DVSB*) is inversely linked with ROA and ROE. Whereas it could be summarized that other independent variables do not possess systematic statistical associations with ROA and ROE because of higher sig. values (*p*>0.05).

4.2.2.2 Panel Regression

Panel regression could be categorized as random effect models and fixed random models. Hausman test is utilized to determine the panel regression method which is required to use for analyzing the panel data set. If the Prob > chi2 is less than 0.05, the fixed-effect model is required to use for analyzing panel data set according to the Hausman test (Hausman fixed-random) which

was performed in Stata data analytics software, otherwise random effect model. In this study, Prob > chi2 of the Hausman test for ROA and ROE are 0.9843 and 0.9983 respectively. Therefore, this study has used a random effect model for ROA as well as ROE because Prob > chi2 of both models is greater than 0.05 (Table 5).

Table 5: Panel Regression (Random Effect Model)

Models	ROA		ROE	
	Coeff.	Std.Error	Coeff.	Std.Error
INED	.623**	.090	.468**	.073
BRDSZE	.013	.008	.008	.006
CEODLTY	-.052	.030	.013	.024
MEETI	.001	.006	.004	.005
DVSB	-.337*	.145	-.534**	.117
DSHRE	.052	.047	.008	.038
NMNCOM	.007	.032	-.015	.025
GWTH	.133*	.057	.033	.049
LVRGE	-.002	.116	.057	.093
AUDITOR	.003	.088	-.058	.074
FMSIZ	-.020	.021	-007	.016
FAEG	.030	.019	.027*	.014
R Square		.505		.502
Wald chi2		96.69		94.28
Prob>chi2		.000		.000
N		164		164

*$p<.05$, **$p<.01$

Source: Author Constructed

In this study, R^2 of ROA and ROE models are 50.5% and 50.2% respectively. It is quite lower R^2 values. However, it is quite better since it is higher than 50%. Prob >chi2 of both models is less than 0.05 and it proves the overall validity of the models though models have quite lower R square values.

According to panel regression analysis, board composition (*INED*) is positively associated with ROA and ROE. As well, gender diversity of the board (*DVSB*) is inversely linked with ROA and ROE. In addition to that, the control variable of the

study, growth and firm age is positively associated with ROA and ROE respectively. Other variables of the study could not be interpreted as there is a systematic association between those variables with ROA and ROE. Because the p-values of those variables are higher than 0.05. It indicates that there is no systematic relationship between those independent variables and the dependent variable of the study.

4.3 Discussion

Descriptive analysis of this study shows that the average board size (*BRDSZE*) is nine which is similar to a study conducted by O'Connell and Cramer (2010).

It could be called a quite large board circumstance and Zahra and Pearce (1989) have shown that a large board can attract more qualified professionals as well as able to generate a stronger social relationship with the business world (cited in O'Connell and Crammer 2010). Fama (1980) has stated that outside directors are more independent than inside directors (cited in Bonn et al. 2004). However, the average board composition (INED%) of this study is 41.2%, which is similar to the study conducted by Kiel and Nicholson (2003), indicating board includes less number of independent non-executive directors. Even though many corporate governance codes have emphasized the importance of the segregation of the duties of CEO and chairman, some companies are still following CEO duality whereas some companies have properly segregated these roles. The average CEO duality (CEODLTY) is 20% indicating that many companies have segregated the role of CEO and chairman and this result is quite similar to the study conducted by Veprauskaite and Adams (2013). According to their study, CEO duality was 6.8 % and they had created this dummy variable similar to the dummy variable created in this study. Therefore, the finding regarding the CEO duality of this study could be concluded as the same as the study of Veprauskaite and Adams (2013). The average frequency of board meetings per year is 6 which is similar to the result of the study conducted by Tsogbaatar (2014). The average gender diversity of boards is 10.3 % indicating boards have consisted of a lesser number of female directors. This result is similar to a study conducted by Carter et al (2003). The

average directors' shareholding is 43.6% and a study conducted by Ehikioya (2009) which is international literature shows 15%. The average presence of the nomination committee is 60% which is similar to Issarawornrawanich (2015) indicating that many companies possess nomination committees.

According to the correlation analysis of the study, a significant positive association exists between board composition (*INED*) and ROA as well as ROE ($p<0.05$). The association between board size (*BRDSZE*) and ROA as well as ROE is positive and significant ($p<0.05$). CEO duality (*CEODLTY*) shows a negative association with ROA, and it is significant ($p<0.01$) whereas CEO duality (*CEODLTY*) shows an insignificant association ($p>0.05$). Further, the frequency of board meetings per year (*MEETI*) with ROE enjoys a positive significant relationship ($p<0.01$). However, the board characteristics variable with ROA possesses an insignificant association ($p>0.05$). The relationship of directors' shareholding (*DSHRE*) with ROA and ROE is an insignificant association as well ($p>0.05$). There is an inverse significant relationship between gender diversity of board (*DVSB*) and ROA ($p<0.05$) as well as ROE ($p<0.01$). The presence of the nomination committee (*NMNCOM*) is positively linked with ROA ($p<0.01$) and ROE ($p<0.05$) and is significant.

OLS linear regression analysis of the study shows that board composition (*INED*) is a positive impact on ROA and ROE ($p<0.01$) in this study. The study conducted by Muchewa et al (2016) has shown a positive association of this board characteristic with ROE. As well, the study conducted by Bonn et al. (2004) elaborates that board composition is positively linked with ROA. It is an indication regarding a higher number of non-executive directors make a positive impact on firm performance. However, the observation of Hermalin and Weisbach in 1991 (cited in O' Connell and Crammer, 2010) states that there is no association between board composition and firm performance in the US context. Board size (*BRDSZE*) is positively impacted on ROE ($p<0.05$) whereas the association of board size (*BRDSZE*) with ROE is insignificant ($p>0.05$) in this study. Kiel and Nicholson (2003) found that board size is positively associated with the performance of the firm and Bonn et al. (2004) have

shown that there is no significant association between board size and firm performance in the Australian context as well. Further, Bonn et al. (2004) have elaborated on a negative association of board size with firm performance in Japanese firms.

CEO duality (*CEODLTY*) is negatively associated with ROA ($p<0.01$) and the association between CEO duality and ROE is insignificant($p>0.05$). A negative impact on firm performance from CEO duality was found by Jermias and Gani (2014) and Ehikioya (2009) as well. Many researchers have mentioned in their study that there may be a high principal-agent conflict if CEO and chairman positions were held by the same person, and they have elaborated on the importance of separating these properly. Fama and Jensen (1983) have recommended this for the first time in history (cited in Ehikioya 2009).

Further, the association of frequency of board meetings per year (*MEETI*) with ROA and ROE is insignificant in this study ($p>0.05$). Gender diversity of board (*DVSB*) is negatively linked with ROE ($p<0.01$) and it shows an insignificant impact with ROA ($p>0.05$). Earley and Mosakawaki (2000) have stated that usually, people share their ideas without any hesitation when they belong to the same category. As well, a study conducted by Willams and O'Reilly in 1998 has shown that similarity among people causes a reduction in conflicts among them and it creates cooperation among them (cited in Ekadah et al. 2010). Therefore, some studies have shown an inverse association between the gender diversity of the board and firm performance (Bohren and Strom 2005, Lau and Murnighan 1998, cited in Ekadah et al. 2010). However, some prior studies have shown as an association of gender diversity on the board and firm performance are positively linked with firm performance (Robinson and Dechant 1997, Carter et al. 2003, Minguz-vera and Campbell 2008) as well as there is no relationship between gender diversity in the board and firm performance (Randoy et al. 2006, Kochan et al. 2003).

Moreover, the relationship of directors' shareholding (*DSHRE*) with ROA and ROE is insignificant in this study. However, previous studies have shown positive relationships (DeAngelo and Angelo 1985, McConnell & Servaes 1990), cured

associations (Nor et al. 1999), inverse associations (Sanda et al. 2010) and no associations (Loderer and Martin 1997) between directors' shareholding and firm performance. Not only the board characteristics variable but also the presence of the nomination committee (*NMNCOM*) has shown an insignificant association with firm performance.

Concerning panel regression analysis, board composition (*INED*) and gender diversity of the board (*DVSB*) are only two board characteristics that show significant associations with firm performance and are supported by the hypothesis of the study. Board composition (*INED*) is positively linked with ROA and ROE. As well, gender diversity on board (*DVSB*) is negatively associated with ROA and ROE. Other selected board characteristics of the study with ROA and ROE are insignificant ($p>0.05$).

Basically, under correlation analysis board composition (*INED*), board size (*BRDSZE*), and presence of nomination committee (*NMNCOM*) are positively linked with ROA and ROE and gender diversity of board (*DVSB*) is inversely associated with ROA and ROE. As well, according to the correlation analysis of the study, the frequency of board meetings per year (*MEETI*) is positively linked with ROE and CEO duality (*CEODLTY*) is negatively associated with ROA. OLS linear analysis of this study shows that board composition (*INED*) is directly linked with ROA and ROE while gender diversity of board (DVSB) enjoys inverse associations with ROA and ROE. Board size (*BRDSZE*) possesses a positive association with ROE whereas CEO duality is adversely linked with ROA as per OLS linear regression. In this study, panel regression has been analyzed as a positive association of board composition (*INED*) with ROA and ROE as well as gender diversity of board (*DVSB*) is negatively associated with ROA and ROE. These results are quite similar to the result of correlation analysis and OLS linear analysis as well.

In the final analysis, board composition (*INED*) is positively linked with ROA and ROE, besides, gender diversity of board (*DVSB*) is negatively linked to ROA and ROE in this study. Other board characteristics of this study show ambiguous results with ROA and ROE.

4.3.1 Summary of Hypotheses Testing

Table 6: Summary of Hypotheses Testing

Hypothesis	Dependent Variable Measureme	OLS Linear Regression Analysis	Panel Regression Analysis
H$_1$: There is a positive relationship between board composition (*INED*) and firm performance	ROA	Supported**	Supported**
	ROE	Supported**	Supported**
H$_2$: There is a positive relationship between board size (*BRDSZE*) and firm performance	ROA	Not supported	Not supported
	ROE	Supported*	Not supported
H$_3$: There is a negative relationship between CEO duality (*CEODLTY*) and firm performance	ROA	Supported**	Not supported
	ROE	Not supported	Not supported
H$_4$: There is a positive relationship between the frequency of board meetings (*MEETI*) per year and firm performance	ROA	Not supported	Not supported
	ROE	Not supported	Not supported
H$_5$: There is a negative relationship between gender diversity of board (*DVSB*) and firm performance	ROA	Supported**	Supported*
	ROE	Supported**	Supported**
H$_6$: There is a positive relationship between directors' shareholding (*DSHRE*) and firm performance	ROA	Not supported	Not supported
	ROE	Not supported	Not supported
H$_7$: There is a positive relationship between the presence of a nomination committee (*NMNCOM*) and firm performance	ROA	Not supported	Not supported
	ROE	Not supported	Not supported

$^{*}p<.05$ $^{**}p<.01$

Source: Author Constructed

5 CONCLUSION

The Board of directors is a decisive factor in achieving governance inside the firm. Besides, many prior studies have been conducted in this area, nevertheless, the findings on the relationship of selected board characteristics with firm performance are ambivalent. Therefore, this study was expected to examine the impact of selected board characteristics on firm performance in the highest market capitalized companies in Sri Lanka. In this study, board composition (*INED*), board size (*BRDSZE*), CEO duality (*CEODLTY*), frequency of board meetings (*MEETI*), gender diversity of board (DVSB), directors' shareholding (DSHRE) and presence of nomination committee (*NMNCOM*) are selected board characteristics and ROA and ROE are the measurements of the firm performance. In addition, growth (*GWTH*), leverage (*LVRGE*), auditors' type (*AUDITOR*), firm size (*FMSIZ*) and firm age (*FAEG*) are control variables of the study. The top 41 highest market capitalized CSE non-financial companies of which the financial year ended on 31st March were taken as the sample of the study and data was collected using annual reports for 2016-2019. Gathered data were analyzed by several data analytics tools and results were presented in the third section.

Descriptive statistics of the study show that the average number of board composition is 41.2% indicating the usage of minor independent non-executive directors. The average board size (*BRDSZE*) is nine which is similar to the study of O'Connell and Cramer (2010). The average CEO duality (*CEODLTY*) is 20% indicating that most Sri Lankan firms have adhered to segregation of the duties of CEO and chairman. The mean frequency of board meetings per year (*MEETI*) is six indicating most Sri Lankan firms have held board meetings at least more than one time in every quarter and have adhered to the recommendation of the ICASL Code of Best Practice on Corporate Governance. The average gender diversity of the board (*DVSB*) is 10.3% indicating lesser female participation inside the board. The average directors' shareholding (*DSHRE*) is 43.6% indicating minor directors' shareholding situation in Sri Lanka. The average presence of the nomination committee (*NMNCOM*) is 60%

indicating many companies consist of nomination committees and use the nomination committee to make new board appointments.

According to correlation analysis of the study, board composition (*INED*), board size (BRDSZE), and presence of nomination committee (*NMNCOM*) are positively linked with ROA and ROE ($p<0.05$) whereas gender diversity of board (*DVSB*) is inversely associated with ROA ($p<0.05$) and ROE ($p<0.01$). CEO duality (*CEODLTY*) is negatively linked with ROA($p<0.01$) while the relationship between CEO duality (*CEODLTY*) and ROE is insignificant ($p>0.05$). The frequency of board meetings (*MEETI*) is directly linked with ROE while the relationship between the frequency of board meetings (*MEETI*) and ROA is insignificant ($p<0.05$). Furthermore, the relationship of directors' shareholding (*DSHRE*) with ROA and ROE is insignificant ($p>0.05$).

Furthermore, the OLS linear regression of the study demonstrates that the relationship of board composition (*INED*) with ROA and ROE is positive ($p<0.05$) while the gender diversity of the board (*DVSB*) is negatively linked with ROA and ROE ($p<0.01$). Board size (*BRDSZE*) is directly linked with ROE ($p<0.01$) whereas the association between board size (*BRDSZE*) and ROA is insignificant ($p>0.05$). CEO duality (*CEODLTY*) is negatively linked with ROA and the association of CEO duality (*CEODLTY*) with ROE is insignificant ($p>0.05$). The associations of frequency of board meetings (*MEETI*), directors' shareholding (*DSHRE*) and presence of nomination committee (*NMNCOM*) with ROA and ROE are insignificant ($p>0.05$).

In accordance with panel regression of the study, the relationship of board composition (*INED*) with ROA ($p<0.05$) and ROE ($p<0.05$) is positive, as well as gender diversity of board (*DVSB*), is negatively linked with ROA($p<0.05$) and ROE ($p<0.01$). The relationship of other board characteristics with ROA and ROE is insignificant ($p>0.05$).

Basically, under correlation analysis board composition (*INED*), board size (*BRDSZE*), and presence of nomination committee (*NMNCOM*) are positively linked with ROA and ROE and gender diversity of board (*DVSB*) is inversely associated with ROA and ROE. According to the correlation analysis of the study, the

frequency of board meetings per year (*MEETI*) is positively linked with ROE and CEO duality (*CEODLTY*) is negatively associated with ROA.

OLS linear analysis of this study shows that board composition (*INED*) is directly linked with ROA and ROE while gender diversity of board (*DVSB*) enjoys inverse associations with ROA and ROE. Board size (*BRDSZE*) possesses a positive association with ROE whereas CEO duality is adversely linked with ROA as per OLS linear regression. In this study, panel regression has been analyzed as a positive association of board composition (*INED*) with ROA and ROE as well as gender diversity of board (*DVSB*) is negatively associated with ROA and ROE. These results are quite similar to the result of correlation analysis and OLS linear analysis as well.

In summary, board composition (*INED*) is positively linked with ROA and ROE, while gender diversity of board (*DVSB*) is negatively linked to ROA and ROE in this study. Whereas other board characteristics of this study show ambiguous results with ROA and ROE.

In future studies, expanding the sample size is great. It will assist to generalize findings to the entire population and findings will be more authentic. Additionally, future research studies will be able to measure firm performance from other measurements other than ROA and ROE. Besides, future studies will be able to use more board characteristics and conduct future studies beyond the Sri Lankan context. In addition, utilizing more data analytics techniques and primary data collection will add further value to the study.

REFERENCES

Adewuyi, AO & Olowookere, AE 2013, 'New corporate code and immediate performance changes of the Nigerian firms', *Corporate governance international journal of business in society,* vol. 13, no. 2, pp. 169-183.

Bebenrotha, R & Donghaob, L 2007, 'Performance impact at board level: corporate governance in Japan', *Asian Business & Management*, vol. 6, no. 3, pp. 303-326.

Bohren, O & Strom, RO 2005, 'Aligned, informed, and decisive: characteristics of value-creating boards', *SSRN Electronic Journal,* viewed 18 June 2019, http://197.136.134.32/bitstream/handle/123456780/1945/120-370-1-PB.pdf?sequence=1&isAllowed=y

Bonn, I, Yoshikawa, T & Phan, PH 2004, 'Effects of board structure on firm performance: a comparison between Japan & Australia', *Asian Business & Management*, vol. 3, no. 1, pp. 105-125.

Bozec, 2005, 'Board of directors, market discipline and firm performance', *Journal of Business, Finance and Accounting*, vol. 32, no. 9 & 10, pp. 1921-1960.

Cadbury Committee, 1992, *Report of the committee on the financial aspects of corporate governance*, Burgess Science Press, London, viewed 15 June 2019, https://www.frc.org.uk/getattachment/9c19ea6f-bcc7-434c-b481-f2e29c1c271a/The-Financial-Aspects-of-Corporate-Governance-(the-Cadbury-Code).pdf

Cai, J, Garner, LJ &Walking, RA 2009, 'Electing directors', *The Journal of Finance*, vol. 64, no. 5, pp. 2389-2421.

Callahan, TW, Millar, AJ & Schulman, C 2003, 'An analysis of the effect of management participation in director selection on the long-term performance of the firm', *Journal of Corporate Finance*, vol. 9, no. 2, pp. 169-181.

Campbell, K & Minguez-Vera, A 2008, 'Gender diversity in the boardroom and firm financial performance', *Journal of Business Ethics*, vol. 83, no. 3, pp. 435–451.

Carter, D, Simkins, BJ, & Simpson, WG 2003, 'Corporate governance, board diversity, and firm performance', *Financial Review*, vol. 38, no. 1, pp. 33–53.

Chahine, S & Goergen, M 2011, 'VC board representation and performance of US IPOs', *Journal of Business*, *Finance and Accounting*, vol. 38, no. 3-4, pp. 413-445.

Conyon, M J & Mallin, CA 1997, 'A review of compliance with cadbury', *Journal of General Management*, vol. 22, no. 3, pp. 24-37.

Dahya, J& McConnell, JJ 2007, 'Board composition, corporate performance and the Cadbury committee recommendation', *Journal of Financial and Quantitative Analysis,* vol 42, no. 3, pp. 535-564.

Dalton, DR, Daily, CM, Johnson, JL & Ellstrand, AE 1999, 'Number of directors and financial performance: a meta-analysis', *Academy of Management Journal*, vol. 42, no. 6, pp. 674-686.

DeAngelo, H & DeAngelo, L 1985, 'Managerial ownership of voting rights: a study of public corporations with dual classes of common stock', *Journal of Financial Economics*, vol. 14, no. 1, pp. 33–69.

Deng, T 2019, 'Literature review on the independence and effectiveness of independent directors', *Open journal of business and management,* vol.7, no. 2, pp. 1063-1071.

Earley, PC & Mosakowski, E 2000, 'Creating hybrid team cultures: an empirical test of transnational team functioning', *Academy of Management Journal*, vol. 43, no. 1, pp. 26–49.

Ehikioya, IB 2009, 'Corporate governance structure and firm performance in developing economies: evidence from Nigeria', *Emerald Group Publishing Limited*, vol. 9, no. 3, pp. 231-243.

Ekadah, JW 2010, 'Effect of board gender diversity on the performance of commercial banks in Kenya', *European Scientific Journal,* vol. 8, no. 7, pp. 128-148.

Eluyela, DF, Akintimehin, OO, Okere, W, Ozorodi, E, Osuma, GO, Illogho, SM & Oladipo, OA 2018, 'Board meeting frequency and firm performance: examining the nexus in Nigerian deposit money banks', *Heliyon*, vol. 4, no. 10, pp. 1-14.

Erhardt, NL, Werbel, JD, & Shrader, CB 2003, 'Board of director diversity and firm financial performance', *Corporate Governance: An International Review*, vo. 11, no. 2, pp. 102–111.

Francis, B, Hasan, I & Wu, Q 2012, 'Do corporate boards affect firm performance? new evidence from the financial crisis', *Lally School of Management and Technology*, viewed 15 June 2019, https://www.econstor.eu/bitstream/10419/212214/1/bof-rdp2012-011.pdf

Ghosh, A, Moon, D & Tandon, K 2007, 'CEO ownership and discretionary investment', *Journal of Business Finance & Accounting,* vol. 34, pp. 819-839.

Golden, BR & Zajac, EJ 2001, 'When will boards influence strategy? inclination *power¼strategic change', *Strategic Management Journal*, vol. 22, pp. 1087–1111.

Gul, FA & Leung, S 2004, 'Board leadership, outside directors' expertise and voluntary corporate disclosures', *Journal of Accounting and Public Policy*, vol. 23, pp. 351-379.

Hermalin, BE & Weisbach MS 1991, 'The effects of board composition and direct incentives on firm performance', *Financial Management,* vol. 20, no. 4, pp 101-112.

Illaboya, OJ & Obaretin, O 2015, 'Board characteristics and firm performance: evidence from Nigerian quoted companies', *Academic Journal of Interdisciplinary Studies*, vol. 66, no. 1.

Javid, YA & Iqbal, R 2008, 'Ownership concentration, corporate governance and firm performance: evidence from Pakistan', *The Pakistan Development Review,* vol. 47, no. 4, pp. 643-659.

Jermias, J & Gani, L 2014, 'The impact of board capital and board characteristics on firm performance', *The British Accounting Review*, vol. 46, pp. 135-153.

Kiel, G & Nicholson, G 2003, 'Board composition and corporate performance: how the Australian experience informs contrasting theories of corporate governance', *Corporate Governance: An International Review*, vol. 11, no. 3, pp. 189-205.

Kochan, T, Bezrukova, K, Ely,R, Jackson, S, Joshi, A, Jehn, K, Leonard, J, Levine, D & Thomas, D, 2003, 'The effects of diversity on business performance: report of the diversity research network', *Human Resources Management,* vol. 42, no. 01, pp. 3-21.

Leung, S, Richardson, G & Jaggi, B 2014, 'Corporate board and board committee independence, firm performance, and family ownership concentration: an analysis based on Hong Kong firms', *Journal of Contemporary Accounting & Economics*, vol. 10, no. 1, pp. 16-31.

Lipton, M & Lorsch, JW 1992, 'A modest proposal for improved corporate governance', *Business Lawyer,* vol. 48, pp. 59–77.

Loderer, C &Martin, K 1997, 'Executive stock ownership and performance: tracking faint traces', *Journal of Financial Economics*, vol. 45, no. 2, pp. 223–255.

Mangena, M & Tauringana, V 2008, 'Corporate boards, ownership structure and firm performance in an environment of severe political and economic uncertainty', *British Accounting Association Conference*, April 2008, Blackpool.

Mehdi, IK 2007, 'Empirical evidence on corporate governance and corporate performance in Tunisia', *Corporate Governance; An International Review,* vol. 15, no.6, pp. 1429-1441.

McConnell, JJ & Servaes, H 1990, 'Additional evidence on equity ownership and corporate value', *Journal of Financial Economics*, vol. 27, no. 2, pp. 595–612.

Mintah, PA 2015, 'The nomination committee and firm performance: an empirical investigation of UK financial institutions during the pre/post financial crisis', *Turku School of Economic- University of Turku- Finland,* vol. 11.

Muchenwa, M, Padia, N & Callaghan, C 2016, 'Board composition, board size and financial performance of Johannesburg', *South African Journal of Economic and Management Sciences*, vol. 19, pp. 497-513.

Nor, FM, Said, RM & Redzuan, H 1999, 'Structure of ownership and corporate financial performance: a Malaysian case', *Malaysian Management Review*, vol. 34, no. 2, pp. 44–48.

Nowell, C & Tinkler, S 1994, 'The Influence of gender on the provision of a public good', *Journal of Economic Behaviour & Organization,* vol. 25, no. 1, pp. 25–36.

Ntim, CG 2009, 'Internal corporate governance and firm financial performance: evidence from South African listed firms', *University of Glasgow,* viewed 15 June 2019, https://www.researchgate.net/publication/39707224_Inter nal_Corporate_Governance_and_Firm_Financial_Perform ance_Evidence_from_South_African_Listed_Firms

Ntim, CG & Osei, KA 2011, 'The impact of corporate board meetings on corporate performance in South Africa', *African Review of Economics and Finance,* vol. 2, no. 2, pp. 83-103.

O'Connell, V & Cramer, N 2010, 'The relationship between firm performance and board characteristics in Ireland', *European Management Journal*, vol. 28, no. 5, pp. 387 – 39.

Ozkan, N 2009, 'CEO compensation and firm performance: an empirical investigation of UK panel data', *European Financial Management,* vol. 17, pp. 560-285.

Pfeffer, J 1972, 'Size and composition of corporate boards of directors: the organization and its environment', *Administrative Science Quarterly*, vol. 17, pp. 218–228.

Porta, L.R, Lopez-De-Silanes, F && Shlefer, A 1999, 'Corporate ownership around the world', *The Journal of Finance,* vol. 54, no. 2, pp. 471-517.

Prevost, AK., Rao, RP, & Hossain, M 2002, 'Board composition in New Zealand: an agency perspective', *Journal of Business, Finance and Accounting*, vol. 29, no. 5 & 6, pp. 731-760.

Robinson, G. & Dechant, K 1997, 'Building a business case for diversity', *Academy of Management Executive*, vol. 11, pp. 21–30.

Rodríguez-Fernández, M 2015, 'Company financial performance: does board size matter? case of the EUROSTOXX50 index', *Cuadernos De Gestión*, vol. 15, no. 2, pp. 15-38.

Sanda, AU, Mikailue, AS & Garba, T 2010, 'Corporate governance mechanisms and firms' financial performance in Nigeria', *Afro-Asian J. Finance and Accounting,* vol. 2, no. 1, pp. 22-39.

Senanayake, PMCHK & Ajward R 2017, 'Selected board characteristics and performance of listed hospitality firms in Sri Lanka', *CA Journal of Apples Research,* Vol.1, no. 01, pp. 22-37

Shleifer, A & Vishny, RW 1997, 'A survey of corporate governance', *The Journal of Finance,* vol. 52, no. 2, pp. 737-783.

Smith, N, Smith, V & Verner, M 2006, 'Do women in top management affect firm performance? a panel study of 2,500 Danish firms', *International Journal of Productivity and Performance Management*, vol. 55, no. 7, pp. –593.

Sonnenfeld, JA 2002, 'What makes great boards great', *Harvard business review,* vol. 80, no. 9, pp. 106-113.

Tajfel, H & Turner, J 1985,'The social identity of inter-group behavior.In S. Worchel& W. Austin (Eds.)', *Psychology andIintergroup Relations. Chicago: Nelson-Hall.*

The Institute of Chartered Accountants of Sri Lanka & Securities and Exchange Commission (2017), 'Code of best practice on corporate governance', Colombo, viewed 20 June 2019, https://www.casrilanka.com/casl/images/stories/2017/2017_pdfs/code_of_best_practice_on_corporate_governance_2017_final_for_web.pdf

Tsui, J, SL., Jaggi, B & Gul, FA 2001, 'CEO domination, growth opportunities and their impact on audit fess', *Journal of Accounting, Auditing and Finance*, vol. 16, no. 3, pp. 189-208.

Vafeas, N 1999, 'Board meeting frequency and firm performance', *Journal of financial economics,* vol. 53, no. 1, pp. 113-142.

Vafaei, A, Ahmed, K & Mather, P 2015, 'Board diversity and financial performance in the top 500 Australian firms', *Australian Accounting Review*, vol. 25, no. 4, pp. 413-427.

Veprauskaite, E & Adams, M 2013, 'Do powerful chief executives influence the financial performance of U.K. firms?', *The British Accounting Review*, vol. 45, vol. 3, pp. 229-241.

Appendix 1: Top 41 Companies

(*Top 41 companies after excluding financial institutions as well as 31st December year ending companies.*)

JOHN KEELLS HOLDINGS PLC
DISTILLERIES COMPANY OF SRI LANKA PLC
CEYLON COLD STORES PLC
CARGILLS (CEYLON) PLC
LION BREWERY CEYLON PLC
HEMAS HOLDINGS PLC
MELSTACORP PLC
CARSON CUMBERBATCH PLC
C T HOLDINGS PLC
TEEJAY LANKA PLC
BROWNS INVESTMENTS PLC
ASIRI HOSPITAL HOLDINGS PLC
RICHARD PIERIS AND COMPANY PLC
ACCESS ENGINEERING PLC
CEYLON BEVERAGE HOLDINGS PLC
VALLIBEL ONE PLC
AITKEN SPENCE PLC
SOFTLOGIC HOLDINGS PLC
ASIAN HOTELS & PROPERTIES PLC
BROWN & COMPANY PLC
JOHN KEELLS HOTELS PLC
HAYLEYS PLC
TRANS ASIA HOTELS PLC
DILMAH CEYLON TEA COMPANY PLC
TOKYO CEMENT COMPANY (LANKA) PLC
ROYAL CERAMICS LANKA PLC
LANKA IOC PLC
EXPOLANKA HOLDINGS PLC
SHALIMAR (MALAY) PLC
AITKEN SPENCE HOTEL HOLDINGS PLC
CEYLON GUARDIAN INVESTMENT TRUST PLC
KOTMALE HOLDINGS PLC
SUNSHINE HOLDINGS PLC
LANKA REALTY INVESTMENTS PLC
ACL CABLES PLC
ODEL PLC
HAYCARB PLC
UNITED MOTORS LANKA PLC
NAWALOKA HOSPITALS PLC
INDO MALAY PLC