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Impact of Corporate Governance Practices on Firm's Cash Holdings in an Emerging Market: A Panel Data Analysis

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Abstract

The aim of the study was to examine the impact of corporate governance practices on firm's cash holdings of listed manufacturing companies in Sri Lanka, using panel data extracted from the financial statements of the companies listed on Colombo Stock Exchange. Corporate governance practices of Sri Lankan listed manufacturing companies were measured by board independence, board size, CEO duality, audit committee meetings and audit committee members, cash holdings were measured by percentage of cash and cash equivalents on total assets and also leverage and firm size were considered as control variables. Data were collected from 26 listed manufacturing companies over a five years period of 2011-2015. Pooled Ordinary Least Square, Fixed Effect and Random Effect models were performed using STATA to explore the best model for the impact of corporate governance practices on firm's cash holdings. Results of the study revealed that fixed effect model was the best model with the evidence of Hausman specification test. According to the fixed effect model, CEO-duality and leverage had significant negative impact on cash holdings while audit committee meetings and firm size had positive impact on cash holdings of the listed manufacturing companies in Sri Lanka. Board independence, board size and audit committee members did not show any significant impact on cash holdings. Findings of the study may be useful to practitioners to identify the effects of corporate governance practices on firm's cash holdings.

Keywords: corporate governance practices, leverage, firm size, cash holdings

1. Background of the Study

Over the years, it has always been a crucial issue to decide an appropriate cash level in companies. As emphasized in finance literature there are three motives of holding money which are (1) transaction motives: cash required by a firm to meet the day to day business operations; (2) precautionary motives: to meet the contingencies or unforeseen circumstances arising in the course of business and (3) speculative motives: to avail the benefit of bargain purchases that may arise in the future. Optimum level of cash holding is the fundamental of sufficient liquidity. Liquidity refers to whether or not an organisation is in a position to meet its short term obligations as they fall due. The ultimate risk associated with being illiquid that creditors may be granted a High Court order to liquidate the organisation. Therefore, every firm should maintain optimum cash balance in order to meet the day to day operations. The management should also consider the factors determining and influencing the cash balances at various point of time. Finance pioneers recommended that the cost of excess cash and danger of inadequate cash should be matched to determine the optimum level of cash balances (Pandey, 2015). There are many reasons in firms to hold cash: to warrant the operations, meet up obligations, and take hold of the good investment opportunities (Wai, 2013). Further, optimum level of cash acts as a protection to prevent high opportunity costs during cash shortage in the firms (Opler et al, 1999; Ozkan and Ozkan, 2004). It is really seen that the firms in the services sectors are more inclined to maintain cash reserves for the purpose of research and development whereas firms in the manufacturing sector may require cash mainly for operational and capital expenditures. It is understood that requirements of cash holdings are depending on the particular firm's exact requirements and nature of businesses. Therefore, to fulfil these firms specific requirements, availability of sufficient cash is very important for every going concern but still several costs and benefits are also associated with holding cash. Keeping these costs and benefits in view, firms are required to maintain an optimal level of cash. It has also been notified in the study of Masood and Shah (2014) believed that good and effective corporate governance by firms is essential in order to maintain an optimal level of cash. Corporate governance in simple words can be defined as 'the system through which businesses are directed and controlled' (Isaksson, 1999). Whereas, La Porta et al. (2000) stated that 'corporate governance is a set of mechanisms through which outside investors protect themselves against expropriation by the insiders'. The insiders further explained as both managers and dominating shareholders of firms. It is emphasizing that corporate governance mechanism influence the firm cash holdings to certain level. Therefore, present study extends the literature on the impact of corporate governance practices on cash holdings of the manufacturing companies. Thus, this study is expected to give the geographical contribution to the existing literature with specific sector.

However there are several researchers investigated the relationship between corporate governance and firm cash holdings in western countries with the advanced business environment, there is few researches to explore the above relationship in emerging countries especially in Sri Lanka so that it is difficult to identify the relationship between corporate governance and cash holding, and also there has been a mix viewpoint on governance and its role in cash holdings. Therefore, this study intend to fill the research gap. Hence, statement of

the research problem can be posted as '*to what extent corporate governance practices impact on cash holdings of listed manufacturing companies in Sri Lanka?*

2. Literature Review

There are controversial results have been placed in prior studies on the relationship between corporate governance and cash holding. With the evidence of prior studies board independence, board size, CEO duality, number of audit committee meetings and number of audit committee members have been considered as explanatory variables, leverage and firm size treated as control variables to investigate the impact of corporate governance practices on cash holdings. Empirical evidences summarized below to support posed the research problem above:

Harford et al. (2008) have conducted a study on the relationship between corporate governance and cash holding which was focused on U.S firms in 2008. Findings of their study suggested that poor governance results in less cash holding and further they have found that *CEO duality* and *board size* were two important attributes of corporate governance, which play an important role in maintaining proper level of cash in the organization. Dahya and Travlos (2000) explored that with dual-responsibility, CEOs provide the interests of the management team and one way to protect the team's position was to hold excessive cash. In addition, CEO together with board of directors formulated the policies including policy related to cash holdings.

There are several studies suggested that *small board of directors* are more effective in decision making process than the larger board of directors and the *larger board size* may cause to hold excess cash in the firm (e.g: Yermack,1996; Lipton and Lorsch,1992). Ferreira and Vilela (2004) have done a survey in the European Management Union (EMU) countries with sample of 400 publicly traded firms covering the period of 1987-2000 to investigate the determinants of corporate cash holdings. Results of the study suggested that cash holdings were positively affected by the investment opportunity set and cash flows and also negatively affected by *asset's liquidity, leverage and size*. Bank debt and cash holdings were negatively related, which supports that a close relationship with banks allows the firm to hold less cash for precautionary reasons. In addition, firms in countries with superior investor protection and concentrated ownership hold less cash, supporting the role of managerial discretion agency costs in explaining appropriate cash levels (Ogundipe et al., 2012).

Yarram (2012) suggested that *board independence* did not confirm any significant impact on the cash holdings but Chen (2008) explained that board independence had significant and negative effect on cash holdings. Xie, Davidson and Dadalt (2003) suggested that higher percentage of board independence or the greater the proportion of outside directors directed to the better practice of corporate governance and better practice of corporate governance shown the way to higher level of cash holdings.

Adinehzadeh and Jaffar (2003) investigated that there was a considerable association between number of audit committee meetings and firms free cash flows. It was concluded that *audit committee meeting* had a positive relationship with free cash flow and it was significant it

meant that more audit committee meetings leads to more amount of free cash flow in useful way. Norwal and Jindal (2017) suggested that there was a positive relationship between *audit committee members* and cash holdings.

Prior empirical evidence shown that *leverage* performed an important role in determining how much cash firm choose to hold (Guney et al., 2006; Ozkan and Ozkan, 2004). Even though, Ozkan and Ozkan (2004) observed that there was a negative relationship between cash holding and leverage. This same conclusion was given by Firera and Vilela (2004). Opler et el. (1999) also found an inverse relation between internal funds and leverage because firms most of the times prefer to have excessive cash to meet financing need than issuing equity which is expensive due to the reason of adverse selection. Nichols (2004) suggested that higher level of cash holdings increase the internal funds to the company, this will lead to reduce the level of leverage since firms do not like to issue the costly equity.

Firm size is another crucial factor that exerts negative effect on cash holding because companies are required to hold lesser amount of cash due to economies of scale (Bates et al., 2009). Large firms are survivors who had more success in the business and therefore they benefit from larger internal sources. With the evidence of this large firm can accumulate more cash. Opler et al (1999) found that smaller firms accumulate large amounts of cash. But some other studies suggested that there was no significant relationship between firm size and cash holding (Ozkan and Ozkan, 2004; Guney et al., 2007). Benefits of having large amount of cash balance may help to finance the capital investment projects and it is cheaper than the external funds (Kusnadi, 2003).

Based on the empirical review, a research model was formulated to answer the research question. The model is presented below demonstrating the relationship between the variables.

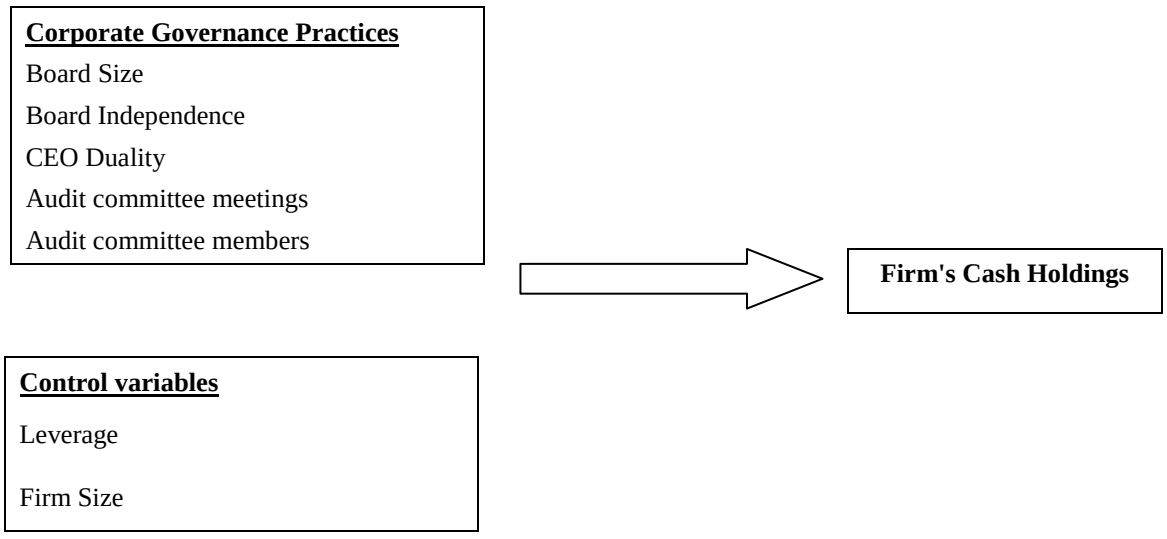

Figure 1. Proposed conceptual framework of the study

Corporate governance practices have been measured by board size, board independence, CEO duality, audit committee meetings and audit committee members and also leverage and firm size have been considered as control variables. After developing the conceptual frame work, following hypotheses have been formulated to carry out the research:

H_1: Board size has significant impact on firm's cash holdings

H_2: Board independence has significant impact on firm's cash holdings

H_3: CEO duality has significant impact on firm's cash holdings

H_4: Audit committee meetings have significant impact on firm's cash holdings

H_5: Audit committee members have significant impact on firm's cash holdings

3. Research Methodology

3.1 Population

The Colombo Stock Exchange consisted 295 companies representing 20 sectors as at 31st December 2016 with the market capitalization of Rs.2810.49bn. (www.cse.lk). Listed manufacturing companies were considered in the current study. There are 40 manufacturing companies have been listed on CSE. Based on the availability of the data for the period of 2011 to 2015, twenty six companies have been included in the study.

3.2 Data Collection

Secondary data has been gathered from the financial statements of the selected manufacturing companies which are listed on CSE. The financial statements which are made up of income statements and balance sheet, corporate governance and audit committee report of the manufacturing companies were the main sources of data for this study. Measurements of the variables have been listed in the Table 1 below:

Table 1. Operationalization of the study

Variables	Indicators	Measurement
Cash Holding	Amount of cash	Cash and cash equivalents / Total Assets (Opler et al, 1999)
Board Independence	Number of independent directors	Number of independent directors / Board of directors (Sheikh and Khan, 2015)
Board Size	Number of board members	Number of inside and outside directors on board (Rahman and Muhamad, 2013)
CEO Duality	CEO Duality (dual role of the CEO)	Coded "1" if chairman also holds the position of CEO and "0" otherwise (Sheikh and Khan, 2015)
Audit Committee Meetings	Number of audit committee meetings	How many times audit committee meets in a year (Adinehzadeh, and Jaffar, 2013)
Audit Committee Members	Number of audit committee members	Number of members in the audit committee Norwal and Jindal (2017)
Leverage	Total debt and total assets	long term debt / total assets (Wai, 2013)
Firm Size	Total assets	Log of total assets (Wai, 2013)

3.3 Model Estimation and Specification

Present study performs the panel data analysis and data for this analysis used the cross sectional and time series strongly balanced panel data of 26 companies for the period from 2011 to 2015. Handling of panel data raises the sample size significantly and is most suitable to learn the dynamics of change. For the purpose of examining the impact of selected corporate governance practices on cash holdings, three estimation models were used such as pooled ordinary least squares (OLS), the random effects, and the fixed effects. Panel data reflect the observations on the similar cross-sectional units over several time periods. It can reveal cross sectional effects on each manufacturing company or on a set of group of companies. In order to solve this kind of issues fixed and random effects models were performed in this study.

Fixed effect model considers the independence of each firms or cross sectional units incorporates in the sample allowing the intercept vary for each company but still assumes that the slope of the coefficients are stable within the companies. The random effect model estimates the coefficients based on the assumption that the individual or group effects are uncorrelated with other independent variables. Finally Hausman Specification Test was employed to find out the best estimation model. Proposed pooled, the fixed effects and the random effects models are given below:

$$CH_{it} = \beta_0 + \beta_1 BI_{it} + \beta_2 BS_{it} + \beta_3 CEO\_D_{it} + \beta_4 ACM_{it} + \beta_5 ACMem_{it} + \beta_6 lev._{it} + \beta_7 fs_{it} + \varepsilon_{it}$$

$$CH_{it} = \beta_0 + \beta_1 BI_{it} + \beta_2 BS_{it} + \beta_3 CEO\_D_{it} + \beta_4 ACM_{it} + \beta_5 ACMem_{it} + \beta_6 lev._{it} + \beta_7 fs_{it} + \mu_{it}$$

$$CH_{it} = \beta_0 + \beta_1 BI_{it} + \beta_2 BS_{it} + \beta_3 CEO\_D_{it} + \beta_4 ACM_{it} + \beta_5 ACMem_{it} + \beta_6 lev._{it} + \beta_7 fs_{it} + \varepsilon_{it} + \mu_{it}$$

Where

CH_{it}: Cash Holdings

BI_{it}: Board Independence

BS_{it}: Board Size

CEO_D_{it}: CEO Duality

ACM_{it}: Audit Committee Meetings

$ACMem_{it}$: Audit Committee Members

Lev_{it}: Leverage

FS_{it}: Firm Size

β_0: Common intercept

β_1 - β_7 = Coefficients of the concerned corporate governance practices

$\boldsymbol{\varepsilon_{it}}$: Stochastic error term of firm *i* at time *t*

μ_{it}: error term of firm *i* at time *t*

$\boldsymbol{\varepsilon_i}$: cross sectional error component

4. Data Analysis

Following paragraphs intend to answer the research question concerning how far corporate governance practices impact on corporate cash holdings. Firstly, descriptive analysis of key variables are presented including cash holdings, board independence, board size, CEO duality, audit committee meetings, audit committee members leverage and firm size. Secondly, analysis focuses on the correlations between the variables. Thirdly, effects of corporate governance on cash holdings are examined to answer the research question.

4.1 Descriptive Analysis

Descriptive statistics of the variables included in the study have been presented in the Table 2 below.

Table 2. Descriptive Statistics of the variables

Variables	Obs	Mean	Std.Dev	Minimum	Maximum
CH	130	.0633	.1099	.0003	.7037
BI	130	.3821	.1250	.1250	.6666
BS	130	7.7461	1.9302	3.0000	12.0000
CEO_D	130	.0846	.2794	0.0000	1.0000
ACM	130	4.0692	1.2211	0.0000	8.0000
ACMem	130	2.8769	.9235	1.0000	5.0000
Lev	130	.1114	.1105	.0108	.6929
FS	130	9.3155	.47636	7.7778	10.2119

Source: Survey data

As result of the descriptive analysis presented in the table 2, on average 6.33% of the cash on total assets is holding by the selected manufacturing companies. At the same time maximum to 70% of cash holding on total assets is maintaining by the selected manufacturing companies with a standard deviation of 0.1099. The minimum number of independent directors is 12.5% on total number of board of directors and maximum number of independent directors is 66.66% on total number of board of directors. Minimum number of board members is 3 and maximum are 12 members on the board. Thus as average board size is 8(7.74) members on the board with the standard deviation of 1.9302. There is maximum 1 member who plays the CEO dual role on the board. On average of 0.08 (8%) is the CEO duality with the standard deviation of 0.2794. Audit committee members are meeting at least 0 time and maximum 8 times in the company. The average number of audit committee meetings are 4 times (4.06) with the standard deviation of 1.2211. The average number of audit committee members are 2.87 with the standard deviation of .9235. Minimum value of total debt on total assets is 0.0108 and maximum value of total debt is 69.29% on total assets. Thus, an average total debt is 11.14 % on total assets with the standard deviation of .1105. The firm size ranges between 7.77 and 10.21 and is an average of 9.31 with the standard deviation of 0.47.

4.2 Correlation Analysis

Table 3. Correlation matrix of the variables

	CH	BI	BS	CEO_D	ACM	ACMem	Lev	FS
CH	1							
BI	-.1907*	1						
	.0298							
BS	-.3860*	-.2832*	1					
	.0000	.0011						
CEO_D	-.0723	-.2471*	.0545	1				
	.4139	.0046	.5379					
ACM	-.3535*	-.2182*	.3495*	.2099*	1			
	.0000	.0126	.0000	.0165				
ACMem	-0.4268*	0.0128	0.5433*	-0.1396	0.2963*	1		
	0.0000	0.8855	0.0000	0.1132	0.0006			
LEV	-.1326	.1633	.0917	-.1473	-.2158*	0.1111	1	
	.1325	.0634	.2994	.0944	.0137	0.2081		
FS	-.1192	.1323	.1578	.0870	.1837*	0.1020	-.1475	1
	.1769	.1335	.0730	.3252	.0365	0.2483	.0941	

Source: Survey data

As shown in Table 3, board independence is significantly negatively associated with cash holdings (r =-.1907, p < 0.05). There is a negative significant association of board size (r =-.3860, p < 0.01), audit committee meetings (r =-.3535, p < 0.01) and audit committee members (r =-.4268, p < 0.01) with cash holdings. Even though, CEO_duality (r =-.0723, p > 0.05), leverage (r =-.1326, p > 0.05) and firm size (r =-.1192, p > 0.05) have not significantly associated to the cash holdings of listed manufacturing companies. Therefore, it can be concluded that with evidence of correlation analysis, there is a significant negative association of board independence, board size, audit committee meetings and audit committee members with cash holdings and there is no association of CEO-duality, leverage and firm size with cash holdings.

Table 4. Impact of corporate governance practices on cash holdings

	Pooled OLS	Fixed Effect	Random Effect
Variables	Cash Holdings	Cash Holdings	Cash Holdings
Board Independence	Coef 0.138*	Coef -0.103	Coef -0.0214
	Std.Err (0.0762)	Std.Err (0.0845)	Std.Err (0.0862)
Board Size	-0.00378	-0.0108	-0.00763
	(0.00571)	(0.00688)	(0.00686)
CEO_Duality	-0.0182	-0.101***	-0.0969***
	(0.0320)	(0.0305)	(0.0328)
Audit committee members	-0.0363***	-0.0112	-0.0120
	(0.0114)	(0.0142)	(0.0138)
Audit Committee meetings	-0.0199**	0.0108*	0.00371
	(0.00789)	(0.00579)	(0.00647)
Leverage	-0.184**	-0.274***	-0.318***
	(0.0811)	(0.0599)	(0.0664)
Firm size	-0.0187	0.297***	0.0750**
	(0.0186)	(0.0496)	(0.0329)
Constant	0.421**	-2.549***	-0.505*
	(0.166)	(0.446)	(0.298)
Observations	130	130	130
R-squared	0.301	0.507	0.3916
F Value	7.52	14.28	
Prob > F	0.000	0.000	
Hausman Specification Test Prob> Chi2		0.000	

*** p<0.01, ** p<0.05, * p<0.1

Source: Survey data

According to the pooled regression results presented in table 4, value of coefficient of determination of dimensions of corporate governance practices in the study which is; (R^2) is 0.301, whilst this result implies that 30 % of total variance in cash holdings can be explained by all dimensions of corporate governance practices. As the model reveals the remaining 70 % of variability is not explained in this model. An Analysis of Variance (ANOVA) indicates prob > F = 0.000 that model is significant. Among the five corporate governance variables, board independence (Coef = .138, p < 0.1) had significantly positively influenced on cash holdings in this study. Board size (Coef = -.00378), CEO_ Duality (Coef = -.0182) and firm size (Coef = -.0187) did not significantly impact on cash holdings. Audit committee members ((Coef = -.0363, p< 0.01) Audit committee meetings (Coeft = -.0199, p < 0.05) and leverage (Coef = -.184, p < 0.05) had significant negative impact on cash holdings and they

have identified as significant predictors on cash holdings. It can be concluded that according to the pooled model, board independence, audit committee members and audit committee meetings and leverage had significant impact on cash holdings.

As per the result of fixed effect model presented in Table 4, value of coefficient of determination of dimensions of corporate governance practices in the study which is; (R^2) is 0.507, whilst this result implies that 51 % of total variance in cash holdings can be explained by all dimensions of corporate governance practices. As the model reveals the remaining 49 % of variability is not explained in this model. An Analysis of Variance (ANOVA) indicates prob > F = 0.000 that model is significant. Among the five corporate governance variables, board independence (Coef = -.103, p > 0.05), board size (coef =-.0108, p > 0.05) audit committee members (coef =-.0112, p > 0.05) did not significantly influence on cash holdings. CEO_ Duality (Coef = -.0101, P < 0.01) and leverage (Coef = -.0274, P < 0.01) had significant negative impact on cash holdings. Audit committee meetings (Coef = -.0108, P < 0.1) and firm size (Coef = .297, P < 0.01) had significant positive impact on cash holdings.

As per the result of random effect model presented in the table 4, value of coefficient of determination of dimensions of corporate governance practices in the study which is; (R^2) is 0.3916, whilst this result implies that 39.16 % of total variance in cash holdings can be explained by all dimensions of corporate governance practices. As the model reveals the remaining 60.84 % of variability is not explained in this model. An Analysis of Variance (ANOVA) indicates prob > F = 0.000 that model is significant. Among the five corporate governance variables, CEO_ Duality (Coef = -.0969, P < 0.01) and leverage (Coef = -.0118, P < 0.01) had significant negative impact of cash holdings. Firm size (Coef = 0.759, P < 0.05) had significant positive impact on cash holdings.

F test was performed to diagnose the time fixed effect in the fixed effect model and outcome of the test revealed that p value was less than 0.05. Therefore, null hypothesis was rejected that there is time fixed effects in the model. Further, Lagrange Multiplier test for random effect was performed. The result indicated that the p value was 0.000 and rejected the null hypothesis in favor of the alternative which implied that random effect model was more appropriate than pooled OLS. In order to decide which one of the alternative panel analysis model whether it is fixed effect model or random effect model, hausman specification test was performed and result indicated that fixed effect model is most suitable in this study (Prob> Chi2 = 0.000). As indicated by Piratheepan and Banda (2016), the Hausman test simply refers to the difference in the coefficient of the output obtained in fixed effects and random effects. Baltagi (2005) suggested that the Hausman test has two restrictions, it requires strict exogenety of error term and assumes that both idiosyncratic error and unobserved effects have constant variances. The Hausman test is used to assess the uniqueness of the error term that whether they are correlated with the response variable or not. Therefore, it can be formulated H_0 hypothesis claims that random effect exists and H_1 hypothesis states that random effect do not exist. With the evidence of result from Hausman test Prob> Chi2 = 0.000 H_0 hypothesis is rejected for cash holdings model of listed manufacturing companies with the 1% of significance level. Therefore, it may be the better model for performing the estimation of the fixed effect model. As a result, the panel data

regression was analyzed by fixed effects model in the present study.

According to the results of fixed effect model stated in the table 4, H_1*:* hypothesis one was not supported with the result of the study as there was no significant impact of board size on cash holdings. H_2*:* hypothesis two was also not supported with the result of the study as there was no significant impact of board independence on cash holdings. However, H_3*:* hypothesis three was supported with the result of the study that there was a significant negative impact of CEO duality on cash holdings. Further, H_5*:* hypothesis five was supported that audit committee members have significant positive impact on cash holdings. But H_4*:* hypothesis four was not supported that there was no significant impact of audit committee meetings on cash holdings.

When answering the research question, according to the result of fixed effect model presented in Table 4, value of coefficient of determination of dimensions of corporate governance practices in the study which is; ($\boldsymbol{R^2}$) is 0.507, whilst this result implies that 51 % of total variance in cash holdings can be explained by all dimensions of corporate governance practices. Further, study concluded that CEO duality had a significant negative impact on cash holdings while audit committee members were significantly positively impact on cash holdings. However, board independence, board size and audit committee meetings were not significantly impact on cash holdings of listed manufacturing companies.

5. Conclusion

This study investigated the impact of corporate governance practices on cash holdings of listed manufacturing companies in Sri Lanka. Data were gathered from the financial statements of the selected manufacturing companies which are listed on CSE from 2011-2015. Based on the empirical result of this study, it can be concluded that CEO duality had a significant negative impact on cash holdings while audit committee members were significantly positively impact on cash holdings. However, board independence, board size and audit committee meetings were not significantly impact on cash holdings of listed manufacturing companies. Result of the study may be useful to the practitioners and decision makers to consider the corporate governance practices in order to keep the optimum level of cash holdings in company.

The major limitation was the time-constraint to access the data from the all listed companies in Sri Lanka. Further, better results can be obtained by considering all companies for an extended time period. Furthermore, variables on ownership structure of the corporate governance practices were excluded from study, but can be incorporated in the data analysis. Analyzing the impact of corporate governance on cash holdings of firms offering financial services can be a worthwhile research. In addition, cross country analysis among the emerging countries and the developed countries can also be a substantial dimension for future research.

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