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The Impact of Board Attributes and Insider Ownership on Corporate Cash Holdings: Evidence from Pakistan

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Abstract

The purpose of this paper is to investigate the impact of board attributes and insider ownership on cash holdings of non-financial firms listed on Karachi Stock Exchange (KSE) Pakistan during 2008-2012. Empirical results indicate that board attributes such as CEO duality, board size and board independence are positively related to cash holdings. However, board independence is the only boards attribute which is found statistically significant. The insider ownership is significantly and negatively related to cash holdings. Alternatively, the square of insider ownership is significantly and positively related to cash holdings. The variation in signs indicates a non-linear relationship. Notably, sample firms are divided into three insider ownership structures i.e. family firm, pyramid firm and non-family firm. Results indicate that family firm is negatively while non-family firm is positively related to cash holdings. These findings indicate that family firms prefer to hold necessary amount of cash enough for their planned as well as unplanned payments than non-family firms. On the other hand, pyramid firm is positively related to cash holdings but the relationship is insignificant. In summary, empirical results indicate that board attributes and insider ownership are important predictors of corporate cash holdings for non-financial firms in Pakistan.

Keywords: board independence, board size, CEO duality, cash holdings, family-firm, insider ownership, non-family firm, pyramid firm

1. Introduction

According to Keynes (1936) individuals/firms hold cash for three main reasons such as transaction, precautionary and speculative. Transaction motives include collection activities associated with a firm's ongoing operations and holding cash to satisfy normal disbursements. Precautionary motives include holding cash as a safety margin. Speculative motives include holding cash to be able to take the benefit of additional investment opportunities. In general, cash management involves collection, disbursement and temporary investment of cash. More importantly, firms adjust their cash holding policy according to changes in internal and external environment. For instance, Wang et al. (2013) suggest that, at macro level, firms adjust their cash holding policy in response

to changes in purchasing power (i.e. inflation) whereas, at micro level, firms adjust their cash holding policy according to firm-specific characteristics (i.e. operating cash flow). According to trade-off theory firms hold more cash for two main reasons such as transaction motives and precautionary motives. Transaction motives indicates that high transaction cost is an important reason that motivates the managers to hold more cash whereas precautionary motives suggest that firms hold more cash to avoid the situation of non-availability of external funds. Alternatively, pecking order theory predict that a firm hold cash when either external source is costly or it is difficult to raise finance through external source than internal source (Myers and Majluf, 1984).

Several studies explored the factors that affect the corporate cash holdings such as Chen and Chuang (2009), Ozkan and Ozkan (2004), Opler et al. (1999) and Kim et al. (1998). However less attention has been given to explore the relationship between internal attributes of corporate governance and cash holdings. In particular, a few studies have explored the effects of CEO duality, board size and board independence in family firm, pyramid firm and non-family firm such as Kusnadi (2011), Kuan et al. (2011) and Ozkan and Ozkan (2004). However their findings are not only inconsistent but also equivocal. To the authors' knowledge, no study has yet been conducted to estimate the effect of board attributes and insider ownership on cash holdings of non-financial firms in Pakistan. Thus, inconsistent and equivocal findings of earlier empirical studies and limited research on this issue in Pakistan are few reasons that induced the need for this empirical investigation.

This paper aims to investigate the impact of board attributes and insider ownership on cash holdings of non-financial firms listed on KSE during 2008-2012. Regression result indicates that board independence is the only board attribute which is statistically significant and positively related to corporate cash holdings. The positive relationship indicate that independent directors on the board may force the managers to hold sufficient cash to support their day-to-day operations and to satisfy their contractual claims on well in time to avoid to be technically insolvent. The square of insider ownership is positively whereas insider ownership is negatively related to corporate cash holdings. The variation in signs indicates a non-linear relationship. For instance, cash holdings increases at lower level of insider ownership and decreases at higher level of insider ownership. Moreover, sample firms are divided into three different insider ownership structures i.e. family firm, pyramid firm and non-family firm. Results indicate a significant negative relationship between family firm and cash holdings. The negative relationship suggests that family firm tend to be more aggressive and maintain only necessary amount of cash enough for their transactional needs. On the other hand, we find a significant positive relationship between non-family firm and cash holdings. The positive relationship may be due to the reason that non-family firms are less concentrated than family firms. They prefer to maintain more cash to take the benefits of unexpected opportunities that may originate because of volatile economic and political condition in the country. Finally, we find an insignificant positive relationship between pyramid firm and cash holdings. In summary, empirical results indicate that board attributes and insider ownership has significant effect on corporate cash holdings. We expect that findings of this study provide support to

corporate managers to understand the affect of internal governance mechanisms on cash holdings.

The rest of the paper is structured as follows: Section 2 presents the review of literature. Section 3 presents data, variables and research methodology. Section 4 provides regression results. Section 5 describes discussion on empirical findings. Finally, Section 6 concludes the study.

2. Literature Review

Several studies have been conducted to explore the factors that affect the corporate cash holdings. However little is known about the impact of internal governance mechanisms such as CEO duality, board size, board independence and insider ownership on cash holdings. Kim et al. (1998) in their study on US industrial firms have shown that firms with more volatile earnings and higher market-to-book ratio hold more liquid assets. Opler et al. (1999) analyzed the data of publicly traded US firms during 1971-1994 to examine the factors of corporate cash holdings. They observed that small firms with strong growth opportunities and firms with riskier activities prefer to hold more cash than firms that have easy access to the capital market. Dittmar et al. (2003) analyzed the data of more than 11000 firms from 45 countries. They found that firms in countries with good shareholder protection hold less cash than firms in countries where shareholders rights are not well protected. Moreover, their findings suggest that when shareholder protection is poor then determinants that generally drive the need for cash holdings such as asymmetric information and investment opportunities virtually become less important. Furthermore, they observed that when firms have an easy access to cash then they prefer to hold more. Ozkan and Ozkan (2004) explored the determinants of corporate cash holdings using the data of publically traded firms in United Kingdom during 1984-1999. They observed that board composition and presence of ultimate controller does not change the way in which managerial ownership exerts influence on cash holdings. Moreover, their results indicate that leverage and bank-debt, growth opportunities, cash flow and liquid assets are important factors that determine the cash holdings.

Pinkowitz et al. (2006) analyzed the data of firms in 35 countries during 1983-1998. They found that relationship between cash holdings and firm value is much stronger in countries with strong investor protection than countries with weak investor protection. Faulkender and Wang (2006) in their study on US based publically traded companies during 1972-2001 found that marginal value of cash diminishes due to higher leverage, better access to capital markets, cash distribution through dividends rather than repurchases and larger cash holdings. Harford et al. (2008) observed that when companies with weaker corporate governance intend to distribute cash among shareholders then they prefer to choose repurchases than dividends in order avoid future commitments. Moreover, companies with weaker corporate governance structure hold smaller cash reserves. Chen and Chuang (2009) used the data of high-tech companies listed on NASDAQ in order to estimate the effects of corporate governance on cash holdings. Their findings suggest that association between corporate governance and cash holdings is dependent upon the investment environment in which a firm operates. For instance, companies with greater investment opportunities hold more cash in order to maintain their competitive position. Moreover, stockholders accept larger cash holdings in such growing firms if corporate governance structure protects their interests. Their

results indicate that CEO ownership, presence of independent directors on the board and the directorship of venture capitalists perform critical roles in cash policy. Finally, their results suggest that in younger firms effects of corporate governance are more significant whereas in older firms the effects of firm-specific economic variables are important.

Kuan et al. (2011) examined the relationship between corporate governance and cash holding policy of family controlled companies in Taiwan during 1997-2008. They observed that the impact of corporate governance differs between non-family controlled and family controlled companies. Moreover, they found that CEO duality, separation of seat control rights and cash flow rights materially affects the cash policy. Kusnadi (2011) analyzed the data of more than 500 companies listed on the Singapore Stock Exchange and Kuala Lumpur Stock Exchange during 2000-2005. He observed that companies with more effective governance attributes inclined to hold less cash than companies with less effective corporate governance attributes. Moreover, he observed that marginal value of holding excess cash is negatively related in companies with single leadership structure (i.e. CEO duality), companies with pyramidal structure and family controlled companies.

According to Jensen (1986) when there is a greater agency conflict between minority and controlling shareholders then firmly established managers prefer to hold more cash. Owing to this reason a positive relationship is expected between excess control rights and cash holdings. Kuan et al. (2012) analyzed the data of Taiwanese publicly listed companies during 1997-2009 to investigate the role of ownership and control structures to determine the cash holdings. Their results suggest that excess control rights significantly affect corporate cash holdings. Moreover, their findings suggest that less excess control rights can compel companies to hold more or less cash, depending upon the level of cash holdings they own. For instance, when the levels of cash holding they own are low, additional excess control rights reduce cash holdings. Their finding is consistent with the prediction that when interests of owner and manager are aligned then owner will allow companies to hold more cash in order to avail the benefit of investment opportunities, otherwise owner discourage managers to hold excess cash. Boubakri et al. (2013) analyzed a sample of 50119 firm-year observations from 31 countries during 1997-2001. They found that politically connected companies hold larger cash balances than non-politically connected companies. Why this is so because politicians use these companies as cash cow to pursue their political agendas. Moreover, their findings indicate that weak corporate governance leads to stronger positive relationship between political connections and cash holdings.

3. Data, Variables and Research Methodology

3.1 Data

In order to estimate the effects of board attributes and insider ownership on cash holdings, the data collected from annual reports of firms listed on KSE Pakistan during 2008-2012. All non-financial firms (i.e. 409) listed on KSE during 2008-2012 were included in the study. However firms with incomplete data were deleted from analysis. So, final sample consist of 189 firms. The details of sample firms with respect to their affiliation with different industrial groups/sectors are reported in Table 1.

Table 1: Description of Sample Firms

Industrial group / Sector	Number of firms	%age
Textile and other textile	68	35.97
Food producers / beverages	30	15.87
Cement (construction and material)	22	11.64
Chemical	18	9.50
Automobile and parts	11	5.82
Oil and gas	10	5.29
Pharmaceutical and biotech	7	3.70
General industries	7	3.70
Electricity	5	2.64
Engineering	4	2.11
Household goods	4	2.11
Industrial and metal mining	3	1.58
Total	**189**	**100**

3.2 Variables

Table 2 presents the definition of dependent and explanatory variables. Definitions were largely adopted from Kusnadi (2011). The dependent variable is cash holding ratio whereas explanatory variables include board attributes (i.e. CEO duality, board size and board independence) and insider ownership (i.e. non-family firm, family firm and pyramidal structure). Moreover control variables are leverage, cash flow, net working capital, firm size, dividend dummy and capital expenditures.

Table 2: Definition of Variables

Variable	Definition
Dependent Variable	
Cash Holdings (CH_{it})	Cash and Cash Equivalents / Net Assets*.
Independent Variables	
Board Size (BS_{it})	Natural Logarithm of Total Number of Directors on the Board.
Board Independence (BI_{it})	Independent Non-Executive Directors in A Board / Total Number of Directors on the Board.
CEO Duality (CD_{it})	1 If Chairperson of the Board is also CEO of the Company, 0 Otherwise.
Insider Ownership (IO_{it})	Fraction of Shares (Direct + Indirect) Held by Directors and Family Members.
Insider Square (IOS_{it})	Square of Insider Ownership.
Family Firm (FF_{it})	1 If Firms with Insider Ownership above 20%, 0 Otherwise
Non-Family Firm (NF_{it})	1 If Firms with Insider Ownership Less than 20%, 0 Otherwise.
Pyramid (PY_{it})	1 If Firms with A Pyramidal Ownership Structure, 0 Otherwise. Firms in Pyramidal Structure Inter-Connected through A Chain of Ownerships. For Instance, Firm W Owns Firm X Which in Turn Owns Firm Y with Ultimate Controlling Shareholder at the Top of the Pyramid Being A Family.
Control Variables	
Leverage (LEV_{it})	Total Liabilities / Net Assets.
Firm Size (FS_{it})	Natural Logarithm of Total Assets.
Net Working Capital (NWC_{it})	Net Working Capital / Net Assets. Net Working Capital = CA – CL
Cash Flow (CF_{it})	Income after Interest, Taxes and Dividend but before Depreciation / Net Assets.

Capital Expenditures (CE_{it})	Capital Expenditures / Net Assets.
Dividend Dummy (DIV_{it})	1 If Firms Pays Dividend in Given Year, 0 Otherwise.

***** Net assets defined as total assets minus cash and cash equivalent.

3.3 Research Methodology

We use panel data methods because sample contains data of different cross-sectional over time. In particular panel data sets are more suitable to identify and estimates the effects that are simply not detectable in pure cross-sectional or time-series data. We use pooled ordinary least squares method to estimate the relationship between internal governance mechanisms and cash holdings. The basic regression is as follows:

$$y_{it} = \beta_0 + X'_{it}\beta + \mu_{it}$$

Where subscript *i* denotes the cross-sectional dimension, *t* represent the time dimension, y_{it} represent the dependent variable in the model, β_0 is the *y*-intercept. X_{it} is a 1 x *K* vector of observations on *K* explanatory variables for the *i*th firm at *t* time, β is a *K* x1 vector of parameters, μ_{it} is a disturbance term and is defined as $\mu_{it} = u_i + v_{it}$. u_i represent unobservable individual effects, and v_{it} denotes the remainder disturbance. More specifically the regression equations are as follows:

$$CH_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 CD_{it} + \beta_4 LEV_{it} + \beta_5 FZ_{it} + \beta_6 NWC_{it} + \beta_7 CF_{it} + \beta_8 CE_{it} + \beta_9 DIV_{it} + \mu_{it} \quad (1)$$

$$CH_{it} = \beta_0 + \beta_1 IO_{it} + \beta_2 IOS_{it} + \beta_3 LEV_{it} + \beta_4 FZ_{it} + \beta_5 NWC_{it} + \beta_6 CF_{it} + \beta_7 CE_{it} + \beta_8 DIV_{it} + \mu_{it} \quad (2)$$

$$CH_{it} = \beta_0 + \beta_1 BS_{it} + \beta_2 BI_{it} + \beta_3 CD_{it} + \beta_4 IO_{it} + \beta_5 IOS_{it} + \beta_6 LEV_{it} + \beta_7 FZ_{it} + \beta_8 NWC_{it} + \beta_9 CF_{it} + \beta_{10} CE_{it} + \beta_{11} DIV_{it} + \mu_{it} \quad (3)$$

First of all, we estimate the relationship between cash holdings and board attributes such as CEO duality, board size and board independence in equation 1. After that we estimate the relationship between ownership (i.e. insider ownership and insider ownership square) and cash holdings in equation 2. Finally, we estimate the combined effects of board attributes and ownership on cash holdings in equation 3. In equation 4 we estimate the impact of family firm on cash holdings.

$$CH_{it} = \beta_0 + \beta_1 FF_{it} + \beta_2 LEV_{it} + \beta_3 FS_{it} + \beta_4 NWC_{it} + \beta_5 CF_{it} + \beta_6 CE_{it} + \beta_7 DIV_{it} + \mu_{it} \quad (4)$$

Further we estimate the relationship between cash holdings and board attributes in family firm by introducing interaction of family firm with CEO duality, board size and board independence in equation 5.

$$CH_{it} = \beta_0 + \beta_1 FF_{it} + \beta_2 BS_{it} + \beta_3 BI_{it} + \beta_4 CD_{it} + \beta_5 (FF_{it} \times BS_{it}) + \beta_6 (FF_{it} \times BI_{it}) + \beta_7 (FF_{it} \times CD_{it}) + \beta_8 LEV_{it} + \beta_9 FS_{it} + \beta_{10} NWC_{it} + \beta_{11} CF_{it} + \beta_{12} CE_{it} + \beta_{13} DIV_{it} + \mu_{it} \quad (5)$$

Further we estimate the relationship between pyramidal firm and cash holdings in equation6.

$$CH_{it} = \beta_0 + \beta_1 PY_{it} + \beta_2 LEV_{it} + \beta_3 FS_{it} + \beta_4 NWC_{it} + \beta_5 CF_{it} + \beta_6 CE_{it} + \beta_7 DIV_{it} + \mu_{it} \quad (6)$$

Moreover, we estimate the relationship between cash holdings and board attributes in pyramidal firm by introducing interaction of pyramid with CEO duality, board size and board independence in equation 7.

$$CH_{it} = \beta_0 + \beta_1 PY_{it} + \beta_2 BS_{it} + \beta_3 BI_{it} + \beta_4 CD_{it} + \beta_5 (PY_{it} \times BS_{it}) + \beta_6 (PY_{it} \times BI_{it}) + \beta_7 (PY_{it} \times CD_{it}) + \beta_8 LEV_{it} + \beta_9 FS_{it} + \beta_{10} NWC_{it} + \beta_{11} CF_{it} + \beta_{12} CE_{it} + \beta_{13} DIV_{it} + \mu_{it} \quad (7)$$

After that we estimate the relationship between non-family firms and cash holding in equation 8.

$$CH_{it} = \beta_0 + \beta_1 NF_{it} + \beta_2 LEV_{it} + \beta_3 FS_{it} + \beta_4 NWC_{it} + \beta_5 CF_{it} + \beta_6 CE_{it} + \beta_7 DIV_{it} + \mu_{it} \quad (8)$$

Moreover, we estimate the relationship between cash holdings and board attributes in non-family firm by introducing interaction of non-family firm with CEO duality, board size and board independence in equation 9.

$$CH_{it} = \beta_0 + \beta_1 NF_{it} + \beta_2 BS_{it} + \beta_3 BI_{it} + \beta_4 CD_{it} + \beta_5 (NF_{it} \times BS_{it}) + \beta_6 (NF_{it} \times BI_{it}) + \beta_7 (NF_{it} \times CD_{it}) + \beta_8 LEV_{it} + \beta_9 FS_{it} + \beta_{10} NWC_{it} + \beta_{11} CF_{it} + \beta_{12} CE_{it} + \beta_{13} DIV_{it} + \mu_{it} \quad (9)$$

4. Empirical Results

4.1 Descriptive Statistics

Descriptive statistics of variables used in this study is presented in Table 3. The mean cash holdings are 5.39 percent of net assets. The average number of board of directors in a board is 7.95. The minimum and maximum number of members in a board is 6 and 16 respectively. The mean independent non-executive directors (a proxy for board independence) in a board are 18.21 percent. The mean of CEO duality is 19.68 percent which indicates the fraction of firms in which one person hold both position. The average insider ownership is 55.53 percent which indicates the proportion of direct and indirect voting right. Alternatively, this average indicates that Pakistani firms are dominated by families. The mean of pyramidal firm is 18.93 percent which indicates the proportion of firm inter-connected through a chain of ownership. The mean leverage is 58.87 percent indicating the proportion of net assets financed through total liabilities. The mean value

of firm size is 15.15. The mean value of net working capital is 7.86 percent. The mean value of cash flow is 5.90 percent. The mean capital expenditures are 5.79 percent. Finally, mean value of dividend dummy is 67.51 percent which indicates the proportion of sample firms that have distributed the cash dividend among shareholders during the study period.

Table 3: Descriptive Statistics

Variable	Obs.	Mean	Std. Dev	Minimum	Maximum
CH_{it}	945	0.0539	0.1138	0.0200	1.0575
BS_{it}	945	7.9502	1.4781	6.0000	16.000
BI_{it}	945	0.1821	0.2656	0.0000	0.9285
CD_{it}	945	0.1968	0.3978	0.0000	1.0000
IO_{it}	945	0.5553	0.2316	0.0000	0.9921
FF_{it}	945	0.8719	0.3343	0.0000	1.0000
NF_{it}	945	0.1281	0.3365	0.0000	1.0000
PY_{it}	945	0.1893	0.3920	0.0000	1.0000
LEV_{it}	945	0.5887	0.1980	0.0020	1.1527
FS_{it}	945	15.151	1.4231	11.970	19.67
NWC_{it}	945	0.0786	0.2385	-0.717	1.3007
CF_{it}	945	0.0590	0.2710	-0.520	0.9276
CE_{it}	945	0.0579	0.1526	0.0000	4.2455
DIV_{it}	945	0.6751	0.4685	0.0000	1.0000

4.2 Correlation Matrix

Correlation of variables is presented in Table 4. The reason to prepare correlation matrix is to test the possible degree of multicollinearity among the independent variables. Results indicate that cash holding ratio is negatively related to CEO duality and insider ownership while positively related to board size and board independence. Board size positively associated with board independence but negatively associated with insider ownership and CEO duality. CEO duality is positively related to board independence and insider ownership. Finally, board independence is negatively related to insider ownership. In summary cross-correlation terms for the explanatory variables are fairly small and there is no problem of multicollinearity.

Table 4: Correlation Matrix

Variable	CH_{it}	BS_{it}	CD_{it}	BI_{it}	IO_{it}
CH_{it}	1.000				
BS_{it}	0.113***	1.000			
CD_{it}	-0.089***	-0.118***	1.000		
BI_{it}	0.001	0.053*	0.075***	1.000	
IO_{it}	-0.131	-0.119***	0.069**	-0.146***	1.000

*,**,*** indicates significance level at 0.01, 0.05, 0.10 respectively.

4.3 Regression Results

Regression results of equations (1), (2) and (3) presented in Section 3.3 are reported in Table 3. Results of Eq. (1) show that board independence is statistically significant and positively related to cash holdings. Although CEO duality and board size are positively related to cash holdings however the relationship is insignificant. Results of Eq. (2) indicate that insider ownership is significant and negatively related to cash holdings. Alternatively, the square of insider ownership is positively related to cash holdings but relationship is insignificant. Results of Eq. (3) indicate that insider ownership is significantly negatively while square of insider ownership and board independence are statistically significant and positively related to cash holdings. In addition, board size and CEO duality are positively related to cash holdings however the relationships are insignificant.

Table 6 presents the regression result of equations (4) to (9) shown in Section 3.3. Regression results of Eq. (4) indicate that family firm is significantly and negatively related to cash holdings. More importantly, results of Eq. (5) indicate that in family firm board size is significantly and negatively related to cash holdings. Alternatively, CEO duality is positively whereas board independence is negatively related to cash holdings but the relationships are insignificant. Results of Eq. (6) indicate that pyramidal firm is positively related to cash holdings however the relationship is insignificant. Results of Eq. (7) indicate that in pyramidal firm board size is statistically significant and negatively related to cash holdings. Alternatively, CEO duality is negatively whereas board independence is positively related to cash holdings but the relationships are insignificant. Results of Eq. (8) indicate that non-family firm is statistically significant and positively related to cash holdings. Finally, results of Eq. (9) indicate that in non-family firm board size is positively whereas CEO duality is negatively related to cash holdings. Although board independence is positively related to cash holdings but the relationship is insignificant.

In general, findings related to control variables are same in all regressions. For instance, firm size, leverage and net working capital are statistically significant and positively related to cash holdings in all estimations. Dividend dummy and cash flow are positively whereas capital expenditures are negatively related to cash holdings in all regressions however the relationships are insignificant.

Table 5: Regression Result of Equations (1), (2) And (3)

Variable	**Eq. (1)**	**Eq. (2)**	**Eq. (3)**
Dependent Variable: Cash Holdings ***(*** CH_{it} ***)***			
BS_{it}	0.005 (0.32)		0.003 (0.21)
BI_{it}	0.030*** (2.91)		0.028*** (2.72)
CD_{it}	0.009 (1.38)		0.011 (1.57)
IO_{it}		-0.092* (-1.96)	-0.097** (-2.06)
IOS_{it}		0.068 (1.52)	0.076* (1.70)
LEV_{it}	0.217*** (13.3)	0.367*** (13.24)	0.220*** (13.40)
FS_{it}	0.012*** (5.82)	0.218*** (5.83)	0.011*** (5.50)
NWC_{it}	0.374*** (26.20)	0.012*** (25.7)	0.373*** (25.94)
CF_{it}	0.013 (1.30)	0.012 (1.25)	0.012 (1.22)
CE_{it}	-0.006 (-0.35)	-0.008 (-0.45)	-0.006 (-0.36)
DIV_{it}	0 .004 (0.65)	0.004 (0.68)	0.005 (0.88)
R^2	0.465	0.464	0.469
Adj. R^2	0.461	0.459	0.463
F-statistic	90.92	101.1	75.17
Prob. (*F* – statistic)	0.000	0.000	0.000

*,**,*** indicates significance level at 1%, 5% and 10% respectively.
(t - statistic given in parenthesis)

Table 6: Regression Result of Equations (4) to (9)

Variable	Eq.(4)	Eq.(5)	Eq.(6)	Eq.(7)	Eq.(8)	Eq.(9)
Dependent variable: Cash holdings (CH_{it})						
FF_{it}	-0.035*** (-4.11)	0.243*** (2.86)				
PY_{it}			0.006 (0.94)	0.160* (1.91)		
NF_{it}					0.034*** (4.07)	-0.225*** (-2.66)
BS_{it}		0.093*** (2.64)		0.023 (1.13)		-0.030 (-1.46)
BI_{it}		0.032 (1.20)		0.021* (1.84)		0.027** (2.49)
CD_{it}		-0.036 (-1.17)		0.014* (1.87)		0.014** (1.99)
$(FF_{it} \times BS_{it})$		-0.132*** (-3.28)				
$(FF_{it} \times BI_{it})$		-0.008 (-0.30)				
$(FF_{it} \times CD_{it})$		0.049 (1.54)				
$(PY_{it} \times BS_{it})$				-0.078* (-1.92)		
$(PY_{it} \times BI_{it})$				0.040 (1.60)		
$(PY_{it} \times CD_{it})$				-0.025 (-1.38)		
$(NF_{it} \times BS_{it})$						0.124** (3.10)
$(NF_{it} \times BI_{it})$						0.002 (0.10)
$(NF_{it} \times CD_{it})$						-0.055* (-1.75)
LEV_{it}	0.209*** (12.90)	0.204*** (12.46)	0.216*** (13.11)	0.218*** (13.15)	0.216*** (13.34)	0.212*** (12.97)
FS_{it}	0.009*** (4.80)	0.009*** (4.26)	0.012*** (5.93)	0.012*** (5.66)	0.010*** (4.91)	0.009*** (4.26)
NWC_{it}	0.360*** (25.35)	0.364*** (25.61)	0.369*** (25.99)	0.373*** (26.0)	0.349*** (24.16)	0.353*** (24.49)
CF_{it}	0.012 (1.24)	0.012 (1.25)	0.014 (1.41)	0.013 (1.37)	0.118*** (3.66)	0.124*** (3.85)

CE_{it}	-0.007 (-0.40)	-0.004 (-0.27)	-0.007 (-0.41)	-0.005 (-0.32)	-0.009 (-0.52)	-0.007 (-0.40)
DIV_{it}	0.004 (0.74)	0.005 (0.87)	0.003 (0.51)	0.004 (0.67)	0.002 (0.32)	0.002 (0.44)
R^2	0.469	0.484	0.460	0.470	0.476	0.492
Adj. R^2	0.466	0.477	0.456	0.463	0.472	0.484
F-statistic	118.6	67.38	114.4	63.66	121.88	69.36
Prob. (*F* – statistic)	0.000	0.000	0.000	0.000	0.000	0.000

*,**,*** indicates significance level at 1%, 5% and 10% respectively.

(t - statistic given in parenthesis)

5. Discussion on Empirical Results

Regression results of Eq. (3) indicate the combined effect of board attributes (i.e. CEO duality, board size and board independence) and insider ownership on cash holdings. Empirical results suggest that CEO duality, board size and board independence are positively related to cash holdings. However, board independence is the only board attribute which is statistically significant. A plausible explanation for positive association between board size and cash holdings is that larger boards with high levels of links to external environment increase the firm access to various resources which in turn improves the firm cash holding position. More importantly, the greater the need for external linkages, the bigger the board size should be (Pfeffer and Salanick, 1978). Thus in a country like Pakistan where relationships substitute for physical assets and considered as important tool for raising capital, so bigger boards play their role in improving liquid position of the firm. The positive relationship between cash holdings and board independence shows that independent directors on the board induce management to maintain sufficient amount of cash not only to support the operating activities but also to satisfy the contractual claims when they become due. The positive relationship between cash holdings and CEO duality shows that when two roles such as decision management and decision control are combined into a single position that makes the CEOs more responsible and accountable and in turn make them more conservative. That is why CEOs prefer to hold more cash not only for planned payments (i.e. transactional motives) but also for unplanned payments (i.e. precautionary motives). The square of insider ownership is positively whereas insider ownership is negatively related to cash holdings. The relationships are statistically significant and consistent with the findings of Kusnadi (2011). More importantly, the variation in signs of insider ownership and square of insider ownership with cash holdings indicate a non-linear relationship i.e. at lower level of insider ownership the cash holdings increase whereas at higher level of insider ownership the cash holdings decrease.

Regression results of Eq. (4) and Eq. (5) presented in Table 6 indicates the effects of family firm (i.e. insider ownership) on cash holdings. Empirical results indicate that family firm is significantly and negatively related to cash holdings. The negative relationship shows that family firms tend to be more aggressive and maintain only necessary amount of cash enough for their transactional needs. Moreover, enough amount of cash refrain the managers to overinvest and to use it for their personal gains (i.e.

empire building). The interaction term of family firm with board size and board independence have negative impact on cash holdings. Alternatively, interaction term of family firm with CEO duality have a positive impact on cash holdings. Only the negative relationship of interaction term of family firm with board size on cash holdings is found statistically significant. This finding indicate that family firm with small board size is more conservative and hold more cash for planned as well as unplanned payments than family firm with bigger board size.

Results of Eq. (6) and Eq. (7) reported in Table 6 shows the effects of pyramidal ownership structure (i.e. insider ownership) on cash holdings. Regression results indicate that pyramid firm is positively related to cash holdings but the relationship is insignificant. Moreover, the interaction term of pyramid firm with board size and CEO duality are negatively related to cash holdings. Alternatively, the interaction term of pyramid firm with board independence is positively related to cash holdings. The negative relationship of interaction term of pyramid firm with board size on cash holdings is found statistically significant. This relationship suggest that pyramid firm with larger board hold less cash than pyramid firm with small boards. Regression results of Eq. (8) and Eq. (9) shown in Table 6 indicate the effects of non-family firm on cash holdings. Empirical results indicate that non-family firm is significantly and positively related to cash holdings. The positive relationship may be due to the fact that non-family firm is less concentrated than family firm. Moreover, non-family firm prefer to hold more cash to take the benefits of unexpected opportunities that may arise because of uneven economic and political condition in the country. The interaction term of non-family firm with board size is significant and positively related to cash holdings. The positive relationship shows that non-family firm with bigger board prefer to maintain more cash than non-family firm with smaller board size. On the other hand, the interaction term of non-family firm with CEO duality is significant and negatively related to cash holdings. The negative relationship indicate that non-family firm with unitary leadership hold less cash and believe on aggressive working capital strategy than non-family firm with dual leadership.

Finally, the effects of control variables on cash holdings in all regressions are approximately the same. For instance, net working capital, leverage and firm size are statistically significant and positively related to cash holdings. The positive relationship of leverage with cash holdings suggests that availability of sufficient liquid resources encourage the managers to borrow more because of their ability to satisfy the contractual claims when they become due. Moreover, privatized commercial banks like to extend loans to firms which maintain sufficient liquid resources for interest and principal payment. The positive relationship is congruent with the predictions of trade-off theory of capital structure. The positive relationship between firm size and cash holdings suggest that larger firms hold more cash than smaller firms to take the benefit of diversification and to avoid bankruptcy. The positive association between firm size and cash holding is congruent with earlier empirical studies such as Ozkan and Ozkan (2004) and Opler et al. (1999). The net working capital is positively related to cash holdings. The positive relationship is consistent with the findings of Wang et al. (2013). Finally, the cash flow

and dividends are positively whereas capital expenditures are negatively related to cash holdings but relationships are insignificant.

In summary, empirical results indicate that board attributes and insider ownership has significant influence on corporate cash holdings. Moreover, findings of this study not only fill a gap in the literature with reference to Pakistan but also provide some support to managers to understand that how the internal governance mechanisms affect the cash holdings.

6. Conclusion

This paper aims to investigate the impact of board attributes (i.e. CEO duality, board size and board independence) and insider ownership on cash holdings of non-financial firms listed on KSE during 2008-2012. Empirical results indicate that CEO duality, board size and board independence are positively related to cash holdings. Board independence is the only board attribute which is found statistically significant. The positive relationship between board independence and cash holdings suggest that independent directors on the board may force the managers to hold sufficient cash not only for their planned payments but also to satisfy the contractual claims on due dates to avoid to be technically insolvent. The insider ownership is negatively whereas the square of insider ownership is positively related to cash holdings. The variation in signs indicates a non-linear relationship i.e. cash holdings increase at lower level of insider ownership and decrease at higher level of insider ownership. Furthermore, the sample firms divided into three different insider ownership structures i.e. family firm, pyramid firm, and non-family firm. Regression results indicate that family firm is significant and negatively related to cash holdings. The negative relationship suggests that family firm tend to be more aggressive and maintain only necessary amount of cash enough for their transactional needs. More importantly, enough amount of cash refrain the managers to overinvest and to use it for their personal gains (i.e. empire building). Moreover, in family firm the board size is statistically significant and negatively related to cash holdings. The negative relationship suggests that family firm with smaller board size are more conservative and hold more cash for planned as well as unplanned payments than family firm with bigger board size. On the other hand non-family firm is significant and positively related to cash holdings. The positive relationship may be due to the fact that non-family firm is less concentrated than family firm. Non-family firm tend to hold more cash in order to take the benefits of unexpected opportunities that may originate because of volatile economic and political condition in the country. Moreover, in non-family firm CEO duality is significantly and negatively related to cash holdings. The negative relationship shows that non-family firm with single leadership structure hold less cash than non-family firm with dual leadership structure. Finally, pyramid firm is positively related to cash holdings but the relationship is insignificant. Moreover, in pyramid firm board size is significantly and negatively related to cash holdings. This finding suggest that pyramid firm with bigger board hold less cash than pyramid firm with smaller board. In summary, regression results indicate that board attributes and insider ownership have material effects on corporate cash holdings. More importantly, findings of this study have laid some groundwork upon which a more detailed evaluation of corporate cash holdings could be based. We expect that findings of this study fill a gap in the literature and provide support to corporate

managers to understand that how internal governance mechanisms influence cash holdings.

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