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Article

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Suggested Citation: Gul, Rauf; Ullah, Sabeeh; Ur Rehman, Ajid; Hussain, Shahzad; Alam, Mehtab (2020) : Corporate governance and cash holdings: Family versus non-family controlled firms, Cogent Business & Management, ISSN 2331-1975, Taylor & Francis, Abingdon, Vol. 7, Iss. 1, pp. 1-17,
<https://doi.org/10.1080/23311975.2020.1854562>

This Version is available at:

<https://hdl.handle.net/10419/245016>

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To cite this article: Rauf Gul, Sabeeh Ullah, Ajid Ur Rehman, Shahzad Hussain & Mehtab Alam | (2020) Corporate governance and cash holdings: Family versus non-family controlled firms, Cogent Business & Management, 7:1, 1854562, DOI: [10.1080/23311975.2020.1854562](https://doi.org/10.1080/23311975.2020.1854562)

To link to this article: <https://doi.org/10.1080/23311975.2020.1854562>



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Received: 25 October 2020
Accepted: 17 November 2020

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Reviewing editor:
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ACCOUNTING, CORPORATE GOVERNANCE & BUSINESS ETHICS | RESEARCH ARTICLE

Corporate governance and cash holdings: Family versus non-family controlled firms

Rauf Gul¹, Sabeeh Ullah¹, Ajid Ur Rehman², Shahzad Hussain^{3*} and Mehtab Alam¹

Abstract: We examine the impact of corporate governance on cash holdings and the interplay of family ownership on this relationship through static and dynamic panel estimation models. Composite indicator for the corporate governance based on several proxies related to corporate board structure and ownership is constructed using principal component analysis (PCA). Our evidence is based on a sample of 120 publicly listed non-financial firms from Pakistan Stock Exchange (PSX) over the period 2013–2017. The selected sample is further divided into family and non-family firms based on 10% or more ownership. We document the negative impact of corporate governance on cash holdings. The findings reveal that family ownership as a moderator weakens the impact of corporate governance mechanism on cash holdings. The analysis of individual proxies of corporate governance and cash holdings in the whole sample, as well as sub-sample, provides some new insights that family firms with more board size, board independence, and



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PUBLIC INTEREST STATEMENT

Around the globe family business are growing and especially in Pakistan, while research on family firms are remained limited. Researches documented that family business hold more cash that lead to agency problems. This study is an attempt to investigate the effect of corporate governance on cash holding in family and non family firms in Pakistan. The findings of the study reveal that family firms in Pakistan holds more cash as compared to non family firms. The present study has significant implications for academicians, investors and policy makers to design policies in a way to protect the minority shareholders from expropriation of firm resources by controlling shareholders.

institutional shareholdings hold more cash as compared to non-family firms. The study theoretically supports the agency theory. The study suggests that individual market participants may make investment decisions thereby keeping in view the role of family ownership. The study also provides better insights to regulatory authorities to design policies in such a way that ensure the protection of minority shareholders as corporate cash holdings decisions are different in family and non-family firms.

Subjects: Quantitative Finance; Corporate Finance; Business, Management and Accounting

Keywords: cash holdings; corporate governance; family and non-family firms; Pakistan stock exchange

1. Introduction

In response to a sequence of famous economic crises, and the collapse of Enron, Tyco, and WorldCom that clattered the confidence of the stockholders, Sarbanes Oxley Act was passed aiming to improve accountability and corporate governance. Corporate governance is a system used to control and direct a firm (Cadbury, 1992), to mitigate insiders expropriation (Hamzah & Zulkafli, 2014; Jensen et al., 2014), to protect shareholders' wealth (La Porta et al., 2000), to increase access to external capital (Sarbah & Xiao, 2015), and to survive in economic shocks (Hashim & Amrah, 2016). In agency cost perspective, the conflict of interest between managers and shareholders that arises due to the misuse of the company's assets can be mitigated by strong corporate governance (Al-Najjar & Clark, 2017; Hussain et al., 2019). Therefore, proper corporate governance tools or system is important in solving this problem to align the interest of both managers and shareholders (Lasfer, 2006).

Most of the prior studies relate corporate governance with firm performance (Almaqtari et al., 2020). However, several previous studies also relate corporate governance with cash holdings (Ajanthan & Kumara, 2017; Al-Najjar & Clark, 2017).¹ As for normal business dealings and any contractual obligations, the decision to hold cash in surplus amount is mostly at the disposal of managers with confined scope for external analysis (Al-Najjar & Clark, 2017). From an agency cost perspective, firms with greater stockholder rights protection, make fewer cash holdings (Kuan et al., 2011). This specifies that stockholders are desire to bound cash at managers' choice or option (Dittmar et al., 2003; Jensen, 1986; Jensen & Meckling, 1976). But to decide the appropriate level of cash level, always being remained an inconclusive issue (Wai & Zhu, 2013).

This study is motivated to link corporate governance with cash holdings due to two reasons. First, most previous empirical work concerning corporate governance emphasis the motives of hold cash in developed economies (Bates et al., 2006; Chen & Chuang, 2009; Harford et al., 2008; Kim et al., 1998; Opler et al., 1999; Ozkan & Ozkan, 2004; Pathan et al., 2007; Pinkowitz et al., 2006), whereas the research in emerging economies like Pakistan concerning the association of corporate governance with cash holding is very rare. Although, Pakistan is a common law country and the majority of its firms are controlled by inter-locked directorships, cross-shareholding, and pyramids (Cheema, 2003; Ghani & Ashraf, 2005; White, 1974). The high ownership concentration creates a diversion of control and ownership rights that leads to corporate governance issues in Pakistani firms especially expropriation of resources (Johnson et al., 2000; La Porta et al., 1999, 2000). Additionally, On 11 January 2016, the Securities and Exchange Commission of Pakistan (SECP) integrated the three stock exchanges in the country into a single stock exchange namely Pakistan Stock Exchange (PSX) by enforcing the Stock Exchanges (Corporatization, Demutualization, and Integration) Act, 2012. As, previous exchange structure and function inherited conflict of interest due to trading rights and ownership of the members (Hussain & Safdar, 2018). Hence, such a background of the Pakistani market and little research in the area motivates the investigation of the effect of corporate governance on cash holdings in the Pakistani context.

Secondly, around the globe, family companies have significant and common business characteristics (Bunkanwanicha et al., 2013; Villalonga & Amit, 2006), however, whether family possessions make value to the firms are still a controversial issue. In many developing and developed countries, family-firms are ubiquitous phenomena (Khanna & Rivkin, 2001). Chrisman et al. (2012) argued that through ownership and management, family ties effect the company leading to the acquisition of family aims and plans, and invest firm resources to pursue family's agendas that may peculiar influences on the wealth of the stockholders (Carney, 2005; Chen et al., 2013; Chrisman et al., 2013), thus creating conflict between family and non-family shareholders (Madison et al., 2016). Moreover, family firms adopt those policies that favor their personal interest, which resultantly affect minority shareholders (Yeh & Woidtke, 2005). Similarly, Liu et al. (2015), Liu (2011), and Ozkan and Ozkan (2004) documented that family businesses hold more cash which harms the firms' value. Likewise, Kuan et al. (2011) suggested that cash holdings of family and non-family-owned firms are affected by corporate governance. However, the motivation for the manager to hold cash in such firms continues to exist or remain unclear.

Additionally, a big chunk of the 22 richest family-owned firms in Pakistan, tracing back to the 1960s and 70s like Fancy, Beco, Hyesons, Ispahani, Arag, Bawany, Milwala, Valika, and Khyber were lost in history and their mark is nowhere to be seen today. The inability of family-owned firms is due to a unique set of challenges that prevent these firms to attract and retain high-quality human capital, access to lower-cost equity and debt capital, and ensuring long term sustainability and competitiveness (Fudda, 2015). The fact that only 15% of family-owned firms survive until the third generation, 85% either collapse or fully disappear before the fourth generation, indicates that corporate governance is a vital issue for such firms. In recent years, Pakistan has experienced a sizeable increase in the number of family-owned firms (Cheema, 2003; Ghani & Ashraf, 2005). About 80% of family businesses are registered at the Pakistan Karachi Stock Exchange (Sikandar & Mahmood, 2018; Zaidi & Aslam, 2006), which increasing the importance of good governance for firms. As, corporate governance practices provide a means for ensuring sustained company performance and embedding the values of accountability and transparency in organizations (Fudda, 2015). However, the controlling shareholders of a family-owned company belong to the same family and participate substantially in the management, direction, and operation of the company. Differing visions and objectives among family members can create conflicts and compromise the governance of the firm (Fudda, 2015). Yeh and Woidtke (2005) documented that family-owned firms make or adopt the policy which is in the favor of them for personal interest against in the favor of other minority shareholders. This is called a Type-II agency problem (Ali et al., 2007; Claessens et al., 2000). A recent study conducted by Alim and Khan (2016) in family and non-family controlled firm found that family-controlled firm hoards excess cash as compared to non-family controlled firms. Further, they also found that the agency problem is more dominant in family-owned firms in Pakistan. Therefore, Pakistan being an emerging economy with dominant family firms, low institutional involvements, a weak judicial system, and fewer incentives to institutional shareholders for monitoring the firm's financial decisions that lead to agency problems, provides a more favorable environment to examine the effect of corporate governance on cash holding in family and non-family firms.

The remainder of the paper is presented as follows: Section 2 provides a review of prior studies conducted in developed and developing economies. Section 3 illustrates the methodology used in the present study. Section 4 provides results and discussion and section 05 concludes the results and implication of the study.

2. Review of literature

Corporate governance (CG) is defined as a tool or mechanism by which firms are controlled and directed (Akbar et al., 2019; Cadbury, 1992). Also, corporate governance is a set of systems or practices by which shareholders' interests can be protected (La Porta et al., 2000; Sajjad et al., 2019). Prior empirical studies related corporate governance with cash holdings (See for instance, (Ajanthan & Kumara, 2017; Al-Najjar & Clark, 2017; Chen & Chuang, 2009; Dittmar et al., 2003;

Harford et al., 2008; Kalcheva & Lins, 2007; Kusnadi, 2011; Masood & Shah, 2014; Pinkowitz et al., 2006). However, their results are mixed and inconclusive. Kuan et al. (2011) argued that corporate cash policies are important for a company's economic policies; however, agency problems arise with massive cash holdings. Al-Najjar and Clark (2017) reported that conflict of interest between managers and shareholders arises when firms do not use a high level of free cash flow in profitable projects. A high level of cash increases the discretionary power of managers and utilizing this massive cash for own benefits (Adigüzel, 2013; Ali et al., 2007; Chen, 2008; Jensen, 1986). Consequently, other things being equal, manager of the firm will be self-opportunistic if they hold more cash, which leads to creating agency problem (Claessens et al., 2000; Fama & Jensen, 1983).

Likewise, family own businesses with more rights of control have high cash holdings (Anderson & Hamadi, 2016; Liu et al., 2015). Liu (2011); Ozkan and Ozkan (2004) found that cash holdings are significantly more in family firms instead of non-family firms. In the Pakistani context, Alim and Khan (2016) instigated that family-controlled businesses hoard excess cash than non-family controlled firms. As, family firms frequently relate with their family bequest or the business passing to the next coming children (Kuan et al., 2011). Although, Yeh and Woitdtko (2005) stated that family firms adopt policies which favor their personal interest instead of minority shareholders interests (Ali et al., 2007). This creates a Type-II agency problem (Ali et al., 2007; Claessens et al., 2000). Hence, the businesses of family control firms are complicated, because they should deliberate the desire, needs of the shareholders of the family (Ward, 1997). Corporate governance can decrease these conflicts arises due to internal and external controllers (Al-Najjar & Clark, 2017). Also, Kuan et al. (2011) suggested that cash holdings of family and non-family-owned firms are affected by corporate governance. However, the motivation for the manager to hold cash in such firms continues to exist or remain unclear. Despite these issues, family firms are growing around the globe and particularly in Asia, while research on family firms remained limited in this region (Dinh & Calabrò, 2019). Therefore, the present study intends to fill this gap by examining the effect of corporate governance on cash holding in family and non-family firms in Pakistan.

2.1. Hypotheses development

2.1.1. Board Size (BSize) and cash holding

Prior studies on corporate governance provide inadequate or inconclusive results of board size (Bsize) with cash holding. For example, researchers argued that larger Bsize has a high managerial cost and ineffective in decision making (Al-Manaseer et al., 2012; Wickramanayake, 2007). Berger et al. (1997) argued that in decreasing debt, larger boards are well in the capital structure of the firms therefore, provides better monitoring. Alternatively, smaller boards provide less active monitoring activities (Jensen, 1986; Lipton & Lorsch, 1992). From prior empirical studies, Ajanthan and Kumara (2017); Al-Najjar and Clark (2017) found a significantly negative influence of Bsize on cash holdings. Gill and Shah (2012); Mazood and Shah (2014) found that BSize has positively affect cash holding. But, Alim and Khan (2016) found an insignificant effect. Based on the aforementioned arguments, the study hypothesizes the relationship as follows:

Hypothesis 1: There is a positive effect of BSize on cash holding in family firms.

2.1.2. Board Independence (BInd) and cash holding

Previous literature provides different results for the association of cash holding and Board independence (BInd). Yammesri and Herat (2010) argued that whether outside directors effectively increase corporate value and better monitoring is inconclusive. Cadbury Report of the UK (1992) underlined the importance of outside directors. Hussain and Shah (2017) claimed that independent directors protect the stockholders' interests. The financial hierarchy theory (Opler et al., 1999) suggested a positive relationship between cash holding and board independence. Alternatively, Chen (2008), Kusnadi (2011), and Ozkan and Ozkan (2004) argued that the relationship between

cash holding and board independence is negative. While, (Harford et al., 2008) documented an insignificant relation between cash holding and BIND. Based on these empirical outcomes, the study hypothesizes that:

Hypothesis 2: The effect of Bind on cash holding is positive in family firms.

2.1.3. Board Meetings (BM) and cash holdings

Studies document that board effectiveness can be increased by increasing board meetings (Aldamen et al., 2012). Otherwise, studies also reported that for board effectiveness, more BM is not valuable (Ullah & Kamal, 2017). As more board meetings are expensive in terms of allowances and travels and cause expenses and time of management. However, Ajanthan and Kumara (2017) found no relation between board meetings and cash holding. Based on these results our hypothesis is:

Hypothesis 3: There is a negative influence of board meetings on cash holding in family firms.

2.1.4. Institution Shareholder (INST) and cash holding

Institutional stockholders provide good monitoring activities and improve the effectiveness of corporate governance (Al-Najjar & Clark, 2017). However, from large institutional ownership, shareholders can get a personal advantage of control which leads to a conflict of interest among minority shareholders and large shareholders (Short et al., 2002). As a result, a positive relationship expected because these majority of stockholders stockpile cash and then use for personal advantage (Ozkan & Ozkan, 2004). Al-Najjar and Clark (2017) documented a positive association between Institutional stockholders and cash holding. Similarly, Harford et al. (2008); Alina and Shah (2014) reported the same positive effect between cash holding and institutional shareholdings. Therefore, we hypothesize that:

Hypothesis 4: Institution shareholders positively affect cash holding in family firms.

2.1.5. Chair duality and cash holdings

Chair Duality is positively related to cash holding has significantly (Kaun et al., 2011). But, Wai and Zhu, (2013) have found a negative relation between cash holding of cash and chair duality. Moreover, Gill and Shah, (2012) found a positive significant effect of chair duality and corporate cash holding. Therefore, the study hypothesizes as:

Hypothesis 5: Chair duality is positively associated with cash holding in family firms.

3. Research design

3.1. Sample selection

On 7 May 2012, the federal government of Pakistan enacted legislation known as Stock Exchanges (Corporatization, Demutualization, and Integration) Act, 2012. Following this Act, the three exchanges were demutualized and corporatized with a status of public limited companies after compliance with certain prerequisites. As, previous exchange structure and function inherited conflict of interest due to trading rights and ownership of the members (Hussain & Safdar, 2018). On 11 January 2016, the Securities and Exchange Commission of Pakistan (SECP) integrated the three stock exchanges in the country into a single stock exchange namely Pakistan Stock Exchange (PSX) by enforcing the Stock Exchanges (Corporatization, Demutualization, and Integration) Act, 2012. It was obligatory under this Act to bring more international investment, but in the given time frame and even extended period, it failed to do so (Hussain & Safdar, 2018). Keeping this in view and to be consistent with prior studies such as Chen (2008), Kusnadi (2011), and Harford et al. (2008); we used five years of secondary panel data of 120 non-financial family and non-family firms registered with PSX ranging from 2013 to 2017. For the study, the financial

firms were not considered in the sample due to the following reasons. First, due to the strong regulatory system in financial firms (Cheng et al., 2008; Guest, 2009; Umer et al., 2020). Secondly, due to the unique capital structure of financial firms (Lim et al., 2007). All the data were taken from Balance Sheet Analysis (BSA) published by State Bank of Pakistan and annual reports of the companies.

3.2. Research model

Following Jackowicz et al. (2014), Ozkan and Ozkan (2004); and Chen, 2(008), the study used static panel data models to investigate the relation between corporate governance and cash holdings in family and non-family firms. The following analytical models were analyzed.

3.2.1. For static model

$$CH_{it} = \beta_0 + \beta_1 BSize_{it-1} + \beta_2 BInd_{it-1} + \beta_3 BM_{it-1} + \beta_4 INST_{it-1} + \beta_5 CEO(duality)_{it-1} + \sum_{n=1}^6 \gamma_n \text{ control variables}_{nit} + \varepsilon_{it} \quad (1)$$

$$CH_{it} = \beta_0 + \beta_1 GI_{it-1} + \sum_{n=1}^6 \gamma_n \text{ contror variables}_{jit} + \varepsilon_{it} \quad (2)$$

$$CH_{it} = \beta_0 + \beta_1 BSize_{it-1} + \beta_2 BInd_{it-1} + \beta_3 BM_{it-1} + \beta_4 INST_{it-1} + \beta_5 CEO(duality)_{it-1} + \beta_6 \text{ family Dummy}_{it} + \beta_7 \text{ family} * BSize + \beta_8 \text{ family} * BInd + \beta_9 \text{ family} * BM + \beta_{10} \text{ family} * INST + \beta_{11} \text{ family CEO duality} + \sum_{n=1}^6 \gamma_n \text{ contror variables}_{jit} + \varepsilon_{it} \quad (3)$$

$$CH_{it} = \beta_0 + \beta_1 GI_{it-1} + \beta_2 \text{ family Dummy}_{it} + \beta_3 \text{ family} * GI_{it-1} + \sum_{n=1}^6 \gamma_n \text{ contror variables}_{jit} + \varepsilon_{it} \quad (4)$$

Prior empirical studies documented that the causal effect of financial decisions creates endogeneity problems that lead to biased and inconsistent estimates (Roberts & Whited, 2013; Wintoki et al., 2012). Specifically, as the relationship between corporate governance and cash holding is simultaneous that needs proper treatment for endogeneity (Chen, 2008; Jackowicz et al., 2014; Kuan et al., 2011). To overcome the endogeneity problem, the study also used a dynamic model. For the purpose, we followed (Akbar et al., 2019; Dessí & Robertson, 2003; Chen, 2008; Harford et al., 2008; Jackowicz et al., 2014; Kuan et al., 2011), and incorporate a lag dependent variable in the above equations.

3.2.2. For dynamic model

$$CH_{it} = \beta_0 + \beta_1 CH_{it-1} + \beta_2 BSize_{it-1} + \beta_3 BInd_{it-1} + \beta_4 BM_{it-1} + \beta_5 INST_{it-1} + \beta_6 CEO(duality)_{it-1} + \sum_{n=1}^6 \gamma_n \text{ control variables}_{nit} + \varepsilon_{it} \quad (5)$$

$$CH_{it} = \beta_0 + \beta_1 CH_{it-1} + \beta_2 GI_{it-1} + \sum_{n=1}^6 \gamma_n \text{ control variables}_{sit} + \varepsilon_{it} \quad (6)$$

$$\beta_0 + \beta_1 CH_{it-1} + \beta_2 BSize_{it-1} + \beta_3 BInd_{it-1} + \beta_4 BM_{it-1} + \beta_5 INST_{it-1} + \beta_6 CEO(duality)_{it-1} + \beta_7 \text{ family Dummy}_{it} + \beta_8 \text{ family} * BSize + \beta_9 \text{ family} * BInd + \beta_{10} \text{ family} * BM + \beta_{11} \text{ family} * INST + \beta_{12} \text{ family} * CEO duality + \sum_{n=1}^6 \gamma_n \text{ contror variable}_{sit} + \varepsilon \quad (7)$$

$$CH_{it} = \beta_0 + \beta_1 CH_{it-1} + \beta_2 GI_{it-1} + \beta_3 family Dummy_{it} + \beta_4 family * GI_{it-1} + \sum_{n=1}^6 \gamma_n control\ variable\ s_{it} + \epsilon_{it} \quad (8)$$

4. Empirical results and discussion

4.1. Descriptive statistics

Table 1–2 presents summary statistics for family firms and non-family firm’s subsamples. The results show that the average variances exist in family and non-family subsamples. In non-family firms, the mean value of cash holding is 0.082 whereas; in family firms the mean value of cash holding is 0.027, indicating that the mean value of cash holdings in non-family firms is higher than those of family firms. The mean value of BSize in a family firm is 7.743 which is significantly lower than those in the non-family firm (8.320). The average value of boards meeting in family firms is 5.040, that is higher than those of non-family firms 1.652. These results of Cash holdings, BSize, and BM of family firms are approximately consistent with (Ullah & Kamal, 2017), which are 0.028, 7.687 and 5.041 respectively. The average BInd in family firms is 0.677, which is lower as compared

Table 1. An operational definition of dependent, independent, and control variables

Variables	Operational definition	Source
Cash holdings (CH)	cash equivalents and cash to the net assets	(Harford et al., 2008; Opler et al., 1999; Ozkan & Ozkan, 2004)
Corporate governance index(GI)	Composite indicator for the corporate governance based on BSize, Bind, INST, CEOD through principal component analysis (PCA).	(Hussain & Shah, 2017)
Board size (BSize)	Natural logarithm of the number of members on the board.	(Al-Najjar & Clark, 2017)
Board Independences (BInd)	The proportion of independent directors to total directors.	(Ullah & Kamal, 2017)
Board Meetings (BM)	A total number of board meetings were held during the year.	(Ullah & Kamal, 2017)
Institution Shareholder (INST)	Institutions owned shares divided by the number of shares outstanding.	
Chair Duality (CEOD)	A dummy variable equal to 1 if the chairman of the board has also the CEO, otherwise 0.	(Kaun et al., 2011)
Family dummy	A dummy variable equal to 1 if any member of the board has 10% or more share ownership in the firm, otherwise 0.	(Kaun et al., 2011)
Dividend (DVI)	A dummy variable equal to “1” if the company pay a dividend and “0” otherwise.	(Ullah & Kamal, 2017).
Net working Capital (NWC)	current assets minus current liabilities and cash divide by total assets minus cash	(Ullah & Kamal, 2017).
Cash Flow (CF)	Net earnings plus depreciation and amortization to total assets	(Ullah & Kamal, 2017).
Leverage (LEV)	Total debt to total assets	(Alhebri & Al-Duais, 2020); Kalcheva & Lins, 2007)
Capital Expenditure (CAPEX)	Change in fixed assets plus Depreciation to Total assets	(Opler et al., 1999).
Firm Size (FSIZE)	natural logarithm of total assets	(Alhebri & Al-Duais, 2020)

Table 2. Descriptive statistics: Mean difference of Family versus Nonfamily firms

	Family firms n = 300				Nonfamily firms n = 300				Jarque-Bera test	(Mann-Whitney) test
	Mean	Median	Std. Dev		Mean	Median	Std. Dev			
CH	0.027	0.121	0.048		0.082	0.019	0.159		2.200(0.000)	4.027 (0.000)
BSize	7.743	7.000	1.263		8.320	8.000	1.503		304.9(0.000)	5.759 (0.000)
Bind	0.677	0.714	0.132		0.793	0.800	0.111		103.5(0.000)	11.287(0.000)
BM	5.040	4.000	1.845		5.540	5.000	2.549		750.1(0.000)	3.706 (0.000)
INST	0.040	0.016	0.054		0.045	0.026	0.050		442.7(0.000)	3.320(0.000)
CEOD	0.07	0.000	0.256		0.433	0.000	0.204		5507(0.000)	-1.411(0.158)
DIV	0.533	1.000	0.997		0.653	1.000	0.477		100.5(0.000)	2.989 (0.002)
NWC	0.004	0.030	0.282		0.058	0.051	0.347		1167(0.000)	2.556 (0.010)
CF	0.062	0.065	0.110		0.103	0.097	0.110		3285(0.000)	4.794 (0.000)
LEV	0.606	0.563	0.342		0.520	0.464	0.321		1642(0.000)	-4.310(0.000)
CAPEX	0.122	0.059	0.199		0.095	0.046	0.174		1476(0.000)	-2.174(0.029)
FSize	14.995	15.024	1.491		16.035	16.139	1.561		1.050(0.591)	8.097(0.000)

to non-family firms 0.793. These results are consistent with (Bhagat & Bolton, 2013), which is 0.6703. The average value of institutional shareholders in family firms is 0.040, and while in non-family firms are 0.045, lower than the mean value of non-family firms and also slightly lower than the results of (Nekhili et al., 2017) that is 0.0796. The mean value of CEO duality is 0.433 in non-family businesses, which is greater than the mean value of family firms 0.07.

4.2. Correlation matrix

The bi-variate relation among all the study variables is illustrated in Table 3. The results show that no high correlation is reported among all the variables, indicating that the multicollinearity problem does not exist. As Gujarati (2009) reported that when correlation exceeds 0.80 then it creates a multicollinearity problem.

4.3. Effect of corporate governance on cash holdings

Table 4 illustrated the effect of corporate governance (CG) on cash holdings through static and dynamic panel estimation models. The results depict that the corporate governance index is negatively associated with cash holdings. Furthermore, the analysis of individual proxies of corporate governance reveals that BSize, BInd INST, and BM have a significantly negative association with cash holdings except for CEOD. The results also indicate that family dummy has a negative relation with cash holdings. The result of the family dummy is consistent with Liu (2011), who explored a significant negative association between family companies and cash holding, they argued that family companies pay out cash rapidly in a scheme that provides benefits to the family firms. Thus, stockholders of family own firms do not want to keep massive cash. BSize and BInd have a significantly negative relationship with CH, and is consistent with (Ajanthan & Kumara, 2017; Al-Najjar & Clark, 2017), who found that BSize and BInd have a negative relationship with CH. Ozkan and Ozkan (2004) argued that by holding less cash, the firm can decrease the agency costs. The negative relationship of INST is consistent with the result of (Kuan et al., 2011), and to flexibility hypothesis of (Harford et al., 2008). The result of CEOD has an insignificantly negative association with CH, which is consistent with (Wai & Zhun, 2013). Furthermore, the study also found that the result of BM is insignificantly negative with CH and in line with the results of (Ullah & Kamal, 2017), who argued that a higher number of BM reduce CH of the firms. The coefficient of GI is significantly negative relation with CH, while in GMM, GI is an insignificantly positive association with CH. The results are in line with (Chen, 2008; Opler et al., 1999).

4.4. The interplay of family control on the relation between corporate governance and cash holdings

Table 5, reported the interplay of family firms on the relationship of corporate governance and cash holding. The results suggest that family ownership weakens the relationship between corporate governance index and cash holdings. Furthermore, the interaction terms BSize*family, BInd*family and INST*family have a positive and significant association to CH. This indicated that family firms with larger BSize, BInd, and INST hold more cash than non-family firms. Consistent with the results of (Kuan et al., 2011). The results of the BM*family have insignificantly positive but CEOD*family has insignificantly and negative relation with CH.

4.5. Effect of corporate governance on cash holdings: Family firms

Table 6 analyzed the effect of corporate governance on cash holdings in family firms. In model 1, the coefficients of BSize and INST are insignificantly positive association with CH in family firms but coefficients of BInd, BM, and CEOD have negative and insignificant with CH. In GMM, BSize and BM have positively insignificant to CH in family firms while BInd has significantly negative related to CH. These results indicate that family firms in Pakistan having more independent directors on the board stockpile less cash. The results of BInd is consistent with the finding of (Ullah & Kamal, 2017). INST and CEOD have insignificantly negatively associated with CH in family firms. In model 2, the CG index insignificantly positive related to CH in family firms. In GMM, the CG index significantly and positively related to CH in family firms, and consistent with the results of (Chen, 2008).

Table 3. Pearson Correlation Matrix

Variables	BSize	Bind	BM	INST	CEOD	DIV	CH	NWC	CF	LEV	CAPEX	FSize
BSize	1											
Bind	0.191*	1										
BM	0.187*	0.158*	1									
INST	-0.004	0.004	-0.013	1								
CEOD	-0.147	-0.053	0.01	0.034	1							
DIV	0.137*	0.077	0.032	0.094*	-0.018	1						
CH	-0.030	-0.05	-0.069	-0.015	-0.062	0.171*	1					
NWC	0.077	0.030	-0.107	0.066	-0.204	0.340*	0.086*	1				
CF	0.103*	0.084*	-0.046	-0.008	-0.017	0.331*	0.199*	0.324*	1			
LEV	-0.045	-0.051	0.085*	-0.053	0.257*	-0.359*	-0.156	-0.779	-0.4150*	1		
CAPEX	-0.022	-0.024	0.025	-0.071	0.004	0.027	-0.102	-0.089	0.105*	-0.013	1	
FSize	0.248*	0.211*	0.226*	0.058	0.084*	0.261*	0.085*	0.073	0.247*	-0.1350*	0.112*	1

Note. *, denotes the level of significance at 5%.

Table 4. Effect of corporate governance on Cash holdings

	(1)	(5)	(2)	(6)
Variables	Fixed Effect	GMM	Fixed Effect	GMM
Constant	0.177(9.050)***	0.079(7.577)**	0.051(4.749)***	0.040(1.712)*
CH(t-1)		0.608(2.19)***		0.567(6.485)***
CG Index			-0.023(-3.545)***	0.006(0.515)
Family	-0.029(-10.177)***	-0.011(-1.731)*		
BSize	-0.020(-2.623)***	-0.001(-3.055)***		
Bind	-0.050(-5.299)***	-0.026(-1.703)*		
BM	-0.001(-0.231)	-0.010(-1.865)*		
INST	-0.048(-2.483)**	-0.010(-0.233)		
CEOD	-0.001(-0.202)	-0.005(-1.025)		
DIV	0.014(4.828)***	0.008(1.742)*	0.015(5.395)***	0.008(1.502)
NWC	-0.001(-0.091)	-0.027(-1.455)	-0.003(-0.649)	-0.027(-1.497)
CF	0.041(2.822)***	0.039(1.831)*	0.071(6.010)***	0.050(2.402)**
LEV	-0.014(-2.405)**	-0.026(-1.142)	-0.022(-4.401)***	-0.028(-1.257)
CAPEX	-0.013(-2.510)**	-0.041(-2.651)***	-0.032(-5.589)***	-0.043(-2.814)***
FSize	-0.003(-3.370)***	-0.001(-0.353)	-0.000(-0.492)	-0.001(-0.587)
R-squared	0.328		0.0436	
F-Value (P-value)	12.467 (0.000)		7.472 (0.000)	
AR(1) Test (P-value)		-2.861 (0.004)		-2.82 (0.005)
AR(2) Test (P-value)		-0.057 (0.955)		-0.087 (0.910)
Sargan test (P-value)		6.145 (0.631)		5.073 (0.750)
Wald test (P-value)		110.065 (0.000)		100.276 (0.000)
No. of observations	600	600	600	600
No. of instruments		22		17
Chow Test (P-value)	7.069 (0.000)		8.248 (0.000)	
Breusch-Pagan test (P-value)	228.391 (0.000)		278.609 (0.000)	
Hausman test (P-value)	25.430 (0.008)		14.084 (0.049)	
Wald test (P-value)	110.065 (0.000)		100.276 (0.000)	

Note. ***, **, * denotes level of significance at 1%, 5% and 10% respectively.

4.6. Effect of corporate governance on cash holdings: Non-family firms

In Table 7, the study analyzed the effect of corporate Governance on cash holdings in non-family firms. In model 1, BInd and INST have a significantly negative association with CH, but BM and CEOD have an insignificantly positive association with CH in non-family firms. The results of BInd and INST have consistent with (Kuan et al., 2011). In GMM, BSize and BM have an insignificant relationship with CH. The relationship of CEO duality has significantly negative and consistent with (Wai & Zhun, 2013), while BInd and INST have an insignificantly negative relationship with CH in non-family firms. Furthermore, the CG index is positively insignificant with cash holdings and consistent with (Klein et al., 2005), while in the GMM model CG index is insignificantly negative with CH in non-family firms.

5. Conclusion

The current study examined the relation of corporate governance with cash holdings in family and non-family firms in Pakistan. The study concluded that mostly corporate governance variables have affected

Table 5. The interplay of the family on the relation of corporate governance and cash holdings

	(3)	(7)	(4)	(8)
Variables	FIXED EFFECT	GMM	FIXED EFFECT	GMM
Constant	0.241(9.350)***	0.094((1.927)*	0.137(11.745)***	0.060(2.099)**
CH(t-1)		0.620((7.555)***		0.584(6.926)***
GI			-0.056(-4.741)***	-0.005(-2.65)***
Family	-0.221(-6.084)***	-0.055(-1.8572)*	-0.059(-7.475)***	-0.017(-1.298)
BSize	0.039(3.007)***	-0.007(-3.030)***		
Bind	-0.068(-5.173)***	-0.034(-2.017)**		
BM	-0.0007(-1.741)*	-0.009(-1.678)**		
INST	-0.138(-5.039)***	0.030(4.780)***		
CEOD	0.006(1.1395)	-0.003(-0.634)		
GI* Family			0.066(4.864)***	0.019(2.822)***
BSize*Family	0.060(3.823)***	0.007(2.651)***		
BInd*Family	0.073(4.391)***	0.042(2.147)**		
BM*Family	0.004(0.766)	0.001(0.200)		
INST*Family	0.165(4.584)***	-0.110(-2.407)**		
CEOD*Family	-0.011(-1.355)	-0.004(-0.584)		
DIV	.0116(4.327)***	0.007(1.591)	0.006(2.863)***	0.007(1.524)
NWC	-0.001(-0.217)	-0.026(-1.442)	0.001(0.200)	0.035(0.225)
CF	0.040(3.016)***	0.039(1.867)*	0.045(4.182)***	0.045(2.162)**
LEV	-0.010(-1.852)*	-0.024(-1.079)	-0.016(-3.497)***	-0.027(-1.208)
CAPEX	-0.019(-3.692)***	-0.040(-2.674)***	-0.020(-4.241)***	-0.040(-2.664)***
FSize	-0.003(-3.946)***	0.0005(-0.308)	-0.003(-5.087)***	-0.001(-0.951)
R-Square	0.351		0.329	
F-Value (P-value)	17.462 (0.000)		9.470 (0.000)	
AR(1) Test (P-value)		-2.838 (0.004)		-2.834 (0.005)
AR(2) Test (P-value)		-0.125 (0.901)		-0.096 (0.923)
Sargan test (P-value)		6.858 (0.552)		5.591 (0.693)
Wald test (P-value)		114.571 (0.000)		111.251 (0.000)
Number of observations	600	600	600	600
Number of instruments		27		19
Chow Test (P-value)	6.777 (0.000)		7.719 (0.000)	
Brusch-Pagan test (P-value)	204.003 (0.000)		255.164 (0.000)	
Hausman test (P-value)	38.094 (0.001)		18.537 (0.018)	
Wald test (P-value)	114.571 (0.000)		111.251 (0.000)	

Note. ***, **, * denotes level of significance at 1%, 5% and 10% respectively.

the cash holdings, which is similar to the previous studies. The empirically results supported the argument that corporate cash holding decision is different in family and non-family firms. Furthermore, the result of corporate governance has a significantly positive association with cash holding in family firms in Pakistan. It means that the family manager holds excess cash for personal and for family members' interests, which is not in the favor of non-family shareholders. The present study further examined non-family firms

Table 6. Effect of corporate governance on cash holdings: Family firms

	(1)	(5)	(2)	(6)
Variables	Fixed Effect	GMM	Random Effect	GMM
Constant	0.015(0.601)	0.070(1.523)	0.013(0.295)	0.063(2.051)**
CH(t-1)		0.159(2.613)***		0.122(2.175)**
GI			0.012(0.812)	0.016(2.273)**
BSize	0.010(1.109)	0.004(0.313)		
Bind	-0.002(-0.294)	-0.026(-2.168)**		
BM	-0.002(-0.528)	3.737(0.000)		
INST	0.029(1.537)	-0.029(-1.179)		
CEOD	-0.005(-1.424)	-0.001(-0.281)		
DIV	0.007(2.853)***	0.010(2.384)**	0.009(1.716)*	0.008(2.307)**
NWC	0.002(0.302)	-0.001(-0.104)	-0.007(-0.550)	0.006(0.535)
CF	0.017(1.994)**	0.041(2.853)***	0.022(1.044)	0.033(3.084)***
LEV	0.004(0.863)	0.002(0.183)	-0.011(-0.792)	0.006(0.619)
CAPEX	-0.010(-2.164)**	-0.027(-2.001)**	-0.022(-2.409)**	-0.021(-2.190)**
FSize	-0.002(-1.615)	-0.003(-1.840)*	0.001(0.207)	-0.004(-2.059)**
R-Square	0.102			
F-Value (P-value)	11.228 (0.009)			
AR(1) Test (P-value)		-2.048(0.041)		-1.947 (0.051)
AR(2) Test (P-value)		-0.353(0.724)		0.263(0.792)
Sargan test (P-value)		10.806(0.213)		10.726(0.218)
Wald test (P-value)		35.160(0.000)		47.594(0.000)
Number of observations		300		300
Number of instruments		24		17
Chow Test (P-value)	6.065(0.000)		6.012(0.000)	
Breusch-Pagan test (P-value)	106.149(0.000)		108.315(0.000)	
Hausman test (P-value)	8.215(0.023)		4.159(0.761)	
Wald test (P-value)	15.524(0.000)		47.594(0.000)	

Note. ***, **, * , denotes level of significance at 1%, 5% and 10% respectively.

and documented insignificantly negative relation with cash holding. Furthermore, the study also investigated the interplay of family firms on the relationship between corporate governance and cash holdings. The findings of BSize*family dummy, BInd*family dummy, and INST*family dummy have a significantly positive association with the cash holding. It indicated that family firms with more BSize, Bind, and INST hold more cash in response to non-family firms. The study theoretically supports the agency theory.

Our study has far-reaching implications for the developing countries with similar characteristics. Our findings provide useful insights to the individual market participants, corporate managers, and regulatory authorities for a deeper understanding of corporate governance cash holding relationship in the presence of family ownership. Our study suggests that individual investors and corporate managers may make investment decisions thereby keeping in view the role of family ownership. The study is also useful for regulatory authorities so that they make such policies that ensure the protection of minority shareholders in presence of family. Our study covered the Pakistani equity market only and therefore future research

Table 7. Effect of corporate governance on cash holdings: Non- family firms

	(1)	(5)	(2)	(6)
Variables	Fixed Effect	GMM	Random Effect	GMM
Constant	0.300(7.876)***	0.226(2.914)***	0.175(1.636)	0.155(2.576)***
CH(t-1)		0.544(5.702)***		0.488(4.518)***
GI			0.003(0.107)	-0.019(-1.031)
BSize	-0.010(-0.607)	-0.023(-0.784)		
Bind	-0.164(-5.985)***	-0.052(-1.332)		
BM	0.001(0.024)	0.002(0.155)		
INST	-0.222(-7.001)***	-0.019(-0.261)		
CEOD	0.008(0.954)	-0.019(-2.195)**		
DIV	0.012(2.572)**	-0.001(-0.080)	-0.001(-0.038)	-0.001(-0.133)
NWC	-0.032(-2.531)**	-0.113(-2.901)***	-0.093(-2.322)**	-0.109(-2.974)***
CF	0.083(2.907)***	0.054(0.851)	0.137(2.038)**	0.052(0.808)
LEV	-0.055(-4.034)***	-0.124(-2.697)***	-0.152(-3.426)***	-0.132(-2.913)***
CAPEX	-0.034(-3.274)***	-0.044(-1.530)	-0.060(-2.535)**	-0.034(-1.187)
FSize	-0.005(-2.634)***	-0.003(-0.825)	-0.002(-0.354)	-0.003(-0.930)
R-Square	0.468			
F-Value (P-value)	11.228 (0.000)			
AR(1) Test (P-value)		-2.095(0.036)		-2.005(0.045)
AR(2) Test (P-value)		-0.396(0.692)		-0.457 (0.648)
Sargan test (P-value)		12.238(0.141)		10.983(0.203)
Wald test (P-value)		115.008(0.000)		77.016(0.000)
Number of observations		300		300
Number of instruments		21		17
Chow Test (P-value)	6.862(0.000)		7.962(0.000)	
Breusch-Pagan test (P-value)	103.511(0.000)		129.568(0.000)	
Hausman test (P-value)	19.973(0.046)		12.019(0.099)	
Wald test (P-value)	115.008(0.000)		77.016(0.000)	

Note. ***, **, * , denotes level of significance at 1%, 5% and 10% respectively.

may consider a large number of emerging economies to provide better insights to the policymakers, investors, fund managers, and other stakeholders.

Funding

The authors received no direct funding for this research.

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Citation information

Cite this article as: Corporate governance and cash holdings: Family versus non-family controlled firms, Rauf Gul, Sabeeh Ullah, Ajid Ur Rehman, Shahzad Hussain & Mehtab Alam, *Cogent Business & Management* (2020), 7: 1854562.

Note

1. (Chen, 2008; Dittmar et al., 2003; Harford et al., 2008; Kalcheva & Lins, 2007; Kuan et al., 2011; Kusnadi, 2011; Masood & Shah, 2014; Pinkowitz et al., 2006)

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