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# Antecedents and Consequence of Corporate Cash Holdings

**Affaf Asghar Butt[1], Rabiah Shaukat[2], Aamer Shahzad[3], Amer Sohail[4]**

**Abstract**
One of the prevailing issues of corporate governance in emerging economies is the principal-principal (PP) conflict, which refers to the conflict between two principals—minority shareholders and majority shareholders. The tension between the principals directly relates to the controlling rights of the firm's strategic decisions. Therefore, this study aims to investigate the indirect effect of the principal-principal (PP) conflict on firm performance through cash holding and determine how institutional ownership levels moderate this relation. This study used a novel methodology, i.e., PROCESS MACRO, developed by Andrew F. Hayes for moderated-mediation estimation and multiple-liner regression with year and industry dummies. A sample of 230 non-financial firms listed on Pakistan Stock was taken from 2013 to 2021. The results show a positive association between PP conflict-cash holding and cash holding-firm performance, adversely affecting the performance by hoarding cash. The indirect bootstrapping effect for the low, middle, and high institutional ownership levels was also significant. The controlling owners take away the rights of minority shareholders by hoarding extra reserves, but institutional shareholders moderate this relationship and help improve the firm performance. Our study contributes to the extant research on principal–principal conflicts in emerging economies. We advance the debate on the complexity of relationships between inside and outside shareholders. Our findings demonstrate that understanding controlling and minority shareholders and institutional conditions provides a more fine-grained understanding of the complexity of principal–principal conflicts.
**Keywords**: Principal-principal conflict, Cash holding, Institutional ownership, Firm performance

## 1. Introduction

Corporate cash holding has recently become excessively important due to its significance in corporate decisions (Narang et al., 2023). Firms hold cash for many reasons. These reasons have been explained in three significant theories, i.e., trade-off theory, pecking order theory, and agency theory. The trade-off theory (Myers, 1977) says cash holding is the optimal level of cash reserves after adjusting the marginal costs and benefits. In the pecking order theory (Myers, 1984), cash is considered a cushion for investment when retained earnings are insufficient to meet the needs of firms. Agency theory (Jensen et al., 1986) demonstrates that managers hold extra reserves for investing in beneficial projects. Holding the excess cash reserves is due for many reasons, like avoiding the transaction cost caused by external financing (Lie & Yang, 2016) and reducing the chances of missing the investment opportunity when plenty of prospects are available (Mohammadi et al., 2018a). Firms also hoard cash reserves as a hedge against financial risks and meet unexpected business situations (Cambrea et al., 2019)

Information asymmetry is another cause of extensive cash holdings (Myers, 1984) because insiders and outsiders do not have the exact extent of information. This imperfect market leads the firms to hold extra cash reserves. Excess cash reserves also enhance the firm performance, as seen in a study (La Rocca & Cambrea, 2019a). This positive relationship is related to the transaction cost theory. There are many benefits of holding extra reserves and multiple of their drawbacks. The major weakness of hoarding large cash reserves is agency conflict. Agency conflict arises when managers hold extra reserves to meet their personal needs on shareholders' wealth. A study by (Asante-Darko et al., 2018) found that excess cash holdings lead to negative firm performance as it causes agency conflict in a firm. Their results are based on agency theory. When ownership and control are in different hands, agency conflicts are caused. (Martínez-Sola et al., 2018).

Multiple researchers classify the determinants of cash holding for different companies and countries. However, still, there is limited evidence. As (Aftab et al., 2018; Alles et al., 2012; Brick & Liao, 2017; García-Teruel & Martínez-Solano, 2008; Opler et al., 1999; Rafinda, 2018; Roy, 2018; Suen, 2011) investigated the factors of cash holdings (i.e., firm-size dividend payouts, leverage, liquidity, capital expenditure, and cash flow). They find the positive or negative impacts of each determinant on cash holdings. In this research, the researcher finds the impact of these firm-specific determinants on cash holding based on the trade-off theory and pecking order theory.

The previous literature on agency theory explained the mainly two natures of agency conflicts in the governance mechanism, i.e., principal-agent conflict (PA) and principal-principal conflict (PP) (Banchit et al., 2013; Jebran, Chen, et al., 2019a; Purkayastha et al., 2019; Sauerwald et al., 2019a; Yoo & Koh, 2014a). PA conflict comes when ownership and control are in different hands. However, PP conflict is the power conflict between controlling and minority shareholders (Yoo & Koh, 2014b). The conflict of power and rights arises for many reasons, like executive compensation and benefits, dividend payouts, earning management, mergers, and acquisitions (Jebran, Chen, et al., 2019b; Wu et al., 2016; Yoo & Koh, 2014b). This power conflict also arises when controlling shareholders use the cash holdings for their benefit or invest in the desired projects at the cost of minority shareholders. (Jebran, Chen, et al., 2019b) found that controlling shareholders hoard extra pash reserves to confiscate their benefits on minority shareholders' wealth. Most businesses are family-controlled in Pakistan, where conflict of interest between controlling and minority shareholders prevails (Khan & Nouman, 2017). It implies that more concentrated ownership in any business does not lead to better performance (Gaur et al., 2015).

The corporate governance code in Pakistan is used to shield shareholders' rights by imposing a fair management system in determinants are (Sheikh et al., 2013a). Because of strong corporate governance, financial statements cannot be misappropriated as they bring transparency. There are no strong corporate governance rules and regulations followed by institutions in Pakistan, resulting in fewer minority protections, fewer dividends, and undeveloped institutions . These reasons have become the cause of the principal to the principal conflict in Pakistan. According to previous studies, they hoard large cash reserves in a firm where PP conflict is prevalent. These hoardings are used to pursue the benefits of governing shareholders. By doing so, the performance of a firm is also affected adversely. This expropriation by controlling shareholders can be mitigated in many ways,

[1] Department of Business Administration, University of the Punjab, Gujranwala Campus, Pakistan
[2] Department of Commerce, University of the Punjab, Gujranwala Campus, Pakistan
[3] Department of Commerce, University of the Punjab, Gujranwala Campus, Pakistan
[4] Department of Commerce, University of the Punjab, Gujranwala Campus, Pakistan

especially when the firm has an institutional background. Due to institutional investors, management is directed and controlled by institutions, so they do not keep high cash reserves with them (Al-Najjar & Clark, 2017).
Institutional investors also play a leading part in controlling agency conflicts (Mulchandani et al., 2022). They introduce a robust governance structure in companies under their monitoring, which protects the wealth of minority shareholders (Jebran, Chen, et al., 2019; Loncan, 2020; Nguyen & Rahman, 2018). (Yeh, 2019) found that institutional investors' involvement depends on their share in a business. They get more voting power when they have significant shareholdings in any business. Hence, these institutions hire their directors on board for management supervision and affect the decisions taken up by the BOD (Pirzada et al., 2015a). This involvement of institutional owners in essential business decisions positively influences the firm's performance. Institutional investors also become the cause of a decrease in firm performance. On the other hand, institutional investors allow firms to hoard large amounts of cash reserves because institutional ownership is associated with good corporate governance and better supervision. That will not allow the controlling members to overinvest or spend high capital expenditure (Nguyen & Rahman, 2018b).
According to the researcher's best knowledge, very little research may have been performed in the context of PP conflict and firm performance by the moderating effect of institutional ownership through cash holding. In this study, the researcher will find out that in a firm where PP conflict prevails, the institutional shareholders could moderate the indirect relationship of PP conflict on firm performance through cash holding. Another contribution of this research is the method used for the conditional PROCESS model (Andrew F. Hayes, 2017) to analyze the bootstrapping method's indirect effect.

## 2. Literature Review

Two types of conflicts can arise in any business. Principal-agent conflict arises when managers work against shareholders' rights and expropriate their benefits on shareholders' wealth. The second is principal-to-principal conflict, which arises between controlling and minority shareholders. Because of their power, controlling shareholders ignore the minority shareholders on many occasions, like dividend payouts, poor institutional protection, and less stock information. They fulfill their benefits. There is an abundance of data available on principal-agent conflict. However, in principal-principal conflict, there is less work available. PP conflict usually arises in family-owned firms because ownership and control are the same entities (Jebran, Chen, et al., 2019b). (Liu et al., 2015) found that family owners hoard more cash than non-family firms in China. That is why agency conflict arises between majority and minority shareholders. Following a conservative approach, Family firms hoard more cash (Mohammed, 2018). They do not take risks in taking new opportunities. So, this study found a positive relationship between PP conflict and cash holding. When large controlling shareholders are in any organization, the PP conflict can be reduced as ownership and management are on the same interest line. However, the PP conflict prevails because now controlling shareholders can enforce their aims, which might not the minority shareholders. (Eugster & Isakov, 2019) concluded that controlling family shareholders could lead the business towards high returns and a better reputation.
Cash holdings and the firm performance had a positive and negative effect, as in the case of the Ghana stock exchange (Asante-Darko et al., 2018), where the researchers worked to know the influence of cash on the performance. It was realized that keeping more cash reserves is against the company's good performance. The researcher explained that when the firm keeps high cash reserves, it gives the managers the freedom to use it for their benefit or against its betterment. So, cash holdings significantly negatively affected the firms' performance. Nevertheless, (La Rocca & Cambrea, 2019) confirmed a positive relationship between both variables. It means that when firms keep excess cash reserves, their performance increases. One positive impact is that more cash reserves give the firm more opportunities for different profitable portfolios. The second reason is that the high cost of external financing could be avoided by keeping extra reserves, which is an extra burden on profitability. However, large cash holding can only be kept in a firm with a good governance structure, strong protection for minority shareholders, and an institutional environment. Strong corporate governance structures enable firms to mitigate agency conflicts by separating ownership and control. However, it also ensures the alignment of the management's interest with that of shareholders. This results in lowering agency costs and improving firm performance. These results are drawn from the study of (Rouyer, 2016). He also concluded that family firms like to hoard large cash reserves as a safe hand for the future.
Concerning the mitigation of agency conflict, conceptually identical work has been done (Rashid, 2016) in Bangladesh. He resolved the paper so that the agency cost could be minimized when managers are given ownership. Conflict arises when owners and the controller of firms are different people. These controlling people start managing the business against the shareholders' interests. So, when given ownership and control, the business's performance can be upgraded. (Owusu & Weir, 2018) also gave a similar idea of managerial and institutional ownership to mitigate agency conflict. As discussed above, in principal-principal conflict, controlling shareholders hold the excess cash reserves and may use that money for their benefit, resulting in the weak protection of minority shareholders. There are circumstances when an institution, i.e., Banks, keeps many shares. These institutional investors invest in many shares and are highly interested in that business's affairs. These investors monitor the decisions taken by controlling shareholders or by directors appointed by them. So, due to this reason, the chances of PP conflict could be reduced. However, in some cases, institutional investors allow firms to hold excess cash reserves, in some cases, they restrain them to keep fewer cash reserves. This limit is dependent upon circumstances and situations at that time.
Firms with bank monitoring keep fewer cash reserves and reduce the expropriation of minority shareholders. This was investigated by (Wang et al., 2020), who led a study in China on the influence of bank ownership on any firm's investment. They found that firms with bank monitoring keep fewer cash reserves, reducing the expropriation of minority shareholders. Another reason for holding fewer reserves than monitoring is that the firm with bank ownership has easy access to the financing, so they could quickly get money at the time of need. It means bank ownership reduces any firm's financial constraint (Ward et al., 2018). Another research was directed in Japan, where the researcher investigated the business's institutional ownership, cross-shareholding, and cash holdings. They found that institutional investors discourage overinvestment and avoid agency conflict; also, they allow the firms to keep extra cash reserves. So, it means firms with institutional investors are considered strongly governed firms that allow them to keep extra cash reserves and invest those carefully (Nguyen & Rahman, 2018b).
In the case of bank ownership, banks monitor the organization by appointing its directors in BOD. So, they can get that information not available in the company's financial statements. By doing so, the PP conflict and agency conflict could both be minimized. Because of directors appointed by banks, the firm holds fewer cash reserves as now they have easy access to

financing. The same is true (Chauhan et al., 2018) studied this relationship in India and found the above results. Same as the study of (Jebran, Chen, et al., 2019b), who conducted a study in China on PP conflict and cash holding and institutional investors' moderating effect. They found that institutional investors positively correlate with PP conflict and cash reserves. Excess cash reserves are kept when the organization has a PP conflict. The PP conflict decreases because of institutional investors and the firm starts holding fewer cash reserves. Sometimes, institutional investors start expropriating minority shareholders with management. They gave the managers extra benefits to invest only in those projects that were suitable for them. From the above discussion, PP conflict and institutional ownership both have a substantial effect (positive or negative) on cash holding. The institutional investors could also reduce the PP conflict through monitoring as they are more informed about the market than other shareholders. So, institutional ownership is expected to moderate the relationship between PP conflict and firm performance through cash holding. So, the next hypothesis is below.

The following determinants are described based on our study's trade-off and pecking order theories.

### 2.1. Firm size

According to the trade-off theory, firm size negatively affects cash holding. That means the larger the firm's size, the lower the cash reserves, as the large firm has easy contact with capital/financial markets (Akben-Selcuk & Altiok-Yilmaz, 2017; Borges & Farinha, 2015; Hilgen, 2015; Uyar & Kuzey, 2014). There is also a positive relationship between cash holdings with firm size in agency theory. Several shareholders in large firms lead to enough capital, allowing managers to keep excess cash for investing in their desired projects. According to the Pecking order theory, firm size positively relates to cash reserves. This relation is because larger firms have large numbers of shareholders, so they have enough resources to invest and keep cash with them (Aftab et al., 2018; Alles et al., 2012; Jebran, Chen, et al., 2019; Morais et al., 2019).

### 2.2. Leverage

Leverage is the ratio of loan to equity. A firm with a high leverage ratio could face financial distress to keep more cash reserves. In the trade-off theory, a firm with high leverage keeps high cash reserves as they also have to meet the uncertainties for the borrowing cost associated with the loan. Many research pieces have seen this positive relationship (Akben-Selcuk & Altiok-Yilmaz, 2017; Ashhari & Faizal, 2018; Borges & Farinha, 2015; Mohammadi et al., 2018; Tahir et al., 2016). Contrary to it, it is not always probable for firms with high leverage to keep excess reserves with them because they take extra loans only when they do not have enough cash. So, leverage and cash holdings also have a negative relation (Alles et al., 2012; García et al., 2016; Manoel et al., 2018; Uyar & Kuzey, 2014; Wasiuzzaman, 2014), consistent with the pecking order theory.

### 2.3. Cash flow

Cash flow is the money a business receives or transfers to other businesses. Some companies like to use internal funds instead of external financing. According to the pecking order theory, companies keep excess cash reserves to meet uncertain needs (Powell, 2018a; Wasiuzzaman, 2014b). However, on the other hand, according to the trade-off theory, cash and cash flows are considered replacements, so there is no need to keep a high cash reserve due to high cash flows. That is why this theory shows a negative relationship. The cash flow (Alles et al., 2012; Hilgen, 2015; Uyar & Kuzey, 2014) is negative. They found that firms hoard cash for future investment.

### 2.4. Liquidity

Liquid assets are all alternates of cash or converted into cash shortly. So, when the companies are distressed and have less cash, they sell the liquid assets in the market. When liquid assets are in a firm, they do not need to hoard a large cash holding. (Jebran, Chen, et al., 2019; Nafees et al., 2017) find a positive relationship between liquidity and cash holdings. Their results are consistent with the pecking order theory.

### 2.5. Dividend payouts

The trade-off theory explains that only those firms who pay out the dividend have access to cash reserves. If the firm at any time feels fewer reserves, it could lower the dividend payouts. Paying the dividend company builds a good reputation because external financing could be available (Ameer, 2012; La Rocca & Cambrea, 2019; Zaheer, 2017). Pecking order theory states that fewer cash reserves by paying more dividends to a particular firm (Aftab et al., 2018b; Ameer, 2012b).

### 2.6. Capital Expenditure

The TOT exerts positive associations between capital expenditure and cash holding. This means organisations that want to invest more in capital acquisitions hoard extra cash reserves with them (Opler et al., 2001). (Siddiqua et al., 2019) find a positive link between cash holding and capital acquisitions. That means firms that need high capital expenditure keep high cash reserves. Nevertheless, contrary to it, the pecking order theory gives a negative bond among both variables because firms use these capital expenditure investments to take a loan from financing institutions. So, when a loan is available easily, there remains less need to keep extra cash reserves. Another study was conducted in the united states. The researcher examined the cash holding level; he found that firms keep fewer cash reserves in business in capital expenditures. Because this capital expenditure is used as collateral for future financing activities, firms keep fewer cash reserves (Roy, 2018b).

### 2.7. Hypotheses

- PP conflict positively affects cash holding.
- Cash holding exerts a positive impact on firm performance.
- Institutional ownership moderates the relationship between PP conflict and cash holding.
- Cash holding can mediate the relationship between PP conflict and firm performance.
- The indirect effect of PP conflict on firm performance through cash holding is moderated by institutional ownership.

## 3. Data and Methodology

To reach the final sample, the subsequent filters have been applied. Financial and utilities firms are excluded. Only those firms are included if they remain listed during the sample period (2013-2021). Firms with missing corporate governance and financial data are also excluded. After applying the abovementioned criteria, 230 non-financial firms were selected for the analysis. The data related to the variables used in the study were collected from annual reports. The following equations have been developed to test the hypotheses.

$$CASH_{it} = \alpha + \beta_1 PP_{it} + \beta_2 SIZE_{it} + \beta_3 CAPX_{it} + \beta_4 CF_{it} + \beta_5 LEV_{it} + \beta_6 ROA_{it} + \beta_7 DIV_{it} + \beta_7 LIQUID_{it} + Year\ Effect + Industry\ Effect + e_{it}$$

$$CASH_{it} = \alpha + \beta_1 PP_{it} + \beta_2 INS_{it} + \beta_3 SIZE_{it} + \beta_4 CAPX_{it} + \beta_5 CF_{it} + \beta_6 LEV_{it} + \beta_7 ROA_{it} + \beta_8 DIV_{it} + \beta_9 LIQUID_{it} + Year\ Effect + Industry\ Effect + e_{it}$$

$$CASH_{it} = \alpha + \beta_1 PP_{it} + \beta_2 INS_{it} + \beta_3 PP_{it} * INS_{it} + \beta_4 SIZE_{it} + \beta_5 CAPX_{it} + \beta_6 CF_{it} + \beta_7 LEV_{it} + \beta_8 ROA_{it} + \beta_9 DIV_{it} + \beta_{10} LIQUID_{it} + Year\ Effect + Industry\ Effect + e_{it}$$

$$ROA_{it} = i + \beta_1 PP_{it} + \beta_2 CASH_{it} + \sum \beta_3 CONTROL_{it} + e_{it}$$

PP means the principal-principal conflict in the above equations, and INS refers to institutional ownership. At the same time, PP*INS shows institutional ownership's interaction effect on PP conflict and cash holdings. CONTROL contains all the firm-specific variables, i.e., firm size, leverage, cash flow, liquidity, dividend payout, and capital expenditure.

### 3.1. Data Analysis Method

SPSS 25.0 PROCESS was used for model estimation based on conditional indirect effect verification (Hayes, 2015) using the Bootstrap method. First, PROCESS MODEL 4 was used to validate the mediation and the indirect effect of PP, CASH, and ROA in Model 1. The indirect effect used is not the direct effect of PP on CASH but PP's indirect effect on ROA through CASH. Furthermore, regression analysis was also used to predict the independent variable's effect over the dependent variable. Secondly, we apply PROCESS MODEL 7 (Andrew F. Hayes, 2017b) to prove the moderating effect of IO on the effect of PP over CASH. Conditional indirect effects for different levels, such as high, middle, and low, were also investigated to authenticate the moderated mediation effect.

## 4. Results and Discussion

### 4.1. Descriptive Statistics

Table 2 represents the descriptive (i.e., mean, median, 75$^{th}$ quartile, and standard deviation) of the PSX-listed firms from 2013 to 2021. The main variables of this study include cash holding (CASH), PP conflict (PP), institutional variable (INS), and firm performance (ROA). The average value of PP is 0.331, which indicates that about 33% of the equity is in the controlling shareholders' hands. This percentage of PP conflict is 36% in China (Jebran, Chen, et al., 2019). The means value for institutional ownership is 8%, which shows that institutions have an 8% share in firms' total equity. This value is close to (Jebran, Chen, et al., 2019) and (Taufil Mohd et al., 2015); their percentage of institutional ownership to total ownership is 6%. Cash holdings have a log value of 4.597, calculated by captivating the natural log of cash holdings. The PSX-listed firm's average size is 8.874, obtained by taking the firm's natural log of total assets. This mean value is higher in some studies, indicating the firm's large size (Ashhari & Faizal, 2018b; Uyar & Kuzey, 2014b), and low in other studies that indicate the small size of firms. The leverage shows an average value of 0.347, and its standard deviation is 0.431. Some companies show a lower mean leverage value of 0.227 (Aftab et al., 2018), but some show a high leverage mean value of 0.5952 (Sheikh et al., 2013b). Dividend payout is a mock variable that shows that if the organization pays dividends, the value will be one, and the 0 value shows the organization is not paying the dividend. In this research, the mean value of the dividend is 0.15, and its standard deviation is 0.499. Cash flow is another control variable with an average value of 0.54 and a median of 0.031. The ratio of capital expenditure is 48% to total assets. The last control variable is liquidity, which states 22% of liquid assets in total. The mean value of ROA is 0.062, which is comparable with (Ashhari & Faizal, 2018; Borges & Farinha, 2015).

### 4.2. Coefficient of Correlation

Table 3 shows the coefficient of Pearson correlation. Correlation signifies the magnitude and direction of the variables. Its value ranges from +1 to -1. Values near (1) signify a strong correlation among variables, but values near (0) show less or no correlation (Hill & Adkins, 2007; Miles, 2014). The positive and negative signs talk about the direction of the correlation between variables. The correlation also depicts whether there is multicollinearity among explanatory variables. Multicollinearity arises when two predictor variables have a high correlation. As shown in Table 4.2, the correlation among independent variables is not highly significant, so multicollinearity chances do not exist. Table 4.2 shows that TDA has a negative and significant correlation with cash holdings with values of 0.187. While PP, INS, and all other control variables have a significant positive relationship with cash. All these variables are significant at the 1% level for cash. When discussing the relationship with ROA, all the variables, excluding the firm's size and PP conflict, have a significantly positive relationship at a 0.001 level. The size negatively correlates with ROA at the 10% level (-0.057). The PP conflict shows no relationship with firm performance (ROA).

### 4.3. Regression Analysis

Table 4 presents the impact of PP conflict on cash holdings, and Table 5 shows the effect of PP conflict on cash and the moderating role of institutional ownership. PP conflict shows a positive relationship with cash holdings 0.860 (5.2)$^{***}$ at a 1% level. It shows that firm faces a conflic between managing and minority shareholders, they hoard the hefty cash reserves with them. This is because controlling shareholders govern the organization and keep extra cash to fulfill their benefits. Hence, they exploit the rights of minority shareholders dependent on controlling shareholders. This study's results are consistent (Jebran, Chen, et al., 2019; Liu et al., 2015). They also found a positive relationship between PP conflict and cash holding. Institutional ownership (INS) also has a positive relationship with cash holding: 2.376 (6.04)$^{***}$ at a 1% significance level, and its standard error is 0.393. The positive relationship is because of the presence of institutional investors; firms are better governed and directed. As they have more voting power in the business, their decision is prioritized; they allow the firm to hoard the high cash reserves with them. Institutions provide effective monitoring over top management; that is why controlling shareholders do not dare to use the excess reserves of cash for their benefit; instead, this would be used in highly profitable investments. SIZE is a control variable that shows a positive relationship with cash holding. Its coefficient is 0.712 (0.393)$^{***}$, which is highly significant. The positive relationship is related to the PO theory. (Aftab et al., 2018; Alles et al., 2012; Jebran, Iqbal, et al., 2019; Morais et al., 2019; Wasiuzzaman, 2014). The value tells us that the bigger the firm's size, its supplementary cash reserves are kept. This is because larger firms, with a good governance structure, high profitability, and high growth opportunities, keep extra cash reserves for availing of the opportunity as soon as possible. CAPX is the ratio of capital expenditure of business with total assets. Its value, 3.584 (5.83)$^{***}$, also positively connects with cash reserves. The results are consistent with those (Bates et al., 2009; Opler et al., 1999; Wasiuzzaman, 2014b). Firms with high capital expenditure tend to have more cash holding. According to the TO theory, when there are additional cash reserves, firms could use that cash on purchasing and maintaining capital expenditure. Because of this, firms could easily avoid the cost of dividends and interest. Cash-flows (CF) also have a positive association with cash holding as its beta and (t value) is 1.185 (4.87)$^{***}$. Cash flows are the cash substitutes used for

spending, like interest payments. Firms listed in PSX keep high cash reserves in the presence of high cash flows because of availing themselves of different investment opportunities in the future. They also hoard large amounts of cash to cope with uncertain situations during challenging times. These positive results are consistent (Powell, 2018b; Thanatawee, 2019; Wasiuzzaman, 2014b). Leverage (TDA) is another control variable used in this study. It has a negative -0.134 (-1.58)$^{*}$ and a significant effect on cash holding at a 10% level. This negative leverage relationship is steady with the PO theory (Alles et al., 2012; Morais et al., 2019; Suen, 2011; Uyar & Kuzey, 2014; Wasiuzzaman, 2014). This theory tells that highly leveraged organizations hoard fewer cash reserves. One reason for fewer reserves is that when a firm obtains the external load, it must pay its cost (interest) out of cash because the cash holding decreases. Another reason is that firms use external financing only when using their retained earnings and cash reserves, so they take loans. Cash holdings (CASH) and firm performance (ROA) have a positive relationship that means when firms keep excess cash reserves, the firm's profitability enhances. The results are consistent with the studies (Asante-Darko et al., 2018; Lim & Lee, 2019; Martínez-Sola et al., 2018; (Akhtar et al., 2018))

The benefit of holding excess cash is that firms could easily avoid financing costs because of borrowing. Excess cash holding also shows the firm hedging behavior against meeting the uncertain situation. High cash reserves are also kept for investing in different profitable projects, which leads the business towards good performance. The beta and t-value of CASH and ROA are 1.890 (5.21)$^{***}$. Values 2.113 (2.38)$^{**}$ of dividend payout (DIV) exert a positive association at a 5% level. It means only those firms that pay the dividend have excess cash reserves. Our results are consistent with the research findings (Borges & Farinha, 2015; Suen, 2011; Wasiuzzaman, 2014). Liquidity (LIQUID) also shows a positive relationship in this study while exerting PP conflict and cash holding. Its coefficient and t value are 1.604 (21.98)$^{***}$, respectively. Our results are inconsistent with the studies (Hilgen, 2015; Jebran, Chen, et al., 2019; Nafees et al., 2017). This positive relationship could be because liquidity includes cash and cash substitutes. It means that whenever the liquidity increases, there will also be an increase in its cash holdings. Table 3 also shows no multicollinearity chances among independent variables, as the VIF value is less than 10 for all variables. When the variance inflations factor (VIF) value is close to 10, it refers to the strong multicollinearity between variables (García et al., 2016; O'Brien, 2007; Peter Kennedy, 2008). In this study, multicollinearity

### 4.4. Moderated Mediation

Table 6 shows the moderated mediation model. Institutional ownership (IO) moderates the indirect effect of PP conflict on firm performance through cash holdings. Additionally, firm-specific factors such as size, capital expenditure, cash flows, leverage, dividend payout, and liquidity were used as control variables. The PP conflict significantly affects CASH *($\beta$=1.4641, p<0.001)*. It implies that when conflict arises between the principal (controlling owners) - the principal (minority shareholders), it will always be chosen to hoard an extra amount of cash. This is because controlling shareholders use this extra cash to invest in their desired projects or use personal benefits (Sauerwald et al., 2019b). Most family-owned firms have significant controlling power over Pakistan's business, so PP conflict arises. This relationship between PP conflict and cash holding is in line (Jebran, Chen, et al., 2019b). PP conflict also predicts its effect on ROA *($\beta$=-0.0355, p<0.05)* is significant but has a negative effect. PP conflict negatively affects firm value because large shareholders use the firm's money inappropriately for their benefit, so the firm's value is negatively affected. The negative firm performance associated with PP conflict is in line (Blanco-Mazagatos et al., 2016a). The effect of CASH on performance (ROA) is also significant and positive *($\beta$ = 0.0082, p < 0.001)*. High cash reserves could be hoarded to avoid uncertain situations of business. In this case, the financing cost could be dodged. This excess cash is also kept for the opportunity to invest in different profitable portfolios. The results of this study among both variables are consistent with the findings of (La Rocca & Cambrea 2019; Martínez-Sola et al., 2018; (Akhtar et al., 2018)).

The IO also positively affects CASH *($\beta$=3.9965, p<0.001)*. Institutional investors are considered to provide adequate monitoring of the actions and decisions taken by the firms. In their presence, the more dividend is paid, the investment is made only in profitable projects, and the organization is better governed and controlled (Ward et al., 2019). So, the institutional owners allow the firms to keep high cash reserves. Our results supported that institutional owners let high cash reserves (Nguyen & Rahman, 2018b). The interaction effect of institutional ownership on cash holding further strengthens this relationship *($\beta$=7.4209, p<0.05)*. This study proves that institutional ownership positively moderates the relationship between PP conflict and CASH.

As discussed above, institutional ownership provides monitoring and direction for better governance, so the organization performs on good grounds whether the PP conflict prevails. Sometimes institutional owners appoint at least one independent director to inform them about all the circumstances (Pirzada et al., 2015b). These institutional owners positively moderate the PP conflict and cash holdings. Because of these large hoardings, they can monitor whether this money is used for profitable projects. The high institutional effect leads to the high mediation effect of cash holding on the relationship between PP conflict and cash holding. Cash holding is higher for PP conflict; it is also higher in the presence of institutional ownership. That means firms keep excess cash reserves for investing in different portfolios under institutional owners' supervision, so the firm's performance improves. Figure 4.1 shows the statistical model of the study.

In this model, the indirect effect of PP on ROA through CASH is a product function of the equation PP on CASH (1) and the effect of CASH on ROA controlling for PP from equation (2)

$$= (\alpha_1 + \alpha_3 W)\,\beta = \alpha_1\,\beta + \alpha_3\beta W = 0.012 + 0.061W \qquad (3)$$

It is the linear function of W (institutional ownership) with slope $\alpha_3\beta = 0.061$ and constant = 0.012. This slope shows the positive effect, which means the indirect effect of PP conflict on ROA through cash holding is the increasing institutional ownership function. The index of moderated mediation is positive. Next, the process generates the bootstrapping confidence interval at a 95% level to show whether moderated mediation exists. The index of moderated mediation effect is also significant *(Index = 0.609, LLCI = 0.0243, ULCI 0.1015)*. This interval does not include zero as the upper and lower levels are positive, so it means that PP conflict's indirect effect on firm performance through cash holding is positively moderated by institutional ownership.

Finally, institutional ownership positively moderates the PP conflict's indirect effect on firm performance through cash holdings. Furthermore, the indirect effect of PP conflict on firm performance for different levels (low, medium, and high) of institutional ownership (moderator) is significant for all three levels. It shows that the higher the PP conflict level, the higher the cash holdings. This cash holding is higher for high institutional ownership than low institutional ownership. In Pakistan, where agency conflict prevails, institutional owners' supervision for the check and balance of owners' wealth ensures that the firm's money is used only for its betterment. That will lead the firm towards improved performance. Figure 2 present the moderating role of

institutional ownership (-1 standard deviation, mean, +1 standard deviation) on the relationship between PP conflict and cash holdings.

## 5. Conclusion

Cash holding is considered a crucial element in business decisions. Companies hoard cash to avail themselves of different business opportunities. For meeting uncertain contingencies, cash is also reserved by organizations. Different theories tell us about cash handling, i.e., trade-off theory, pecking order theory, and agency theory. The trade-off theory (Opler et al., 1999) shows that excess cash is kept to avoid the opportunity cost attached to financing (interest) or equity (dividend). The pecking order theory (Myers, 1984) suggests that internal funds must be preferred for cash needs. The agency theory (Jensen & Meckling, 1976) reflects that someone works for others, resulting in the relationship between principal and agent. Because of asymmetric information, there are many conflicts between the principal and the agent. Managers kept excess cash reserves for achieving personal objectives because ownership and control were in different hands. This study is based on different objectives, but our main and most prominent aim of this study is to examine the relationship between PP conflict and firm performance through cash hoarding. The researcher uses the deductive approach in this research, in which the quantitative study was performed. The secondary data was obtained from PSX and companies' reports for 2010-2018.

Our findings show that PP conflict and cash holding have a positive relationship. That means controlling owners who hoard large cash reserves. This act gives them the right to use it for their desired projects (Jebran, Chen, et al., 2019b). Our second hypothesis of PP conflict and firm performance is also proved that shows a negative effect of PP conflict on firm performance. It means controlling shareholders remain busy achieving their objectives that firms affect adversely (Blanco-Mazagatos et al., 2016b). The third hypothesis also proves that holding a high cash reserve leads the firm toward better performance. Hoarding high cash reserves enables firms to avail themselves of more and more investment opportunities without delay (La Rocca & Cambrea, 2019b).

PP conflict and firm performance's indirect effect through cash holding shows that firms going through the principal and principal conflict hoard large cash reserves. This cash is used for personal benefits, so the firm's performance weakens. The moderating effect of institutional ownership on PP conflict and cash holding is also significant and positive. That means our fifth hypothesis has also been accepted. Strong institutional ownership provides the supervision of controlling shareholders. The interaction effect of institutional ownership positively moderates the relationship. Because of this ownership, institutions like banks provide monitoring and supervision to firms that force the firms to work in a way that is only beneficial for the firm. So, the shareholder's wealth is used only for the firm's benefit (Nguyen & Rahman, 2018b). This research also proves that PP conflict's indirect effect on firm value through cash holding is contingent on institutional ownership. It means institutional owners allow the firms to hoard excess cash reserves as they provide supervision and direction to the firm so minority shareholders do not feel hesitation and insecurity. This high cash holding is used for investing in different profitable portfolios, meaning the firm's wealth is used only for all stakeholders' benefit. This behavior also results in improving firm performance. Finally, institutional ownership positively moderates the PP conflict's indirect effect on firm performance through cash holdings. Furthermore, the indirect effect of PP conflict on firm performance for different levels (low, medium, and high) of institutional ownership (moderator) is significant for all three levels. It shows that the higher the PP conflict level, the higher the cash holdings. This cash holding is higher for high institutional ownership than low institutional ownership. In Pakistan, where agency conflict prevails, institutional owners' supervision for the check and balance of owners' wealth ensures that the firm's money is used only for its betterment. That will lead the firm towards improved performance.

This study's firm size, leverage, liquidity, capital expenditure, dividend payout, and cash flow are firm-specific variables used in this study. That is grounded on the trade-off theory and the pecking order theory. All of these variables show a positive affiliation with hoarding high cash reserves. However, leverage negatively impacts a leveraged firm with fewer cash reserves (Manoel et al., 2018b; Uyar & Kuzey, 2014b). The results of capital expenditure are consistent with the trade-off theory (Siddiqua et al., 2019b; Wasiuzzaman, 2014b), while the results of firm size (Jebran, Iqbal, et al., 2019), cash flow (Powell, 2018b), leverage (Manoel et al., 2018b), liquidity (Nafees et al., 2017b), and dividend payout are following the pecking order theory.

## References


Aftab, U., Javid, A. Y., & Akhter, W. (2018). The Determinants of Cash Holdings around Different Regions of the World. *Business & Economic Review*, *10*(2), 151–182.

Akben-Selcuk, E., & Altiok-Yilmaz, A. (2017). Determinants of corporate cash holdings: Firm level evidence from emerging markets. *Global Business Strategies in Crisis*, 417–428.

Akhtar, T., Tareq, M. A., Sakti, M. R. P., & Khan, A. A. (2018). Corporate governance and cash holdings: the way forward. *Qualitative Research in Financial Markets*, *10*(2), 152–170.

Al-Najjar, B., & Clark, E. (2017). Corporate governance and cash holdings in MENA: Evidence from internal and external governance practices. *Research in International Business and Finance*, *39*, 1–12.

Alles, L., Lian, Y., & Xu, C. Y. (2012). The Determinants of Target Cash Holdings and Adjustment Speeds: An Empirical Analysis of Chinese Firms. In *SSRN Electronic Journal*.

Ameer, R. (2012). Impact of cash holdings and ownership concentration on firm valuation: Empirical evidence from Australia. *Review of Accounting and Finance*, *11*(4), 448–467.

Andrew F. Hayes. (2017). *BOOK: Introduction to Mediation, Moderation, and Conditional Analysis Process* (Todd et al. (ed.); 2nd ed.). The Guilford Press.

Asante-Darko, D., Adu Bonsu, B., Famiyeh, S., Kwarteng, A., & Goka, Y. (2018). Governance structures, cash holdings, and firm value on the Ghana Stock Exchange. *Corporate Governance (Bingley)*, *18*(4), 671–685.

Ashhari, Z. M., & Faizal, D. R. (2018). Determinants and Performance of Cash Holding: Evidence from Small Business in Malaysia. *International Journal of Economics, Management, and Accounting*, *26*(2), 457–473.

Ayegbusi, O. O., & Akinlo, A. E. (2016). *The Effect Of Cash Holdings On The Performance Of Firms In*. *1*(December), pp. 1–12.

Banchit, A., Boulanouar, Z., Wellalage, N. H., & Abidin, S. Z. (2013). Relationship Principal-Agent or Principal-Principal Conflicts and Islamic Banks" Performance S. *Business & Management Quarterly Review*, *4*(3), 8–16.

Bates, T. W., Kahle, K. M., & Stulz, R. M. (2009). Why Do U.S. Firms Hold So Much More Cash than They Used To? *The Journal of Finance*, *64*(5), 1985–2021.

Blanco-Mazagatos, V., de Quevedo-Puente, E., & Delgado-García, J. B. (2016). How agency conflict between family managers and family owners affects performance in wholly family-owned firms: A generational perspective. *Journal of Family Business Strategy*, *7*(3), 167–177.

Borges, A. R. D. S., & Farinha, J. B. R. B. (2015). *Corporate cash holdings and financial crisis: An Empirical investigation of Portuguese listed companies*. 8–34.

Brick, I. E., & Liao, R. C. (2017). The joint determinants of cash holdings and debt maturity: the case for financial constraints. *Review of Quantitative Finance and Accounting*, *48*(3), 597–641.

Cambrea, D. R., Tenuta, P., & Vastola, V. (2019). Female directors and corporate cash holdings: monitoring vs executive roles. *Management Decision*, *58*(2), 295–312.

Eugster, N., & Isakov, D. (2019). Founding family ownership, stock market returns, and agency problems. *Journal of Banking and Finance*, *107*, 105600.

García-Teruel, P. J., & Martínez-Solano, P. (2008). On the determinants of SME cash holdings: Evidence from Spain. *Journal of Business Finance and Accounting*, *35*(1–2), 127–149.

García, J., Salmerón, R., García, C., & López Martín, M. del M. (2016). Standardization of Variables and Collinearity Diagnostic in Ridge Regression. *International Statistical Review*, *84*(2), 245–266.

Gaur, S. ., Bathula, H., & Singh, D. (2015). Ownership Concentration, Board Characteristics, and Firm Performance. *Management Decision*, *53*(5), 911–931.

Hayes, A. F. (2015). An Index and Test of Linear Moderated Mediation. *Multivariate Behavioral Research*, *50*(1), 37–41.

Hilgen, M. (2015). Master Thesis The Determinants of Cash Holdings : Evidence from German Listed Firms. *University of Twente*, *September*, 1–142.

Hill, R. C., & Adkins, L. C. (2007). Collinearity. In *A Companion to Theoretical Econometrics* (pp. 256–278). Blackwell Publishing Ltd.

Jebran, K., Chen, S., & Tauni, M. Z. (2019). BASE: Principal-principal conflicts and corporate cash holdings: Evidence from China. *Research in International Business and Finance*, *49*(February), 55–70.

Jebran, K., Iqbal, A., Bhat, K. U., Khan, M. A., & Hayat, M. (2019). Determinants of corporate cash holdings in tranquil and turbulent period: evidence from an emerging economy. *Financial Innovation*, *5*(1).

Jensen, M. C., Donaldson, G., Jacobs, A., Light, J., Smith, C., Weinhold, W., Alchian, A., & Ruback, R. (1986). Agency Costs of Free Cash Flow, Corporate Finance, and Takeovers. *The American Economic Review*, *76*(2), 323–329.

Jensen, M. C., & Meckling, W. H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, *3*(4), 305–360.

Khan, F. U., & Nouman, M. (2017). Does ownership structure affect firm's performance? Empirical evidence from Pakistan. *Pakistan Business Review*, *19*(1), 1–23.

La Rocca, M., & Cambrea, D. R. (2019). The effect of cash holdings on firm performance in large Italian companies. *Journal of International Financial Management and Accounting*, *30*(1), 30–59.

Lie, E., & Yang, K. (2016). Board Independence, Corporate Spending, and Cash Holdings. *Working Paper*, 1–2.

Lim, J., & Lee, S. C. (2019). Relationship Between the Characteristics of CEOs and Excess Cash Holdings of Firms. *Emerging Markets Finance and Trade*, *55*(5), 1069–1090.

Liu, Q., Luo, T., & Tian, G. G. (2015). Family control and corporate cash holdings: Evidence from China. *Journal of Corporate Finance*, *31*, 220–245.

Loncan, T. (2020). Foreign institutional ownership and corporate cash holdings: Evidence from emerging economies. *International Review of Financial Analysis*, pp. *71*, 101295.

Manoel, A. A. S., Moraes, M. B. C., Nagano, M. S., & Sobreiro, V. A. (2018). Cash holdings and corporate governance: The effects of premium listing in Brazil. *Review of Development Finance*, *8*(2), 106–115.

Martínez-Sola, C., García-Teruel, P. J., & Martínez-Solano, P. (2018). Cash holdings in SMEs: speed of adjustment, growth, and financing. *Small Business Economics*, *51*(4), 823–842.

Miles, J. (2014). Tolerance and Variance Inflation Factor. In *Wiley StatsRef: Statistics Reference Online*. John Wiley & Sons, Ltd.

Mohammadi, M., Kardan, B., & Salehi, M. (2018). The relationship between cash holdings, investment opportunities and financial constraints with audit fees. *Asian Journal of Accounting Research*, *3*(1), 15–27.

Mohammed, A. M. (2018). The impact of ownership structure on firm performance: Evidence from Jordan. *Academy of Accounting and Financial Studies Journal*, *22*(5), 1–4.

Morais, F., Nave, A., & Rodrigues, R. G. (2019). Cash holdings determinants from Brazilian listed firms. *Lecture Notes in Electrical Engineering*, *505*, 1043–1050.

Muhammad Rizky Prima Sakti, A. A. K. T. akhtar M. A. T. (2018). Corporate Governance and Cash Holdings: The Way Forward Qualitative Research in Financial Markets. *Asian Review of Accounting*, *18*(1).

Mulchandani, K., Mulchandani, K. Does institutional ownership limit classification shifting: evidence from Indian firms. *International Journal of Disclosure and Governance*, 19, 466–477 (2022).

Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics*, *5*(2), 147–175.

Myers, S. C. (1984). The Capital Structure Puzzle. *The Journal of Finance*, *39*(3), 574–592.

Nafees, B., Ahmad, N., & Rasheed, A. (2017). The Determinants of Cash Holdings: Evidence from SMEs in Pakistan. *Paradigms*, *11*(1), 111–116.

Nguyen, P., & Rahman, N. (2018). Institutional ownership, cross-shareholdings, and corporate cash reserves in Japan. *Accounting & Finance*, *60*, 1175–1207.

Narang, N., Gupta, S. & Tripathy, N. A. (2023). bibliometric analysis of governance mechanisms in dividend decisions: an

overview and emerging trends. *International Journal of Disclosure and Governance*.
O'Brien, R. M. (2007). A caution regarding rules of thumb for variance inflation factors. *Quality and Quantity*, *41*(5), 673–690.
Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (1999). The determinants and implications of corporate cash holdings. *Journal of Financial Economics*, *52*(1), 3–46.
Opler, T., Pinkowitz, L., Stulz, R., & Williamson, R. (2001). Corporate Cash Holdings. *Journal of Applied Corporate Finance*, *14*(1), 55–67.
Owusu, A., & Weir, C. (2018). Agency costs, ownership structure and corporate governance mechanisms in Ghana. *International Journal of Accounting, Auditing and Performance Evaluation*, *14*(1), 63–84.
Peter Kennedy. (2008). *A Guide to Econometrics*. John Wiley & Sons.
Pirzada, K., Mustapha, M. Z. Bin, & Wickramasinghe, D. (2015). Firm Performance, Institutional Ownership and Capital Structure: A Case of Malaysia. *Procedia - Social and Behavioral Sciences*, *211*, 170–176.
Powell, G. E. (2018). The financial determinants of corporate cash holdings for Indonesian firms. *Academy of Accounting and Financial Studies Journal*, *22*(1), 1–12.
Purkayastha, S., Veliyath, R., & George, R. (2019). The roles of family ownership and family management in the governance of agency conflicts. *Journal of Business Research*, *98*, 50–64.
Rafinda, A. (2018). Determinants of Cash Holdings in Developed and Developing Countries. *Jurnal Dinamika Manajemen*, *9*(1), 1–11.
Rashid, A. (2016). Managerial Ownership and Agency Cost: Evidence from Bangladesh. *Journal of Business Ethics*, *137*(3), 609–621.
Rouyer, E. (2016). Family ownership and busy boards: impact on performance. *Management Decision*, *54*(6), 832–853.
Roy, A. (2018). Corporate governance and cash holdings in Indian firms. *Contemporary Studies in Economic and Financial Analysis*, *99*, 93–119.
Sauerwald, S., Heugens, P. P. M. A. R., Turturea, R., & van Essen, M. (2019). Are All Private Benefits of Control Ineffective? Principal–Principal Benefits, External Governance Quality, and Firm Performance. *Journal of Management Studies*, *56*(4), 725–757.
Sheikh, N. A., Wang, Z., & Khan, S. (2013). The impact of internal attributes of corporate governance on firm performance: Evidence from Pakistan. *International Journal of Commerce and Management*, *23*(1), 38–55.
Siddiqua, G. A., ur Rehman, A., & Hussain, S. (2019). Asymmetric targeting of corporate cash holdings and financial constraints in Pakistani firms. *Journal of Asian Business and Economic Studies*, *26*(1), 76–97.
Suen, C. (2011). *The Determinants of Cash Holdings: Evidence from Dutch Listed Firms*. 1–142.
Tahir, M. S., Alifiah, M. N., Arshad, M. U., & Saleem, F. (2016). Financial theories with a focus on corporate cash holding behavior: A comprehensive review. *International Journal of Economics and Financial Issues*, *6*(3), 215–219.
Taufil Mohd, K. N., Latif, R. A., & Saleh, I. (2015). Institutional Ownership and Cash Holding. *Indian Journal of Science and Technology*, *8*(32), 1–6.
Thanatawee, Y. (2019). Alignment or entrenchment? Evidence from cash holdings in Thailand. *Afro-Asian Journal of Finance and Accounting*, *9*(3), 291–308.
Uyar, A., & Kuzey, C. (2014). Determinants of corporate cash holdings: Evidence from the emerging market of Turkey. *Applied Economics*, *46*(9), 1035–1048.
Wang, H., Luo, T., Tian, G. G., & Yan, H. (2020). *How does bank ownership affect firm investment? Evidence from China*.
Ward, C., Yin, C., & Zeng, Y. (2018). Institutional investor monitoring motivation and the marginal value of cash. *Journal of Corporate Finance*, pp. *48*, 49–75.
Ward, C., Yin, C., & Zeng, Y. (2019). Motivated monitoring by institutional investors and firm investment efficiency. *European Financial Management*, *26*(2), 348–385.
Wasiuzzaman, S. (2014). Analysis of corporate cash holdings of firms in Malaysia. *Journal of Asia Business Studies*, *8*(2), 118–135.
Wu, S., Chen, C. M., & Lee, P. C. (2016). Independent directors and earnings management: The moderating effects of controlling shareholders and the divergence of cash-flow and control rights. *North American Journal of Economics and Finance*, *35*, 153–165.
Yeh, C. M. (2019). Ownership structure and firm performance of listed tourism firms. *International Journal of Tourism Research*, *21*(2), 165–179.
Yoo, T., & Koh, Y. (2014). Agent or structure for principal-principal conflicts? Audit firms versus foreign ownership in the Asian context. *Asian Business and Management*, *13*(4), 309–332.
Zaheer, S. (2017). *The Effect of Excess Cash Holding on the Value of the Firm and Stock Returns The Effect of Excess Cash Holding on the Value of the Firm and Stock Returns*. *April*.

**Table 1: Measurements of Variables**

| Variable | | Measurement | References |
|---|---|---|---|
| Independent Variable | | | |
| Principal- Principal Conflict | PP | Percentage of shares held by controlling shareholders | (Jebran, Chen, et al., 2019a) |
| Moderating Variable | | | |
| Institutional Ownership | IO | Percentage of shares held by institutions | (Liu et al., 2015a; Rashid, 2016) |
| Mediating Variable | | | |
| Cash Holding | CASH | (Cash + Marketable Securities) / Total Assets | (Aftab et al., 2018a; Bhat et al., 2018; Bhuiyan & Hooks, 2019) |
| Dependent Variable | | | |
| Firm Performance | ROA | ROA = Net Income / Total Assets | (Banchit et al., 2013; Ntim et al., 2015; Rashid, 2016; Sauerwald et al., 2019a) |
| Control Variables | | | |
| Firm Size | SIZE | Natural Log of Total Assets | (Hilgen, 2015a; Rocca & Staglianò, 2018; Yeh, 2019) |
| Capital Expenditure | CAPX | Capital Expenditure / Total Assets | (Aftab et al., 2018a; Kalinin, 2012) |
| Leverage | LEV | Total Debt / Total Asset | (Aftab et al., 2018a; Manoel et al., 2018a; Martínez-Sola et al., 2018) |
| Liquidity | LIQUID | (Networking Capital - Cash) / Total Assets | (Jebran, Iqbal, et al., 2019a; Nafees et al., 2017a) |
| Dividend Payout | DIV | A firm that pays a dividend is set to one, while zero is for firms that do not pay a dividend. | (Hilgen, 2015a; Suen, 2011a; Wasiuzzaman, 2014a) |
| Cash Flow | CF | Cash Flow from Operating Activities / Total Assets | (Akben-Selcuk & Altiok-Yilmaz, 2017; Ashhari & Faizal, 2018; Brick & Liao, 2017) |

**Table 2: Descriptive Statistics**

| Variable | Mean | Median | 75th Percent | Std. Dev. |
|---|---|---|---|---|
| PP | .331 | 0.271 | 0.495 | .203 |
| INS | .086 | 0.058 | 0.140 | .086 |
| CASH | 4.597 | 4.407 | 6.170 | 2.203 |
| SIZE | 8.874 | 8.630 | 9.838 | 1.7 |
| CAPX | .048 | 0.025 | 0.064 | .059 |
| CF | .054 | 0.031 | 0.109 | .098 |
| TDA | .347 | 0.264 | 0.467 | .431 |
| DIVTPY | .015 | 0.000 | 0.016 | .031 |
| DIV | .465 | 0.000 | 1.000 | .499 |
| LIQUID | 2.21 | 0.041 | 0.187 | .466 |
| ROA | .062 | 0.034 | 0.101 | .129 |

**Table 3: Matrix of correlations**

| Variables | PP | INS | CASH | FC | SIZE | CAPX | CF | LEV | DIVTD | LIQUID | ROA |
|---|---|---|---|---|---|---|---|---|---|---|---|
| PP | 1.000 | | | | | | | | | | |
| INS | -0.074*** | 1.000 | | | | | | | | | |
| CASH | 0.250*** | 0.208*** | 1.000 | | | | | | | | |
| FC | -0.184*** | -0.087*** | -0.370*** | 1.000 | | | | | | | |
| SIZE | 0.201*** | 0.096*** | 0.557*** | -0.042* | 1.000 | | | | | | |
| CAPX | -0.004* | 0.010* | 0.160*** | -0.099*** | -0.100*** | 1.000 | | | | | |
| CF | 0.038* | 0.017 | 0.253*** | -0.349*** | -0.041* | 0.299*** | 1.000 | | | | |
| TDA | -0.072** | -0.103*** | -0.187*** | 0.253*** | -0.305*** | 0.395*** | 0.019 | 1.000 | | | |
| DIVTD | 0.110*** | 0.221*** | 0.365*** | -0.243*** | 0.201*** | 0.161*** | 0.206*** | -0.146*** | 1.000 | | |
| LIQUID | 0.075** | 0.124*** | 0.462*** | -0.408*** | 0.007 | 0.119*** | 0.240*** | -0.123*** | 0.199*** | 1.000 | |
| ROA | 0.020 | 0.089*** | 0.298*** | -0.499*** | -0.057* | 0.433*** | 0.522*** | 0.192*** | 0.337*** | 0.278*** | 1.000 |

**Figure 1: Statistical Model**

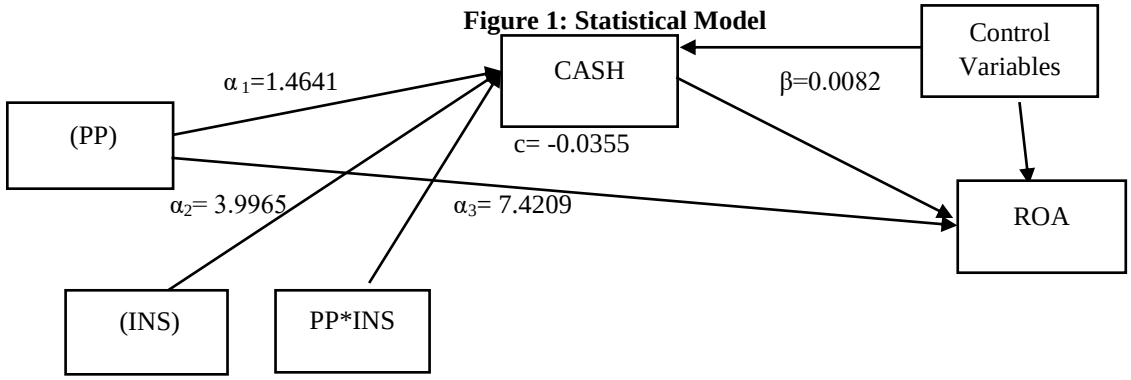

**Table 4: Impact of Principal-principal Conflict on Cash Holdings**

| | | CASH | | | |
|---|---|---|---|---|---|
| Predictors | | Model-1 | Model-2 | Model-3 | Model-4 |
| PP Conflict | | 1.085*** | 1.067*** | 0.802*** | 0.773*** |
| | t-value | 6.430 | 6.330 | 4.580 | 4.400 |
| | SE | 0.169 | 0.169 | 0.175 | 0.176 |
| SIZE | | 0.703*** | 0.700*** | 0.720*** | 0.715*** |
| | t-value | 27.140 | 26.850 | 26.840 | 26.510 |
| | SE | 0.026 | 0.026 | 0.027 | 0.027 |
| CAPX | | 3.645*** | 3.467*** | 3.865*** | 3.683*** |
| | t-value | 6.120 | 5.790 | 6.520 | 6.170 |
| | SE | 0.596 | 0.599 | 0.593 | 0.596 |
| CF | | 1.648*** | 1.665*** | 1.735*** | 1.737*** |
| | t-value | 4.520 | 4.460 | 4.990 | 4.840 |
| | SE | 0.365 | 0.373 | 0.348 | 0.359 |
| TDA | | -0.190** | -0.196** | -0.164* | -0.170** |
| | t-value | -2.330 | -2.410 | -1.910 | -1.970 |
| | SE | 0.081 | 0.081 | 0.086 | 0.086 |
| ROA | | 1.955*** | 2.119*** | 1.833*** | 2.009*** |
| | t-value | 6.240 | 6.500 | 5.730 | 6.090 |
| | SE | 0.313 | 0.326 | 0.320 | 0.330 |
| DIV | | 2.584*** | 2.283*** | 2.432*** | 2.078** |
| | t-value | 3.250 | 2.830 | 2.840 | 2.380 |
| | SE | 0.795 | 0.805 | 0.856 | 0.872 |
| LIQUID | | 1.749*** | 1.740*** | 1.650*** | 1.639*** |
| | t-value | 18.480 | 18.380 | 17.040 | 16.950 |
| | SE | 0.095 | 0.095 | 0.097 | 0.097 |
| Constant | | -2.758*** | -2.800*** | -1.829*** | -1.851*** |
| | t-value | -13.420 | -12.890 | -6.600 | -6.550 |
| | SE | 0.206 | 0.217 | 0.277 | 0.283 |
| Year Fixed Effect | | No | Included | No | Included |
| Industry Fixed Effect | | No | No | Included | Included |
| Adj. $R^2$ | | 0.589 | 0.591 | 0.661 | 0.663 |
| Prob > F | | 0.000 | 0.000 | 0.000 | 0.000 |

**Figure 2: Institutional ownership moderates the relationship between P-P conflict and Cash Holding**

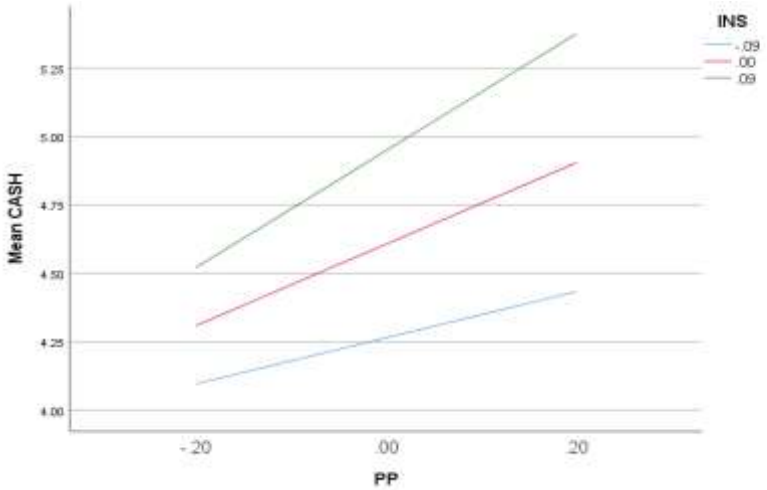

**Table 5: Impact of Principal-principal Conflict on Cash Holdings: Moderating Role of Institutional Ownership**

| | | | CASH | | | | | |
|---|---|---|---|---|---|---|---|---|
| Predictors | Model-1 | | Model-2 | | Model-3 | | Model-4 | |
| P-P Conflict (X) | 1.202*** | 0.579*** | 1.184*** | 0.563*** | 0.889** | 0.510** | 0.860*** | 0.484*** |
| t-value | 7.210 | 2.630 | 7.110 | 2.560 | 5.120 | 2.170 | 4.940 | 2.050 |
| SE | 0.167 | 0.220 | 0.167 | 0.220 | 0.174 | 0.235 | 0.174 | 0.236 |
| INSTITUTIONS (W) | 2.670*** | 0.094 | 2.788 | 0.228*** | 2.230 | 0.625 | 2.376*** | 0.788*** |
| t-value | 6.630 | 0.130 | 6.880 | 0.310 | 5.600 | 0.820 | 5.960 | 1.030 |
| SE | 0.403 | 0.730 | 0.405 | 0.731 | 0.398 | 0.766 | 0.399 | 0.763*** |
| X*W | | 8.445*** | | 8.397*** | | 5.238*** | | 5.180 |
| t-value | | 4.520 | | 4.480 | | 2.680 | | 2.650 |
| SE | | 1.870 | | 1.875 | | 1.958 | | 1.954 |
| SIZE | 0.690*** | 0.692*** | 0.686*** | 0.688*** | 0.719*** | 0.721*** | 0.712*** | 0.715*** |
| t-value | 27.100 | 27.180 | 26.780 | 26.870 | 26.810 | 26.790 | 26.450 | 26.440 |
| SE | 0.025 | 0.025 | 0.026 | 0.026 | 0.027 | 0.027 | 0.027 | 0.027 |
| CAPX | 3.592*** | 3.666*** | 3.365*** | 3.441*** | 3.806*** | 3.839*** | 3.584*** | 3.618*** |
| t-value | 5.950 | 6.160 | 5.560 | 5.760 | 6.460 | 6.550 | 6.060 | 6.150 |
| SE | 0.604 | 0.595 | 0.606 | 0.598 | 0.589 | 0.586 | 0.592 | 0.588 |
| CF | 1.785*** | 1.746*** | 1.816*** | 1.777*** | 1.806*** | 1.778*** | 1.815*** | 1.786*** |
| t-value | 4.910 | 4.860 | 4.920 | 4.860 | 5.190 | 5.150 | 5.080 | 5.030 |
| SE | 0.364 | 0.359 | 0.369 | 0.366 | 0.348 | 0.345 | 0.357 | 0.355 |
| TDA | -0.140* | -0.131 | -0.145* | -0.136 | -0.131 | -0.118 | -0.134 | -0.122*** |
| t-value | -1.680 | -1.610 | -1.740 | -1.680 | -1.490 | -1.370 | -1.540 | -1.420 |
| SE | 0.083 | 0.082 | 0.083 | 0.081 | 0.087 | 0.086 | 0.087 | 0.086 |
| ROA | 1.719*** | 1.675*** | 1.911*** | 1.866*** | 1.689*** | 1.681*** | 1.890*** | 1.881*** |
| t-value | 5.540 | 5.410 | 5.950 | 5.810 | 5.340 | 5.310 | 5.800 | 5.770 |
| SE | 0.310 | 0.310 | 0.321 | 0.321 | 0.317 | 0.316 | 0.326 | 0.326 |
| DIV | 2.755*** | 3.146*** | 2.366*** | 2.752*** | 2.552*** | 2.714*** | 2.113** | 2.270*** |
| t-value | 3.510 | 4.050 | 2.990 | 3.510 | 3.010 | 3.220 | 2.450 | 2.640 |
| SE | 0.784 | 0.777 | 0.791 | 0.785 | 0.849 | 0.844 | 0.863 | 0.859 |
| LIQUID | 1.698*** | 1.707*** | 1.684*** | 1.694*** | 1.619*** | 1.621*** | 1.604*** | 1.606*** |
| t-value | 18.460 | 18.650 | 18.340 | 18.540 | 16.920 | 17.120 | 16.830 | 17.020 |
| SE | 0.092 | 0.092 | 0.092 | 0.091 | 0.096 | 0.095 | 0.095 | 0.094 |
| Constant | -2.913*** | -2.746*** | -3.000*** | -2.842*** | -2.037*** | -1.957*** | -2.092*** | -2.017*** |
| t-value | -14.330 | -13.290 | -13.960 | -13.060 | -7.360 | -7.000 | -7.410 | -7.090 |
| SE | 0.203 | 0.207 | 0.215 | 0.218 | 0.277 | 0.279 | 0.282 | 0.284 |
| Year Effect | No | No | Included | Included | No | No | Included | Included |
| Industry Effect | No | No | No | No | Included | Included | Included | Included |
| Adj. $R^2$ | 0.599 | 0.603 | 0.602 | 0.605 | 0.667 | 0.668 | 0.669 | 0.670 |
| Prob > F | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |

**Table 6: Impact of Principal-principal Conflict and Cash Holdings on Firm Performance**

| | | ROA | | | |
|---|---|---|---|---|---|
| Predictors | | Model-1 | Model-2 | Model-3 | Model-4 |
| PP Conflict | | -0.035*** | -0.031*** | -0.032*** | -0.027** |
| | t-value | -3.350 | -3.040 | -2.930 | -2.460 |
| | SE | 0.010 | 0.010 | 0.011 | 0.011 |
| CASH | | 0.007*** | 0.007*** | 0.008*** | 0.008*** |
| | t-value | 6.000 | 6.250 | 5.710 | 6.100 |
| | SE | 0.001 | 0.001 | 0.001 | 0.001 |
| SIZE | | -0.005*** | -0.004*** | -0.007*** | -0.007*** |
| | t-value | -3.700 | -3.520 | -4.160 | -3.910 |
| | SE | 0.001 | 0.001 | 0.002 | 0.002 |
| CAPX | | 0.357*** | 0.368*** | 0.357*** | 0.367*** |
| | t-value | 6.830 | 7.190 | 6.680 | 7.030 |
| | SE | 0.052 | 0.051 | 0.053 | 0.052 |
| CF | | 0.337* | 0.332*** | 0.333*** | 0.330*** |
| | t-value | 10.050 | 9.820 | 9.940 | 9.770 |
| | SE | 0.033 | 0.034 | 0.034 | 0.034 |
| TDA | | 0.022* | 0.023** | 0.027** | 0.027* |
| | t-value | 1.940 | 2.060 | 2.270 | 2.350 |
| | SE | 0.011 | 0.011 | 0.012 | 0.012 |
| DIV | | 1.277*** | 1.293*** | 1.240*** | 1.262*** |
| | | 16.330 | 16.790 | 15.250 | 15.650 |
| | t-value | 0.078 | 0.077 | 0.081 | 0.081 |
| LIQUID | | 0.009* | 0.010** | 0.008 | 0.009* |
| | t-value | 1.830 | 2.110 | 1.460 | 1.710 |
| | SE | 0.005 | 0.005 | 0.005 | 0.005 |
| Constant | | 0.013 | 0.180 | 0.039** | 0.038** |
| | t-value | 1.06 | 1.36 | 2.410 | 2.18 |
| | SE | 0.012 | 0.013 | 0.016 | 0.017 |
| Year Effect | | No | Included | No | Included |
| Industry Effect | | No | No | Included | Included |
| Adj. $R^2$ | | 0.570 | 0.621 | 0.591 | 0.621 |
| Prob > F | | 0.000 | 0.000 | 0.000 | 0.000 |

**Table 7: Impact of Principal-principal Conflict on Firm Performance: Moderating role of Institutional Ownership and Mediating Role of Cash Holdings**

| | | Consequence | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | CASH (M) | | | | ROA (Y) | | | |
| Antecedent | | β | SE | 95% CI | | β | SE | 95% CI | |
| | | | | LLCI | ULCI | | | LLCI | ULCI |
| PP Conflict | (X) | 1.4641*** | .1911 | 1.0894 | 1.8389 | -.0355** | .0104 | -.0560 | -.0151 |
| CASH | (M) | | | | | .0082*** | .0011 | .0060 | .0104 |
| INS | (W) | 3.9965*** | .4399 | 3.1338 | 4.8593 | | | | |
| X * W | | 7.4209** | 2.1548 | 3.1950 | 11.6469 | | | | |
| SIZE | | .6653*** | .0278 | .6107 | .7199 | -.0056*** | .0012 | -.0080 | -.0033 |
| CAPX | | 5.5150*** | .6864 | 4.1688 | 6.8612 | .3569*** | .0521 | .2546 | .4591 |
| CF | | 3.4600*** | .3945 | 2.6863 | 4.2336 | .3384*** | .0333 | .2731 | .4037 |
| TDA | | -.4441*** | .0920 | -.2638 | -.2638 | .0206** | .0111 | -.0013 | .0424 |
| DIV | | 8.7167*** | .7845 | 7.1782 | 10.2552 | 1.2845*** | .0779 | 1.1316 | 1.4374 |
| Constant | | -1.7720*** | .2392 | -2.2411 | -1.3029 | .0059 | .0118 | -.0172 | .0291 |
| | | $R^2$ = 0.4815 | | | | $R^2$ = 0.5697 | | | |
| | | $F(8, 1889) = 255.18$, $p < .001$ | | | | $F(7, 1890) = 189.19$, $p < .001$ | | | |

| Conditional Indirect Effect | | | | |
|---|---|---|---|---|
| | Index | Boot SE | LL 95% CI | UL 95% CI |
| INS | .0609 | .0196 | .0243 | .1015 |
| | ROA | | | |
| INS | Indirect Effect | Boot SE | LL 95% CI | UL 95% CI |
| H | .0068 | .0024 | .0026 | .0118 |
| M | .0120 | .0023 | .0079 | .0169 |