



# Pakistan Journal of Economic Studies

ISSN (E) 2708-1486 (P) 2708-1478

Volume 7: Issue 1 March 2024

Journal homepage: <https://journals.iub.edu.pk/index.php/pjes/index>

## Economic Policy Uncertainty and Cash Holdings of Non-Financial Firms: Exploring the Role of Firm Characteristics

<sup>a</sup> Maryam Ashfaq, <sup>b</sup> Muhammad Akram, <sup>c</sup> Abdul Rashid

<sup>a</sup> PhD Scholar, International institute of Islamic Economics, International Islamic University Islamabad, Pakistan

Email: [maryam.warraich@hotmail.com](mailto:maryam.warraich@hotmail.com)

<sup>b</sup> Assistant Professor, International institute of Islamic Economics, International Islamic University Islamabad, Pakistan

Email: [Muhammad.akram@iiu.edu.pk](mailto:Muhammad.akram@iiu.edu.pk)

<sup>c</sup> Professor & Director General, International Institute of Islamic Economics, International Islamic University Islamabad, Pakistan

Email: [abdulrashid@iiu.edu.pk](mailto:abdulrashid@iiu.edu.pk)

### ARTICLE DETAILS

#### History:

Accepted:

Available Online:

#### Keywords:

*Economic policy uncertainty;*

*Cash holdings;*

*Firm sizes;*

*Ownership structure;*

*Financial constraints*

#### JEL Codes:

G18, G30, G32, G38

### ABSTRACT

**Objective:** This study sets out to empirically investigate the effects of economic policy uncertainty (ECOPU) on firms' cash holding decisions (FCHD) in Pakistan for the period 2010-2020. It also explores whether the impacts of ECOPU on FCHD are different for firms having different sizes, facing financial constraints, and owned by the government of Pakistan.

**Research Gap:** This study bridges the gaps in the existing empirical literature on the association between ECOPU and firm cash holding in two fold. First, it uses the news-based index for measuring ECOPU. This news-based ECOPU index is relatively less utilized in developing countries like Pakistan. Second, the existing studies are silent whether firm-specific variables.

**Design/Methodology/Approach:** The paper in hand uses the two-step system-GMM estimator to examine the influence of ECOPU on FCHD. This estimator not only yields robust and unbiased estimation results but also controls for potential endogeneity in the dynamic model.

**The Main Findings:** The results reveal that during the periods of increased ECOPU, Pakistani non-financial firms significantly hold more cash in their reserves. They may do so to effectively handle any financial hindrance in the future. The findings also show that the cash holding decisions of financially constrained (FCON), non-state-owned, and large-sized firms are more responsive to ECOPU as compared to their counterparts.

**Theoretical/Practical Implications of the Findings:** The findings of this study have numerous important implications for multiple stakeholders that are very useful in decision-making. In this regard, firm managers and investors may take into consideration the different characteristics of firms as well while quantifying the impact of ECOPU on FCHD.

**Originality/Value:** This research contributes into the literature on several grounds. Firstly, it contributes by examining the effects of the uncertainty associated with macroeconomic policies on cash holdings for an emerging economy, namely Pakistan. It adds to the literature by examining the role firm size and financial constraints in establishing the influence of ECOPU on FCHD.

© 2024 The authors. Published by PJES, IUB. This is an open-access research paper under the Creative Commons Attribution-Non-Commercial 4.0



### Recommended Citation:

Ashfaq, M., Akram, M., & Rashid, A. (2024). Economic policy uncertainty and cash holdings of non-financial firms: exploring the role of firm characteristics. *Pakistan Journal of Economic Studies*, 7(1), 68-83. Available at: <https://journals.iub.edu.pk/index.php/pjes/article/view/2497>

Corresponding Author's email address: [maryam.warraich@hotmail.com](mailto:maryam.warraich@hotmail.com)

## **1. Introduction**

A considerable research scholarship has deliberated that economic policy uncertainty (ECOPU) has wide-ranging detrimental impacts on any economy's real and financial activities (Li, 2019; El Ghouli et al., 2023; Gulen and Ion, 2016). Likewise, it has several important and significant applications for corporate firms. Theoretically, any kind of uncertainty associated with business environment and government policies make firms and investors more cautious about taking risks. During episodes of heightened uncertainty, investors may demand higher risk premiums, apply more hedging strategies, or/and postpone their investment plans (Rashid, 2011). Several prior empirical studies have explained that the uncertainty associated with fiscal and monetary policies have considerable adverse effects on corporate firms, causes unwanted volatilities, and deteriorates economic conditions (Liu et al., 2021). Keeping in view this, some previous empirical studies have indeed documented that ECOPU significantly and adversely influences corporate investment decisions (Wu et al., 2020; Rashid, Nasimi, and Nasimi, 2022), financial frictions (Alessandri and Mumtaz, 2019), financial performance (Iqbal, Gan, and Nadeem, 2020), and firms' inventory holding strategies (Zeng, Zhong, and He, 2020). Some other scholars have also shown that the uncertainty related to different economic policies has significant impacts on green innovations (Peng et al., 2023), financing costs (Xu, 2020), dividend payout policies (Attig et al., 2021), inflation and interest rate risks (Das, Hasan, and Sutradhar (2023), and corporate research and development activities (He, Ma, and Zhang, 2020).

The extensive empirical literature has also established that policy related uncertainty rises financing constraints, reduces financial stability, exacerbates information asymmetry, increases market frictions, and makes costly provision of external capital to corporate firms (Phan et al., 2021; Liu and Zang, 2020; Farooq, Jabbouri, and Naili, 2024). Consequently, the uncertainty significantly affects firms' financial decisions and has serious economic consequences (Gulen and Ion, 2016; Montes and Nogueira, 2022). In such situations, as Opler et al. (1999) are also of the view, corporations generally cover their operating losses and other expenditures with reserved cash, resulting in the positive association between uncertainty and cash holdings.

There is no doubt that cash holdings (liquid assets) take an essential part in establishing firms' financial flexibility (Feng, Lo, and Chan, 2019). It mitigates the detrimental effects of any future hindrance that mainly rises due to any policy uncertainty (exogenous shocks) (Duong et al., 2020). Moreover, in the presence of uncertainty, cash availability not only offers a safety buffer for corporations to meet the obligations and to achieve attended targets/goals but also helps firms to capitalize on cost-effective investment opportunities. Therefore, it is immensely important to explore the relationship between ECOPU and FCHD.

Another thread of corporate literature has described strategies relating to firm cash holdings in the view of the precautionary and the agency cost perspective (Su et al., 2020; Zhao and Niu, 2022; Amess, Banerji, and Lampousis, 2015; Benkraiem et al., 2023). According to the first perspective, holding appropriate levels of cash enables firms to efficiently allocate inter-temporal financial resources (Gao Grinstein, and Wang, 2017; Joshi, 2022). Given this context, firms are anticipated to build up large cash balances during heightened ECOPU periods (Magerakis, 2020; Legesse et al., 2023; Didin-Sonmez, Sener Tournus, and Akben-Selcuk, 2024). According to Tran (2023), managers tend to adopt a precautionary approach by increasing their cash holdings when firms encounter elevated levels of uncertainty stemming from economic policies. This strategy, in turn, may allow firms to engage in over investment activities primarily serving their self-interests. Firms do so to protect their investment policies from adverse cash flow shocks and any other external financing shocks (Liu and Zhang, 2020). Further, it enables firms to avoid unnecessary and prolonged delays in undertaking investment projects (Duong et al., 2020). The agency standpoint of cash holdings posits that companies are encouraged to hold cash reserves instead of dividend payments due to limited external investment opportunities (Jensen, 1986). However, according to Myers and Rajan (1998), managers do not spend the cash on the company's optimal interests. Rather, they may use the extra cash to extract private benefits. Thus, firms can mitigate agency problems by holding less cash reserves. Empirical evidence reported by Javadi et al. (2021) shows a strong adverse influence of

uncertainty on cash holdings and determines that stakeholders may urge the managers to manage cash reserves according to the agency framework which proposes less cash on hands.

Prior research has also indicated that ECOPU can impact firm cash holdings behaviour in many respects. Particularly, uncertainty reduces returns on assets and intensifies financial constraints (Brogaard and Detzel, 2015; Li, 2019; Tran, 2023) and thus, significantly affects FCHD (Joshi, 2022; Feng et al., 2019; Gong, Tao, and Zhang, 2024). However, researchers did not pay due attention to identify the factors that may have a significant influence on the ECOPU-FCHD relationship. Additionally, the prior literature has mainly concentrated on developed countries (e.g., USA, UK, and Australia). Yet, firms operating in emerging/developing economies are generally considered comparatively more vulnerable to uncertain economic conditions (Didin-Sonmez et al., 2024). Similarly, FCHD in emerging country like Pakistan is viewed of great importance because of volatile financial markets and unstable legal and financial system due to dynamic political, social, and economic environment. Thus, it is worthwhile to investigate how ECOPU affects FCHD in Pakistan.

The study at hand aims to expand the literature in several ways. It explores the nature of relationship between ECOPU and FCHD by using the news-based ECOPU index proposed by Choudhary, Pasha, and Waheed (2020), primarily based on the index established by Baker et al. (2016). As it is suggested in the literature, corporate financial decisions are highly affected by high uncertainty and future government policies. This situation leads firms to function in a dynamic environment triggered by regulatory institutions and political situations. Any change in policy uncertainty would impact the economic environment, putting corporate firms in a challenging situation (Tran, Tu, and Cong Nguyen To, 2024). Moreover, the uncertainty surrounding the government's expected future policies may influence the financial decisions of firms. Given this all, one can predict that the uncertainty associated with economic policies may adversely affect the financial decisions of corporate firms. The research further investigates whether the effects of ECOPU on FCHD are higher for financially constrained (FCON) firms than financially unconstrained (FUCON) firms in Pakistan. The study also examines whether firm size (small vs. medium vs. large) and ownership structure (state-owned firms (SOFs) versus non-state-owned firms (NSOFs)) have any role in establishing the impact of ECOPU on FCHD.

This paper is structured into five different sections. Section one presents the introduction and objectives. Section two reviews past studies related to the uncertainty and cash holdings. Section three explains the data, empirical models, and estimation methods. The findings are discussed in section four. The last part concludes the paper.

## **2. Prior Evidence on the ECOPU-Cash Holdings Relationship**

ECOPU is defined as the likelihood of an unexpected change in the existing economic policy and its potential impact on economic activities (Baker, Bloom, and Davis, 2016). Likewise, according to Gulen and Ion (2016), ECOPU is the probability of unpredictable changes in economic policies, resulting in macroeconomic fluctuations. Since economic policies structure the economic environment of an economy in which firms perform their activities, any unexpected variation in the policies may have significant implications for corporate firms (He et al., 2020).

Among others, Bonaime, Gulen, and Ion (2018) reported that indecisiveness in economic policies exerts a negative influence on merger and acquisition activities, affecting the behavior of corporate firms. On the other hand, Wu et al. (2020) examined a favorable impact of ECOPU on Australian firms' investment. In addition, Zeng et al. (2020) provided convincing evidence showing that ECOPU significantly impacts the inventory holdings of Chinese firms and that NSOFs firms considerably decrease inventories in periods of increased uncertainty.

Similarly, Attig et al. (2021) suggested an adverse impact of ECOPU on dividend payouts. Yet, He et al. (2020) documented a positive role of ECOPU in corporate innovations. However, Duong et al. (2020) found that firms keep large cash reserves in response to the heightened uncertainty. This behavior of firms

is due to the precautionary measure taken by the firm facing financial constraints rather than the investment delays. Jumah et al. (2023) find that firm cash holdings play a significant mediating role in the association between ECOPU and corporate leverage. Das et al. (2023) indicated that firms tend to increase their cash piles in times of inflation because of availability of cash in the market. Though, they are unable to reserve their cash holdings during periods of ECOPU due to financial instability existing in the economy. Additionally, they suggested that corporations accumulate cash when ECOPU and high inflation periods arise together. Moreover, as in Feng et al. (2019), firms that have high cash reserves in periods of higher ECOPU have higher corporate value and experience lower adverse influences of underinvestment. This effect intensified in firms that are privately owned. According to Li (2019), firms hold extra cash from operating cash flows in periods when ECOPU is higher. Following the strong empirical evidence and theoretical foundations, the present study proposes the following hypothesis.

H1: ECOPU has a positive, significant impact on the cash holding of firms.

### **2.1. Financial Constraints**

The literature asserts that ECOPU impacts firms by either increasing financing costs or by impeding firms' ability to access bank loans (Gilchrist and Jae, 2014; Xu, 2020; Ma and Hao, 2022). Furthermore, policy uncertainty hinders firms' access to capital market, increasing the difficulties for firms in accessing debt and equity markets (Bordo, Duca, and Koch, 2016). Multinational corporations in the USA significantly expand their cash holdings in comparison to domestic firms (Pinkowitz, Stulz, and Williamson, 2012). Miller and Orr (1996) and Keynes (1936) suggested that holding cash reserves could mitigate costs associated with external financing. Such difficulties associated with firms accessing external finance and facing large debt costs are defined as financial constraints (Liu and Li, 2017). Moreover, according to Almeida et al. (2004), in response to macroeconomic shocks, the accumulation of cash reserves in FCON firms is considered higher as compared to their unconstrained counterparts.

A vast body of empirical literature suggests that firms hold excessive cash due to financing frictions (Harford, Klasa, and Maxwell, 2014; Bonciani and Roye, 2016; Alessandri and Mumtaz, 2019; Ma and Hao, 2022). While exploring the financial constraint channel, Duong et al. (2020) provided convincing evidence that financial frictions push firms to keep additional cash reserves during the period of higher ECOPU as they become less likely to get external finance. Makosa et al. (2021) justifying the mediating role show that in situations of high policy uncertainty, firms' investments play a crucial role in reducing financial constraints faced by firms. As a result of this, firms increase cash holdings. Recently, Tran (2023) reported a positive (negative) influence of ECOPU on cash value of firm during the post-crisis (pre-crisis) periods. Furthermore, they showed that the influence of ECOPU during the post-crisis era is more profound in FCON firms. Nevertheless, during periods of high ECOPU, firms facing financial constraints can get a protection against any financial hinderance by increasing cash holdings (Feng et al., 2019). The following hypothesis is developed and tested in this study.

H2: Compared to FUCON firms, FCON firms are likely to hold more cash in periods of increased ECOPU.

### **2.2. Firm Ownership Structure**

It is evident that the ECOPU effect on cash holdings is relatively more pronounced in firms that are subject to more government spending (Duong et al., 2020). Similarly, firms experiencing exposures in government spending face stock price uncertainty and reductions in investments and employment growth during periods of high ECOPU (Luo and Zhang, 2020). Several other studies have also documented that policy uncertainty significantly impacts the cash reserves of firms that depend more on government spending (Phan et al, 2019). Another study by Feng et al. (2019) mentioned that SOFs are less affected by ECOPU during economic downturn as compared to their non-state counterparts due to government support in provision of resources.

Following hypothesis is built in the light of prior literature.

H3: SOFs hold less cash reserves even in the period of increased ECOPU.

### 2.3. Firm Size

There are considerable empirical studies that support the theory of trade-off of capital structure and suggests an inverse relationship between firm size and cash holdings (Kariuki, Namusonge, and Orwa, 2015; Ferreira and Vilela, 2004; Gill and Shah, 2012). Small-sized firms experience a higher degree of financial distress, face higher financial constraints, and have more asymmetry information problems (García-Teruel and Martínez-Solano, 2008). Another study by Magerakis et al. (2020), firm size is considered one of the essential factors in determining corporate cash holdings. Large and small firms have significant differences in credit access (Lawrenz and Oberndorfer, 2018; Driver and Bugarin, 2019). Large firms with lower transaction costs, realize economies of scale, and prefer low cash holdings Mulligan (1997). Following hypothesis is tested in the present study.

H4: The impact of ECOPU on cash holdings is different for small, medium, and large firms.

## 3. Data and Sample

Annual unbalanced panel dataset obtained from “Balance Sheet Analysis of Non-financial Firms (BSA-NFFs) of Pakistan” published by the “State Bank of Pakistan (SBP)” is used in this study. The sample includes 300 non-financial firms listed on the “Pakistan Stock Exchange (PSE)” over the period 2010-2020. The study’s period starts from 2010 as the data on ECOPU is not available before this period. The data for ECOPU is obtained from the ECOPU website. Specifically, we use the news-based ECOPU index by Choudhary et al. (2020). The variable construction and explanations are given in Table A of the appendix.

## 4. Empirical Framework

### 4.1. Baseline Model

Our baseline model is alike to several existing studies (e.g., Rashid and Maryam, 2017; Legesse et al., 2023; Duong et al., 2020). Specifically, the following equation presents the model.

$$CH_{i,t} = \alpha_0 + \alpha_1 CH_{i,t-1} + \alpha_2 EPU_{t-1} + \alpha_3 SIZE_{i,t-1} + \alpha_4 MBV_{i,t-1} + \alpha_5 CF_{i,t-1} + \alpha_6 NWC_{i,t-1} + \alpha_7 Invest_{i,t-1} + \alpha_8 Leverage_{i,t-1} + f_i + \varepsilon_{i,t} \quad (1)$$

In equation (1), several firm-specific factors that have been widely documented in the literature as determinants of corporate cash holdings are used as control variables (Phan et al., 2019; Maheshwari and Rao, 2017; Opler et al., 1999; Tran, 2023; Das et al., 2024; Didin-Sonmez, 2024). These factors are firm size ( $SIZE_{i,t-1}$ ), market to book value ( $MBV_{i,t-1}$ ), cash flow ( $CF_{i,t-1}$ ), net working capital ( $NWC_{i,t-1}$ ), firm investment ( $Invest_{i,t-1}$ ), and firm leverage ( $Leverage_{i,t-1}$ ). The firm-specific fixed effects are denoted by  $f_i$  and  $\varepsilon_{i,t}$  shows the error term. One-period lagged cash holdings are also included in the specification to control for inertia.

#### 4.1.1. Role of Firm Size

To see whether the effects of ECOPU are different for firms having different sizes, we estimate the following augmented model.

$$CH_{i,t} = \alpha_0 + \alpha_1 CH_{i,t-1} + \alpha_2 (EPU_{t-1} \times D_{i,t}^{Small}) + \alpha_3 (EPU_{t-1} \times D_{i,t}^{Medium}) + \alpha_4 (EPU_{t-1} \times D_{i,t}^{Large}) + \alpha_5 SIZE_{i,t-1} + \alpha_6 MBV_{i,t-1} + \alpha_7 CF_{i,t-1} + \alpha_8 NWC_{i,t-1} + \alpha_9 Invest_{i,t-1} + \alpha_{10} Leverage_{i,t-1} + f_i + \varepsilon_{i,t} \quad (2)$$

Following Rashid, Hassan, and Karamat (2021) and Magerakis et al. (2020), we first separate sample firms into three classes according to the quartiles (QT) values of their total assets (TA) over the sample period. Specifically, we generate three dummies:  $D_{i,t}^{Small}=1$ , if TA are less than QT1,  $D_{i,t}^{Medium}=1$  if TA are greater than QT1 but less than QT3,  $D_{i,t}^{Large}=1$ , if TA are greater than Q3, and 0, otherwise. We then multiply these dummies by the ECOPU index to generate the variables ( $EPU_{t-1} \times D_{i,t}^{Small}$ ,  $EPU_{t-1} \times D_{i,t}^{Medium}$ , and

$EPU_{t-1} \times D_{i,t}^{Large}$ ). The estimated coefficients of respective interaction terms produce marginal impact of ECOPU and FCHD for each group of firms.

#### 4.1.2. Role of Financial Constraints

The next empirical model of this study estimates the association between ECOPU and FCHD for FCON and FUCON firms. For this purpose, the study uses the WW index ( $WWI_{i,t}$ ) developed by Whited and Wu (2006) to segregate the sample firms as FCON and FUNCON firms.

The WWI is measured by the following equation.

$$WWI_{i,t} = -0.091 \times CFlow_{i,t} - 0.062 \times DivD_{i,t} + 0.021 \times LRD_{i,t} - 0.044 \times Size_{i,t} + 0.102 \times IndustrySG_{i,t} - 0.035 \times SalesG_{i,t} \tag{3}$$

where ( $CFlow_{i,t}$ ) is cash flows, ( $DivD_{i,t}$ ) is dividend dummy:  $D_{i,t} = 1$  if a firm pays dividend and 0 otherwise, the leverage ratio is denoted by ( $LRD_{i,t}$ ), ( $Size_{i,t}$ ) is firm size, ( $IndustrySG_{i,t}$ ) shows the industry sales growth, and ( $SalesG_{i,t}$ ) denotes firms' sales growth. This paper uses the annual median value of WWI as a cut-off to differentiate firms as financially constrained and unconstrained. Specifically, we propose the following empirical model.

$$CH_{i,t} = \alpha_0 + \alpha_1 CH_{i,t-1} + \alpha_2 (EPU_{t-1} \times D_{i,t}^{fcon}) + \alpha_3 (EPU_{t-1} \times D_{i,t}^{funcon}) + \alpha_4 SIZE_{i,t-1} + \alpha_5 MBV_{i,t-1} + \alpha_6 CF_{i,t-1} + \alpha_7 NWC_{i,t-1} + \alpha_8 Invest_{i,t-1} + \alpha_9 Leverage_{i,t-1} + f_i + \varepsilon_{i,t} \tag{4}$$

In equation (3), we interact ECOPU with  $D_{i,t}^{fcon}$  (financial constraint) and  $D_{i,t}^{funcon}$  (financial unconstraint) dummy variables. It allows both groups of firms to have different coefficients.

#### 4.1.3. Role of (Non) State-Owned Firms

To examine whether the effect of ECOPU on FCHD is different for SOFs and NSOFs, this research extends the baseline regression model as follows.

$$CH_{i,t} = \alpha_0 + \alpha_1 CH_{i,t-1} + \alpha_2 (EPU_{t-1} \times D_{i,t}^{sof}) + \alpha_3 (EPU_{t-1} \times D_{i,t}^{nsorf}) + \alpha_4 SIZE_{i,t-1} + \alpha_5 MBV_{i,t-1} + \alpha_6 CF_{i,t-1} + \alpha_7 NWC_{i,t-1} + \alpha_8 Invest_{i,t-1} + \alpha_9 Leverage_{i,t-1} + f_i + \varepsilon_{i,t} \tag{5}$$

The dummies are generated based on whether the firm belongs to the government or not.

### 4.2. Methodology

This research uses the two-step system GMM estimator (SGMM) to carry out the empirical analysis. We prefer to apply the SGMM over difference GMM estimator due to its distinguished emphasis on addressing panel autocorrelation and heteroscedasticity, which are common in panel data analysis. This estimator is well-suited for capturing cross-sectional dynamics. Moreover, it explores additional moment conditions. The system GMM estimation method considers two equations simultaneously; the first equation is the level equation, while the second is the first-difference equation. Considering both equations together, this estimator allows for retaining more variation in the underlying variables. Further, because of the level equation, researchers can also use the static dummy (time-invariant) variable in the model, which is impossible in the case of difference equation. The J-test is applied to check whether the instruments are uncorrelated with the residuals. Further, the AR-1 and AR-2 tests of the autocorrelation are applied. Summary statistics and correlations between the variables are presented in Tables 1 and 2, respectively.

**Table 1: Summary Statistics**

Variables	Mean	Std. dev	P25	Median	P75
CH	0.039	0.073	0.004	0.011	0.037
EPU	4.558	0.263	4.326	4.598	4.741

SIZE	15.191	1.750	14.036	15.207	16.388
MBV	688.916	22904.69	1.304	3.014	6.798
CF	0.101	0.237	0.018	0.070	0.143
NWC	0.037	0.233	-0.078	0.024	0.159
Invest	-0.047	0.684	-0.067	0.028	0.123
Leverage	0.532	0.220	0.374	0.547	0.693

Source: Authors' Estimation

**Table 2: Correlation Matrix**

	CH	EPU	SIZE	MBV	CF	NWC	Invest	Leverage
CH	1.000							
EPU	0.022	1.000						
SIZE	0.077	-0.001	1.000					
MBV	0.096	-0.029	0.049	1.000				
CF	0.277	0.008	0.156	0.050	1.000			
NWC	0.119	-0.006	0.012	0.094	0.236	1.000		
Invest	-0.139	0.041	0.118	-0.008	0.050	-0.081	1.000	
Leverage	-0.223	-0.011	0.078	-0.036	-0.2063	-0.587	0.091	1.000

Source: Authors' Estimation

## 5. Empirical Findings

### 5.1. Baseline Results

The estimated coefficients of our baseline regression are given in Table 3. The estimated statistic of AR-2 gives significant evidence in favor of rejecting the possibility of the presence of any second-order serial correlation in the residuals. Yet, AR-1 test indicates the presence of the first-order autocorrelation, confirming the dynamic nature of the model. Similarly, the J-statistic confirms that the residuals are orthogonal and uncorrelated with the instruments used in the estimation. The estimated coefficient of the lagged cash holdings is statistically significant and positive that also confirms the dynamic nature of the model. This result suggests that there is a persistent in the cash holding behavior of firms.

Going to the variable of interest, ECOPU, we observe that firms retain more cash in hands due to uncertain economic policies. The findings of the positive relationship between ECOPU and cash holding can be justified in two ways. Firstly, when macroeconomic policies become uncertain then corporate firms also become uncertain about their expected future cash flows because uncertainties linked to economic policies negatively affect aggregate demand and investment opportunities in the economy. Thus, they hold more cash as a safeguard against any future hindrance. Secondly, in periods of higher ECOPU, firms face difficulty in accurately forecasting macroeconomic indicators, properly evaluating investment projects, and appropriately measuring the risk associated with their operations. Therefore, they become reluctant to make investments and take risks. Thus, they may hold cash and weight for the stability of macroeconomic conditions.

**Table 3: ECOPU and Cash Holdings**

Panel A: Estimation Results		
Variables	Coefficient	Stand. Error
$CH_{i,t-1}$	0.519 ***	0.003
$EPU_{t-1}$	0.029 ***	0.001
$SIZE_{i,t-1}$	0.012 ***	0.001
$MBV_{i,t-1}$	0.000 ***	0.000
$CF_{i,t-1}$	-0.044***	0.007
$NWC_{i,t-1}$	0.142***	0.001
$Invest_{i,t-1}$	-0.219 ***	0.002

Leverage <sub>i,t-1</sub>	-0.081***	0.009
Constant	-0.097***	0.002

**Panel B: Diagnostic Tests**

No of obs.	2250
No of groups	300
No of instruments	174
AR-1	-2.65
p-value	0.008
AR-2	1.09
p-value	0.277
J-statistic	169.09
p-value	0.397

Source: Authors' Estimation

The results also suggest that firm size is significantly positively related to the cash holding decisions of firms. This finding implies that large firms are more likely to hold cash in their hands. They may do so to wait and find more profitable investment opportunities. This evidence is in line with the findings of some previous empirical studies (Li 2019; Heeney et al., 2023). However, the impact of firm size is inconsistent with the findings of some other studies (Feng et al., 2019; Demir and Erasan, 2017; Ferreira and Vilela, 2004). Further, this finding does not follow the view that large firms save less cash because they have less possibility of financial distress, are more likely to be diversified, and have better access to financing from external sources (Titman and Wessels,1988).

The estimated value of MBV coefficient shows that firms with higher market-to-book value build up large cash reserves. These firms can easily issue equity and raise the required funds. Generally, these firms are considered growing, and investors are more likely to invest in these firms. Thus, these firms prefer to finance their investments through external funds as they can get them at a lower cost and hence, prefer to hold internally generated funds (Ali and Yousaf, 2013; Maheshwari and Rao, 2017; Phan et al., 2019; Demir and Ersa, 2017; Duong et al., 2020). The coefficient of the CF variable is negative, suggesting that firms receiving more cash flows hold less in their reserves.

The results also indicate that NWC is positively linked to cash holdings. This result reveals that firms with more NWC are also expected to hold additional cash in their hands. This finding makes sense as higher amounts of NWC require firms to maintain a higher level of liquidity. Thus, these firms may keep more cash in their tills. The past literature has also supported this finding (Feng et al., 2019; Jamil et al., 2016). Finally, we find that leverage is negatively and statistically significantly related to cash holdings. The negative link between leverage and corporate firm cash holdings is consistent with the finding of Feng et al. (2019).

**5.2. The Role of Firm Size**

In Table 4, we provide another set of findings to investigate whether firm size matters in determining the impact of ECOPU on firms' cash holdings. For this purpose, we divide firms into three groups: small, medium, and large categories according to the quantile of their overall assets. The estimation results provide significant evidence of the different responses of different sized firms to ECOPU. Specifically, we find that medium firms' response is higher than small but lower than large firms' response. However, comparing firms that are small and large in size, we observe that the impact of ECOPU is higher on large firms than on small firms.



**Table 4: Firm Size and Differential Effects of ECOPU on Cash Holdings**

Panel A: Estimation Results		
Variables	Coefficient	Stand. Error
$CH_{i,t-1}$	0.450***	0 .006
$EPU_{t-1} \times D_{i,t}^{Small}$	0 .037***	0.007
$EPU_{t-1} \times D_{i,t}^{Medium}$	0.039***	0.006
$EPU_{t-1} \times D_{i,t}^{Large}$	0.042***	0.007
$SIZE_{i,t-1}$	0.016***	0.004
$MBV_{i,t-1}$	0.001***	0.000
$CF_{i,t-1}$	-0.221***	0.008
$NWC_{i,t-1}$	0.089***	0.024
$Invest_{i,t-1}$	-0.179***	0.002
$Leverage_{i,t-1}$	-0.122***	0.004
Constant	-0.216***	0.006
Panel B: Diagnostic Tests		
No of obs.		2250
No of groups		300
No of instruments		146
AR-1		-2.34
p-value		0.020
AR-2		0.52
p-value		0.606
J-statistic		141.20
p-value		0.340

Source: Authors' Estimation

Prior studies such as Ozkan and Ozkan (2004) argue that large firms are more successful at creating more profit (cash flows), allowing them to keep more cash and market securities. These firms have lesser amounts of liquid assets but higher growth opportunities. This finding indicates that the effects of ECOPU are not linear if they change with firm size. This finding also confirms that firm size is significant factor in formulating the impact of ECOPU on decision-making, specifically cash holding decisions. Small firms are generally considered financially constrained and may need help to obtain funds from external resources. Therefore, they utilize internally generated funds to finance their assets and other capital needs and thus, they may add less cash to their reserves during periods of higher ECOPU.

On the other hand, it is argued that small firms are generally growing firms, and thus, they make more investments. As a result, they have less free cash to add to their reserves. Medium and large sized firms are generally considered mature firms and can easily obtain funds from external resources. Therefore, when economic policies become uncertain, these firms may hold more cash in their hand and wait for good investment opportunities.

### 5.3. The Role of Financial Constraints

After having confirmed, ECOPU has an influence on firms' cash holding decisions; we investigate whether FCON and FUCON firms respond differently to ECOPU when making decisions regarding their cash holdings. For this purpose, we estimate equation (3) and the results are given in Table 5. The analytical framework of the study allows us to directly measure the differential response of both categories of firms to any change in ECOPU. The results of the diagnostics tests confirm the robustness of the estimation results.

The estimated value of the interaction term coefficients gives significant evidence about the differential response of FCON and FUCON firms to ECOPU. Although in both FCON and FUCON firms, cash holdings are positively correlated with ECOPU, the response of FCON firms is relatively higher.

Specifically, the estimated coefficient value for FCON firms is 0.085, whereas the value for FUCON firms is 0.072. These values indicate that the impact of ECOPU in FCON firms is higher as compared to FUCON firms. FCON firms face difficulties in acquiring external funds. Financial institutions including banks are reluctant to provide credit to FCON firms, or, at least, they offer credit at higher risk premiums. Thus, they hold more cash, specifically, in episodes of heightened ECOPU. Similarly, FCON firms cannot quickly raise funds by issuing equity at a lower cost as investors may require a higher required rate of return from such firms. Thus, to capitalize on potential investment opportunities and to provide safeguards, they hold more cash in their hands, especially in periods when macroeconomic policies become more uncertain. Accumulation of large cash enables FCON firms to aspire valuable projects that could be taken into account due to increased policy uncertainty (Duong et al., 2020).

**Table 5: Financial Constraints and Differential Effects of ECOPU on Cash Holdings**

Panel A: Estimation Results		
Variables	Coefficient	Stand. Error
$CH_{i,t-1}$	0.642 ***	0.003
$EPU_{t-1} \times D_{i,t}^{fcon}$	0.085***	0.002
$EPU_{t-1} \times D_{i,t}^{funcon}$	0.072***	0.000
$SIZE_{i,t-1}$	0.005 ***	0.002
$MBV_{i,t-1}$	0.000***	0.000
$CF_{i,t-1}$	-0.022***	0.006
$NWC_{i,t-1}$	0.102***	0.014
$Invest_{i,t-1}$	-0.039 ***	0.003
$Leverage_{i,t-1}$	-0.026***	0.010
Constant	-0.189 ***	0.003
Panel B: Diagnostic Tests		
No of obs.		2250
No of groups		300
No of instruments		148
AR-1		-2.67
p-value		0.008
AR-2		1.02
p-value		0.309
J-statistic		143.59
p-value		0.355

Source: Authors' Estimation

Prior studies like Duong et al. (2020) predict that ECOPU may impact firm cash holdings by considering financial constraints as a significant economic channel. FCON firms generally lack access to external capital and have insufficient internal funds to finance investments. Furthermore, during the times of higher uncertainty, these firms are likely to face hindrance in building cash reserves and possibly hold less cash due to precautionary perspective during time of uncertainty (Khieu and Pyles, 2012; Chen et al., 2012; Zhang and Zhou, 2022; Tekin (2022), Companies enhance their cash reserves to their operations smoothly and to prevent themselves from adverse financial and economic turmoil. FCON firms face troubles in acquiring external finance, which could lead to high cash reserves (Ahrends et al., 2018). The differential response of both kinds of firms to ECOPU confirms the constructed research hypothesis.

These outcomes are also consistent with the literature that shows that FCON and FUCON firms design their policies quite differently and often respond differently to internal and external shocks. The findings of the control variables are similar to those given in Table 3, specifically with respect to their sign and statistical significance.

#### 5.4. The Role of Ownership

In this subsection, we investigate whether SOFs and NSOFs design their cash holding policies differently when ECOPU is high in the economy. Both SOFs and NSOFs differ in several ways. SOFs have better availability of credit (Dewenter and Malatesta, 2001, Feng et al., 2019). Further, these firms have a low possibility of default or bankruptcy as the government may provide them with necessary recourses when assistance is required. Given the differences, we predict the response of SOFs to ECOPU would be less than that of NSOFs.

**Table 6: Ownership and Differential Effects of ECOPU on Cash Holdings**

Panel A: Estimation Results		
Variables	Coefficient	Stand. Error
$CH_{i,t-1}$	0.543 ***	0.031
$EPU_{t-1} \times D_{i,t}^{sof}$	0.018***	0.007
$EPU_{t-1} \times D_{i,t}^{nsf}$	0.036***	0.003
$SIZE_{i,t-1}$	0.006 ***	0.003
$MBV_{i,t-1}$	0.000***	0.000
$CF_{i,t-1}$	-0.053***	0.013
$NWC_{i,t-1}$	0.159***	0.018
$Invest_{i,t-1}$	-0.209***	0.006
$Leverage_{i,t-1}$	-0.004***	0.014
Constant	-0.080***	0.005
Panel B: Diagnostic Tests		
No of obs.		2250
No of groups		300
No of instruments		156
AR-1		-2.65
p-value		0.008
AR-2		1.11
p-value		0.268
J-statistic		140.83
p-value		0.605

Source: Authors' Estimation

The results given in Table 6 provide evidence of the differential response of both categories of firms. Specifically, they reveal that both SOFs and NSOFs hold more cash in periods of higher ECOPU. However, the impact of ECOPU is higher for NSOFs. In other words, the sensitivity of cash holdings of NSOFs to ECOPU is higher than that of SOFS. This outcome confirms the hypothesis of the study. The research finding is also in line with the studies documenting the different responses of SOFs and NSOFs (He et al., 2020; Su et al., 2020; Lei et al., 2022). The findings of the control variables are similar to the empirical findings reported in the existing literature. The diagnostic tests also provide evidence that the instruments fulfill the condition of orthogonality and the residuals are not affected by the problem of second-order serial correlations.

#### 6. Conclusion

This research analyses the impacts of ECOPU on cash holdings and whether financial constraints, firm size, and government ownership have any role in determining these impacts for Pakistani firms over the period 2010-2020. The study's results demonstrate that firms hold significant amounts of cash in their hands during periods of increased ECOPU.

The findings of the research also reveal that firms with distinct characteristics show different responses to ECOPU while determining the level of cash reserves. Specifically, it is observed that the response of

financially constrained firms is relatively higher. Moreover, the study suggests the important role of firm ownership structure while providing strong evidence in favor of significant positive link between ECOPU and firm cash holding decisions. Finally, the study documents that large-sized firms respond more to ECOPU than small and medium firms.

The findings of this study have several practical implications for policy makers, investors, and firm managers. Firstly, the policy makers should avoid unnecessary and sudden changes in macroeconomic as ECOPU is significantly related to firm cash holding decisions. The policy makers may design economic policies without any ambiguity and in transparent manners as the uncertainty associated with them may have adverse applications for corporate firms. Secondly, the findings also suggest that firm management should pay due attention to firm-specific factors as well while measuring the uncertainty effects on cash holdings. Thirdly, firms should also have a well prepared and effective strategy to adjust and mitigate the unforeseen effects produced by policy uncertainty. Firm managers may take into consideration the uncertainty associated with economic policy while making decisions about cash holdings. Further, they may bear in mind that firms having different characteristics are susceptible to being affected differently by the uncertainty. Finally, investors may design their investment decisions and build portfolios by estimating the effects of ECOPU on corporate cash holdings and taking into consideration the differential role of financial constraints, the size of firms, and state ownership.

## References

- Ahrends, M., Drobetz, W., & Nomikos, N. K. (2018). Corporate cash holdings in the shipping industry. *Transportation Research Part E: Logistics and Transportation Review*, 112, 107-124.
- Alessandri, P., & Mumtaz, H. (2019). Financial regimes and uncertainty shocks. *Journal of Monetary Economics*, 101, 31-46.
- Ali, A., & Yousaf, S. (2013). Determinants of cash holding in German market. *Journal of Business and Management*, 12(6), 28-34.
- Almeida, H., Campello, M., & Weisbach, M. S. (2004). The cash flow sensitivity of cash. *The Journal of Finance*, 59(4), 1777-1804.
- Amess, K., Banerji, S., & Lampousis, A. (2015). Corporate cash holdings: Causes and consequences. *International Review of Financial Analysis*, 42, 421-433.
- Attig, N., El Ghouli, S., Guedhami, O., & Zheng, X. (2021). Dividends and economic policy uncertainty: International evidence. *Journal of Corporate Finance*, 66, 101785.
- Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *The Quarterly Journal of Economics*, 131(4), 1593-1636.
- Benkraiem, R., Gaaya, S., Lakhali, F., & Lakhali, N. (2023). Economic policy uncertainty, investor protection, and the value of excess cash: A cross-country comparison. *Finance Research Letters*, 52, 103572.
- Bonaime, A., Gulen, H., & Ion, M. (2018). Does policy uncertainty affect mergers and acquisitions?. *Journal of Financial Economics*, 129(3), 531-558.
- Bonciani, D., & Van Roye, B. (2016). Uncertainty shocks, banking frictions and economic activity. *Journal of Economic Dynamics and Control*, 73, 200-219.
- Bordo, M. D., Duca, J. V., & Koch, C. (2016). Economic policy uncertainty and the credit channel: Aggregate and bank level US evidence over several decades. *Journal of Financial Stability*, 26, 90-106.
- Brogaard, J., & Detzel, A. (2015). The asset-pricing implications of government economic policy uncertainty. *Management Science*, 61(1), 3-18.
- Chen, Q., Chen, X., Schipper, K., Xu, Y., & Xue, J. (2012). The sensitivity of corporate cash holdings to corporate governance. *The Review of Financial Studies*, 25(12), 3610-3644.
- Choudhary, M. A., Pasha, F., & Waheed, M. (2020). Measuring Economic Policy Uncertainty in Pakistan.
- Das, B. C., Hasan, F., & Sutradhar, S. R. (2023). The impact of economic policy uncertainty and inflation risk on corporate cash holdings. *Review of Quantitative Finance and Accounting*, 1-23.
- Demir, E., & Ersan, O. (2017). Economic policy uncertainty and cash holdings: Evidence from BRIC

- countries. *Emerging Markets Review*, 33, 189-200.
- Dewenter, K. L., & Malatesta, P. H. (2001). State-owned and privately owned firms: An empirical analysis of profitability, leverage, and labor intensity. *American Economic Review*, 91(1), 320-334.
- Didin-Sonmez, F., Sener Tournuts, p., & Akben-Selcuk, E. (2024). Economic policy uncertainty and corporate cash holdings: the moderating role of country-level of corruption and uncertainty avoidance. *Applied Economics Letters*, 1-6.
- Driver, C., & Muñoz-Bugarin, J. (2019). Financial constraints on investment: Effects of firm size and the financial crisis. *Research in International Business and Finance*, 47, 441-457.
- Duong, H. N., Nguyen, J. H., Nguyen, M., & Rhee, S. G. (2020). Navigating through economic policy uncertainty: The role of corporate cash holdings. *Journal of Corporate Finance*, 62, 101607.
- El Ghouli, S., Guedhami, O., Mansi, S., & Wang, H. H. (2023). Economic policy uncertainty, institutional environments, and corporate cash holdings. *Research in International Business and Finance*, 65, 101887.
- Farooq, O., Jabbouri, I., & Naili, M. (2024). The nexus between economic policy uncertainty and access to finance: a study of developing countries. *International Journal of Managerial Finance*, 20(1), 222-246.
- Feng, X., Lo, Y. L., & Chan, K. C. (2019). Impact of economic policy uncertainty on cash holdings: Firm-level evidence from an emerging market. *Asia-Pacific Journal of Accounting & Economics*, 1-23.
- Ferreira, M. A., & Vilela, A. S. (2004). Why do firms hold cash? Evidence from EMU countries. *European Financial Management*, 10(2), 295-319.
- Gao, J., Grinstein, Y., & Wang, W. (2017). Cash holdings, precautionary motives, and systematic uncertainty. *Precautionary Motives, and Systematic Uncertainty (June 21, 2017)*.
- García-Teruel, P. J., & Martínez-Solano, P. (2008). On the determinants of SME cash holdings: Evidence from Spain. *Journal of Business Finance & Accounting*, 35(1-2), 127-149.
- Gilchrist, S., & Jae, W. (2014). Sim, and Egon Zakrajšek. *Uncertainty, Financial Frictions, and Investment Dynamics*, " Working Paper, 20038, 2.
- Gill, A., & Shah, C. (2012). Determinants of corporate cash holdings: Evidence from Canada. *International Journal of Economics and Finance*, 4(1), 70-79.
- Gong, N., Tao, Q., & Zhang, W. (2024). Economic policy uncertainty, political connections, and M&As: Evidence from China. *Pacific-Basin Finance Journal*, 102330.
- Gulen, H., & Ion, M. (2016). Policy uncertainty and corporate investment. *The Review of Financial Studies*, 29(3), 523-564.
- Harford, J., Klasa, S., & Maxwell, W. F. (2014). Refinancing risk and cash holdings. *The Journal of Finance*, 69(3), 975-1012.
- He, F., Ma, Y., & Zhang, X. (2020). How does economic policy uncertainty affect corporate Innovation?—Evidence from China listed companies. *International Review of Economics & Finance*, 67, 225-239.
- Heaney, L., Yang, S., Chowdhury, H., & Tan, K. J. K. (2023). Corporate cash holdings through economic policy uncertainty: An Australian study. *Pacific-Basin Finance Journal*, 79, 102008.
- Iqbal, U., Gan, C., & Nadeem, M. (2020). Economic policy uncertainty and firm performance. *Applied Economics Letters*, 27(10), 765-770.
- Jamil, S., Anwar, A., Afzaal, N., Tariq, A., & Asif, M. (2016). Determinants of Corporate Cash Holdings: Empirical Analysis of Pakistani Firms. *IOSR Journal of Economics and Finance*, 7(3), 29-35.
- Javadi, S., Mollagholamali, M., Nejadmalayeri, A., & Al-Thaqeb, S. (2021). Corporate cash holdings, agency problems, and economic policy uncertainty. *International Review of Financial Analysis*, 77, 101859.
- Jensen, M. C. (1986). Agency costs of free cash flow, corporate finance, and takeovers. *The American Economic Review*, 76(2), 323-329.
- Joshi, H. (2022). Do Precautionary Corporate Cash Holdings Help During the Economic Shocks? Evidence from the Covid-19 Pandemic. *FIIB Business Review*, 23197145221110286.
- Kariuki, S. N., Namusonge, G. S., & Orwa, G. O. (2015). Determinants of corporate cash holdings: evidence from private manufacturing firms in Kenya. *International Journal of Advanced Research*

*in Management and Social Sciences*, 4(6), 15-33.

- Keynes, J.M., 1936. *The General Theory of Employment*. In: *Interest and Money*. Harcourt Brace, London.
- Khieu, H. D., & Pyles, M. K. (2012). The influence of a credit rating change on corporate cash holdings and their marginal value. *Financial Review*, 47(2), 351-373.
- Lawrenz, J., & Oberndorfer, J. (2018). Firm size effects in trade credit supply and demand. *Journal of Banking & Finance*, 93, 1-20.
- Legesse, T. S., Guo, H., Wang, Y., Tang, J., & Wu, Z. (2023). The impact of economic policy uncertainty and financial development on the sensitivity of corporate cash holding to cash flows. *Applied Economics*, 55(32), 3728-3746.
- Lei, X. T., Xu, Q. Y., & Jin, C. Z. (2022). Nature of property right and the motives for holding cash: Empirical evidence from Chinese listed companies. *Managerial and Decision Economics*, 43(5), 1482-1500.
- Li, X. (2019). Economic policy uncertainty and corporate cash policy: International evidence. *Journal of Accounting and Public Policy*, 38(6), 106694.
- Liu, G., & Zhang, C. (2020). Economic policy uncertainty and firms' investment and financing decisions in China. *China Economic Review*, 63, 101279.
- Luo, Y., & Zhang, C. (2020). Economic policy uncertainty and stock price crash risk. *Research in International Business and Finance*, 51, 101112.
- Liu, X., & Li, H. (2017). Financial constraints and the productivity-survival link: evidence from China's firm-level data. *Industrial and Corporate Change*, 26(5), 763-779.
- Liu, Y., Li, J., Liu, G., & Lee, C. C. (2021). Economic policy uncertainty and firm's cash holding in China: The key role of asset reversibility. *Journal of Asian Economics*, 74, 101318.
- Ma, H., & Hao, D. (2022). Economic policy uncertainty, financial development, and financial constraints: Evidence from China. *International Review of Economics & Finance*, 79, 368-386.
- Magerakis, E. (2020). Corporate cash holdings and financial crisis: evidence from the emerging market of Greece. *International Journal of Managerial and Financial Accounting*, 12(2), 186-215.
- Magerakis, E., Gkillas, K., Tsagkanos, A., & Siriopoulos, C. (2020). Firm size does matter: New evidence on the determinants of cash holdings. *Journal of Risk and Financial Management*, 13(8), 163.
- Makosa, L., Jie, S., Bonga, W. G., Jachi, M., & Sitsha, L. (2021). Does economic policy uncertainty aggravate financial constraints?. *South African Journal of Accounting Research*, 35(2), 151-166.
- Maheshwari, Y., & Rao, K. V. (2017). Determinants of corporate cash holdings. *Global Business Review*, 18(2), 416-427.
- Miller, M. H., & Orr, D. (1966). A model of the demand for money by firms. *The Quarterly journal of economics*, 80(3), 413-435.
- Montes, G. C., & Nogueira, F. D. S. L. (2022). Effects of economic policy uncertainty and political uncertainty on business confidence and investment. *Journal of Economic Studies*, 49(4), 577-602
- Mulligan, C. (1997). Scale economies, the value of time, and the demand for money: Longitudinal evidence for firms. *Journal of Political Economy*, 105(5), 1061-1079.
- Myers, S. C., & Rajan, R. G. (1998). The paradox of liquidity. *The Quarterly Journal of Economics*, 113(3), 733-771.
- 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.
- Ozkan, A., & Ozkan, N. (2004). Corporate cash holdings: An empirical investigation of UK companies. *Journal of banking & finance*, 28(9), 2103-2134.
- Peng, X. Y., Zou, X. Y., Zhao, X. X., & Chang, C. P. (2023). How does economic policy uncertainty affect green innovation? *Technological and Economic Development of Economy*, 29(1), 114-140.
- Phan, H. V., Nguyen, N. H., Nguyen, H. T., & Hegde, S. (2019). Policy uncertainty and firm cash holdings. *Journal of Business Research*, 95, 71-82.
- Phan, D. H. B., lyke, B. N., Sharma, S. S., & Affandi, Y. (2021). Economic Policy Uncertainty and Financial Stability-Is there a relation? *Economic Modelling*, 94, 1018-1029.
- Pinkowitz, L., Stulz, R. M., & Williamson, R. (2012). *Multinationals and the high cash holdings puzzle* (No. w18120). National Bureau of Economic Research.

- Rashid, A. (2011). How does private firms' investment respond to uncertainty? Some evidence from the United Kingdom. *The Journal of Risk Finance*, 12(4), 339-347.
- Rashid, A., & Ashfaq, M. (2017). Financial constraints and corporate cash holdings: an empirical analysis using firm level data. *Annals of Financial Economics*, 12(02), 1750009.
- Rashid., Hassan, M. K., & Karamat, H. (2021). Firm Size and the interlinkages between sales volatility, exports, and financial stability of Pakistani manufacturing firms. *Eurasian Business Review*, 11, 111-134.
- Rashid, A., Nasimi, A. N., & Nasimi, R. N. (2022). The uncertainty–investment relationship: scrutinizing the role of firm size. *International Journal of Emerging Markets*, 17(10), 2605-2635.
- Su, X., Zhou, S., Xue, R., & Tian, J. (2020). Does economic policy uncertainty raise corporate precautionary cash holdings? Evidence from China. *Accounting & Finance*, 60(5), 4567-4592.
- Tekin, H. (2022). How do financial constraints and financial crises matter in cash management?: Evidence from developing Asian economies. In *Handbook of research on current trends in Asian economics, Business, and Administration* (pp. 228-248). IGI Global.
- Titman, S., & Wessels, R. (1988). The determinants of capital structure choice. *The Journal of Finance*, 43(1), 1-19.
- Tran, Q. T. (2023). Economic policy uncertainty, value of cash and financial crisis. *European Journal of Management and Business Economics*, 32(1), 24-46.
- Tran, L. T. H., Tu, T. T. K., & Cong Nguyen To, B. (2024). Uncertainty and cash holdings: the moderating role of political connections. *International Journal of Managerial Finance*, forthcoming.
- Whited, T. M., & Wu, G. (2006). Financial constraints risk. *The review of financial studies*, 19(2), 531-559.
- Wu, J., Zhang, J., Zhang, S., & Zou, L. (2020). The economic policy uncertainty and firm investment in Australia. *Applied Economics*, 52(31), 3354-3378.
- Xu, Z. (2020). Economic Policy Uncertainty, Cost of Capital, Corporate Innovation. *Journal of Banking & Finance*, 111, 105698.
- Zeng, J., Zhong, T., & He, F. (2020). Economic policy uncertainty and corporate inventory holdings: evidence from China. *Accounting & Finance*, 60(2), 1727-1757.
- Zhang, X., & Zhou, H. (2022). The effect of market competition on corporate cash holdings: An analysis of corporate innovation and financial constraint. *International Review of Financial Analysis*, 82, 102163.
- Zhao, X., & Niu, T. (2022). Economic policy uncertainty and corporate cash holdings: the mechanism of capital expenditures. *Asia-Pacific Journal of Accounting & Economics*, 1-21.

### **Acknowledgments**

The author must acknowledge the support of International Institute of Islamic Economics (IIIE) in conducting the research work.

### **Disclosure statement**

No potential conflict of interest was reported by the authors.

### **Disclaimer**

The views and opinions expressed in this paper are those of the authors alone and do not necessarily reflect the views of any institution.

**APPENDIX**

**Table A: Variable Description**

<b>Variable</b>	<b>Definition</b>	<b>Expected Sign</b>	<b>Description</b>
CH	Cash Holdings		Cash and marketable securities deflated by total assets(ta)
EPU	Economic Policy Uncertainty	+ve	The log of the annual value of ECOPU index
SIZE	Firm Size	+ve/-ve	Natural logarithm of book value of assets
MBV	Market to Book Value		The Ratio of market to book value of equity
CF	Cash Flows	+ve	The earnings after tax, interest, and dividends but before depreciation/ assets book value
NWC	Networking Capital	-ve/+ve	The ratio of net working capital without cash to the book value of assets
Invest	Investment	-ve	Percentage of fixed assets to total assets
Leverage	Leverage	-ve	The ratio of total debts to the book value of assets

Source: Authors' Compilation