IMPACTS OF GLOBAL ECONOMIC POLICY UNCERTAINTY INDEX ON CASH HOLDING LEVEL OF VIETNAMESE LISTED COMPANIES: A STUDY OF CORPORATE GOVERNANCE

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OPEN ACCESS

How to cite this paper: Nguyen, T. T. H., Pham, D. C., Nguyen, P. L., Pham, T. K. Y., & Do, M. H. (2026). Impacts of global economic policy uncertainty index on cash holding level of Vietnamese listed companies: A study of corporate governance. *Journal of Governance and Regulation, 15*(1), 84–93. https://doi.org/10.22495/jgrv15i1art8

ISSN Print: 2220-9352
ISSN Online: 2306-6784

Received: 05.04.2025
Revised: 25.08.2025; 22.12.2025
Accepted: 08.01.2026

JEL Classification: G30, G32, M41
DOI: 10.22495/jgrv15i1art8

Abstract

This paper aims to investigate the impact of the Global Economic Policy Uncertainty (GGEPU) index on the cash holding level of Vietnamese listed companies. The research adopts the model built by Demir and Ersan (2017) and conducts detailed analyses on different dimensional effects of GGEPU on corporate cash holding level in selected firms using the panel-data regression technique. The results show that the research firms display minor resistance toward changes in the GGEPU. Specifically, firm-specific financial characteristics have a significant impact on a firm's cash holding decision. In addition, leverage is found to have a positive effect on the cash holding ratio. However, the study does not reflect the effects of tangible assets and capital expenditure on cash holdings of firms in the research sample. The major reason underlying these differences might rest on the financing options of the firms. This paper, therefore, highlighted the importance of companies' policies to adjust cash levels to gain the highest performance regardless of changes in the GGEPU index. The research provides some implications and instructive recommendations for both firms and policymakers to better manage the cash holding level in firms in jurisdictions with an imperfect business environment, like Vietnam.

Keywords: Policy Uncertainty Index, Cash Holding Level, Vietnamese Listed Companies

Authors' individual contribution: Conceptualization — T.T.H.N. and M.H.D.; Methodology — D.C.P.; Formal Analysis — P.L.N. and T.K.Y.P.; Writing— Original Draft — T.K.Y.P. and M.H.D.; Writing — Review & Editing — T.T.H.N. and D.C.P.; Funding Acquisition — T.T.H.N. and P.L.N.

Declaration of conflicting interests: The Authors declare that there is no conflict of interest.

Acknowledgements: The Authors thank the National Economics University for funding this research.

1. INTRODUCTION

The cash holdings level decision of the manager would indeed be influenced by many factors. One of the most cited theories is that the manager must consider the trade-off relationship between the sustainability and opportunity cost of holding unnecessarily extra cash (Le et al., 2016; Le & Finch, 2021).

The second opinion suggests that the gist of the cash holdings decision rests on the manager's perception of risk and the firm's value. As a matter of fact, the positive relationship between cash ratio and a firm's value has been well-documented in many studies. Bates et al. (2009) suggested that firms with an additional level of cash would be endowed with better options and therefore, more efficient in operation.

The third point of view suggests that the relationship between cash holding level and a firm's value should be nonlinear (Martínez-Sola et al., 2013). The empirical evidence of this concave relationship is further confirmed by the study of Azmat (2014). In the context of Vietnam, Nguyen Thanh (2019) and Le (2025) also clearly evidence the inverse U-shape using data on listing non-financial firms.

Among factors affecting corporate cash holdings, firm-specific characteristics have been documented in prior studies. According to the previous research, the global economic policy uncertainty varied with a huge variance during a period that has unstable political constraints among countries. And, in fact, no research examines the possible effect of macroeconomic factors on the cash holdings of companies in Vietnam (Le & Finch, 2021), where the business environment is still imperfect. Additionally, the Vietnamese economy is export-oriented and foreign investment, so it is influenced by many uncontrollable factors from outside. Henceforth, the study expects that the Global Economic Policy Uncertainty Index (GGEPU) would significantly influence the Vietnamese firms' cash holding level.

To fill the research gap, which is the impact of global economic uncertainty factors on cash holding level in Vietnamese firms, we conduct this study applying the model by Demir and Ersan (2017) for non-finance listed companies.

The structure of this paper is as follows. Section 2 reviews the relevant literature and hypotheses development. Section 3 analyses the methodology that has been used to conduct empirical research. Section 4 presents the research results. Section 5 is about findings and discussion, and Section 6 proposes some instructive recommendations and conclusions.

2. LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

The cash holding topic is increasingly gaining attention from scholars and academic researchers (Phan et al., 2019). According to trade-off theory, a business may benefit from holding cash but also incur opportunity costs. An organization attempts to avoid recurrent fundraising, reduce transaction costs, and enhance the liquidation of non-cash assets for running and funding operations by increasing cash holdings. The more the amount of cash holding, the more positive the net present value projects (Almedia et al., 2004).

Jiang and Shanhong (2022) conducted research on US firms from 1986 to 2016 and found evidence that there are two main motivations for having precautionary cash holdings they are to cover potential operating losses and to fund investments. At a glance, a firm's cash-holding levels may be similar under these two motivations; however, a firm's cash-holding level can vary significantly depending on which of the two motivations the firm is under.

The GGEPU index was developed by Baker et al. (2015) to measure the national policy uncertainty level. The GGEPU is built based on the three-dimensional monthly value-weighted average: specific policy categories, time of data, and across countries. Davis (2016) learned from the study of Baker et al. (2015) to calculate the monthly GGEPU index, which is the average of monthly indices based on three components of 16 countries. It is popularly acknowledged from developed countries that the GGEPU index provides a useful measure to examine the effect of the predictive power of global economic policy uncertainty on cash holdings of corporations. Since the GGEPU index has not been constructed for Vietnam, the paper adopts the GGEPU index with the argument that Vietnamese firms are affected by the uncertainty of the world economy and hence might adjust their cash holding levels in response to the GGEPU index.

The rising collection of studies, which include findings and information about the change in firm variables, stock market, and macro-economic variables, is formulated into the level of economic policy uncertainty. In terms of the impact of GEPU on company variables, Zhang et al. (2015) discovered that capital structure estimations of Chinese listed businesses are heavily influenced by the amount of economic policy uncertainty. Zhang et al. (2015) utilized the GEPU index as a proxy for uncertainty level and argue that when GEPU grows, companies prefer to lower leverage ratios.

Pinkowitz et al. (2007) measured the uncertainty in two dimensions: economic variables and political indices. Authors believed that besides macro-economic and political uncertainties, socio-economic factors and institutional development are determinants triggering firm-level decisions in emerging countries (Le & Finch, 2021). In addition, Gulen and Ion (2016) showed that economic policy uncertainty is strongly linked with cash holdings and new debt issuance, but no influence on new equity issuance is found. Moreover, the volatility in macroeconomic conditions affects the firm's decision on cash holdings. Le and Finch (2021) used macro-economic policy level constructed by real gross domestic product, industrial production, Consumer Price Index (CPI) inflation, and S&P 500 return. They claim that firms would not be effective in evaluating firm-specific information due to high uncertainty times, causing them to act more cautiously. A strong economic environment, on the other hand, will allow managers to make more idiosyncratic decisions and estimate the quantity of liquid assets required by the firm.

Considering policy uncertainty level will help firms adjust their allocation more efficiently to resources, and this explains the time variation in the cross-sectional distribution of cash holding ratios. Phan and Mascitelli (2014) employed the GEPU index to investigate the link between US economic policy uncertainty and cash holdings of US public firms. They discovered a positive link between GEPU and corporate cash holdings of US businesses, which may be explained by cautious motivations and, to a lesser extent, investment delay. The study of Duong et al. (2017) had similar findings, which attribute the increase in the US companies' cash holdings in response to the higher GEPU index to the financial constraints rather than the reduction in investments.

Didin-Sonmez et al. (2024) investigate the relationship between economic policy uncertainty and corporate cash holdings using data from seven emerging countries for the 2010–2018 period. The empirical results show that firms in the research sample tend to hold more cash when GEPU is high. The authors also evidenced that this positive relationship between GEPU and cash holding level is stronger in countries with better control of corruption and in high uncertainty avoidance cultures. The paper results are robust to different measures of cash holdings and GEPU.

And very recently, Caixe (2025) analyzes the role of corporate governance in the relationship between cash holdings and GEPU in the Brazilian context of weak shareholder protection. Panel regressions using data from 11,689 firm-quarter observations over the 2003–2019 period. The author shows that GEPU decreases cash holdings in companies with good governance practices. In contrast, cash reserves are not affected by GEPU in poorly governed firms.

To the best of our knowledge, there is no study in Vietnam about the relationship between Vietnamese firms' cash holdings and the uncertainty of economic policy. Therefore, we propose the first hypothesis as follows:

H1: GEPU index has a positive effect on cash holdings of Vietnamese companies.

The financial statements are presented on an accrual rather than a cash basis; thus, revenue is nothing in comparison with cash. However, in accounting for cash holding, it is important to focus on the cash collection ability of firms. There are many studies providing evidence for the impact of cash on a firm's performance (Iftikhar, 2017). In general, it is expected that operating cash flow has a positive impact on cash holding levels. Due to the fact that operating cash flow might be seen as an alternative to cash, research has shown a negative connection between operating cash flow and company cash holdings (Hardin et al., 2009). Thus, the second hypothesis is as follows:

H2: Operating cash flow negatively affects cash holdings of Vietnamese companies.

In relation to cash flow volatility, there have been few studies. According to Ozkan and Ozkan (2004) or Le (2025), companies with changeable cash flow are more sensitive to liquidity constraints. The instability of cash flow raises confusion regarding future money assets. Uncertainty could inevitably affect the decision-making process of companies in investment opportunities. Therefore, businesses tend to hold more cash to minimize the cost of cash shortages (Jiang & Shanhong, 2022; Le, 2025). This argument complies with the principle of trade-offs between the costs and benefits of cash holdings and implies that cash flow fluctuations and cash holdings have a favourable relationship. According to certain research, there is a positive link between the two factors (Guney et al., 2007), but others found a negative association (Ferreira & Vilela, 2011). Thus, we propose the third hypothesis as follows:

H3: Cash flow risk has a positive effect on corporate cash holdings.

There is another issue, which is about asset quality and allocation, and cash holdings. Asset quality and allocation choices have strong impacts on cash holding levels. The more liquidity the firm chooses to hold, the more deadweight loss of the abundant cash level (Zhao et al., 2022; Le, 2025; Chaieb, 2025). The related literature offers evidence to support the hypothesis that non-cash fixed assets or net working capital are a suitable alternative for liquid assets (Durnev & Kim, 2005). According to Zhao et al. (2022), holding non-cash liquid assets brings two main benefits: less costly to turn net working capital into cash and low risk of stock markets raising funds. Based on the trade-off hypothesis, there is a negative relationship between net working capital and cash holdings. Specifically:

H4: Net working capital has a negative effect on cash holdings of Vietnamese companies.

Companies with more tangible assets are likely to retain less cash. Moreover, when businesses need to issue loans, tangible assets may be used as collateral, and it is also possible for businesses with more tangible assets to boost external debt funding, contributing to a lower need to retain cash reserves. Drobetz and Grüninger (2007) point out that there is a negative relationship between asset tangibility and cash holding. Thus, the fifth hypothesis states as follows:

H5: Tangible assets negatively affect cash holdings of Vietnamese companies.

Companies with a high leverage ratio are likely to face financial distress and are thus required to carry more cash to meet debt obligations and reduce the likelihood of financial bankruptcy according to the trade-off theory (Kim et al., 2011). However, according to the pecking order theory, as investment exceeds retained earnings, firms encounter the burden of rising debt, and thus cash holding level declines (Ferreira & Vilela, 2011). In parallel with pecking order theory, many studies have found that less cash is owned by more leveraged firms (Liu & Dong, 2020). Drobetz and Grüninger (2007), on the other hand, discovered a nonlinear connection between cash holding and leverage.

Based on two opposing theoretical reasons and inconsistent results from previous studies, the paper proposes the sixth hypothesis as follows:

H6: Leverage has a positive effect on corporate cash holdings of Vietnamese companies.

In relation to investment and capital expenditure, the capital spending increases new properties, and these assets enable borrowing as collateral through pledging, ultimately decreasing the need to carry cash (Kim et al., 1998). According to the pecking order theory, investment greater than retained earnings is associated with a drop in cash holdings (Dittmar et al., 2003). Similarly, according to Guney et al. (2007), companies with large capital expenditure are less likely to keep cash. To test this relationship, the paper proposes the following hypothesis:

H7: Capital expenditure negatively affects corporate cash holdings of Vietnamese companies.

The larger scale economies in cash management make it quicker and easier for businesses to benefit financially. It is also claimed that the fixed borrowing costs are not relative to the amount of the loan and are comparatively restrictive for smaller businesses (Kim et al., 1998). Most previous research has found a negative connection between business size and cash holdings (Drobetz & Grüninger, 2007). However, there are a few studies that find empirical evidence about a significant relationship between firm size and cash holding (Guney et al., 2007). In line with most of the prior research, this study hypothesizes a negative connection between company size and cash holdings:

H8: Firm size negatively affects corporate cash holdings of Vietnamese companies.

3. RESEARCH METHODOLOGY

This manuscript utilizes a panel-data regression technique. GEPU index (*globalEPU*) is the independent variable, while other factors are the controlling variables of cash holdings (*Cashholding*). For panel data, the fixed-effects model (FEM) is used in addition to the pooled ordinary least squares (POLS) regression to address the potential endogeneity problem produced by missing variables.

The study uses the following research model, which is adopted from Demir and Ersan (2017), to test the above hypotheses.

$$Cashholding_{i,t} = \alpha + \beta_1 globalEPU_t + \beta_2 size_{i,t} + \beta_3 nwc_{i,t} + \beta_4 cf_{i,t} + \beta_5 cfrisk_{i,t} + \beta_6 tangible_{i,t} + \beta_7 leverage_{i,t} + \beta_8 capex_{i,t} + \varepsilon_{i,t} \quad (1)$$

where, the subscripts *i* and *t* indicate firm *i* and year *t*, respectively. Dependent variable: *Cashholding* level, which is measured by the ratio of cash and marketable securities over total assets. Explanatory variables: *globalEPU* and some other variables, which include:

- *size* — firm size (natural logarithm of total assets);
- *nwc* — net working capital (current assets minus current liabilities;
- *cf* — operating cash flows divided by total assets;
- *cfrisk* — cash flow risk (standard deviation of operating cash flows over the three-year period from $t - 2$ to t_0, with the requirement that there are operating cash flows for all three years);
- *tangible* — it is the proportion of tangible assets over total assets;
- *leverage* — it is book leverage, which equals total debts divided by total assets;
- *capex* — capital expenditure;
- ε — error term.

This research examines non-financial firms listed on the Ho Chi Minh Stock Exchange (HOSE). The sample period is from 2016 to 2019. Accounting data are hand-collected using the Vietstock Finance website and audited financial statements of companies, including net working capital, cash flow ratio, leverage, and the ratio of tangible over total assets. Financial firms and firms with missing data or errors are excluded. The GEPU index includes *globalEPU1,* which is for the monthly average index, and *globalEPU2,* measured by a yearly index. The final sample includes 235 firms with 615 firm-year observations.

In this article, the authors utilize a panel-data regression technique. Various statistical and econometric methods and techniques are applied step-by-step, including:

First, we have descriptive data: min, max, median, mode, and standard deviation. This will provide us with some general features of firms in relation to cashholding, GEPU, size, working capital, etc. The statistical description also reports on the variance between firms relating to each variable in the research model.

Second, we conduct a correlation test to check the relationship between independent variables and between independent variables and dependent variables. If two independent variables are strongly correlated, reflecting a reasonably perfect value of correlation efficiency (around 1.0), the research model may have a multicollinearity phenomenon, in which case one independent variable is removed. Similarly, if the correlation between the independent variables and the dependent variable is zero, this means that there is no correlation between them. As a result, that independent variable is not suitable for the research model.

Third, test for multicollinearity — the phenomenon that reflects a state of very high intercorrelations among the independent variables. It is therefore a type of disturbance in the data that leads to the statistical inferences made about the data being inaccurate. It is advised that the variance inflation factor (VIF) for this phenomenon should be calculated. If VIF is greater than 5, it could be concluded that there is the existence of a multicollinearity phenomenon (Hoang & Chu, 2008).

Fourth, the paper applies the F-test to choose the best-suited model among POLS and FEM. If FEM is chosen, the Hausman test is conducted to choose between FEM and the random-effects model (REM).

Fifth, the paper checks for the phenomenon of groupwise heteroskedasticity by applying the Wald test or Breusch and Pagan Lagrange multiplier (LM).

Finally, test beta for independent variables in the model. By doing this, the variables that have the greatest effect on firms' performance could be found, and whether the influence is positive or negative at a specific statistically significant level.

The results of the tests shall be presented in the following section.

4. RESEARCH RESULTS

The descriptive measures of each variable are provided in Table 1.

Regarding the *Cashholding* ratio, firms in the sample vary from 0.01 to 0.49, with a mean of 0.38. Speaking of the *globalEPU1* index, the descriptive measure shows that the average of the twelve-monthly is 204.56. The index varies from a min of 170.379 to a maximum of 247.42. There are some differences between *globalEPU1* and *globalEPU2*. In detail, the *globalEPU2* variable has a mean of 217.28, which is slightly higher than *globalEPU1*. Also, the variability moves accordingly, which ranges from 176.75 to 267.62. The variable *size* describes the natural log of the firm's total assets and has a mean of 15.72. Surprisingly, the *cf* variable has a negative mean (-0.16), which signifies the fact that the ability of publicly listed firms in the sample to generate cash from operating activities is poor. The *cfrisk* affirms the previous presumption; the standard deviation of operating cash changes significantly through the years. *Tangible* asset accounts for a large proportion of the firm's assets; on average, it makes up for more than half of the total assets (53.1%). High *leverage* (0.51) implies that most firms in our sample prefer external debt financing. Last but not least, on average, companies in the sample spend capital for fixed-asset investment of 17.6% of total assets, illustrated by the *capex* variable.

The Pearson correlation among variables is listed in Table 2.

Table 1. Descriptive statistics

Variable	*Obs.*	*Mean*	*Std. dev.*	*Min*	*Max*
Cashholding	615	0.381	0.441	0.001	0.498
globalEPU1	615	204.56	34.074	170.379	247.418
globalEPU2	615	217.281	40.057	176.752	267.621
size	615	15.273	1.44	11.208	18.393
nwc	615	0.098	1.828	0.016	0.547
cf	614	-0.016	0.542	-0.467	0.496
cfrisk	615	0.197	0.587	0.002	0.359
tangible	615	0.531	0.413	0	0.839
leverage	614	0.513	0.451	0	0.753
capex	614	0.176	0.716	0	0.557

Table 2. Correlation matrix

Variable	*1*	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
Cashholding	1.000									
globalEPU1	0.026	1.000								
globalEPU2	0.026	1.000***	1.000							
size	-0.271***	0.054	0.054	1.000						
nwc	-0.452***	-0.045	-0.045	-0.078*	1.000					
cf	-0.448***	-0.009	-0.009	0.048	0.201***	1.000				
cfrisk	0.838***	0.039	0.040	-0.280***	-0.150***	-0.278***	1.000			
tangible	0.785***	0.009	0.009	-0.245***	-0.318***	-0.499***	0.672***	1.000		
leverage	0.621***	0.021	0.020	-0.269***	0.240***	-0.176***	0.817***	0.528***	1.000	
capex	0.200***	-0.047	-0.047	-0.294***	0.723***	-0.111***	0.417***	0.176***	0.667***	1.000

*Note: *** p < 0.01, ** p < 0.05, * p < 0.1.*

Drawing from the table above, the *Cashholding* variable appears to have a strong correlation with other variables; this implies that most of the previous hypotheses are potentially true. Although the correlation between *Cashholding* and the GEPU index is insignificant, both global uncertainty indices have a positive correlation with the *Cashholding* ratio of firms in the sample, consistent with the prediction. The two GEPU indices, *globalEPU1* and *globalEPU2*, have a correlation of 1, implying that the two indices have a perfectly positive correlation. Therefore, it is not necessary to use two indices in the analysis for robustness checks. Henceforth, the *globalEPU1* is used in the regression analysis.

Table 3. Variance inflation factor indicator

Indicator	*globalEPU1*	*globalEPU2*	*size*	*nwc*	*cf*	*cfrisk*	*tangible*	*leverage*	*capex*
Tolerance	0.86	0.866	0.884	0.878	0.740	0.775	0.790	0.857	0.951
VIF	1.156	1.155	1.131	1.139	1.351	1.290	1.266	1.167	1.052

Since the VIF ratios of variables stay within the acceptable range. Hence, multicollinearity is absent in the research.

As earlier presented, the global uncertainty index *globalEPU1* is used. Thus, to examine the effect of GEPU on *Cashholding* of Vietnamese firms under controlling firm characteristics factors, the panel data regression model is as follows:

$$Cashholding_{i,t} = \alpha + \beta_1 globalEPU1_t + \beta_2 size_{i,t} + \beta_3 nwc_{i,t} + \beta_4 cf_{i,t} + \beta_5 cfrisk_{i,t} + \beta_6 tangible_{i,t} + \beta_7 leverage_{i,t} + \beta_8 capex_{i,t} + \varepsilon_{i,t} \quad (2)$$

where, *i* indicates a firm and *t* indicates a calendar year.

From the p-values of the explanatory variables, only the GEPU variable is not statistically significant at 5% level (p = 0.931 > 0.05), and the magnitude of the coefficient on *globalEPU1* is very small but positive. Other variables related to financial indicators of firms are significant at the 5% level. According to the coefficient results from Table 3, GEPU variables, *size*, *nwc*, *cf*, and *cfrisk* have signs as hypotheses. The signs of the coefficient on variables related to asset quality and allocation, including *tangible* assets and *capex*, are reversed from the postulated ones. These results are supportive of *H2*, *H3*, *H4*, and *H5*. The positive coefficient on *cfrisk* implies that when *cf* is more volatile, firms tend to hold a higher *Cashholding* level for the precautionary motive. Contrary to assumptions, *tangible* assets and *capex* show a statistically positive connection with *Cashholding*; nevertheless, the findings do not support *H6* and *H8*. These data suggest that Vietnamese businesses with significant capital expenditures or substantial physical assets prefer to keep even more cash, most likely to prepare for future investments, which is consistent with the speculative reason for *Cashholding*. The coefficient for *leverage* is positive and statistically significant, lending credence to the trade-off theory, which implies that businesses with high *leverage* also keep substantial cash reserves to meet debt obligations and avoid financial difficulty.

After checking for correlation and the multicollinearity phenomenon, we continue evaluating the appropriateness of the regression model for panel data. To do this, we first conducted the pooled POLS and FEM. The results from the F-test show that FEM is more appropriate than POLS. This leads to the test being performed to compare between FEM and REM by using the Hausman test, and we found that the FEM is a better model than REM in evaluating the influence of GEPU on cash holdings of Vietnamese, and the result is presented in Table 4.

The R-squared result suggests that independent factors in the model explain 94.3% of the variation in *Cashholding*. R-squared of the fixed-effects regression is greater than that of the POLS regression, indicating that the fixed-effects regression generates more reliable results. The F-statistic is significant (F = 761.801, p = 0.00 < 0.01), illustrating the value of the relationship between the dependent variable and all explanatory variables. Using the fixed-effects regression, among statistically significant variables, the coefficient value of *capex* gives the highest absolute value of 1.163, and *tangible* assets with the lowest absolute value of 0.045. Drawing from Table 4, there is no statistical link between worldwide GEPU and cash holdings of Vietnamese companies, but company characteristics have a substantial influence on *Cashholding*. According to the aforementioned hypotheses, among independent variables, *size*, *cf*, and *nwc* have a negative connection with *Cashholding*, whereas *cfrisk* has a positive link with *Cashholding*. The positive coefficient on *cfrisk* suggests that a rise in *cf* volatility contributes to a larger share of *Cashholding*. However, contrary to the expectations in *H6* and *H8*, *tangible* assets and *capex* have a positive relationship with *Cashholding*. *H6* is confirmed with the positive coefficient on *leverage*. In general, the fixed-effects model generates the same results related to the relationship between variables as found in the POLS regression.

As forementioned above, the paper has overemphasized investigating the impacts of GEPU on different dimensions of *Cashholding* level. Consequently, the results were prepared under strict assumptions of POLS, which are retested. The test results have chosen the FEM instead of POLS and REM with a high F-test result, and R-squared has a large value, indicating that the possibility of missing explanatory variables is unlikely. In other words, it is unnecessary to conduct further tests for the appearance of endogeneity.

Table 4. Fixed-effects regression

Cashholding	*Coef.*	*Std. err.*	*t-value*	*p-value*	*[95% Conf. interval]*		*Sig*
globalEPU1	0.001	0	0.51	0.607	0	0.001	
size	-0.076	0.031	-2.43	0.016	-0.138	-0.015	**
nwc	-0.595	0.022	-27.34	0	-0.638	-0.553	***
cf	-0.103	0.031	-3.36	0.001	-0.164	-0.043	***
cfrisk	0.208	0.068	3.08	0.002	0.075	0.341	***
tangible	0.045	0.007	6.03	0	0.03	0.06	***
leverage	0.077	0.014	5.38	0	0.049	0.105	***
capex	1.163	0.062	18.80	0	1.042	1.285	***
Constant	1.211	0.492	2.46	0.014	0.244	2.179	**
Mean dependent var		0.381		SD dependent var		1.143	
R-squared		0.943		Number of obs.		613.000	
F-test		761.801		Prob > F		0.000	
Akaike crit. (AIC)		-164.484		Bayesian crit. (BIC)		-124.719	

*Note: *** p < 0.01, ** p < 0.05, * p < 0.1.*

5. DISCUSSION OF THE RESULTS

The most striking result to emerge from the data is that the cash holding ratio of the public listed firms in the HOSE is less likely to be dependent on the global policy uncertainty. Rather, this ratio appears to be more dependent on the internal factors of the firms. One of the explanations for this finding is that the usage of the GEPU index rather than the Vietnamese GEPU index, because this index is not yet available for Vietnam. It could be argued that with an open economy, Vietnamese firms are affected by the world economic uncertainty and might adjust their cash holdings in response to the GEPU index. However, it seems that the Vietnamese companies' cash holding decisions are reluctant to the uncertainty of the world economic policy. To explain, it is reported that in the period from 2016 to 2019, the world economy has stable development, and there is no sudden change in policies, politics, economy, etc. In addition, as abovementioned, the disadvantage of using GEPU

is the limitation in extending the measurement of economic policy uncertainty in emerging or developing countries due to the limited statistical data (Baker et al., 2015). Moreover, the Vietnamese government always controls the economy, aiming for low inflation and stabilizing the macroeconomy. The fluctuations of external factors are controlled through the banking system, fiscal policy, legal system, communication, etc. All of those factors could be reasons for the statistical significance of GEPU on the cash holding level in the research firms of Vietnam.

In essence, the findings support the previously predicted link between cash holding ratio and company size, net working capital, operational cash flow, and cash flow fluctuation. Those findings are consistent with prior research in a different temporal and geographical dimension. The negative connection between the cash holding ratio and the firm's size might be attributed to fixed borrowing costs (Kim et al., 1998). Or, as Drobetz and Grüninger (2007) suggest, larger firms are better diversified and have a lower likelihood of facing financial distress. Henceforth, these factors encourage firms to maintain a stable cash holding ratio. The negative relation with operating cash flow affirms the previous study of Abarbanell and Bushee (1998), in which they contend that companies whose operating cash flows are higher have a significant advantage in reducing the deadweight loss of holding abundant cash; therefore, firms can hold less cash. Furthermore, Ozkan and Ozkan (2004) argued that firms with higher volatile cash flows are more prone to liquidity constraints. This would deter firms from engaging in other investment opportunities. Henceforth, they tend to hold additional cash to reduce this opportunity cost.

On the other hand, the assumed negative relationship between cash holdings and tangible assets or capital expenditure is not supported. Instead, it was statistically positive coefficients. The major reason underlying these differences might rest on the financing options of the firms. Noticeably, Vietnamese firms spend an excessive amount of money on capital expenditure. This perhaps causes a positive relationship between the cash holding ratio and capital expenditure. Significantly, the coefficient on capital expenditure is 1.163, which implies that the more capital expenditure a firm has, the more cash it holds, probably to prepare for future investment opportunities. As for tangible assets, the relationship of the cash holding ratio with tangible assets is significantly positive. This finding is contrary to the study of Drobetz and Grüninger (2007), in which they argue that firms with more tangible assets find it easier to raise external debt financing, leading to less need to hold cash reserves. A possible explanation is that these firms may rely more on retained earnings or equity financing instead of debt financing, although they have large tangible assets that can serve as collateral. It appears that firms listed in HOSE still want to maintain large cash holdings even when they can easily obtain debt thanks to large tangible assets. The finding of the positive relationship between leverage and cash holdings confirms this argument. Firms having a high leverage ratio maintain large cash holdings to ensure debt payments and avoid financial distress; the results are supportive of the trade-off theory rather than the pecking order theory. In general, the thesis documents that firm-specific factors are significant determinants of corporate cash holdings of HOSE-listed non-financial firms.

Another remarkable finding emerges from investigating the impacts of market capitalization as a critical control variable. These results reveal that firms with large market cap are more likely to be exposed to uncertainty in economies and political systems. They adjust their cash towards changes in the GEPU index more quickly and aggressively than small-cap firms. The significant impacts of market cap on cash holding levels of large firms lend support to previous findings of Ozkan and Ozkan (2004) and Drobetz and Grüninger (2007). Without the GEPU, their studies found robust evidence supporting that the cash holdings of large firms are more sensitive to sudden changes in macroeconomic variables.

Moreover, large firms have wider access to the money market. High exposure to market uncertainty, coupled with possible access to low-cost external capital, endows large-cap companies with great ability to adjust their cash level. Small firms, on the other hand, might not follow this strategy. Their remote scale makes them less vulnerable to global uncertainty, especially those that operate in the domestic market only. Moreover, the opportunity cost of obtaining new loans is far more expensive than for large firms, thereby distorting their motivation to seek short-term loans to fulfill the cash shortage.

6. CONCLUSION

The study concluded that firm characteristics have a substantial influence on the business's cash holdings, but GEPU had little impact. The study employed POLS and fixed-effects regression models to explore the influence of independent factors on the cash holding choice of 235 listed non-financial businesses in the HOSE market of Vietnam from 2016 to 2019. The cash and market securities to total assets ratio indicates the business's cash holding, and other firm characteristics variables are derived from financial indicators in audited financial reports of publicly traded companies. The GEPU index is constructed by Baker et al. (2015).

Research results indicate that the effect exists between cash holdings and firms' financial characteristics; however, the GEPU index shows an insignificant relationship with the cash holding decision of Vietnamese firms. From the empirical results above, this study suggests some implications and recommendations for non-financial companies listed on the Vietnam stock exchange in deciding their cash holdings.

Firstly, it seems that Vietnamese companies do not determine their cash holdings based on the index that measures the global policy-based economic uncertainty. This result does not imply that a macroeconomic factor like the GEPU index has a significant effect on cash holdings of Vietnamese firms. The insignificant relationship might be because the GEPU index is too broad. Should the GEPU index be available for Vietnam, a different statistical result might be found. Future studies may investigate the effect of macroeconomic factors on the firm-level cash holding decision of Vietnamese

companies using the Vietnamese GEPU index, if this index is available, or using any other factors that capture the macroeconomic uncertainty.

Secondly, companies usually identify the optimal cash holding based on firm characteristic indicators. The study found a similar result, which suggests that cash holdings of Vietnamese firms are determined in association with firms' financial characteristics for precautionary and speculative motives to ensure and improve firms' performance. Accordingly, the factors that influence cash holdings of Vietnamese firms are firm size, net working capital, operating cash flow, cash flow volatility, tangible assets, leverage, and capital expenditure. The results suggest that firm-specific characteristics must be established when firms want to determine their optimal cash holding level. Although the paper does not explicitly examine what the optimal cash holding is and how it affects firm performance, it documents that firms do adjust their cash holding based on firm financial characteristics, and these adjustments reflect the motives that can help them avoid an unexpected shortage in cash and reduce opportunity costs, thereby preventing firms from having financial distress as well as improving their performance. However, as firms in different sectors have different cash holding needs, another study may want to explore specific policies of changing cash holding ratios for each specific group of companies. From this idea, at each particular cash holding threshold, further research should be carried out examining the factors that influence the cash holding motive for each group of companies. The results of this future research will provide more comprehensive and specific suggestions for determining the optimal cash holding level to boost the performance of companies in different sectors.

Thirdly, the outcomes of this study will be useful for the companies that want to have the right amount of cash in the context of Vietnamese corporate governance mechanisms. Sufficient cash holding can help firms reduce the agency costs arising from free cash flow problems, especially for firms with poor corporate governance. Maintaining too much cash will create opportunities for managers to use for wasteful activities, whereas firms with little cash may face a cash shortage. This emphasizes the importance of determining the optimal cash holding level. Future research may want to examine how firms' cash holding policy changes when Vietnam achieves more improvements in corporate governance mechanisms. The results of the next study can provide companies and policymakers with a picture of the influence of corporate governance on the amount of cash holdings in Vietnamese listed firms. Among corporate governance mechanisms, both external and internal factors should be taken into account. The changes in the regulations of the stock exchange may affect a firm's ability to raise external financing, leading to changes in the firm's level of cash reserve. Additionally, the board of directors and corporate compensation structure possibly affect agency costs; therefore, companies should take them as important issues in considering the amount of cash holding.

Finally, the findings would be useful for corporate governance mechanisms to evaluate to some extent the effect of external factors on cash reverses of firms. However, this outcome is less likely to be useful in predicting the correct cash level in different circumstances of corporate governance structures in developing countries or transition economies, especially in the context of Vietnam. Thus, the effect of the financial governance system on cash holding in the listed Vietnamese companies should be considered by policymakers. Besides, Vietnamese companies may also consider making a proper capital structure in an attempt to enhance cash liquidity, especially in some unpredictable situations. In order to help companies in determining their potential performance, companies should understand the internal corporate capital structures and macro variables that affect their businesses, even though external factors captured in the policy uncertainty have an insignificant impact. The listed firms should break down the issues related to policy uncertainty since their market may fluctuate in an unstable period.

Despite the fact that the research might serve as a springboard for further studies in this stream of research, this work clearly has some limitations. The most important limitation lies in the sampling method. The sample contains only 235 companies listed, which may affect the comprehensiveness of the results. However, given the small sample size, caution must be exercised when interpreting and extrapolating the findings to other contexts. Also, the current study was unable to explain the impacts of GEPU on a particular industry.

Even though the authors are provided with enough resources to fulfill the aforementioned shortages, the picture is still incomplete. In other words, the effects of market capitalization have been controlled, which thus calls to the importance of other determinants of cash holding levels. Thus, testing the impacts of the global uncertainty index results in different numbers between dividend and non-dividend companies, as well as high payout ratio and low payout ratio companies. In the case of Vietnam, it is more relevant to consider the "state" factor — an agency problem potentially implies a nonchalant attitude towards economic uncertainty. It is believable that those issues could be a research gap for our future research.

In conclusion, the primary purpose of this study is to investigate the impact of the global economic and political uncertainty index on the corporate cash holding level of Vietnamese firms during 2016–2019. The most striking result is the association between policy uncertainty and lagged corporate cash holding level. This paper, therefore, highlighted the importance of companies' policies to adjust cash levels towards changes in the GEPU index.

This paper contributes to existing literature in two main ways. First, it explores a possible effect of economic policy uncertainty on the cash holdings of Vietnamese firms. This study offers a view that policy uncertainties may result in a higher cash holding level. As a result, this paper leans more toward the financial side of corporate finance. Second, this paper indicates that the impacts of GEPU on cash holding levels are, in fact, postponed. It is proposed that the transmission velocity of the GEPU index depends on the integration level of the host country's financial system into the global financial network. The impacts of GEPU on corporate cash holding levels are mostly channelling through

interest rates. Nonetheless, Vietnam's government holds a cautious manner toward the global financial system. As a result, the influence of global uncertainty must encounter several obstacles before reaching Vietnamese firms. These barriers, therefore, hinder both the transmission and impacts of GEPU on the Vietnamese firms.

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