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Cash holding, economic uncertainty and investment: Evidence from ASEAN countries

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A B S T R A K

Penelitian ini bertujuan untuk mengobservasi efek ketidakpastian ekonomi terhadap keputusan kepemilikan kas perusahaan. Ketidakpastian ekonomi menyebabkan peningkatan masalah informasi asimetri yang berakibat pada mahalnya biaya modal eksternal perusahaan, sehingga perusahaan lebih memilih untuk mengumpulkan kas untuk melindungi kemampuan investasi di masa depan. Penelitian ini menggunakan sampel perusahaan publik pada enam negara ASEAN yaitu: Malaysia, Filipina, Thailand, Singapura, Indonesia, dan Vietnam. Metode yang digunakan adalah model data panel fixed effect dengan standar eror Driscoll-Kraay. Hasil penelitian ini menunjukkan bahwa ketidakpastian ekonomi dapat menyebabkan perusahaan untuk meningkatkan kepemilkan kas mereka. Selanjutnya, kepemilikan kas dapat mengurangi pengaruh negatif ketidakpastian ekonomi terhadap keputusan investasi perusahaan. Penelitian ini berkontribusi pada literatur dengan menunjukkan hubungan ketidakpastian ekonomi, kepemilikan kas dan investasi perusahaan pada konteks negara ASEAN.

A B S T R A C T

This research observes the effect of uncertainty on corporate cash holding. Uncertainty drives up asymmetric information problems, increasing companies' external capital costs. As a result, companies prefer to accumulate cash to protect their investment capabilities in the future. The study uses a sample of non-financial public companies in six ASEAN countries, such as Malaysia, the Philippines, Thailand, Singapore, Indonesia, and Vietnam, from 2008 to 2021. The study uses a total of 34,359 firm-year observations. The research method employs a fixed-effect panel data model with Driscoll-Kraay standard errors. The findings of this study indicate that economic uncertainty can cause companies to accumulate their cash holdings. Furthermore, cash holding can

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reduce the impact of economic uncertainty on decreasing corporate investment decisions. This research contributes to the literature by showing the relationship between economic uncertainty, cash holdings, and corporate investment in the context of ASEAN countries.

INTRODUCTION

Economic uncertainty has been a prevailing concern in corporate financial decision-making, as it increases ambiguity and risk that can significantly impact economic agents' behavior and their decision (Agliardi *et al*., 2016; Breuer *et al*., 2017; Lee *et al*., 2019; Neamtiu *et al*., 2014). The consequences of economic uncertainty on corporate financial decision-making are complex. One of the primary outcomes is the worsening of information asymmetry between firms' managers and their external funders, including investors and bondholders. As uncertainty prevails, the available economic information becomes less reliable and informative, leading economic agents to experience a decline in their confidence and trust in decision-making processes. This led to escalating the complexities of decision-making and can discourage firms from making suboptimal investments, financing, and operational activities (Akron *et al*., 2022).

The impact of economic uncertainty on firm decision-making has been extensively studied in previous studies. In the face of heightened uncertainty, firms often face higher capital costs as investors demand greater compensation for the increased risk associated with uncertain economic conditions (Drobetz *et al*., 2019; Xu, 2020). Consequently, firms tend to adopt a more cautious approach, deferring investment decisions and undertaking measures to safeguard against potential financial distress (Drobetz *et al*., 2018; Hoang *et al*., 2023; Im *et al*., 2022). Empirical studies have shown that during periods of elevated uncertainty, firms may reduce their debt intake to minimize financial risks (Istiak & Serletis, 2020; Pan *et al*., 2019). and accumulate cash reserves to preserve future investment capabilities (Goodell *et al*., 2021; Heeney *et al*., 2023; Phan *et al*., 2019).

Specifically, this study aims to expand the corporate finance literature by studying how corporate cash holdings are affected by uncertainty and whether cash can help reduce the negative effects of uncertainty on investment decisions. Managers may increase cash holding during a high uncertainty period for several reasons. Firstly, cash reserves are a precautionary measure, providing financial flexibility and acting as a buffer against unforeseen shocks (Arslan-Ayaydin *et al*., 2014). Cash holdings are a cheaper financing source, enabling firms to invest in their growth and distribute dividends to their shareholders in the future. Second, heightened uncertainty tends to widen the informational gap between firms' managers and their shareholders, leading managers to hold more cash, engage in overinvestment, or even misuse cash for personal gain (Javadi *et al*., 2021).

The primary objective of this study is to investigate and provide answers to two

specific research inquiries. Firstly, it examines the influence of uncertainty on firms' decisions regarding their cash holdings. Secondly, it explores whether maintaining higher cash levels can mitigate uncertainty's effects on firms' investment activities. Previous research has established a connection between uncertainty and cash-holding decisions (Demir & Ersan, 2017; Duong *et al*., 2020; El Ghoul *et al*., 2023; Heeney *et al*., 2023). This study aims to examine whether different outcomes emerge within the ASEAN context. The focus of this research is the ASEAN market due to several reasons. First, only a few studies explore the influence of uncertainty on the ASEAN context. Previous studies on the ASEAN context predominantly focus on explaining the impact of uncertainty in macroeconomic studies (Dogah, 2021; Juhro & Phan, 2018; Lu *et al*., 2023; Mohd *et al*., 2013) rather than examining firm behavior. Second, ASEAN countries are dominated by developing countries with high debt levels. According to the IMF's May 2023 Regional Economic Outlook, the high public debt ratio remains a major concern for policymakers. This situation leads to higher costs of public debt and reduces access to funding for the private sector. Thus, their sensitivities to uncertainty may be higher than those in developed countries. This research adds to the existing body of literature by providing empirical findings regarding the relationship between uncertainty and cash holdings and the influence of cash holdings on investment under uncertain conditions in the ASEAN context.

The remainder of this article proceeds with a comprehensive literature review and the development of research hypotheses. Subsequently, the study presents and discusses its empirical findings based on the analysis of ASEAN data. The article concludes by discussing the implications of the research, acknowledging its limitations, and proposing directions for future research endeavors to advance our understanding of corporate financial decision-making under economic uncertainty in the ASEAN market.

LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Uncertainty

Economics literature started publicly exploring uncertainty when Knight (1921) established his idea of the so-called Knightian Uncertainty. He elucidates the distinction between "risk" and "real uncertainty." Knightian uncertainty refers to a scenario where the result of an occurrence is uncertain, but the likelihood can be precisely determined. Real uncertainty is a scenario where the necessary information is unknowable, making it impossible to ascertain an accurate probability. Baker *et al*. (2016) and Breuer *et al*. (2017) classify "real uncertainty" as "unmeasurable uncertainty." Thus, uncertainty is the likelihood of events with an unknown outcome. Breuer *et al*. (2017) stated that Knightian uncertainty is characterized by "unmeasurable uncertainty" due to the lack of statistical information, where the likelihood of uncertain events is based on a quantitative "degree of belief." There is a

growing interest in measuring economic uncertainty through various studies. An indicator commonly utilized to gauge uncertainty is the Economic Policy Uncertainty (EPU) index, based on a news index associated with economic policy (Baker *et al*., 2016).

Economic policy uncertainty is a metric created to assess policy uncertainty's effects, as Baker *et al*. (2016) outlined. The EPU index initially measured the occurrence of specific keywords in articles from ten prominent newspapers in the United States. The index is based on historical data, cross-country analysis, and specific policy areas. This index aims to measure uncertainty regarding the individuals responsible for formulating economic policy, the timing of policy implementation, and the potential economic consequences of policy enactment or absence. This approach offers benefits as it has been assessed in multiple nations and incorporates extensive historical data. The uncertainty model mentioned has been extensively utilized in financial research and has emerged as a key approach for quantifying uncertainty (Baker *et al*., 2016). Several prior studies have utilized this strategy to demonstrate the influence of economic uncertainty. Multiple studies analyze how uncertainty impacts financial stability by disturbing information flow, worsening adverse selection, and creating moral hazard issues that ultimately disturb liquidity in the financial system (Phan *et al*., 2021). Another study suggests that uncertainty impacts stock market volatility and hinders firm investment (Baker *et al*., 2016; Wang *et al*., 2014).

Cash Holding

Cash is a crucial asset for a corporation. Companies must practice effective cash management by considering many factors when using or holding cash. Chang & Yang (2022) showed that companies with higher cash reserves have a greater chance of surviving and rebounding swiftly from financial crises. The article demonstrates that maintaining financial reserves helps companies support their investments and research and development activities, leading to enhanced operational performance. Multinational firms also tend to be more sensitive to their origin nation or home country's economic condition and adjust their cash holding accordingly (Alipour & Yaprak, 2024; Kang & Kim, 2024). Chen *et al*. (2018) suggest that financially restricted enterprises are more inclined to invest and endure during a financial crisis. Overall, the above studies support the idea of cash being held for precautionary reasons, suggesting that companies maintain cash holding as a protection against unforeseen events.

Investment

Corporate investment refers to investment decisions made by a firm. Investment decisions are crucial as they can impact the company's earnings significantly. Trinh (2024) demonstrated that investing at the appropriate level can maximize business value based on the investment opportunity. Investment decisions can be used to assess managerial performance. His research on companies in Australia

revealed uncertainty affects a firm's investment efficiency. Leverage, inversely connected to the level of company investment, can negatively impact companies with limited growth prospects. Given the described investment impact and past studies on uncertainty's effect on investment, corporations should prioritize corporate investments (Charoenwong *et al*., 2024).

Uncertainty and Cash Holding

Uncertainty can be defined as a condition where the available information necessary for decision-making is incomplete. This condition causes economic agents to lose confidence in the acquired information and opt to delay decision-making. Previous studies have shown that uncertainty amplifies the information asymmetry problem, leading to higher costs of equity and debt (Chan *et al*., 2021; Tran, 2021) and exacerbating firms' financial constraints problem (Gilchrist *et al*., 2014). Consequently, due to the high cost of capital, firms postpone their investment and even forego their growth opportunities (Akron *et al*., 2020; Drobetz *et al*., 2018; Panagiotidis & Printzis, 2021; Wang *et al*., 2014).

Cash is a crucial and liquid asset within firms. Cash enhances firms' financial flexibility, allowing them to access cheaper funding sources when external financing is expensive. Particularly, firms may want to increase their cash holding to buffer against potential financial shocks caused by uncertainty (Gilchrist *et al*., 2014). By holding more cash, firms can bolster their resilience and readiness to navigate unforeseen challenges or disruptions in the business environment (Adrian *et al*., 2018; Chen *et al*., 2018). Additionally, an increased cash position can contribute to confidence among stakeholders, such as creditors and investors, as it demonstrates the firm's ability to handle adverse circumstances and maintain stability in its financial affairs (Bates *et al*., 2018; Im *et al*., 2017).

Moreover, uncertainty exacerbates the issue of information asymmetry, creating a larger gap in information between firm managers and external stakeholders. Managers may seize the opportunity presented by this condition to exploit cash holdings for personal gain, engaging in inefficient investments and increasing their compensation (Javadi *et al*., 2021). The presence of heightened uncertainty provides an environment where managers can manipulate the allocation of cash resources in ways that do not align with the firm's or its shareholders' best interests. Overall, we hypothesized as follows:

H1: Uncertainty increases the firm's cash holding.

Cash Holding, Uncertainty and Firm's Investment

Cash reserves are pivotal in bolstering firms' financial stability and resilience, as Bates *et al*. (2009) highlighted. By increasing liquidity, firms are better equipped to navigate financial challenges and reduce their dependence on debt, leading to

decreased financial distress levels. This crucial aspect of cash holdings helps shield companies from external shocks, acting as a protective buffer during economic downturns and positioning them to emerge stronger in the aftermath.

Interestingly, even in high uncertainty, managers may still be inclined to make strategic investments to secure their compensation and demonstrate growth to stakeholders (Glover & Levine, 2015). Maintaining significant cash holdings allows managers to pursue investment opportunities while mitigating potential liquidity constraints. Such a prudent approach to cash management empowers managers to pursue promising investment opportunities while safeguarding against potential liquidity constraints that might hinder their expansion endeavors (Fujitani *et al*., 2023).

Furthermore, the precautionary motives behind cash holding allow managers to allocate funds strategically for future growth prospects (Pérez-Orive, 2016). By holding more cash for growth opportunities, firms can enhance their performance and create higher shareholder values (Im *et al*., 2017). Consequently, cash reserves ensure short-term stability and position the company for sustainable long-term success. Based on these insights and empirical evidence, we formulate the following hypothesis:

H2: Cash holding decreases uncertainty impact on the firm's investment.

RESEARCH METHODS

Data

This study uses the purposive sampling technique to analyze data from firms in six ASEAN countries: Malaysia, the Philippines, Indonesia, Singapore, Thailand, and Vietnam. The observation period spans from 2008 to 2021. The financial report data for all firms are sourced from the S&P CAPITAL IQ database. We exclude firms in financial and utilities industries due to their tighter restriction and different financial report nature. Moreover, firms with incomplete data used in the model are excluded. Overall, there are a total of 34,359 firm-year observations. We adopt the World Economic Uncertainty Index (WUI) proposed by Ahir *et al*. (2022) to measure uncertainty. The WUI data can be accessed from www.policyuncertainty.com. We calculate the average quarterly data to represent uncertainty for each year. Moreover, we obtain country-level macroeconomic data from the World Bank website for the country-level control variables.

Empirical Model

This study aims to observe the impact of uncertainty on firms' cash holding in the ASEAN context. Following the previous studies (Duong *et al*., 2020; Heeney *et al*., 2023), we utilize Eq. (1) to investigate the influence of economic uncertainty on firm's cash holding.

$$CASH_{i,k,t} = \alpha_0 + \beta_1 UNC_{k,t-1} + \beta_2 SIZE_{i,k,t-1} + \beta_3 MB_{i,k,t-1} + \beta_4 LEV_{i,k,t-1} + \beta_5 CF_{i,k,t-1} + \beta_6 SGR_{i,k,t-1} + \beta_7 DIV_{i,k,t-1} + \beta_8 NWC_{i,k,t-1} + \beta_9 INVEST_{i,k,t-1} + \beta_{10} GDP_{k,t-1} + \beta_{11} CPI_{k,t-1} + \varepsilon_{i,k,t} \quad \text{..... 1}$$

$CASH$ is the firm's cash holding, UNC is the economic uncertainty as the average quarterly world economic uncertainty index (WUI) values for a given year. The firm-specific control variables are: $SIZE$ is firm size, MB is growth opportunities, LEV is firm's leverage ratio, CF is cash flow, SGR is sales growth, DIV is dummy variable dividend payer, NWC is net working capital, and $INVEST$ is investment. In addition, the model also incorporates two country-specific variables: the country's real GDP growth (GDP) and the country's annual investment (CPI).

Furthermore, we expand our study by investigating the presence of precautionary motives phenomenon in these ASEAN countries. We analyze whether cash holdings impact decreasing the negative effect of uncertainty on corporate investment. For that purpose, Eq. (2) is employed to analyze this relationship.

$$INVEST_{i,k,t} = \alpha_0 + \beta_1 UNC_{k,t-1} + \beta_2 UNC_{k,t-1} * CASH_{i,k,t-1} + \beta_3 SIZE_{i,k,t-1} + \beta_4 MB_{i,k,t-1} + \beta_5 LEV_{i,k,t-1} + \beta_6 CF_{i,k,t-1} + \beta_7 SGR_{i,k,t-1} + \beta_8 GDP_{k,t-1} + \beta_9 CPI_{k,t-1} + \varepsilon_{i,k,t} \quad \text{..... 2}$$

$INVEST$ represents the corporate investment calculated as the capital expenditure divided by firms' total assets and $UNC_{k,t-1} * CASH_{i,k,t-1}$ denotes the interaction variable that tells us the contribution of cash holding to a firm's investment during uncertain times. The firm and country-specific control variables are the same in Eq. (1). The complete information on the operationalization variables in the models is presented in Table 1.

Table 1
Operationalization of Variables

Variables	Definition	Data Source
$CASH$	Cash and cash equivalents divided by total assets	S&P Capital IQ
$INVEST$	Capital Expenditure divided by total assets	S&P Capital IQ
UNC	Uncertainty, measured by the average of the quarterly world economic uncertainty index (WUI) (Ahir *et al*., 2022b)	www.policyuncertainty.com
$SIZE$	Natural logarithm of total assets	S&P Capital IQ
MB	Market value of Assets (total debt + market value of equity) divided by book value of assets	S&P Capital IQ
LEV	Total debt divided by total assets	S&P Capital IQ
CF	Cash flow divided by total assets	S&P Capital IQ
SGR	Firm's sales growth	S&P Capital IQ
DIV	Dummy variable, 1 if firms pay dividends in a certain year, 0 otherwise	S&P Capital IQ
NWC	Net working capital (current assets – current liabilities) divided by total assets	S&P Capital IQ
GDP	Real GDP Growth rate	World bank website
CPI	Inflation rate, annual percentage of consumer price index	World bank website

RESULTS AND DISCUSSION

Descriptive Statistics

Table 2 (Panel A) presents the summary statistics for all the variables in our empirical model. To ensure robustness and reduce the impact of outliers, all variables undergo winsorization at the 1% level. This process helps maintain the data analysis's integrity and accurately represents the overall trends. For a comprehensive understanding of our main variables, Table 1 outlines their operationalization, shedding light on how they were measured and utilized in the study.

In Panel B of Table 2, we present the mean values of the variables categorized by country. This breakdown offers valuable insights into the variations across different countries. Notably, Thailand and the Philippines emerge with the highest levels of uncertainty among the countries considered, indicating potentially challenging economic and market conditions in those regions. On the other end of the spectrum, Singapore exhibits the lowest level of uncertainty, suggesting a more stable and predictable economic environment in that country. Concerning the firm-year observations, it becomes apparent that Malaysia and Thailand have a relatively higher number of observations, providing a richer and more diverse dataset for these two countries. Conversely, the Philippines has the lowest count of firm-year observations.

Table 2
Descriptive Statistics

	Obs.	Mean	SD	Min	Median	Max
Panel A. Summary Statistics of main variables						
UNC	33601	0.131	0.094	0	0.11	0.38
CASH	34359	0.114	0.121	0	0.07	0.6
INVEST	34359	0.046	0.058	0	0.025	0.317
SIZE	34359	18.334	1.733	14.45	18.19	23.15
MB	34359	1.039	1.064	0	0.74	6.97
LEV	34359	0.223	0.196	0	0.19	0.81
CF	34359	0.062	0.113	-0.3	0.06	0.43
SGR	30660	0.139	0.599	-0.704	0.039	3.892
NWC	34359	0.198	0.249	-0.549	0.187	0.796
DIV	34359	0.583	0.492	0	1	1
CPI	34359	3.108	2.354	-0.9	2.85	10.23
GDP	34359	4.097	3.29	-9.31	5.01	14.53
Panel B. Summary statistics by country						
	Malaysia	**Philippines**	**Indonesia**	**Singapore**	**Thailand**	**Vietnam**
UNC	0.134	0.185	0.132	0.081	0.16	0.106
CASH	0.114	0.122	0.099	0.186	0.086	0.104
INVEST	0.038	0.049	0.052	0.038	0.051	0.053
SIZE	18.299	19.227	18.603	18.542	18.372	17.459
MB	0.995	0.632	1.243	0.93	1.239	0.832
LEV	0.182	0.236	0.286	0.205	0.234	0.227
CF	0.055	0.066	0.056	0.046	0.08	0.071
SGR	0.084	0.165	0.306	0.109	0.098	0.126
NWC	0.251	0.129	0.134	0.245	0.156	0.215
DIV	0.556	0.548	0.4	0.553	0.715	0.708
Obs	9643	1853	5977	4678	7403	4805

Note: This table shows the descriptive statistics for the variables utilized in this study. Panel A displays the statistics for all observations, while Panel B provides statistics for each country. The variables have

been winsorized at 1% level. UNC is economic uncertainty. CASH is the firm's cash holding level. INVEST is a firm's investment. SIZE is the firm's size. MB is market to market-to-book ratio. LEV is the leverage ratio. CF is cash flow. SGR is the firm's sales growth. NWC is net working capital. DIV is dummy for dividend payer.

Table 3 presents the pairwise correlation coefficients that reveal the relationships between all the variables in our empirical model. As anticipated, we observe a significant positive correlation between uncertainty and cash holdings, indicating that firms tend to hold more cash during periods of heightened uncertainty. This positive correlation aligns with the precautionary motive for holding cash, as managers seek to build a financial buffer to navigate potential challenges and uncertainties. On the other hand, the correlation between uncertainty and investment is negative. This suggests that firms may become more cautious and risk-averse as uncertainty increases, decreasing their investment activities. Managers might adopt a conservative approach during times of uncertainty to safeguard their resources and protect against potential losses.

Table 3
Pairwise Correlations Matrix Among Variables

Variables	CASH	UNC	INVEST	SIZE	MB	LEV	CF	SGR	NWC	DIV
CASH	1.00									
UNC	0.03***	1.00								
INVEST	-0.07***	-0.08***	1.00							
SIZE	-0.10***	0.03***	0.05***	1.00						
MB	0.12***	0.04***	0.09***	0.02***	1.00					
LEV	-0.37***	0.02***	0.10***	0.26***	-0.03***	1.00				
CF	0.16***	0.01	0.19***	0.07***	0.14***	-0.15***	1.00			
SGR	0.005	0.01	0.09***	-0.01	0.04***	0.00	-0.03***	1.00		
NWC	0.48***	-0.03***	-0.18***	-0.24***	0.06***	-0.60***	0.03***	-0.01*	1.00	
DIV	0.12***	-0.01	0.08***	0.26***	0.09***	-0.14***	0.28***	-0.07***	0.17***	1.00

Note: Table 3 shows the pairwise correlation coefficient for all main variables in our empirical model. ***, **, * denotes statistically significant at the 0.01, 0.05, and 0.1 levels.

Regression Result

The Impact of Uncertainty on Firms' Cash Holding

The first model outlined in Eq. (1) is employed to examine the effect of uncertainty on corporate cash holding. We regress the firm cash holding, lag one period (L.) uncertainty, and control variables using the fixed effects regression with Driscoll-Kraay robust standard errors. The methodology offers the advantage of generating robust standard errors that effectively address heteroscedasticity, autocorrelation, and cross-dependency issues. The results of the regression are presented in Table 4, and they align with findings from previous studies (Goodell *et al*., 2021; Heeney *et al*., 2023; Phan *et al*., 2019), which indicate that economic uncertainty causes an increase in the firm's cash holdings.

Table 4
The Effect of Economic Uncertainty on Firm's Cash Holding

	CASH
L.UNC	0.026***
	(0.008)
L.SIZE	-0.023***
	(0.002)
L.MB	0.000
	(0.001)
L.LEV	0.006
	(0.009)
L.CF	0.107***
	(0.004)
L.SGR	0.003***
	(0.001)
L.DIV	0.002
	(0.002)
L.NWC	0.108***
	(0.007)
L.INVEST	-0.082***
	(0.011)
L.GDP	-0.001**
	(0.000)
L.CPI	-0.001
	(0.001)
_cons	0.521***
	(0.045)
Observations	26672
P-value	0.000
Pseudo R^2	0.078
Firm FE	✓
Industry FE	✓

Note: Standard errors are in parentheses. *** indicate significant at 1% level, ** at 5% level, * at 10% level.

Additionally, we extend our analysis by conducting separate regressions for each of the six ASEAN countries using Eq. (1). The results for each country are presented in Table 5. Overall, the influence of uncertainty on cash holdings is positive for all countries except Singapore. This difference in findings could be attributed to the fact that Singapore is a developed country, whereas the others are still in the process of developing.

Furthermore, it is noteworthy that Vietnam exhibits the most pronounced effect of uncertainty compared to the other ASEAN countries. This observation suggests that the relationship between uncertainty and cash holdings is particularly strong in Vietnam. As an emerging country with a weak regulatory infrastructures and immature markets (Dang & Nguyen, 2022), firms in Vietnam might be more sensitive to uncertainty and perceive a greater need for cash to navigate unpredictable business conditions.

Table 5
The Impact of Uncertainty on Firm's Cash Holding per Country

	(Malaysia) CASH	(Philippines) CASH	(Indonesia) CASH	(Singapore) CASH	(Thailand) CASH	(Vietnam) CASH
L.UNC	0.004*	0.053**	0.045***	-0.066	0.007*	0.124***
	(0.019)	(0.019)	(.008)	(0.089)	(0.015)	(0.029)
L.SIZE	-0.006**	-0.029***	-0.024***	-0.045***	-0.025***	-0.01**
	(0.002)	(0.007)	(0.004)	(0.006)	(0.005)	(0.003)
L.MB	0.007**	-0.002	-0.001	0.003	-0.004***	0.002
	(0.003)	(0.001)	(0.002)	(0.005)	(0.001)	(0.002)
L.BLEV	-0.024	-0.01	0.003	0.005	0.043***	-0.044***
	(0.017)	(0.034)	(0.018)	(0.014)	(0.009)	(0.005)
L.CF	0.142***	0.127***	0.092***	0.13***	0.091***	0.079***
	(0.006)	(0.032)	(0.018)	(0.019)	(0.014)	(0.013)
L.SGR	0.005**	0.006	0.002	0.002	0.001	0.002
	(0.002)	(0.004)	(0.001)	(0.003)	(0.001)	(0.002)
L.DIV	-0.001	0.012*	0.003	0.001	0.004*	0.005*
	(0.003)	(0.006)	(0.003)	(0.003)	(0.002)	(0.003)
L.NWC	0.131***	0.074***	0.087***	0.161***	0.099***	0.044***
	(0.006)	(0.023)	(0.023)	(0.008)	(0.011)	(0.009)
L.INVEST	-0.088***	-0.045	-0.063***	-0.222***	-0.044***	-0.077***
	(0.018)	(0.038)	(0.015)	(0.047)	(0.01)	(0.022)
L.GDP	-0.001	0.000	-0.003***	-0.001***	-0.001	0.000
	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)	(0.001)
L.CPI	-0.002	-0.000	-0.001	-0.005*	-0.000	0.002
	(0.002)	(0.002)	(0.001)	(0.002)	(0.001)	(0.001)
_cons	0.201***	0.665***	0.538***	0.999***	0.516***	0.258***
	(0.04)	(0.138)	(0.084)	(0.109)	(0.098)	(0.063)
Observations	7623	1497	4205	3730	6051	3566
P-value	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R^2	0.088	0.116	0.076	0.145	0.073	0.073
Firm FE	✓	✓	✓	✓	✓	✓
Industry FE	✓	✓	✓	✓	✓	✓

Note: Standard errors are in parentheses. *** indicate significant at 1% level, ** at 5% level, * at 10% level.

The Impact of Cash Holdings on the Relationship between Uncertainty and Firms' Investment

In the previous section, our results revealed a remarkable increase in cash holdings by firms during periods of heightened uncertainty. Building on these findings, we sought to delve deeper into the motivations behind this increase in cash reserves. Specifically, we aimed to determine whether firms strategically utilized their cash holdings to capitalize on growth opportunities amidst uncertain economic conditions. To address this aspect, we employed Eq. (2) to assess the impact of the interaction variable L.UNC*CASH on firms' investment decisions.

The results of this investigation are detailed in Table 6, where we observe the interaction variable L.UNC*CASH to test our second hypothesis. In column (1) of Table 6, we observe strong evidence supporting that firms increase their cash reserves to counteract the adverse effects of uncertainty, effectively safeguarding their ability to pursue growth opportunities. Aligned with previous studies (Demir & Ersan, 2017; Duong *et al*., 2020; Fujitani *et al*., 2023), our finding highlights the importance of cash

holdings as a strategic response to uncertain economic environments, providing firms with the necessary financial flexibility and resilience to navigate through uncertain times while preserving their growth potential.

In columns (2) and (3), we separate our sample into two groups: financially constrained and financially unconstrained firms. Financially constrained firms are classified as those that do not pay dividends, whereas financially unconstrained firms do (Fazzari *et al*., 1988). Financially constrained firms, characterized by their inability to pay dividends, face higher capital costs and encounter more significant financial frictions during periods of high uncertainty than financially unconstrained firms. As shown in Table 6, the mitigating impact is more pronounced for financially constrained firms. The financially constrained firms face higher costs of capital and encounter more financial frictions during high uncertainty periods compared to financially unconstrained firms (Choi, 2018; Lee & Wang, 2021). By maintaining higher cash reserves, financially constrained firms can better navigate uncertain economic conditions and mitigate the adverse consequences of limited access to external financing options.

Table 6
The Effect of Cash Holding on Corporate Investment

	(1)	**(2)**	**(3)**
	(All observations)	**(Unconstrained)**	**(Constrained)**
	INVEST	**INVEST**	**INVEST**
L.UNC	-0.014	-0.021**	-0.006*
	(0.01)	(0.007)	(0.021)
L.UNC*CASH	0.187***	0.184***	0.191***
	(0.015)	(0.027)	(0.04)
L.SIZE	-0.009***	-0.017***	-0.005***
	(0.002)	(0.003)	(0.002)
L.MB	0.003***	0.005***	0.000
	(0.001)	(0.000)	(0.001)
L.LEV	-0.04***	-0.03**	-0.035***
	(0.008)	(0.01)	(0.007)
L.CF	0.003	-0.004	0.001
	(0.004)	(0.003)	(0.008)
L.SGR	0.005***	0.005***	0.003***
	(0.001)	(0.001)	(0.001)
L.GDP	0.001***	0.001***	0.001
	(0.000)	(0.00)	(0.000)
L.CPI	0.002***	0.002**	0.002**
	(0.001)	(0.001)	(0.001)
_cons	0.207***	0.361***	0.128***
	(0.035)	(0.056)	(0.027)
Observations	26672	16341	10331
P-value	0.000	0.000	0.000
Pseudo R^2	0.051	0.061	0.031
Firm FE	✓	✓	✓
Industry FE	✓	✓	✓

Note: Standard errors are in parentheses. *** indicate significant at 1% level, ** at 5% level, * at 10% level.

In addition, we extend our analysis to examine the precautionary motives of cash holdings for each country individually (Table 7). The coefficients of L.UNC*CASH are consistently positive, indicating that firms utilize their cash reserves to invest amidst heightened uncertainty periods. Remarkably, we observe that the impact of the interaction variable is most pronounced in Vietnam data. Consistent with the result in Table 5 that firms in Vietnam exhibit a higher sensitivity to uncertainty. Due to increased financial frictions and challenges, these firms rely more on their cash reserves to support their investment activities. Cash is a crucial resource for these firms, providing them with the necessary flexibility and security to undertake investments and seize growth opportunities, especially in uncertain economic environments.

Table 7
The Effect of Cash Holding on Corporate Investment per Country

	(Malaysia) INVEST	(Philippines) INVEST	(Indonesia) INVEST	(Singapore) INVEST	(Thailand) INVEST	(Vietnam) INVEST
L.UNC	-0.03*	-0.027	-0.003	-0.134**	-0.041*	0.047*
	(0.017)	(0.019)	(0.065)	(0.044)	(0.022)	(0.026)
L.UNC*CASH	0.168***	0.056	0.256***	0.236***	0.104	0.257**
	(0.047)	(0.043)	(0.07)	(0.054)	(0.062)	(0.095)
L.SIZE	-0.001	-0.005	-0.012***	-0.007***	-0.014***	-0.009***
	(0.002)	(0.004)	(0.002)	(0.001)	(0.003)	(0.002)
L.MB	0.003***	0.001	0.001	0.001	0.005***	0.003
	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)
L.LEV	-0.049***	-0.061***	-0.043***	-0.039***	-0.035***	-0.023
	(0.009)	(0.012)	(0.006)	(0.009)	(0.009)	(0.014)
L.CF	-0.019***	0.004	0.023*	0.01	0.014	-0.014*
	(0.004)	(0.011)	(0.011)	(0.007)	(0.008)	(0.007)
L.SGR	0.003*	0.006***	0.006***	0.002	0.006**	0.001
	(0.001)	(0.001)	(0.001)	(0.001)	(0.002)	(0.003)
L.GDP	0.000	-0.000	0.001	0.000*	0.001	0.001*
	(0.001)	(0.001)	(0.001)	(0.000)	(0.000)	(0.001)
L.CPI	0.003***	0.004**	0.005*	-0.000	0.002	-0.002
	(0.001)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)
_cons	0.049	0.157**	0.257***	0.168***	0.316***	0.221***
	(0.031)	(0.068)	(0.034)	(0.028)	(0.058)	(0.039)
Observations	7623	1497	4205	3730	6051	3566
P-value	0.000	0.000	0.000	0.000	0.000	0.000
Pseudo R^2	0.041	0.079	0.096	0.043	0.083	0.038
Firm FE	✓	✓	✓	✓	✓	✓
Industry FE	✓	✓	✓	✓	✓	✓

Note: Standard errors are in parentheses. *** significant at 1% level, ** significant at 5% level, * significant at 10% level.

CONCLUSIONS, LIMITATIONS, AND SUGGESTIONS

This study is conducted to explore the relationship between economic uncertainty, corporate cash holdings, and investment decisions. The fundamental argument emphasizes that economic uncertainty amplifies information asymmetry, leading external funders to perceive higher levels of risk and demand higher returns from firms. Consequently, firms face increased capital costs and choose to hold more

cash to protect their future investment capabilities. We contribute empirical evidence to the literature by utilizing a comprehensive sample of public companies from six ASEAN countries from 2008 to 2021, totaling 34,359 firm-year observations.

Our findings show that economic uncertainty positively influences firms' cash holdings. These results align with previous studies conducted in developed countries such as the US and Australia. This establishes that the impact of uncertainty on cash-holding decisions is not limited to advanced economies but extends to the context of emerging markets within the ASEAN region. Moreover, we also find the presence of precautionary motives driving cash holdings among firms in ASEAN countries. Specifically, we find that firms strategically employ their cash reserves during periods of heightened uncertainty to mitigate the negative effects of economic uncertainty on their investment decisions. By maintaining higher cash reserves, firms can bolster their financial flexibility, enabling them to navigate through uncertain economic conditions and seize growth opportunities when they arise. Additionally, we also find that the effect of cash holding is much more pronounced for financially constrained firms, as they rely more heavily on cash holding due to heightened economic uncertainty.

However, it is essential to acknowledge the limitations of this research. The restricted access to data limited us from utilizing only public companies as our sample, excluding observations from private companies. Including data from private firms could enrich the understanding of the effects of economic uncertainty on firms' financial policies, providing a more comprehensive perspective on the uncertainty and cash relationship. Additionally, this study focuses solely on six ASEAN countries, which may limit the generalizability of our findings to other developing economies. Future research could expand the sample to include a broader range of countries to explore how economic uncertainty influences cash holdings and investment decisions in various emerging market contexts.

Moreover, our findings offer valuable implications for companies navigating uncertain economic environments. The positive relationship between uncertainty and cash holdings highlights the importance of maintaining sufficient liquidity to economic turbulence. Moreover, the strategic utilization of cash holdings as a precautionary measure during uncertain times can help firms capitalize on growth opportunities and mitigate adverse effects on investment decisions. Therefore, corporate managers should carefully consider the implications of economic uncertainty on cash management strategies, ensuring adequate reserves to navigate challenging times and position themselves for future growth.

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