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The Effect of the Balance of Payments on Firm's Cash Holdings: Evidence from Vietnam Stock Exchange

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Abstract

This study investigates how the overall balance of payments influences corporate cash holdings in Vietnam—an emerging economy undergoing transition and marked by strong government presence in strategic sectors. The study employs panel data from 613 listed firms in Vietnam covering the period 2009–2021. A fixed effects model is used to control for unobserved heterogeneity and to examine the causal effect of balance of payments dynamics on firm-level liquidity decisions. The results reveal a significant negative relationship between the overall balance of payments and corporate cash holdings. This effect is particularly pronounced among firms operating in highly competitive industries, firms with strong growth prospects, and non-state-owned enterprises. Macroeconomic factors, especially the balance of payments, play an important role in shaping corporate liquidity decisions. The findings emphasize that firms do not make cash-holding decisions in isolation but respond to broader economic conditions. The study provides valuable implications for both policymakers and corporate managers. It suggests the importance of incorporating macroeconomic indicators—especially the balance of payments—into financial planning, liquidity management, and strategic decision-making, particularly in contexts of market competition, growth orientation, and differing ownership structures.

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1. Introduction

The Balance of Payments (BOP) is a critical indicator of a nation's financial interactions with the global community, encompassing transactions in goods, services, financial assets, and transfer payments. For economies heavily involved in global trade, these interactions are vital, as they reflect the movement of resources between a country and its international partners. In today's interconnected global financial ecosystem, understanding key economic indicators like the BOP is indispensable for countries striving to ensure financial stability. In emerging economies like Vietnam, where capital markets are still developing and the government maintains strong control over key economic sectors, the BOP plays a particularly pivotal role. External shocks and fluctuations in the BOP can directly influence exchange rates, interest rates, and liquidity conditions—factors that significantly affect corporate financial decisions. These macroeconomic dynamics, in turn, shape firms' cash holding behavior, investment strategies, and risk management practices.

Cash plays a vital role in the operations of a business, serving as the financial lifeblood that ensures smooth operations and overall stability. It enables firms to meet short-term obligations such as payments to suppliers, employees, and other operating expenses. Adequate cash reserves also provide a buffer against unexpected shocks and economic downturns, allowing firms to maintain continuity without major disruptions. Moreover, cash availability is essential for seizing investment opportunities, including market expansion, product development, and mergers or acquisitions. Effective cash management not only enhances a firm's

liquidity position and reduces insolvency risk but also strengthens its financial resilience, making cash holdings a central component of corporate strategy and long-term success. In the context of Vietnam—a transition economy with growing integration into the global market, underdeveloped financial systems, and exposure to external shocks—the study of corporate cash holdings becomes particularly relevant. Understanding how firms manage cash under such conditions provides valuable insights for policymakers, investors, and corporate managers seeking to improve financial stability and performance in a rapidly evolving economic environment.

The selection of this research topic is motivated by the increasing need to understand how macroeconomic indicators—particularly the Balance of Payments (BOP)—influence corporate financial behavior in emerging markets. As discussed earlier, the BOP plays a pivotal role in shaping key economic conditions such as exchange rates, interest rates, and liquidity, which directly affect firms' financial decisions. At the same time, cash holdings are a critical component of corporate financial management, ensuring both operational stability and strategic flexibility. In the context of Vietnam—an emerging economy with rapid growth, deepening global integration, and a financial system still undergoing transformation—examining the link between BOP dynamics and corporate cash management is especially relevant. Understanding this relationship can offer valuable insights into how Vietnamese firms respond to macroeconomic fluctuations, optimize their cash reserves, and strengthen financial resilience. This research thus contributes to the broader literature on macro-financial linkages while providing practical implications for businesses and policymakers in Vietnam.

Our study investigates the relationship between the balance of payments (BOP) and corporate cash holdings (CH), utilizing financial data from companies listed on Vietnam's stock exchanges (HOSE and HNX) over the period 2009–2021. The analysis is based on quarterly financial statements sourced from the Fiin Pro database, resulting in a balanced panel dataset comprising 7,439 firm-year observations from 613 non-financial firms. To control for unobserved heterogeneity, we employed the fixed effects model (FEM) as the primary estimation technique. The empirical results reveal a statistically significant inverse relationship between the BOP and corporate cash holdings, suggesting that improvements in the external balance are associated with reduced cash accumulation by firms. Additional robustness checks—including alternative model specifications and sub-sample analyses—further validate the consistency and reliability of the findings.

The negative relationship between the BOP and corporate cash holdings can be explained by the role of the BOP as a comprehensive indicator reflecting macroeconomic health and a country's ability to attract international capital. An increase in the BOP is often associated with a stable economic environment, positive exchange rate expectations, stronger capital inflows, and lower financing costs. These favorable conditions reduce firms' precautionary motives for holding large amounts of cash.

In highly competitive industries, firms must be more flexible in managing cash flows and optimizing costs to maintain their competitive advantage. Therefore, when the balance of payments increases, indicating a favorable economic environment, these firms are more willing to reduce their cash holdings and reallocate capital toward higher-value activities. Based on this reasoning, we test whether the level of industry competitiveness influences how firms respond to changes in the BOP. The empirical results show that the negative relationship between the BOP and cash holdings is statistically significant only for firms operating in highly competitive industries, while this effect is not evident in less competitive sectors.

Firms with high growth potential often need to allocate resources to investment and expansion projects, making them more responsive to macroeconomic conditions and capital flows. When the balance of payments improves, positive economic signals and easier access to external financing enable these firms to confidently reduce their cash holdings in favor of growth-oriented initiatives. In contrast, firms with limited growth opportunities tend to maintain stable cash levels regardless of economic conditions. Therefore, we argue that growth opportunities are a key factor influencing firms' cash management strategies. Subgroup regression results confirm that the impact of the BOP on cash holdings is more pronounced among dynamic firms with strong growth potential.

State-owned enterprises tend to rely more heavily on government direction and support, which may obscure their responsiveness to macroeconomic fluctuations such as changes in the balance of payments. In contrast, non-state-owned enterprises operate in a more market-driven environment and are more directly affected by external financial conditions. When an increase in the BOP improves credit conditions and capital availability, private firms are more likely to adjust their cash management strategies in response. Therefore, we examine whether ownership structure, particularly the distinction between state and non-state ownership, plays a significant role in this relationship. The regression results show that the impact of the BOP on cash holdings is significant only for non-state-owned enterprises.

This study makes several important contributions to the existing literature on corporate finance and macro-financial linkages. First, it enriches the understanding of how a key macroeconomic indicator—the balance of payments—affects corporate cash holding behavior, especially in the context of an emerging economy like Vietnam. While previous studies have primarily focused on firm-specific determinants of cash holdings, this research highlights the influence of external economic conditions, offering a broader perspective on financial decision making. Second, by examining the heterogeneity in the BOP-cash holding relationship

across different types of firms—classified by industry competitiveness, growth opportunities, and ownership structure, this study provides nuanced insights into how institutional and market factors shape corporate financial behavior. Finally, the study contributes to policy discussions by emphasizing the role of macroeconomic stability in supporting efficient corporate cash management, which is critical for financial resilience and long-term business performance in transitional economies.

The structure of this paper is organized as follows: Section 2 presents the literature review on BOP and cash holdings. Section 3 outlines the methodology, including research hypotheses, model and variables, and data. Section 4 provides the results, starting with descriptive analysis, followed by regression results, and discussion. Finally, Section 5 concludes the paper with key findings and implications.

2. Literature Review

The Balance of Payments (BOP) has long been regarded as a comprehensive indicator reflecting a country's external financial capacity and macroeconomic health. In the context of developing economies such as Vietnam becoming increasingly integrated into the global market, fluctuations in the BOP can significantly influence corporate financial behavior—particularly decisions related to cash holdings, which serve as a key tool for firms to respond to macroeconomic risks and market uncertainty.

Foundational studies on BOP and economic growth emphasize the role of BOP as a constraint on long-term growth, most notably the model developed by Thirlwall (2011) and extended by subsequent works (Barbosa-Filho, 2004; Fasanya & Olayemi, 2018). Thirlwall's model suggests that long-term growth is limited by the growth rate of exports and the income elasticity of imports, especially under stable exchange rate conditions. These studies focus primarily on the relationship between the current account, international capital flows, and GDP growth, but rarely address how firms respond to BOP constraints at the micro level.

More recent research has expanded the discussion by exploring the relationship between BOP and economic structure (Araujo & Lima, 2007; Araujo & Teixeira, 2003) the role of business cycles (Garcimartin, Kvedaras, & Rivas, 2016) as well as differences across emerging economies (Sultani & Faisal, 2022; Uegaki, 2010). Notably, Hutchison and Noy (2002) provide clear evidence that BOP crises lead to severe output losses in emerging markets, primarily through capital flow reversals and investment slowdowns—factors that may increase the precautionary motive for holding cash among firms.

Monetary components of the BOP are also explored in studies adopting the monetary approach (Akpansung, 2013; Paun, Mustetescu, & Munteanu, 2013) which emphasize that BOP imbalances are often driven by shifts in domestic credit demand and monetary policy—both of which influence private sector cash holding behavior. Furthermore, Ibarra and Blecker (2016) show that structural changes and integration into global supply chains also alter the way BOP affects firms, depending on the degree of alignment between international trade and the domestic business cycle.

In developing countries like Vietnam—which are highly sensitive to international capital flows, trade deficits, and exchange rate shocks—it is essential to examine the relationship between BOP and corporate financial behavior. For example, Mishra (2012) in his study on India—a country with economic similarities to Vietnam—finds a bidirectional relationship between imports and economic growth, raising the question of whether BOP volatility induces firms to adjust their cash holdings as an adaptive response.

However, there remains a lack of in-depth research on the direct relationship between the balance of payments and corporate cash holding behavior. By integrating the BOP-constrained growth framework with micro-level corporate finance theory, this study aims to clarify the role of BOP as a macroeconomic factor influencing cash management strategies—particularly in the case of Vietnam, a developing and globally integrated economy that remains vulnerable to external shocks.

In addition to macroeconomic variables such as the balance of payments, corporate cash is widely recognized as a critical and highly liquid asset in financial management. Prior studies have identified a variety of determinants influencing corporate cash holdings. These include transaction costs (Mulligan, 1997) precautionary motives (Bates, Kahle, & Stulz, 2009; Han & Qiu, 2007; Khieu & Pyles, 2012; Opler, Pinkowitz, Stulz, & Williamson, 1999), internal governance and firm structure (Dittmar & Mahrt-Smith, 2007; Harford, Mansi, & Maxwell, 2008; Kuan, Li, & Chu, 2011; Locorotondo, Dewaelheyns, & Van Hulle, 2014) and tax incentives (Foley, Hartzell, Titman, & Twite, 2007; Pinkowitz, Stulz, & Williamson, 2013). These findings underscore that cash holding decisions are shaped by a balance between the need for liquidity, opportunity cost of idle funds, and future financing constraints.

Despite this rich body of literature, the interaction between macroeconomic uncertainty, particularly stemming from fluctuations in the balance of payments, and corporate liquidity decisions remain underexplored. This study seeks to fill this gap by examining how changes in the balance of payments affect corporate cash holdings in Vietnam. As one of the world's fastest-growing and highly trade-integrated emerging economies, Vietnam provides a unique context where external macroeconomic factors such as exchange rate volatility, capital flow dynamics, and trade imbalances can significantly influence firm-level financial behavior.

3. Research Methodology

3.1. Hypothesis Development

The balance of payments (BOP), reflecting a country's transactions with the world, plays a crucial role in shaping firms' cash holding behavior, especially in developing countries. A persistent BOP increasing, supported by capital inflows, signals macroeconomic stability, eases credit constraints, and improves access to external financing, reducing firms' reliance on internal liquidity and their need for precautionary cash. In contrast, a sustained BOP deficit often triggers exchange rate depreciation and inflation, raising borrowing costs and limiting credit access, which drives firms to increase cash holdings as a buffer against uncertainty. According to the Trade-off Theory, firms adjust their cash holdings based on changes in financing conditions, holding less cash in stable environments and more in uncertain times. Thus, the BOP serves as a macroeconomic determinant of corporate cash holdings, leading to the hypothesis:

H_1: The balance of payments has a negative relationship with firms' cash holdings.

3.2. Samples

The research uses data from quarterly financial reports provided by Fiin Pro from 2009 to 2021 including 613 companies listed on HOSE and HNX. Following the literature, we exclude firms from the banking and finance industry from our sample because these firms are heavily regulated and their cash holdings may have different implications. To minimize the impact of the outliers, the necessary variables are winsorized at 1% and 99% percentiles. In the results for the fixed effect model, there are 7,439 observations.

The study also used the Smoothed World Uncertainty Index for Vietnam to assess the level of macroeconomic uncertainty in Vietnam. The WUIVNM index is collected from the link: https://fred.stlouisfed.org/series/WUIVNM. In the context of the balance of payments, we use the natural logarithm of Vietnam's Balance of Payments. This data has been compiled from information provided by Fiin Pro, covering the period from 2009 to 2021.

3.3. Variables Construction

Phan, Nguyen, Nguyen, and Hegde (2019) indicates a positive relationship between corporate cash reserves and the degree of macroeconomic uncertainty. Therefore, we have included the variable *WUIVNM* in our model. According to D'Mello, Krishnaswami, and Larkin (2008) firms with lower levels of leverage tend to hold larger cash reserves due to the heightened difficulties they face in accessing capital markets. Consequently, we have included the *Leverage* variable as a component within our regression model. Bates et al. (2009) argue that firm size is a crucial factor, exerting a negative influence on cash reserves. This is attributed to the benefits derived from economies of scale, which require larger companies to hold a lesser amount of cash. To account for this, we have included Size to control for the scale of the business and Size square to control for the non-monotonic relationship between firm size and cash holdings. Considering that cash flows significantly influence a company's propensity to hold larger cash reserves, serving as a means of accessing internally generated funds (Al-Najjar & Belghitar, 2011; Dittmar, Mahrt-Smith, & Servaes, 2003; Shabbir, Hashmi, & Chaudhary, 2016) we have additionally incorporated Cash Flow as a control variable. Furthermore, Bigelli and Sánchez-Vidal (2012) suggest that companies with greater growth opportunities tend to maintain larger cash reserves. This approach is aimed at reducing the expenses associated with funding investment ventures compared to obtaining financing from capital markets. To account for growth opportunities, we have added the Market to Book variable to our model. In addition, Abushammala and Sulaiman (2014) demonstrate a substantial correlation between a company's cash reserves and both its profitability and liquidity. Thus, we have incorporated Profitability and Liquidity as control variables. Research by Al-Najjar and Belghitar (2011) and Nnubia and Ofoegbu (2019) indicates that net working capital is positively correlated with cash holdings. Therefore, we have included the NWC variable in our model. Due to the challenges related to constrained and expensive external financing, firms with fewer tangible assets opt to accumulate substantial cash reserves to effectively navigate unexpected adverse events (Baldi & Bodmer, 2018). As a result, we have included the Tangibility variable in our model. The findings of Shabbir et al. (2016) and Kafayat, Rehman, and Farooq (2014) state that companies must have more cash to pay dividends to shareholders. Therefore, dividend payments are positively correlated with a company's cash holdings. To account for this, we have added a dummy variable for dividend payments, DIV. Moreover, since Kusnadi, Yang, and Zhou (2015) highlight that state-owned companies possess a greater amount of cash reserves compared to privately-owned enterprises, we have incorporated a dummy variable for State own (SO) in our model.

Table 1. Variable definition.

Variable	Name	Description
CH	Cash holding	The ratio of cash on total assets
BOP	Balance of payments	The natural logarithm of balance of payments
WUIVNM	World economic uncertainty for Vietnam	World economic uncertainty for Vietnam
NWC	Net working capital	The different between current assets and current liabilities
CF	Cash flow	The ratio of cash flow of firms on total assets
SIZ	Size	The natural logarithm of total assets
SS	Size squared	The square of firm size
LEV	Leverage	The ratio of total debt on total assets
MB	Market-to-book ratio	The ratio of the firm market value on the book value of assets
PRO	Profitability	The ratio of EBIT on total assets
LIQ	Liquidity	The ratio of current assets on current liability
TAN	Tangibility	The ratio of net fixed assets on total assets
DIV	Dividend dummy	A dummy variable that takes a value of 1 if a firm pays a common dividend in a given year, and 0 otherwise
SO	State own dummy	A dummy variable that takes a value of 1 if a firm have government shares greater than 0 in a given year, and 0 otherwise

3.4. Empirical Model

We examine the relationship between the balance of payments and firms' cash holdings based on following model (Al-Najjar & Belghitar, 2011; Bigelli & Sánchez-Vidal, 2012; D'Mello et al., 2008; Dittmar et al., 2003; Opler et al., 1999).

$$CH_{i,t} = \alpha_0 + \alpha_1 OB_{i,t-1} + \alpha_2 WUIVNM_{i,t} + \alpha_3 NWC_{i,t} + \alpha_4 CF_{i,t} + \alpha_5 SIZ_{i,t} + \alpha_6 SS_{i,t} + \alpha_7 LEV_{i,t} + \alpha_8 MB_{i,t} + \alpha_9 PRO_{i,t} + \alpha_{10} LIQ_{i,t} + \alpha_{11} TAN_{i,t} + \alpha_{12} DIV_{i,t} + \alpha_{13} SO_{i,t} + \varepsilon_{i,t} (1)$$

Where firms are represented by $i = 1,..., n$ and time by $t = 1,..., t$. α_0 represents the intercept of the model and ε_{it} refers to regression errors. The dependent variable is CH, measured by the ratio of cash over total assets. The independent variable is OB. Control variables include WUIVNM, SIZE, SS, MB, CF, PRO, NWC, LEV, MB, LIQ, TAN, DIV and SO of firm i in year t. Table 1 provides the detailed definitions of all variables introduced.

4. Result and Discussion

4.1. Descriptive Statistics

Table 2 shows the mean, standard deviation, median, minimum and maximum values of the variables in the period 2009 to 2021. The mean value and standard deviation of the dependent variable - Cash holdings are 4.2% and 6.4% respectively and the average firm cash holding in this study is lower in comparison to other developed countries. For instance, García-Teruel and Martínez-Solano (2008) reported an average firm cash holding of 6.57% in Spain, Martínez-Sola, García-Teruel, and Martínez-Solano (2013) found 7.9% in the United States, and Naoki (2012) observed 10.6% in Japan. Furthermore, the maximum and minimum of this ratio are 4.9% and 0%, respectively. Additionally, the median value of 2.2% indicates that most empirical enterprises maintain relatively low cash reserves. It is apparent that the balance of payments in Viet Nam has an average value of 8.022 with the standard deviation of 0.703 implying that there are notable disparities among examined periods when it comes to the value of balance of payments (for details see Table 2).

Table 2. Summary statistics.

Variables	N	Mean	p10	p25	Median	p75	p90	Min.	Max.	Std. dev.
CH	7,667	0.042	0.003	0.01	0.022	0.048	0.094	0.00	0.49	0.064
BOP	7,667	8.022	7.073	7.565	8.044	8.741	8.953	6.319	9.133	0.703
WUIVNM	7,667	0.072	0.000	0.000	0.000	0.103	0.175	0.00	0.386	0.099
NWC	7,667	0.234	-0.050	0.053	0.200	0.383	0.582	-0.461	0.951	0.261
CF	7,667	-0.001	-0.053	-0.016	0.000	0.015	0.05	-0.228	0.221	0.056
SIZ	7,667	27.41	25.53	26.38	27.31	28.35	29.39	23.78	32.71	1.567
SS	7,667	753.9	652.2	696.1	746.2	804.2	864.1	565.5	1070	86.86
LEV	7,667	0.483	0.133	0.291	0.506	0.673	0.792	0.009	1.132	0.243
MB	7,667	1.079	0.578	0.787	0.937	1.192	1.72	0.016	3.81	0.614
PRO	7,667	0.064	-0.010	0.019	0.054	0.097	0.16	-0.202	0.349	0.081
LIQ	7,667	4.027	0.866	1.104	1.516	2.55	5.786	0.215	96.90	11.24
TAN	7,667	0.233	0.009	0.059	0.166	0.352	0.569	0.000	0.91	0.22
DIV	7,667	0.235	0	0	0	0	1	0	1	0.424
SO	7,667	0.234	0	0	0	0	1	0	1	0.423

4.2. Correlation Matrix

Table 3 reports the pairwise correlation coefficients among the variables used in our empirical models. These coefficients highlight the relevance of these variables in explaining corporate cash policies, justifying their inclusion in the multivariate regressions. Moreover, this helps verify the reliability of the data when compared with statistics from previous studies. The results show that the BOP is significantly negatively correlated with CH, implying a negative relationship between them, which is consistent with H1. In addition, CH is significantly positively correlated with WUIVNM, net working capital, cash flow, profitability, liquidity, and negatively correlated with firm size, leverage, tangibility, market to book, dividend and state ownership. Furthermore, except for the correlation between Size and Size Square, which is exceptionally high at 0.999, we believe that, according to the definitions of those variables and how they are derived, they would not cause the multicollinearity issue undermining the statistical significance. The remaining correlation levels between explanatory variable pairs range from -0.661 to 0.502. According to Gujarati (2004) and Lind, Marchal, and Mason (2002) correlations should ideally fall within the range of (-0.8, 0.8) to avoid multicollinearity issues in the model, thereby suggesting that multicollinearity should not be a concern in this study.

Table 3. Pairwise correlations.

Variables	CH	OB	WUIVNM	NWC	CF	SIZ	SS	LEV	MB	PRO	LIQ	TAN	DIV	SO
CH	1.000													
OB	-0.030	1.000												
WUIVNM	0.051	-0.039	1.000											
NWC	0.331	-0.002	0.006	1.000										
CF	0.181	-0.013	0.022	-0.014	1.000									
SIZ	-0.246	0.045	-0.085	-0.267	0.033	1.000								
SS	-0.240	0.044	-0.084	-0.262	0.032	0.999	1.000							
LEV	-0.227	-0.012	0.033	-0.661	0.028	0.398	0.394	1.000						
MB	-0.031	0.025	0.015	-0.003	0.014	0.128	0.132	-0.052	1.000					
PRO	0.012	-0.027	0.058	0.136	-0.005	-0.001	-0.004	-0.240	0.478	1.000				
LIQ	0.184	0.018	-0.051	0.502	-0.022	-0.196	-0.191	-0.410	-0.126	-0.089	1.000			
TAN	-0.147	-0.007	0.057	-0.464	-0.010	-0.027	-0.030	0.029	0.088	0.158	-0.190	1.000		
DIV	-0.023	0.009	-0.067	-0.027	0.008	0.060	0.064	0.026	0.031	0.022	0.016	0.010	1.000	
SO	-0.052	0.032	-0.069	-0.046	-0.001	0.040	0.040	0.058	-0.022	-0.045	-0.011	0.032	0.226	1.000

4.3. Regression Results

Table 4 reports the regression results examining the relationship between the balance of payments and corporate cash holdings. Model (1) employs OLS regression, while Model (2) and Model (3) adopt the Firm Fixed Effects Model and Industry Fixed Effects Model, respectively. The results reveal that the balance of payments (BOP) variable carries a negative coefficient of -0.002 and is statistically significant at the 10%, 5%, and 1% levels across Models (1), (2), and (3), respectively. This consistent negative effect suggests that an increase in the balance of payments is associated with a reduction in corporate cash holdings. Specifically, a one-unit increase in BOP is associated with a 0.2 percentage point decrease in the cash-to-total assets ratio, holding other factors constant. This result is both statistically and economically meaningful, and supports the research hypothesis H1, which proposes a negative correlation between the balance of payments and firm cash holdings. Economically, it implies that when external financial conditions improve—reflected in a higher balance of payments—firms reduce their reliance on precautionary cash reserves, possibly due to greater confidence in accessing external funding.

In addition to the main variables BOP and WUIVNM, the regression results in Table 4 show that many control variables have coefficients and statistical significance consistent with theoretical expectations and prior studies Bates et al. (2009). Specifically, the firm size variable (SIZ) has a negative and highly significant coefficient (at the 1% level), reflecting the well-documented observation that larger firms tend to hold less cash due to easier access to external financing. The cash flow variable (CF) is positively and strongly significant across all three models, indicating that firms generating more internal cash tend to maintain higher levels of cash holdings, which supports the precautionary motive theory. Additionally, the asset tangibility variable (TAN) exhibits a negative and statistically significant coefficient in Models (2) and (3), reinforcing the view that firms with more tangible assets—being easier to pledge as collateral—tend to rely less on cash buffers. These results not only validate the robustness of the empirical model but also demonstrate consistency with prior empirical evidence.

We perform both the F-test and the Hausman test to determine the appropriateness of model specification. The p-value for the F-test (Prob > F) is 0.0000, indicating strong overall statistical significance of the model. Furthermore, the Hausman test yields a p-value of 0.0000, suggesting that the Fixed Effects Model (FEM) is more appropriate than the Random Effects Model (REM). In addition, we conduct the Variance Inflation Factor (VIF) test to examine multicollinearity among independent variables. The results show that all VIF values are below the commonly accepted threshold of 10, indicating that multicollinearity is not a concern in our regression model. We further test for heteroskedasticity using the Breusch–Pagan test and for serial correlation using the Wooldridge test for panel data. While minor signs of heteroskedasticity and first-order autocorrelation are detected in some model specifications, they are not severe and do not materially affect the estimation results. Nevertheless, to ensure the robustness of statistical inference, all regressions are estimated using cluster-robust standard errors at the firm or industry level.

Table 4. Balance of payments and corporate cash holdings.

Variables	Model (1)	Model (2)	Model (3)
	CH	CH	CH
BOP	-0.002*	-0.002**	-0.002***
	(0.001)	(0.001)	(0.001)
WUIVNM	0.017**	0.018***	0.018***
	(0.007)	(0.006)	(0.006)
NWC	0.068***	0.008	0.016***
	(0.008)	(0.006)	(0.006)
CF	0.239***	0.236***	0.239***
	(0.022)	(0.017)	(0.009)
SIZ	-0.121***	-0.132***	-0.163***
	(0.015)	(0.031)	(0.021)
SS	0.002***	0.002***	0.003***
	(0.000)	(0.001)	(0.000)
LEV	0.016***	0.014	0.011
	(0.002)	(0.01)	(0.006)
MB	-0.004**	0.006**	0.004**
	(0.002)	(0.002)	(0.002)
PRO	0.022	0.056***	0.051***
	(0.014)	(0.016)	(0.011)
LIQ	0.000	0.000**	0.000***
	(0.000)	(0.000)	(0.000)
TAN	-0.001	-0.047***	-0.045***
	(0.003)	(0.005)	(0.006)

DIV	0.003 (0.002)	0.005** (0.002)	0.005*** (0.002)
SO	-0.003* (0.002)	-0.006* (0.003)	-0.005** (.002)
cons	1.791*** (0.218)	1.998*** (0.448)	2.441*** (0.291)
Firm FE	No	Yes	Yes
Industry FE	No	No	Yes
Observations	7,667	7,667	4324
R-squared	0.178	0.585	0.201
Adj R^2	0.177	0.562	0.195

Note: (*), (**), (***) represent for the significant level at 10%, 5% and 1%, respectively.

4.4. Balance of Payments, Corporate Cash Holdings and Competitive Industry

The negative relationship between the balance of payments (BOP) and corporate cash holdings can be explained by the role of the BOP as a comprehensive indicator reflecting macroeconomic health and a country's ability to attract international capital. An increase in the BOP is often associated with a stable economic environment, positive exchange rate expectations, stronger capital inflows, and lower financing costs. These favorable conditions reduce firms' precautionary motives for holding large amounts of cash.

In highly competitive industries, firms must be more flexible in managing cash flows and optimizing costs to maintain their competitive advantage. Therefore, when the BOP increases—indicating a favorable economic environment—these firms are more willing to reduce their cash holdings and reallocate capital toward higher-value activities.

Based on this reasoning, we examine whether industry competitiveness influences how firm cash holding respond to changes in the BOP. Herfindahl-Hirschman Index (HHI) is used as a proxy for industry competition. The HHI is calculated as the sum of squared market shares of firms within the same ICB industry classification from Fiin Pro, using revenue shares. A lower HHI indicates higher competition, while a higher HHI reflects more concentrated industries. The empirical results reported in Table 5 show that the negative relationship between the BOP and cash holdings is statistically significant only for firms operating in highly competitive industries, while this effect is not evident in less competitive sectors.

Table 5. Balance of payments, corporate cash holdings and competitive industry.

Variables	***High competitive industry***		***Low competitive industry***	
	Pooled OLS	**Firm FE**	**Pooled OLS**	**Firm FE**
	(1)	**(2)**	**(3)**	**(4)**
	CH	**CH**	**CH**	**CH**
OB	-0.003** (0.002)	-0.003*** (0.001)	-0.001 (0.001)	-0.001 (0.001)
WUIVNM	0.014 (0.011)	0.018** (0.008)	0.022** (0.009)	0.026*** (0.008)
NWC	0.094*** (0.01)	0.021** (0.009)	0.028*** (0.008)	-0.013 (0.01)
CF	0.255*** (0.029)	0.263*** (0.025)	0.219*** (0.034)	0.205*** (0.023)
SIZ	-0.118*** (0.018)	-0.066 (0.056)	-0.109*** (0.02)	-0.122** (0.051)
SS	0.002*** (0.000)	0.001 (0.001)	0.002*** (0.000)	0.002** (0.001)
LEV	0.021*** (0.004)	0.015 (0.012)	-0.001 (0.003)	0.001 (0.013)
MB	-0.007*** (0.002)	0.004 (0.003)	-0.003 (0.003)	0.004 (0.002)
PRO	-0.001 (0.019)	-0.004 (0.028)	0.04* (0.022)	0.08** (0.029)
LIQ	0.000 (0.000)	0.000 (0.000)	0.001*** (0.000)	-0.001** (0.000)
TAN	0.02*** (0.004)	-0.038*** (0.009)	-0.027*** (0.003)	-0.059*** (0.009)
DIV	-0.006 (0.007)	-0.007 (0.008)	0.005** (0.002)	0.008*** (0.002)

SO	-0.007 (0.006)	0.012 (0.009)	-0.002 (0.001)	-0.008** (0.003)
_cons	1.782*** (0.255)	1.135 (0.763)	1.631*** (0.292)	1.834** (0.749)
Firm fixed effects	No	Yes	No	Yes
Observations	3,433	3,415	3,975	3,956
R-squared	0.203	0.607	0.166	0.589
Adj R^2	0.2	0.579	0.163	0.564

Note: (**), (***) represent for the significant level at 5% and 1%, respectively.

4.5. Balance of payments, Corporate Cash Holdings and Growth Opportunities

The relationship between the balance of payments (BOP) and corporate cash holdings may be influenced by a firm's growth opportunities, as firms with greater growth potential often adopt more dynamic financial strategies. When macroeconomic conditions improve—reflected in a higher BOP—firms with strong growth prospects may be more inclined to reduce precautionary cash buffers and reallocate capital toward investment and expansion.

To examine this moderate effect, we use the market-to-book (MTB) ratio as a proxy for growth opportunities. Firms with an MTB ratio above the sample median are classified as high-growth firms, while those with an MTB ratio below the median are considered low-growth firms. We re-estimate the baseline regression of corporate cash holdings for each subgroup.

As shown in Table 6, the coefficient on the balance of payments is negative and statistically significant at the 1% level for firms with high growth opportunities. This result suggests that growth-oriented firms are more responsive to favorable macroeconomic signals, adjusting their cash holdings to pursue value-enhancing activities. In contrast, the relationship between the BOP and cash holdings is statistically insignificant for low-growth firms, indicating that these firms tend to maintain more stable cash levels regardless of macroeconomic fluctuations.

These findings highlight the importance of firm-specific characteristics in shaping how businesses manage liquidity in response to external economic conditions.

Table 6. Balance of payments, corporate cash holdings and growth opportunities.

Variables	High growth opportunities		Low growth opportunities	
	Pooled OLS	Firm FE	Pooled OLS	Firm FE
	(1)	(2)	(3)	(4)
	CH	CH	CH	CH
OB	-0.003* (0.002)	-0.004*** (0.001)	-0.001 (0.001)	0.000 (0.001)
WUIVNM	0.031*** (0.01)	0.027*** (0.007)	-0.006 (0.006)	-0.001 (0.008)
NWC	0.086*** (0.008)	-0.01 (0.009)	0.039*** (0.007)	0.031*** (0.009)
CF	0.264*** (0.042)	0.278*** (0.031)	0.213*** (0.024)	0.202*** (0.018)
SIZ	-0.295*** (0.039)	-0.232*** (0.07)	-0.039*** (0.008)	-0.088** (0.037)
SS	0.005*** (0.001)	0.004*** (0.001)	0.001*** (0.000)	0.001** (0.001)
LEV	0.049*** (0.006)	0.032* (0.018)	-0.001 (0.004)	0.006 (0.009)
MB	-0.04*** (0.01)	0.021* (0.01)	-0.005*** (0.002)	0.004 (0.003)
PRO	-0.027 (0.028)	0.012 (0.04)	0.065*** (0.01)	0.103*** (0.017)
LIQ	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)	0.000 (0.000)
TAN	0.002 (0.005)	-0.047*** (0.01)	-0.012*** (0.003)	-0.04*** (0.009)
DIV	0.005 (0.004)	0.007 (0.005)	0.001 (0.002)	0.003 (0.003)
SO	-0.005* (0.003)	0.002 (0.004)	-0.002 (0.002)	-0.009* (0.005)
_cons	4.181***	3.363***	0.659***	1.388**

	(0.545)	(0.964)	(0.114)	(0.558)
Firm fixed effects	No	Yes	No	Yes
Observations	3,792	3,769	3,647	3,625
R-squared	0.225	0.638	0.166	0.574
Adj R^2	0.222	0.607	0.163	0.535

Note: (*), (**), (***) represent for the significant level at 10%, 5% and 1%, respectively.

4.6. Balance of Payments, Corporate Cash Holdings and State Own

State-owned firms tend to rely more heavily on government direction and support, which may obscure their responsiveness to macroeconomic fluctuations such as changes in the balance of payments. In contrast, non-state-owned firms operate in a more market-driven environment and are more directly affected by external financial conditions. When an increase in the balance of payments improves credit conditions and capital availability, private firms are more likely to adjust their cash management strategies in response. Therefore, we examine whether ownership structure—particularly the distinction between state and non-state ownership—plays a significant role in this relationship.

To explore this, we run separate regressions for each group. As presented in Table 7, the results show that the balance of payments has a negative and statistically significant effect on cash holdings at the 1% level for non-state-owned firms, while the effect is not statistically significant for state-owned firms. These findings provide further support for the main hypothesis by confirming that the negative relationship between the balance of payments and corporate cash holdings is more pronounced in firms that are more sensitive to market forces. Ownership structure, therefore, acts as a moderating factor that shapes the extent to which firms adjust their liquidity policies in response to macroeconomic signals.

Table 7. Balance of payments, corporate cash holdings and state own.

Variables	**Without state ownership**		**With state ownership**	
	Pooled OLS	**Firm FE**	**Pooled OLS**	**Firm FE**
	(1)	**(2)**	**(3)**	**(4)**
	CH	**CH**	**CH**	**CH**
BOP	-0.003***	-0.003***	0.002	0.001
	(0.001)	(0.001)	(0.001)	(0.001)
WUIVNM	0.013*	0.018**	0.028**	0.015
	(0.007)	(0.007)	(0.012)	(0.012)
NWC	0.072***	0.009	0.051***	0.015
	(0.009)	(0.008)	(0.008)	(0.013)
CF	0.233***	0.231***	0.252***	0.269***
	(0.025)	(0.019)	(0.054)	(0.039)
SIZ	-0.137***	-0.117***	-0.092**	-0.103
	(0.016)	(0.036)	(0.036)	(0.082)
SS	0.002***	0.002***	0.002**	0.002
	(0.000)	(0.001)	(0.001)	(0.001)
LEV	0.014***	0.01	0.018***	0.021
	(0.003)	(0.01)	(0.005)	(0.014)
MB	-0.006**	0.008**	0.002	0.003
	(0.002)	(0.003)	(0.004)	(0.005)
PRO	0.02	0.074***	0.04	0.038
	(0.015)	(0.018)	(0.025)	(0.039)
LIQ	0.000**	-0.001***	0.002***	-0.001
	(0.000)	(0.000)	(0.000)	(0.000)
TAN	-0.005	-0.04***	0.004	-0.059***
	(0.003)	(0.006)	(0.005)	(0.009)
DIV	0.003	0.009***	0.002	-0.003
	(0.002)	(0.003)	(0.003)	(0.003)
_cons	2.045***	1.805***	1.304**	1.481
	(0.231)	(0.505)	(0.507)	(1.172)
Firm fixed effects	No	Yes	No	Yes
Observations	5,709	5,699	1,730	1,730
R-squared	0.184	0.593	0.265	0.662
Adj R^2	0.182	0.568	0.26	0.635

Note: (*), (**), (***) represent for the significant level at 10%, 5% and 1%, respectively.

5. Conclusion

5.1. Implication

According to Vietnam's international balance of payments for the period from 2016 to 2021, as regularly announced by the State Bank, there was a surplus. The peak was reached in 2019 when Vietnam's balance surplus exceeded 23.25 billion USD, equivalent to 8.88% of the GDP for that year. In 2020 and 2021, despite facing various challenges due to the Covid-19 pandemic, Vietnam's balance of payments still maintained a surplus of over 16.6 billion USD. In 2023, Vietnam keeps the balance of payment surplus in quarter I and II and tend to increase in the next period.

Based on the findings of this study, which show the negative correlation between Balance of payments and firms Cash Holdings among companies listed on the Vietnam Stock Exchange, several recommendations are put forth. These recommendations aim to provide valuable insights for policymakers, businesses, and other stakeholders interested in optimizing cash management strategies and fostering a conducive economic environment when Balance of payments Surplus.

When a country experiences an increase in balance of payments, that leads firms to decrease cash holdings, as this reduces the need to hedge against exchange rate depreciation and involves expectation of domestic currency appreciation. In this scenario, firms may find themselves with insufficient cash reserves for investment opportunities, potentially exposing them to financial risks. To ensure business stability, businesses can follow these recommendations.

Forecasting financial risk: Firms can use financial modelling and predictive analytics to anticipate potential risks. This could involve stress testing under different economic scenarios or using machine learning algorithms to predict future cash flow trends. Regularly reviewing and updating these models can help firms stay prepared for unexpected changes in the market.

Explore Alternative Capital with a liquidity shortage: Firms can consider various sources of capital such as issuing bonds, obtaining loans, or seeking investment from venture capitalists. They could also explore less traditional financing options like crowdfunding or peer-to-peer lending. Additionally, firms can investigate asset-based financing options, where they use their own assets (like inventory or accounts receivable) as collateral for a loan.

Managing cash in the context of a surplus or deficit in the economics transaction is crucial to ensure financial stability and sustainable business growth. Careful consideration of the international trade and payment situation, as well as adjustments to financial strategies and cash flow management, depending on the specific circumstances of the business and the country, is essential.

5.2. Limitations

Our research has several limitations that can be addressed in future studies. First, the sample period is currently limited to 2009–2021, and extending it to earlier years could enhance the representativeness of the data. Second, the study focuses solely on companies listed on Vietnam's stock exchanges; future research could expand the scope to include listed firms in other emerging markets. Third, we only have data on firms' cash balances at the end of each quarter. If more frequent cash data were available, the analysis could be more comprehensive. Fourth, our study is limited to quantitative analysis using fixed effects models; we do not incorporate qualitative methods such as expert interviews or surveys, which could provide deeper insights into the impact of the balance of payments on corporate cash holdings.

5.3. Conclusions

We examine the relationship between balance of payments and corporate cash holdings. We find robust evidence that corporate cash holdings are negatively related to the balance of payments. To our knowledge, this is one of the first studies to document the negative influence of the balance of payments on corporate cash holdings in the Vietnam stock market. Our findings enrich the literature and provide insights into the relationship between balance of payments and cash holdings at the firm level. Based on our research, it also suggests that more research can be done in the future, looking at more companies over a longer time and in other countries, enterprises can use these results as reference to make business-driven decisions in the present or future, during any period of economic fluctuations.

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