



Research Article

IMPACT OF INFLATION AND OPERATING CYCLE ON CASH HOLDING IN VIETNAM

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ABSTRACT

A corporate cash-holding strategy is a trade-off between the costs and benefits of holding cash. At the macrolevel, firms are inclined to adjust and optimize their cash-holding strategies in response to changes in purchasing power due to inflation. At the microlevel, the operating cycle, which indicates the speed and turnover of corporate cash flow, also influences the corporate cash-holding strategy. Firms flexibly adjust their cash-holding strategies in response to changes in the internal and external environment, which is referred to as the cash adjustment strategy. We examine these predicted relationships using a sample of listed firms in HOSE and HNX's stock market over the 2011–2015 period. The empirical results indicate a significant positive association between cash holdings and the CPI to cash holding of trade sector in Vietnam.

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INTRODUCTION

The amount of cash held is one of the key factors contributing to ensure that all business activities of a business is taking place smoothly. Many studies have concluded that business should hold an appropriate amount of cash to maintain daily operations, preventing any misfortune occurs in the course of business, and create favorable conditions for enterprises grasp investment opportunities in the future. Many studies have also discovered many factors affecting cash holdings of companies. Research has found that all of the cash holdings of companies affected by factors such as leverage, information asymmetry, uptime, company size, investment opportunities and fluctuations in cash flow as Faulkender (2002), Ozkan and Ozkanm (2004), Wang et al (2009). In the context of Vietnam's economy is facing many difficulties such as high inflation, trade deficits and rising public debts, the administrator of cash as to how to increase the likelihood of profitability of high inflation is still a problem for Vietnam enterprises. For fledgling capital markets like Vietnam, inflation and activity cycles that affect the cash holdings of the business or not? To clarify this issue, the author chose the topic "Effects of inflation, cycle operation to the holding of funds of enterprises in Vietnam" to research his thesis.

Research objectives: This study conducted to examine the effects of inflation and operating cycles to cash holdings of listed companies in Vietnam

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MATERIALS AND METHODS

Research data was collected from 20 firms on HOSE and HNX stock exchange market in the period 2011-2015. The paper uses panel data to examine the factors that affect the cash holdings of the company. Further panel data provide more information, more variable, less the multicollinearity between the variables and more efficient. With panel data model, the paper uses the method: the smallest average regression (OLS - Least Squares Ordinary)

Model research and hypothesis development

This study was based on model research of Yanchao Wang *et al.*, (2013). $\Delta\text{Cash}_{i,t} = \beta_0 + \beta_1.\text{CPI}_{i,t} + \beta_2.\text{CPI}_{i,t}^2 + \beta_3.\text{Cycle}_{i,t} + \beta_4.\text{Cycle}_{i,t}^2 + \beta_5.\text{CF}_{i,t} + \beta_6.\text{Tobinq}_{i,t} + \beta_7.\text{Lnasset}_{i,t} + \beta_8.\Delta\text{NWC}_{i,t} + \beta_9.\Delta\text{Sdebt}_{i,t} + \beta_{10}.\text{Risk}_i + \text{FixEffects} + \epsilon_{i,t}$

$\Delta\text{Cash}_{i,t}$ Volatility rate cash holdings of the company i at time t
CPI consumer price index per year (previous year = 100) in t
 $\text{Cycle}_{i,t}$ cycle operating company i at t

$\text{CF}_{i,t}$ internal cash flow of the company i at time t
 $\text{Tobinq}_{i,t}$ variable growth opportunities of the company i at time t
 $\text{Lnasset}_{i,t}$ Turn the scale of the company i at time t
 $\Delta\text{NWC}_{i,t}$ Movements in working capital ratio of total assets of the company i at time t
 $\Delta\text{SDebt}_{i,t}$ Movements in short-term coefficients compared to total assets of the company at time t
 $\text{Risk}_{i,t}$ measure the risk factor of company i at time t .

Inflation impact on cash holdings of firms

Inflation has a direct impact or indirectly to cash holdings of the company directly impacts caused by inflation which is to devalue the local currency, reducing the value of the goods purchased. In addition, inflation also causes affecting the performance of the company, situation management, provision of cash needs of the company. High inflation makes a depreciating currency, commodity purchasing power is reduced, increasing the interest rates led to interest costs led to increased use of capital supply. Therefore, in times of inflation, companies will reduce cash holdings and switch to invest in the project have the opportunity to grow as a result of research by the author Ferreira (2003). In addition, during the inflation of the company not only reduce cash holdings but also switch to holding cash equivalents (asset liquidity) easily converted into cash at a cost of low cost cash to fund increases in cash when selling these assets (Shleier and Vishny, 1984). Therefore, during high inflation, instead of holding cash, the company has maintained khuyen increasing assets by increasing liquidity reserves warehouse, Tn65 and price advantage. High inflation, the currency had been devalued, the demand for cash needed for the investment projects of the company also increased, while the price increase is more significant. In addition, to maintain business operations, companies require continuous additional cargo storage with rising prices during the period of high inflation, this increases the demand for working capital amount.

However, when inflation is high, the value of the currency continues to decline. To avoid national currency was devalued, the government ran the macro economy when inflation by implementing tight monetary policies implemented by policy: raise interest rates, increased reserve ratio mandatory reserves, control of credit growth for the commercial environment, so the banks will become more cautious about lending and disbursement conditions for loans have also become more stringent. This has further increased the shortage of external financing for the company's loans (Stiglitz and Weiss, 1981). The scarcity of financial resources from the outside has made companies increase cash holdings according to Zhu and Lu more (2009). The cash holdings of companies with important goals against the increased risks and bankruptcy. In short, inflation makes commodity prices rise, the purchasing power of the cash flow deteriorated. Therefore, the company will reduce cash holdings, but instead they will increase inventory holdings, increased holdings of liquid assets easily convertible into cash, cash increased spending demons lower conversion fee reduces liquidity risk at the lowest level and the implementation of long-term contracts to avoid volatility less on price. When inflation in the emergency alarm to the operator of the macro economy through the government's tight monetary policy has hit dongviec cash holdings of companies. Based on theoretical and empirical analysis, the paper's authors according YC Wang's study (2013) as follows:

Hypothesis 1: as inflation, fluctuating rate cash holdings of companies have adverse effects on inflation. However, when inflation is at a level too high (Certain level) fluctuations in the percentage holding of the company works the same way with the rise of inflation.

Cycle operation affecting cash holdings of firms

A cycle time of a company's operations affected by industry factors, operating model and effective management of the company. Companies with business cycle short futures trading needs more money, cash conversion cycle should need less time to circulate and complete the purchase cycle, production and sales. The company has a short operating period, the supply of future transactions in cash and short-term, cyclical means of storing goods, sales and collect money from the shorter line. Therefore, these companies will hold more money to ensure the transaction to continue to operate, this is consistent with the motor holding cash so transaction engine. Accumulation of internal capital flows more effectively when the value of short-term assets such as inventories and receivables decrease and increase internal cash holdings to pay the payments after year, in contrast to companies with long operating cycles, they need longer time to buy raw materials and production, demand on cash transactions in the future it more time to continue to invest in production and operation active longer, which reduces the demand for cash holdings of companies. In addition, the supply of future transactions of the cash operating cycle longer than the mean rotation of the cash flow, inventory rotation, rotation lower for goods recovered. Money is stored in the form of short-term assets in the long run, this reduces the supply of money and reduce the amount of cash held by the company. When operating cycle is too long, the ability to generate operating cash flow of the company becomes less efficient cash conversion cycle of these companies are likely to have problems, do not generate cash flows to meet normal production needs of the company, performance and investment opportunities can take Opler goods and colleagues (1999) analyzed the impact of risk by operating cash flow and access to lower external financing has khuyen towards holding more cash. To avoid risks of default, the company increased holdings of more money to meet the demand for everyday transactions and seize investment opportunities in the future. Therefore, when the operation cycle lasts, tools increase cash holdings to avoid risks and bad situations happen suddenly, this is consistent with precautionary motives of holding money. Based on the analysis above, this paper argues nonlinear relationship between operating cycle and cash holdings. This paper assumes construction of flats under study author Wang (2013) as follows:

Hypothesis 2: the short operating cycle, fluctuations in the percentage holding of the company money adverse effects with prolonged operation periods.

RESULTS

Descriptive statistics

- Cash (currency rate fluctuations): The mean value is 3,662%, standard deviation is 27.27%, the minimum value is -170.7497%, the maximum value is 84.33414%.
- CF (representing the internal cash flow): The average value is 11.95%, standard deviation is 13.08%, minimum value is -11.51%, the largest value is 78.58%.

- CPI (consumer price index): the mean is 115.83%, standard deviation is 17.49%, the minimum value is 94.4%, the largest value is 194.8%.
- NWC (Net working capital compared to total assets): the mean value is 19.03%, standard deviation is 16.79%, the minimum value is -19.06%, the largest value is 69.43%.
- Tobing (representing growth opportunity): the mean value is 13, standard deviation is 7.572, the minimum value is 0.08, and the largest value is 42.18.
- Lnasset (representative of company scale): the mean value is 13.45, standard deviation is 0.088, the minimum value is 11.42, maximum value is 15.64.
- Sdebt-variable (represented short-term debt ratio compared to total assets): the mean value 13.68%, standard deviation is 28.52%, the minimum value is -50.8%, the largest value is 100.3%.
- Rick (representing risks): the mean value is 50%, standard deviation is 13.08%, the minimum value is 10%, the maximum value is 80.04%.

Main results

Model 1:

The coefficient of consumer price index (CPI) is 0.685 with a 1% significance level, the regression coefficient of CPI is significantly positive to cash holding. The study results suggest that the high inflation, the company re-adjusted cash holding ratio. This research results in line with the author's research hypotheses set out initially and agrees with the study results of Wang et al (2013).

Model 2:

Cycle operation (Cycle) is 0.0773 with 1% significance level, has an impact in the same way to the fluctuations in the percentage holding money (Δ Cash). The study results showed that when the cycle of operation is short, firms tend to hold more cash and vice versa. However, the prolonged cycle of operation, the company adjusted rate increased cash holdings. This research results in line with the author's research hypotheses set out initially and agrees with the study results Wang et al 2013.

Table 1. Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
cash	100	-4.022394	27.27458	-170.7497	84.33414
cpi	100	115.834	17.49798	94.4	189.8
cpi2	100	13720.63	4690.777	8911.36	36024.04
cycle	100	1187870	1.19e+07	-2780.672	1.19e+08
cycle2	100	1.41e+14	1.41e+15	.2201678	1.41e+16
cf	100	.1195589	.1308259	-.1151662	.7858402
nwc	100	.1903742	.1678826	-.1906062	.694366
tobing	100	.0213019	.0757422	.0008413	.4218459
lnasset	100	13.45925	.87587	11.42937	15.64626
sdebt	100	.1368628	.2852161	-.5084559	1.003251
risk	100	2.950351	1.308949	1.10062	8.004048

Table 2. Results of multiple regressions

	(1) cash	(2) cash	(3) cash
cpi	0.685*** (4.59)		0.498** (2.70)
cf	-127.3** (-2.58)	-138.8** (-2.58)	-105.9** (-2.13)
nwc	72.59*** (4.20)	167.1*** (6.25)	116.6*** (3.72)
tobing	-26.76 (-0.63)	-62.16 (-1.33)	-29.01 (-0.64)
lnasset	-6.291 (-0.84)	16.04 (1.51)	6.306 (0.60)
sdebt	-2.249 (-0.22)	-6.152 (-0.55)	-3.887 (-0.38)
risk	4.523** (2.16)	7.769*** (4.09)	4.659** (2.28)
fixeffect	0.000121** (2.13)	-0.00000991 (-0.13)	0.0000442 (0.62)
cycle		0.0773*** (3.83)	0.0399 (1.67)
_cons	2.177 (0.02)	-232.0 (-1.61)	-150.4 (-1.10)
N	48	48	48
t statistics in parentheses * p<0.1, ** p<0.05, *** p<0.01			

Model 3:

The results found that a mixed impact factors, mean to cash holdings of firms in Vietnam such as: volatility of money (ΔCF) with -127.3 (column 1), - 138.3 (column 2) and -105.9 (column 3) with the same level of significance of 5%, and the risk factors in the same direction (Rick) fluctuations in 4,523 with significance level of 5% (core 1); 7.769 (column 2) and 4,659 with significance level of 1%. It shows that companies with large cash flow fluctuations they will hold more cash than firms with low cash flow volatility. The company has the scale the greater the more they hold more cash than companies with smaller scale. This is consistent considered hedging motives of holding money

Order: fluctuations in working capital ratio (ΔNWC) by 72.59 (column 1); 167.1 (column 2) and 116.6 (column 3) with and 1% significance level. Storage means rotation fluctuation coefficient of 1% will increase the proportion of cash holdings of the Company.

Conclusion

Data collection was based on the listed companies trade sector on Ho Chi Minh city stock exchange (HOSE) and Hanoi stock exchange (HNX) in the period from 2011 to 2015. The results of this study discovered two factors is inflation (representing variable consumer price index - CPI) and the operating cycle (cycle) have an impact on the cash holdings of Vietnam enterprises.

This study exists some limitations as follows

First, the size sample is 20 companies since 2011 to 2015. It is a fairly small amount compared with the observed data of all previous research, in particular research paper on "inflation, operating cycle and cash holdings." Research data is the companies listed on the Shanghai stock market and Shenzhen period from 1998 to 2009 collected from WIND, CSMAR, and CCER with a total sample size includes 9165 observations.

Second, the study variables obtained at the time of the financial report has not underestimated the real volatility of the observed variables. Specifically, cash and cash equivalents, inventory, receivables. In the future, the research need to:

First, increase the sample size to observe and study a longer time to look at trends of the elements of corporate cash holdings accordingly. Second, to overcome the time of taking the reported data, must be added the observation by month, every three months to review the factors holding money's businesses in each time accordingly.

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