Significance of monetary policy on firms' external finance in Vietnam

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ABSTRACT: This paper investigates the effect of monetary policy on firms' external finance. Using dataset of 241 Vietnamese listed firms in the period 2006-2014 and two-step system GMM method, the results show that contractionary monetary policy has decreased firms' external finance. Firms' characteristics such as size, leverage, liquidity and macroeconomic conditions are important determinants of firms' accessibility to external finance. These effects are different between financially constrained firms and non-financially constrained firms. Finally, there is no evidence about the asymmetry effects of monetary policy on the firms' accessibility to external finance in Vietnam.

KEYWORDS: monetary policy, external finance, firms' characteristics, financial constraints, GMM.

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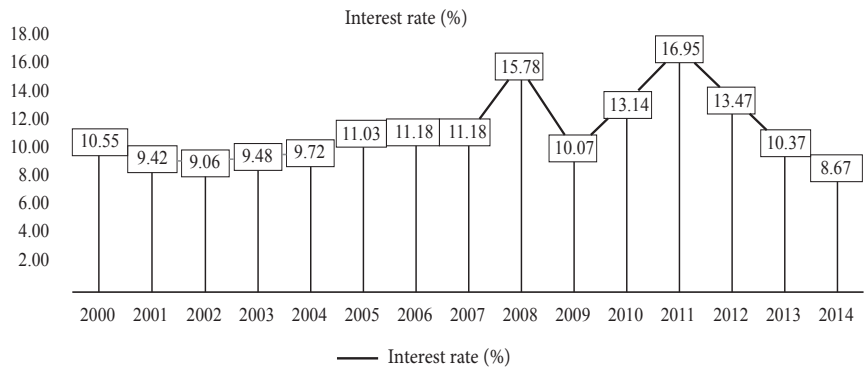
1. Introduction

Although domestic and international bonds play an increasingly important role as a channel for firms' capital mobilization, bank credit remains the main source of finance for firms in many emerging markets. In Asian developing countries, for example, bond issuance is close to 30% of GDP, while bank credit accounts for approximately 50% of GDP (Zulkhibri, 2015). In addition, empirical evidence suggests that emerging markets rely more on internal finance than external finance (Beck et al., 2002). In emerging markets, firms prefer to use the internal capital when they have a high level of tangible assets, high returns, or a low M/B. But it can also be seen that these firms are operating in a more risky environment than those in other markets.

Moreover, interest rates and policy rates have a strong correlation with firms' effective interest rates over time, with interest rates playing an important role in determining the financial cost of Vietnamese firms. Interest rates in Vietnam in the period 2006-2014 are quite complex and unstable (Figure 1).

Figure 1: Average short-term interest rates of four major commercial banks in Vietnam for the period 2000-2014



Source: World Bank (2014).

It can be seen that the unstable fluctuations in interest rates lead to instability of the firms' accessibility to the external finance. Specifically, although the purpose of raising interest rates is to control inflation, when interest rates go up, however, it is difficult for firms to access the external finance, which affects their output, thereby negatively impacts business performance. In addition, the increase in interest rates also affect the attractiveness of the market compared to other investment channels such as gold, USD and deposit. Because when

refinancing rates increase, banks' deposit rates also rises, which makes investors more inclined to deposit money rather than investing it in more risky channels. Thus, the money inflow into the stock market or the external finance in the form of capital contribution is more limited. Therefore, studying the linkages between firms' external finance and firm-level monetary policy is critical to explain firms' investment behaviors and financing, particularly in the emerging markets like Vietnam. This study was conducted to examine the effect of monetary policy through interest rates on firms' external finance. Whether or not this impact differs in different monetary policy periods (contractionary monetary policy and expansionary monetary policy). At the same time, the impacts of interest rates on the source of external finance may vary depending on the characteristics of the firms, such as large or small firms, high leverage or low leverage (Zulkhibri, 2015), so the study also examines empirical evidence of this difference by the type of firms.

2. Literature review

Mechanism of monetary policy to the economy is transmitted through various channels, namely: traditional interest rate, other asset price (exchange rate, stock price), credit (bank credit and balance sheet). In particular, the balance sheet channel has significantly impacted on the business situation as well as the capacity of accessing external finance. The mechanism of monetary policy transmitted through the balance sheet channel, can be known as a contractionary monetary policy rather than an expansionary one, firms often confront more difficulties to access external finance (Aliyev et al., 2015). Furthermore, in this study, the authors have inherited the method of analyzing the transmission mechanism of monetary policy from previous studies. Empirical evidence is based on the study of Kashyap et al. (1993) which investigates the impact of monetary policy on external finance of the US's firms from the early 1960s to the late 1980s. They find out that contractionary monetary policy leads to the move of these firms's external finance from bank loans to commercial papers. However, this study uses data of firms in different sectors, as a result, their unobserved characteristics are different and heterogeneous in the model. Gertler and Gilchrist (1994) use firm-level data to provide empirical evidence of the difference in the impact of monetary policy on external finance between small and large manufacturing firms, solving the problem of heterogeneity among firms. These authors find that the evidence that the balance sheet channel is related to access to the financial markets of small firms. However, based on the problem of heterogeneity between firms, Oliner and Rudebursh (1995, 1996) find no evidence about the difference

regarding a firms' size, small firms significantly reduce the proportion of bank loans during the period of the contractionary monetary policy.

Huang (2003) explains the impact of monetary policy on financially constrained firms based on the panel data of listed firms in the UK. This study shows the difference between bank-dependent and non-bank-dependent firms. Small firms were injured as the proportion of bank loans decreased and the losses are more severe during the contractionary monetary policy period. Atanasova and Wilson (2004) also use the data of the UK's firms to implement study about the financially constrained firms. Empirical evidence shows that total assets of the firms are an important factor in determining the capacity of accessing bank credit, and contractionary monetary policy would cause an increase in demand for financing by bank loans. In addition, Bougheas et al. (2006) investigate the sources of external finance using data of the UK's manufacturing firms and find out that the characteristics of a firm such as size, collateral, risk, age and profit are important factors in determining the access to short- and long-term credits, and monetary policy has a stronger effect on new, riskier, and smaller firms.

Most recently, Zulkhibri (2015) studies the transmission of monetary policy to external financing behavior of financially constrained firms in Malaysia through criteria such as: scale, bank dependency, and leverage. Research results show that the monetary policy has a negative effect on the ability of firms' external finance accessibility when interest rates increase. At the same time, firms' characteristics like size, leverage, collateral, and liquidity are important determinants of accessing external finance of firms with different types of financial constraints.

From the previous empirical studies, the authors have found that monetary policy implemented through the interest rate instrument had a significant impact on the firms' bank loans. Consequently, the hypothesis about the transmission of monetary policy to the firms' external finance accessibility is developed as follows:

H1: Contractionary monetary policy reduces the firms' accessibility to external finance.

3. Data and methodology

3.1. Data

The study uses financial data of Vietnamese firms listed on the two stock exchanges HOSE and HNX. Data is collected from firms' financial reports in the period from 2006 to 2014 on websites of Vietstock (Vietstock.vn) and Stockbiz

(Stockbiz.vn); macroeconomic data is collected from the General Statistics Office (GSO) and the International Monetary Fund (IMF). The authors exclude firms with insufficient data and financial firms for the period from 2006 to 2014, thus, the final sample includes 241 non-financial listed firms with 2,169 observations.

3.2. Methodology

The empirical model is based on the study of Kashyap et al. (1993) and Oliner and Rudebursch (1996). The authors combine the ideas of Hoshi and et al. (1993), Huang (2003) and Bougheas et al. (2006), examining the importance of heterogeneity in explaining the use of external debts of firms in the business cycle, and adding interest-rate variable to measure the impact of monetary policy on external debt decision. The empirical model has the following form:

$$STD_{it} = \alpha + \beta^*STD_{it-1} + \delta^*X_{it} + \gamma^*RATE_t + \mu_t + \vartheta_i + \varepsilon_{it} \quad (1)$$

Where:

STD represents the ratio of short-term debt to total debts. This variable explains the firms'decision in using external finance; **RATE** represents the monetary policy, for which interest rate is the instrument and is represented by the refinancing rate of the State Bank of Vietnam; **X** is a vector of control variables including scale, financial leverage, collateral, liquidity, and industrial production indexes. These explanatory variables are often used in research to explain the firms' choices of external finance. The size of the company is measured by the natural logarithm of the firm's total assets. Gertler and Gilchrist (1994), Kashyap et al. (1993), Oliner and Rudebursch (1996), Huang (2003), and Bougheas et al. (2006) find out that firms' size was a determinant of its financial decisions; GEAR is the ratio of total debt to total assets to measure the leverage of a firm. Many theoretical models show that firms with higher debt levels are more dependent on bank loans or external finance than those with lower debt levels; TANG is the ratio of tangible assets to total assets, indicating the availability of collateral assets. Bougheas et al. (2006) argue that firms with more tangible assets (determined by the ratio of tangible assets to total assets) are easier to access non-bank finance from capital market; LIQDITY is the ratio of short-term assets to short-term debt, representing the liquidity of the firms; IPI is the growth rate of the industrial production index used to control cyclical factors; μ_t is the fixed time effect; ϑ_i is the unobservable influence of firms; ε_{it} is the unordered error.

From the credit point of view, the impact of monetary policy seems to be stronger during contractionary period compared to the expansionary period (Huang, 2003), the authors consider two periods to reflect the two trends of monetary policy: (i) T is the dummy variable representing the contractionary monetary policy during the period from 2010 to-2011, and money injection policy to stabilize exchange rate in the years 2005-2006; (ii) (1 - T) represents the expansionary monetary policy in 2006, 2009, 2012-2014. The authors analyze the changes in interest rates during these two periods to evaluate the impact of monetary policy on firms' financial decisions. Therefore, the empirical model examining the asymmetric impact of the change in monetary policy is constructed by adding the interaction variable RATE with two variables representing two periods of contractionary monetary policy (T) and expansionary monetary policy (1-T) is as follows:

$$STD_{it} = \alpha + \beta STD_{it-1} + \delta^{*}X + \gamma_1 RATE_t^{*}T + \gamma_2 RATE_t^{*}(1-T) + \mu_t + \vartheta_i + \varepsilon_{it} \quad (2)$$

Next, in order to analyze the differences in the effects of monetary policy on external financing behaviors among different groups of firms, the authors split the sample into several small sample groups based on the criteria of scale, bank dependency, and leverage. Similar to the methods used by Kadapakkam et al. (1998), the natural logarithm of the total real asset is used to indicate the effect of the firm size. Firms are divided into small and large groups. If the firm's average size is larger than the 75th percentile of the firms' size in the sample, it is large firm and vice versa, if the average firm's size is smaller than the 25th percentile of the firms in the sample, the firm is small. This type of firm classification is based on the argument that smaller firms will be financially constrained because they have to confront asymmetric information and high agency costs.

The ratio of short-term loans to total debt is used to denote the level of bank dependency. The firms in the sample are subdivided into bank-dependent and non-bank-dependent firms. If the average value of a short-term bank loan on a firm's total assets is smaller than the 25th percentile of the firms in the sample, the firm is less dependent on the bank and vice versa, if the average value is larger than the 75th percentile of the firms in the sample, the firm is heavily dependent on the bank. This type of classification is based on the premise that bank-dependent firms are most affected by the tightening of bank debt caused by contractionary monetary policy (Huang, 2003).

Firm's leverage is defined as the ratio of total debts to total assets and used to

indicate whether this leverage is high or low. If the firm's average leverage is less than the 25th percentile of the firms' leverage in the sample, then the firm has a low leverage and vice versa, if the leverage is greater than the 75th percentile, the firm has a high leverage. This classification is based on the argument that firms with high leverage often face higher risks and are less likely to borrow more under the contractionary monetary policy (Bougheas et al., 2006).

In order to estimate these models, Zulkhibri (2015) suggests using the one-step difference GMM estimation method. However, this method is not as effective as the system GMM. Arellano and Bover (1995), Blundell and Bond (1998) have shown that when variables are persistently stable over time (possibly constant over time), difference GMM may be not sustainable and inaccurate for estimation. Then, the delay of the first binary variables becomes the weakest instrument variables in the model. At the same time, these authors state that the system GMM produces better estimates than the difference GMM because the instrument variables in the original level of the model retain the best metrics for endogenous variables even if the strings in the model are sustainable. Furthermore, Arellano-Bond's GMM estimation method is well-suited for small-T and large-T panel data regression (Judson and Owen, 1999; Roodman, 2006, Milena, 2007). Therefore, this study uses a systematic GMM estimation method to regress the dynamic panel data, which uses the latency values of all the variables in the study to represent the instrument variables.

4. Results

The results of descriptive statistics for variables in the study are presented in Table 1. The variable representing the firms' external finance (STD) have the average value of approximately 0.3.

Table 1: Descriptive statistics for variables

Variables	Mean	Median	Standard Deviation	Max	Min
STD	0.304	0.269	0.258	0.998	0.000
GEAR	0.494	0.521	0.223	0.976	0.004
SIZE	5.924	5.858	1.458	10.175	2.183
LIQUID	2.287	1.506	3.137	67.945	0.070
TANG	0.213	0.160	0.185	0.978	0.000
IPI	2.065	2.108	0.469	2.840	1.416
RATE	8.639	8.000	2.586	15.000	6.500

First, the study uses the results of the correlation matrix to find out the relationship between the interest rate and the behavior of the firms' external finance. The correlation matrix in Table 2 shows the correlation between variables. In general, the correlation between variables in the regression model is rather low. The highest coefficient (-0.50) and lowest coefficient (-0.01) (in absolute values) respectively represent the correlation between leverage (GEAR) and liquidity (LIQUID) as well as the correlation between liquidity, interest rate (RATE) and industrial output (IPI). At the same time, the absolute values of the correlation coefficients between the independent variables are all less than 0.6. Hence, the multicollinearity does not exist in the model.

Table 2: Correlation matrix of variables

	STD	GEAR	SIZE	LIQUID	TANG	IPI	RATE
STD	1						
GEAR	0.300***	1.000					
SIZE	0.150***	0.260***	1.000				
LIQUID	-0.240***	-0.500***	-0.170***	1.000			
TANG	-0.090***	0.020	0.120***	-0.080***	1.000		
IPI	0.030	-0.050**	0.230***	-0.010	-0.030	1.000	
RATE	-0.020	-0.020	0.080***	-0.010	-0.020	0.070***	1.000

, ** and * correspond to significant levels of 10%, 5% and 1%.*

Table 3 shows the estimation results of the impact of monetary policy on firms' external finance. It can be seen that the CEOs of these firms are quite "stubborn" when they continue to use the same sources of external finance that have historically been used (Zulkhibri, 2015), displayed by the positive effect of STD (-1) on the current STD at the significant level of 10%. Simultaneously, the negative and 5% statistically significant estimation coefficient of the RATE variable implies the inverse relationship between the interest rate and the firms' external finance. This suggests that contractionary monetary policy reduces the number of sources of firms' external finance in the sample. This result is consistent with the expectations of the authors and the findings of Kashyap et al. (1993). The study continues to measure the asymmetric effects of monetary policy on firms' accessibility to external finance by introducing interactive variables into the model. The results show that during the contractionary monetary policy, the RATE*T and the expansionary monetary policy, RATE*(1 - T), there is a rise in interest rates and the reduction in firms' accessibility to external finance.

However, only in the period of contractionary monetary policy, the impact of interest rate on firms' accessibility to external finance has significant level at 10%.

Table 3: Estimation results of the impact of monetary policy on firms' accessibility to external finance

Variables	(1)	(2)
STD(-1)	0.479*** (26.35)	0.477*** (26)
RATE	-0.001** (-2.13)	
RATE*T		-0.001* (-1.86)
RATE*(1 – T)		-0.001 (-1.11)
GEAR	0.248*** (6.83)	0.245*** (6.42)
SIZE	0.015** (2.33)	0.015** (2.37)
LIQUID	0.002** (2.15)	0.002* (1.9)
TANG	0.002 (0.04)	-0.007 (-0.15)
IPI	0.011* (1.69)	0.011 (1.53)
Intercept	-0.070** (-2.15)	-0.067** (-2.04)
Ar(1)	-7.090***	-7.080***
Ar(2)	0.890	0.870
Hansen	101.58	101.530

, ** and * correspond to significant levels of 10%, 5% and 1%. Statistical value t is shown in parentheses.*

For control variables in the model, leverage GEAR, firms' size SIZE, liquidity LIQUID, and industrial production index IPI all show the positive relationships with the external finance variable STD at the statistically significant level of 10%, except for collateral variable TANG. This implies that firms with higher leverage,

larger scale, and higher liquidity in the conditions of the strong economy, they would use more external finance. Firms with a high GEAR leverage ratio seem to be more dependent on external finance and bank loans than those with low debts. At the same time, firms that improve their liquidity LIQUID would have a high accessibility to external finance in the form of short-term bank loans. The negative relationship between the amount of net assets and the level of external finance indicates that an increase in the firms' sizes would reduce the short-term bank loans, and firms more easily access other sources of financing. This result is consistent with the results of Gertler and Gilchrist (1994), Bougheas et al. (2006).

After analyzing the impact of firms 'characteristics and monetary policy on firms' accessibility to external finance, the authors study the differences in the impact on small and large-scale groups of firms, high and low dependence on banks, and high and low leverage.

The estimation results of the difference in the impact of monetary policy on external finance between financially and non-financially constrained firms show that, regardless of financial constraints, if the firms use a high level of external finance in the previous period, there will be a tendency to increase this financing in the current period at a 1% significance level (Table 4).

At the same time, there are differences in the transmission mechanism of monetary policy to firms' external finance between the two groups of financially and non-financially constrained firms. Particularly, for non-financially constrained firms, during the contractionary monetary policy or increasing interest rate RATE, these firms tend to reduce their external finance because if they do not do so, they would pay a high-interest rate cost. As interest rates rise, the cost of using this funding becomes more expensive than the cost of using other short-term financing sources. Hence, these firms reduce the bank loans. In contrast, financially constrained firms still have to access bank loans despite rising interest rates.

Furthermore, the influence of the firms' characteristics variables like size (SIZE), liquidity (LIQUID), collateral (TANG), leverage (GEAR) also display different levels of impacts between the two groups of financially and non-financially constrained firms. For example, the increase in the firms' sizes would have a negative impact on the external finance of financially constrained firms that means, when their sizes increase, the accessibility to non-bank-credit capital would increase, and then they may reduce the bank loans. Conversely, when non-financially constrained firms scale up, banks are more likely to lend more credit, which leads to the increase in firms' bank loans. The liquidity of these

Table 4: Estimation results of the groups of firms

Variables	Large -scale	Small -scale	Low bank-de-pendence	Bank-de-pendence	Low leverage	High leverage
STD(-1)	0.346*** (28.39)	0.690*** (42.26)	0.082*** (2.62)	0.348*** (12.72)	0.366*** (28.73)	0.559*** (23.13)
RATE	-0.005*** (-10.66)	0.002*** (3.61)	-0.002*** (-7.49)	0.001** (2.27)	-0.003*** (-7.16)	0.001** (2.58)
GEAR	0.224*** (7.56)	0.007 (0.17)	0.051*** (2.76)	0.108 (1.46)	0.966*** (23.1)	-0.050 (-0.89)
SIZE	0.083*** (11.78)	-0.013** (-2,53)	0.007 (1,48)	-0.012** (-2,32)	0.015*** (3,86)	-0.011*** (-3.86)
LIQUID	0.001*** (4.03)	-0.010*** (-4.09)	0.003*** (10.29)	-0.035*** (-3.79)	0.004*** (10.74)	-0.059*** (-11.23)
TANG	0,053* (1.89)	-0,027 (-1.47)	0,009 (0.670)	-0,088 (-0.7)	-0,014 (-0.28)	-0,071*** (-3.67)
IPI	-0.028*** (-5.23)	0.038*** (6.77)	-0.001 (-0.26)	0.006 (0.89)	-0.002 (-0.55)	0.038*** (9.2)
Intercept	-0.196*** (-7.1)	0.134*** (3.56)	-0.029 (-1.35)	0.477*** (5.85)	-0.155*** (-4.89)	0.252*** (7.01)
AR(1)	-3.310***	-4.720	-1.680*	-3.470***	-3.210***	-3.230***
AR(2)	0.070	0.520	0.680	0.980	0.260	1.180
Hansen	45.970	51.450	23.250	39.850	48.800	43.470

, ** and * correspond to significant levels of 10%, 5% and 1%. The statistical value t is shown in parentheses (). In particular, small-scale, bank-dependent, and high-leverage firms are financially constrained firms; and large-scale firms with non-bank-dependence and low leverage are non-financially constrained firms.*

two types of firms also shows the same effect. This implies that if financially constrained firms improve their liquidity, they are more likely to access to other sources of external finance rather than bank loans. Non-financially constrained firms would be provided with bank loans as they improve their liquidity.

GEAR leverage only has a remarkably positive effect on short-term external finance of non-financially constrained firms. This is consistent with the findings of Hoshi et al. (1990), Petersen and Rajan (1994), Berger and Udell (1995). According to these authors, high leverage implies a high level of intimacy between the banks and the firms. Thus, for non-financially constrained firms, banks are willing to provide more loans on the basis that they have a high level of leverage

through their relationship with the bank in the past. As the macroeconomic environment improves (represented by the IPI industrial output), financially constrained firms easily access to short-term loans as economic improvement is often accompanied by a trend of lower interest rates. In recent years, the Vietnamese economy has witnessed a recovery with relatively stable growth and interest rates are on the downward trend, thus, financially constrained firms make more short and long term bank loans due to lower interest rates.

Next, the authors analyze the asymmetric effects of monetary policy to firms' external finance by examining the variables interacting with groups of firms that are different by size, bank dependence and leverage.

The results in Table 5 show that the asymmetric effects of monetary policy to firms' external finance in different periods do not exist. Because the coefficients of the two interacting variables RATE*T and RATE*(1-T) have the same signs (positive or negative) at the significant level of 1%, there is no asymmetrical effect of monetary policy to firms' external finance. However, there are differences between firm groups. In details, financially constrained firms tend to increase short-term bank loans despite rising interest rates in any situation (contractionary or expansionary monetary policy). This implies that the demand of firms for short-term bank loans is facing very high financial constraints. According to a survey conducted by VCCI (2008), 90.2% of private enterprises, 81.5% of SOEs and 57.7% of foreign-invested enterprises demand for loans. Non-financially constrained firms, on the other hand, have reduced short-term bank loans when interest rates rose at a significant level of 1%. This shows that this group of firms is more likely to access to cheaper capital than bank loans.

5. Conclusion

The study analyzes the transmission mechanism of monetary policy to the firms' accessibility to external finance in Vietnam by using the data of 241 firms listed on HOSE and HNX during the period of 2006-2014. By using the two-step systematic GMM estimation method, the authors show that during the contractionary monetary policy, the firms' external finance declines. Firms' characteristics such as size, leverage, liquidity, and macroeconomic conditions are important factors in determining the firms' net assets. At the same time, the authors also find evidence about the differences in the impact of monetary policy on financially and non-financially constrained firms. For financially constrained firms, when the monetary policy is tightened, their external finance increases.

Table 5: Estimation results between groups of firms - asymmetric influence of monetary policy

Variables	Large -scale	Small -scale	Low bank-de-pendence	Bank-de-pendence	Low leverage	High leverage
STD(-1)	0.317*** (21.41)	0.690*** (41.91)	0.127*** (4.28)	0.324*** (8.60)	0.365*** (28.50)	0.535*** (17.40)
RATE*T	-0.007*** (-9.44)	0.002*** (3.42)	-0.002*** (-8.54)	0.002*** (2.6)	-0.003*** (-5.41)	0.002*** (3.79)
RATE* (1 - T)	-0.010*** (-8.31)	0.002** (2.35)	-0.003*** (-11.15)	0.005*** (3.64)	-0.003*** (-2.64)	0.004*** (4.06)
SIZE	0.079*** (11.86)	-0.013** (-2.53)	0.012** (2.31)	-0.013** (-2.21)	0.014*** (3.5)	-0.011*** (-2.59)
TANG	0.029 (1.14)	-0.027 (-1.4)	-0.001 (-0.06)	-0.153 (-1.18)	-0.038 (-0.68)	-0.052* (-1.85)
GEAR	0.179*** (4.74)	0.005 (0.12)	0.041* (1.92)	0.108 (1.33)	0.976*** (21.5)	-0.120** (-2.12)
LIQUID	1*10-4 (0.2)	-0.010*** (-4.03)	0.003*** (8.5)	-0.038*** (-3.56)	0.005*** (9.99)	-0.048*** (-6.56)
IPI	-0.014*** (-3.86)	0.038*** (6.23)	-0.002 (-0.56)	-0.004 (-0.6)	-0.004 (-0.64)	0.032*** (6.43)
Intercept	-0.150*** (-4.17)	0.135*** (3.52)	-0.041 (-1.52)	0.521*** (5.16)	-0.144*** (-4.25)	0.289*** (6.62)
AR(1)	-3.250***	-4.720***	-1.860*	-3.400***	-3.200***	-3.140***
AR(2)	0.110	0.520	0.800	0.910	0.240	1.160
Hansen	38.500	51.360	21.580	37.850	48.180	42.230

, ** and * correspond to significant levels of 10%, 5% and 1%. The statistical value t is shown in parentheses (). In particular, small-scale, bank-dependent, and high-leverage firms are financially constrained firms; and large-scale firms with non-bank-dependence and low leverage are non-financially constrained firms.*

Non-financially constrained firms, on the other hand, reduce their external finance because the relative cost of using these funds is more expensive than the cost of using other sources of financing. If there is a rise in firms' characteristics (such as size, leverage and liquidity), it would increase the accessibility to the external finance of both groups. In addition, there is no asymmetric influence of monetary policy on accessing the external finance of Vietnamese firms. The research results are useful for macroeconomic policy makers, corporate

executives and researchers to understand the firms' access to external finance, from which they may build the appropriate management policies.

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