MONETARY LOOSENING AND DIVIDEND POLICY: EVIDENCE FROM VIETNAMESE STOCK MARKET

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ABSTRACT

Vietnam is a promising laboratory to examine the effect of monetary loosening policy on corporate dividend decisions due to the following reasons: (1) Vietnamese government conducts monetary loosening policy continuously between 2007 and 2017; (2) the monetary policy relies mainly on money supply; and (3) credit channel is the dominant monetary transmission channel. With a research data including 4,493 observations from 2008 to 2017, we find that both the choice to pay dividends and dividend payout ratio are positively affected by money supply and this effect is mitigated by corporate cash holdings. In addition, money supply is positively related to speed of dividend adjustment.

Keywords: money supply, dividend policy, emerging market, monetary loosening, stock market

INTRODUCTION

After a pioneer research conducted by Black (1976), dividend puzzle is studied intensely by financial economists and becomes one of the most interesting topics in corporate finance. According to Miller and Modigliani (1961), capital markets are perfect and dividend policy is irrelevant. Actually, corporate dividend decisions are significantly affected by market frictions. The extant literature shows that
information asymmetry between firm managers and outside investors is an important determinant of corporate dividend policy. According to the pecking order theory developed by Myers and Majluf (1984), firms decide to issue new securities to finance their investment opportunities only when their private information indicates that these securities are overvalued. Understanding this manipulation behaviour, outside investors are willing to purchase them only at low prices. Therefore, firms are reluctant to raise external funds and tend to restrict dividends to save retained earnings for available investment opportunities. Many prior studies find that firms with more investment opportunities, better access to external funds, and higher costs of external financing are less likely to pay dividends in the United States (Ali et al., 1993; Holder et al., 1998; Jiraporn et al., 2011), Bangladesh (Mollah, 2001), Ghana (Amidu & Abor, 2006), Jordan (Al-Malkawi, 2007), Canada (Baker et al., 2007), Thailand (Thanatawee, 2011) and across countries (Cao et al., 2017; Denis & Osobov, 2008; Tran et al., 2017). However, there are relative few studies investigating how corporate dividend policy is determined by monetary policy that may change the availability and the costs of external financing.

Among four major transmission channels of monetary policy, credit channel is the most effective mechanism to explain how monetary policy affects corporate financial decisions in an emerging market due to its under-developed and bank-based financial system (Mengesha & Holmes, 2013; Yang et al., 2017). Credit transmission channel includes bank lending mechanism and broad credit mechanism. The former states that monetary loosening (tightening) policy increases (decreases) bank reserves and deposits that increase (decrease) the availability of bank loans. The latter posits that the asymmetry of information between borrowers (i.e., firms) and lenders (i.e., financial intermediaries and markets) results in a premium in the cost of external funds over the cost of internal funds (Oliner Stephen & Rudebusch, 1996). Consequently, monetary tightening (loosening) would increase (decrease) the cost of external financing relative to internal financing. Therefore, monetary tightening (loosening) policy affects negatively (positively) corporate dividend policy through its positive (negative) effect on external financing. In this paper, we argue that Vietnamese stock market is a promising laboratory to investigate how monetary policy affects corporate dividend policy via credit channel due to three reasons. First, during the period from 2007 to 2017, Vietnamese government pursued monetary loosening policy continuously to enhance economic growth. Second, as an emerging market, Vietnam has an under-developed financial system characterised by a small bond market dominated by government bonds, a weak competition banking system dominated by state-owned banks and a strong informal financial system (Nguyen, 2018; Thanh et al., 2011). These characteristics make policy interest rate ineffective in monetary policy and the State Bank of Vietnam uses money supply as a key instrument of its monetary policy. Many studies find
supporting evidence of quantity-based mechanism in Vietnam (Anwar & Nguyen, 2018; Bhattacharya, 2014; Nguyen et al., 2012). Third, many prior studies show that credit channel is the dominant monetary transmission channel in Vietnam (Hung & Pfau, 2009; Nguyen, 2015). In this paper, we hypothesise that monetary loosening leads to lower costs of external financing and thus firms tend to increase their dividends.

First, we use both logit and tobit models to investigate the effect of monetary loosening on the propensity to pay dividends and dividend payout ratio respectively. In addition, Yang et al. (2017) find that cash holdings are able to mitigate the effect of monetary policy on firm investment; therefore, we also insert an interactive term between money supply growth and cash holdings into these logit and tobit regression models to examine how corporate liquidity influences the relationship between loosening monetary policy and dividend decisions. Second, following Pandey and Bhat (2007), we develop a dynamic model to analyse how money supply growth affects the speed of dividend adjustment. We use M2 growth rate as a proxy for monetary policy. Control variables include firm profitability, financial leverage, asset tangibility, firm size, Tobin’s Q, asset growth, retained earnings, and bank relationship. With a sample of 4,493 observations from 751 listed firms in Vietnamese stock market over the period from 2008 to 2017, we find that money supply growth is positively related to both the choice to pay dividends and the magnitude of dividends. Corporate cash holdings are able to mitigate the effect of monetary expansion on dividend policy. Furthermore, money supply growth is positively associated with the speed of dividend adjustment.

This study contributes to the literature on corporate financial decisions by providing evidence that monetary loosening policy affects corporate dividend policy via credit transmission channel. Moreover, our research findings imply that corporate managers should follow monetary supply to predict its effects on corporate activities and prepare proactive plans. Policy makers also have more understandings on the transmission channel of monetary loosening policy and thus conduct the policy more effectively.

The rest of this paper is organised as follows. The second section presents institutional environment, literature review and hypothesis development. The third describes research models and data collection. The fourth section reports regression results, and the fifth section presents main conclusions.
LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

Miller and Modigliani (1961) posit that corporate dividend policy is irrelevant since they assume that the capital market is perfect. However, there are many market frictions in the real world and corporate dividend decisions are determined by several factors. Prior research shows that one of the most common determinant of dividend policy is the information asymmetry between managers and outside investors. According to the pecking order theory developed by Myers and Majluf (1984), firm managers have an informational advantage over outside investors and they only raise external funds to finance available investment opportunities with new issues if they know that these new securities are overvalued. Investors recognising this problem tend to place a lower value to the new issues. Consequently, firms prefer internal funds to external funds and thus they tend to save retained earnings for their investment projects instead of distributing dividends. There are many prior studies that document empirical supporting evidence for the pecking order theory (Aivazian et al., 2003; Al Shabibi & Ramesh, 2011; Al-Malkawi, 2007; Al-Najjar & Hussainey, 2009; Cao et al., 2017; Denis & Osobov, 2008; Fama & French, 2001; Holder et al., 1998; Jabbouri, 2016; Jensen et al., 1992; Jiraporn et al., 2011; Kowalewski et al., 2007; Thanatawee, 2011; Tran et al., 2017).

The extant literature also shows that monetary policy may be transmitted to the real economy through four major transmission channels including credit channel, interest rate channel, equity price channel, and exchange rate channel (Nguyen, 2015; Vo & Nguyen, 2017). Bank lending mechanism states that monetary policy affects both bank assets (loans) and banks’ liabilities (deposits). An expansionary monetary policy that raises bank reserves and bank deposits increase the availability of bank loans (Ciccarelli et al., 2015). Empirical evidence of bank lending mechanism is found in many countries namely Europe (Altunbaş et al., 2002), China (Fungáčová et al., 2016; Gunji & Yuan, 2010) and Malaysia (Abdul Karim et al., 2011). When firms have better access to bank credit to finance their investment opportunities, they are more likely to pay dividends. In addition, broad credit mechanism states that information asymmetry between firms and their creditors is present when lenders process loan applications (adverse selection) and monitor the credit contracts (moral hazard problems). Since lenders have an information disadvantage over firm managers, they only provide firms with funds if firms agree to pay them premium that makes external financing more expensive than internal financing. When the government conducts an expansionary monetary policy, the cost of external financing is lower (Oliner Stephen & Rudebusch, 1996). Prior empirical studies document that the broad credit channel is operational in monetary policy transmission in the United States (Bernanke & Gertler, 1995; Christensen & Dib, 2008; Warner & Georges, 2001) and European
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countries including Portugal, Ireland, Italy, Greece, and Spain (Ciccarelli et al., 2015). When the cost of external finance is comparatively lower under the impact of monetary loosening policy, firms are more likely to pay dividends (Myers & Majluf, 1984). Pandey and Bhat (2007) use a dummy variable to analyse how a monetary restriction affects corporate payout ratio in India and find that a monetary tightening negatively affects dividends. It can cause about a 5%–6% decrease in payout ratio. In this paper, we examine the effect of monetary loosening on both the choice to pay dividends and the magnitude of dividends.

We find that Vietnam is an interesting institutional environment to investigate the impact of monetary loosening on dividend policy because of three reasons. First, Vietnamese government maintains monetary expansion to stimulate economic growth over a long period from 2007 to 2017. Second, as an emerging market, Vietnam has an under-developed financial system that makes the price-based mechanism of monetary policy ineffective and the quantity-based mechanism becomes the key instrument (Smets & Wouters, 2002). Vietnamese securities market was established in 2000 and is significantly developing since 2005. Therefore, Vietnamese bond market is still small and dominated by government bonds. This status of the bond market hampers the channel in which short-term policy rate is transmitted to the yield curve (Moreno, 2008). In addition, competition in the banking system is weak. Four state-owned banks including Agribank, BIDV, Vietcombank and Vietinbank are the largest financial institutions with approximately 50% market share. In addition, commercial banks are controlled strictly by the State Bank of Vietnam. Consequently, banks incur high costs for processing information, evaluating projects, and monitoring borrowers. They continuously maintain high bank reserves and policy rate cannot have efficient effects on deposit and lending rates (Agénor & El Aynaoui, 2010). Furthermore, Vietnam has a strong informal financial system. Many studies show that SMEs and households in Vietnam raise funds from informal lenders as an alternative to formal credit (Nguyen, 2018; Thanh et al., 2011). When policy rate is increased, borrowers may switch to informal sources of finance with lower financing costs and this increase is not effective. As a result, the State Bank of Vietnam uses money supply as the major instrument of monetary policy. Nguyen (2015) examines potential channels of monetary transmission in Vietnam during the period from 1995 to 2009 with monthly data and find that the changes in money supply have significant effects on output in the short run through the exchange rate and the credit channel. Vo and Nguyen (2017) investigate monetary policy transmission in Vietnam with monthly data between January 2003 to December 2012 and find that credit channel is effective while there is no significance evidence for both the exchange rate channel and the asset price channel. Anwar and Nguyen (2018),
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and Hung and Pfau (2009) also document empirical supporting evidence for credit channel in Vietnam.

Based on the extant literature and the institutional environment of Vietnam, we argue that when money supply increases under a monetary loosening policy, firms incur lower costs of external financial and thus they are less likely to retain earnings for future investment. Therefore, a loosening monetary policy makes firms pay more dividends.

\[ H_1: \text{Dividend policy is positively affected by money supply growth} \]

In addition, dividend payment is a means to disgorge cash. Several studies find a positive relationship between corporate cash holding and dividend policy (Brockman & Unlu, 2009; Tran et al., 2017). We argue that firms with more cash holdings are less likely to rely on external finance and they are more flexible to manage their dividend policy. Therefore, the effect of a monetary loosening on corporate dividend policy is mitigated by corporate cash reserves.

\[ H_2: \text{Corporate cash holdings mitigates the positive effect of money supply growth on dividend policy} \]

Furthermore, based on a pioneer field study on the United State firms’ dividend decisions, Lintner (1956) proposes a partial adjustment model to describe corporate dividend behaviour. Accordingly, firms partially adjust their dividend towards target payout ratio every year. Pandey and Bhat (2007) use a dummy variable to proxy tightening policy and find that a monetary restriction has a significant impact on dividend payout behaviour. We argue that under a monetary expansion, firms have better access to credit and incur lower transaction costs; therefore, they tend to increase dividend smoothing and speed of adjustment.

\[ H_3: \text{Money supply growth positively affects dividend smoothing and speed of adjustment} \]

RESEARCH METHODS

In this section, we design research models to test our research hypothesis and describe research data. First, we employ logit and tobit regression models to examine how monetary loosening affects the choice to pay dividends and payout ratio respectively and the role of cash holdings to mitigate this effect. Furthermore, we develop a dynamic model to investigate the effect of money supply growth
on the speed of dividend adjustment. Second, we present how to construct our research sample, its distribution and descriptive statistics of key research variables.

**Research Models**

In line with Brockman and Unlu (2009), Shao et al. (2013), and Tran et al. (2017), we investigate effect of money supply on both the propensity to pay and dividend magnitude with the following models.

\[
PAY_t = \alpha + \beta_1 \text{MGR}_{t-1} + \beta_2 \text{CAS}_t + \beta_3 \text{ROA}_t + \beta_4 \text{LEV}_t + \beta_5 \text{TAN}_t + \beta_6 \text{SIZ}_t + \\
\beta_7 \text{TOB}_t + \beta_8 \text{GRO}_t + \beta_9 \text{REA}_t + \beta_{10} \text{BAR}_t + \eta \text{Industry dummies} + \epsilon
\]  

(1)

\[
DPR_t = \alpha + \beta_1 \text{MGR}_{t-1} + \beta_2 \text{CAS}_t + \beta_3 \text{ROA}_t + \beta_4 \text{LEV}_t + \beta_5 \text{TAN}_t + \beta_6 \text{SIZ}_t + \\
\beta_7 \text{TOB}_t + \beta_8 \text{GRO}_t + \beta_9 \text{REA}_t + \beta_{10} \text{BAR}_t + \eta \text{Industry dummies} + \epsilon
\]  

(2)

In the equations, \(PAY_t\) is paying propensity assigned 1 if firms pay dividend in year \(t\) and 0 otherwise. \(DPR\) is dividend payout ratio ratio measured by dividend deflated by total assets in year \(t\). Besides, to extend this line of analysis, we replace \(PAY_t\) in Equation 1 by dividend initiation (\(INI_t\)) and dividend omission (\(OMT_t\)), separately. \(INI_t\) is assigned 1 if firms fail to pay dividend in year \(t-1\) but pay dividend in year \(t\) and 0 otherwise. \(OMT_t\) is assigned 1 if firms pay dividend in year \(t-1\) but fail to pay dividend in year \(t\). \(MGR_{t-1}\) is the growth rate of money supply M2 in year \(t-1\). We use the first lag of M2 growth rate since one year is a common lag in effect of monetary policy in prior studies (Bhattacharya, 2014; Yang et al., 2017). The coefficient \(\beta_1\) is expected to be positive. \(\text{ROA}_t\) is firm profitability measured by return on assets ratio in year \(t\). When firms are more profitable, they tend to pay more dividend (Fama & French, 2001). \(\text{CAS}_t\) is cash holding calculated by total cash and cash equivalents deflated by total assets in year \(t\). Higher cash holding may lead to more dividend distribution since dividend is a means to disgorge cash (DeAngelo et al., 2006). \(\text{LEV}_t\) is firm leverage measured by total liabilities to total assets ratio in year \(t\). \(\text{TAN}_t\) is tangibility measured by net fixed assets divided by total assets in year \(t\). \(\text{SIZ}_t\) is firm size calculated by natural logarithm of total assets in year \(t\). According to pecking order theory, firms with higher leverage, lower tangibility and smaller size face higher costs of external financing (Myers & Majluf, 1984). Therefore, they retain more earnings for future projects. \(\text{TOB}_t\) is Tobin’s Q measured by market value of equity plus book value of liabilities deflated by assets in year \(t\). \(\text{GRO}_t\) is firm growth calculated by growth rate of total assets in year \(t\). Firms with more investment opportunities represented by Tobin’s Q and firm growth are less likely to pay dividend. \(\text{REA}_t\) is firm maturity measured by retained earnings deflated by total assets in year \(t\). According to life cycle theory, mature firms have fewer investment opportunities and they tend to
distribute more dividend (Grullon et al., 2002). BAR\textsubscript{t} is bank relationship measured by total bank debt to assets ratio in year t. When bank relationship is stronger, firms incur lower transaction costs and their dividend payout ratio is higher. Expected signs of explanatory variables are presented as follows: MGR\textsubscript{t–1} (+), CAS\textsubscript{t} (+), ROA\textsubscript{t} (+), LEV\textsubscript{t} (-), TAN\textsubscript{t} (+), SIZ\textsubscript{t} (+), TOB\textsubscript{t} (-), GRO\textsubscript{t} (-), REA\textsubscript{t} (+), BAR\textsubscript{t} (+).

In addition, to examine how corporate cash holdings reduce the effect of monetary expansion on dividend policy, we employ an interactive term between cash holdings and the growth of money supply.

\begin{align*}
\text{PAY}_t = \alpha + \beta_1 \text{MGR}_{t-1} + \beta_2 \text{CAS}_t + \beta_3 \text{MGR}_{t-1} \times \text{CAS}_t + \beta_4 \text{ROA}_t + \beta_5 \text{LEV}_t + \\
\beta_6 \text{TAN}_t + \beta_7 \text{SIZ}_t + \beta_8 \text{TOB}_t + \beta_9 \text{GRO}_t + \beta_{10} \text{REA}_t + \beta_{11} \text{BAR}_t + \\
\eta \text{Industry dummies} + \epsilon
\end{align*}

(3)

\begin{align*}
\text{DPR}_t = \alpha + \beta_1 \text{MGR}_{t-1} + \beta_2 \text{CAS}_t + \beta_3 \text{MGR}_{t-1} \times \text{CAS}_t + \beta_4 \text{ROA}_t + \beta_5 \text{LEV}_t + \\
\beta_6 \text{TAN}_t + \beta_7 \text{SIZ}_t + \beta_8 \text{TOB}_t + \beta_9 \text{GRO}_t + \beta_{10} \text{REA}_t + \beta_{11} \text{BAR}_t + \\
\eta \text{Industry dummies} + \epsilon
\end{align*}

(4)

The coefficient \(\beta_5\) in both Equations 3 and 4 is expected to be negative.

According to dividend irrelevance theory developed by Miller and Modigliani (1961), both investors and firms are indifferent between dividends and retained earnings in a perfect capital market. However, in the real world, corporate dividend policy is determined by many market frictions. Firms decide to distribute earnings as dividends when marginal benefits exceed marginal costs of dividend payment. Following Brockman and Unlu (2009), Shao et al. (2013), and Tran et al. (2017), we use the pooled logit regression model to estimate Equations 1 and 3 since the choice to pay dividends (PAY) is a binary variable. In addition, from econometric perspective, the DPR is left-censored; therefore, using ordinary least squares (OLS) regression for the full sample including both payers and non-payers or the reduced sample with only payers leads to biased results due to the problem of selection bias. Following many prior studies (Ashraf & Zheng, 2015; Cao et al., 2017; Tran et al., 2017), we employ the pooled Tobit regression to estimate Equations 2 and 4 with the full sample to avoid this problem (Wooldridge, 2010).

Moreover, we continue to investigate how money supply affects the speed of dividend adjustment by adding an interaction between money supply growth and dividend per share to Lintner’s partial adjusted model modified by Fama and Babiak (1968) as follows:
In the equation, \( \text{DPS}_t \) is dividend per share in year \( t \), \( \text{EPS}_t \) is earnings per share in year \( t \), \( \text{EPS}_{t-1} \) is earnings per share in year \( t-1 \), and \( \text{DPS}_{t-1} \) is dividend per share in year \( t-1 \). The speed of adjustment is \( 1 - (\beta_3 + \beta_5 \text{MGR}_{t-1}) \); therefore, \( \beta_5 \) is expected to be negative.

According to Mileva (2007) and Roodman (2009), in order to control endogeneity problems and autocorrelation, generalised method of moments (GMM) regression should be employed to estimate a dynamic instead of OLS or fixed effect and random effect models. Therefore, Equation 5 is estimated with two-step system GMM regression with finite sample correction for standard errors (Windmeijer, 2005). Besides, fixed effect and random effect models with robust standard errors are also used as robustness checks. All firm-level variables are winsorised at 1\% and all regression models are run with industry dummies in order to control outlier effect and industry effect respectively.

**Research Data**

To construct research data, we collect data from all non-financial firms listed in two stock exchanges in Vietnam. Financial information is supplied by Stoxplus. Money supply (M2) growth is collected from the statistics of the Asian Development Bank. After eliminating observations with missing information, we obtain the final sample of 4,493 firm-years from 751 firms during the period from 2008 to 2017. Since the research period includes the financial crisis, we have controlled the potential effect of this crisis by adding a crisis dummy into all regression models. The dummy is assigned 1 if firm-years belong 2008 or 2009 and 0 otherwise. We find that our research findings remain stable.

Table 1 presents description of research data. Panel A shows that the annual number of firms rises sharply from 233 to 409 over the period from 2008 to 2010, then it starts to increase slightly from 2012. In 2017, there are 577 firms included in the research sample. Panel B reports number of firm-years by industry in accordance with the Industry Classification Benchmark (ICB) classification. Oil and gas constitutes the smallest proportion of firms with 1\% while industrials accounts for the largest percentage at 45.27\%. Consumer services and basic materials range
from 14.5% to 16.5%. Consumer goods is at 9.59% while technology and health care consist of 3% to 4% of the sample.

Table 1. Description of research sample

| Year | N     | Percent | Year | N     | Percent |
|------|-------|---------|------|-------|---------|
| 2008 | 223   | 4.96    | 2013 | 479   | 10.66   |
| 2009 | 300   | 6.68    | 2014 | 496   | 11.04   |
| 2010 | 409   | 9.10    | 2015 | 533   | 11.86   |
| 2011 | 453   | 10.08   | 2016 | 555   | 12.35   |
| 2012 | 468   | 10.42   | 2017 | 577   | 12.84   |

Industry distribution

| Industry          | N     | Percent | Industry          | N     | Percent |
|-------------------|-------|---------|-------------------|-------|---------|
| Oil & gas         | 45    | 1.00    | Health care       | 163   | 3.63    |
| Basic materials   | 656   | 14.60   | Consumer services | 720   | 16.02   |
| Industrials       | 2,034 | 45.27   | Utilities         | 273   | 6.08    |
| Consumer goods    | 431   | 9.59    | Technology        | 171   | 3.81    |

Table 2 presents descriptive statistics of key research variables. There are 77% of firms in the research sample which are dividend payers. On average, dividend accounts for 3.1% of total assets and dividend per share is 1,124 VND while earnings per share is 2,591 VND. M2 grows at about 21.4% per year and the growth rate ranges from 12.1% to 46.1%. Average return on assets is 6.4% and approximately 50% of corporate assets are financed by debt.

Table 2. Descriptive statistics

| Variables  | Mean | Median | SD   | Min  | Max  |
|------------|------|--------|------|------|------|
| \( PAY_t \) | 0.777| 1.000  | 0.417| 0.000| 1.000|
| \( DPR_t \) | 0.031| 0.019  | 0.038| 0.000| 0.201|
| \( DPS_t \) | 1.124| 0.918  | 1.190| 0.000| 5.959|
| \( EPS_t \) | 2.591| 1.904  | 2.813| –3.322| 13.979|
| \( MGR_{t-1} \) | 0.214| 0.185  | 0.082| 0.121| 0.461|
| \( CAS_t \) | 0.102| 0.062  | 0.111| 0.001| 0.537|

(continued on next page)
Table 2. (continued)

| Variables | Mean  | Median | SD    | Min   | Max   |
|-----------|-------|--------|-------|-------|-------|
| ROA<sub>t</sub> | 0.064 | 0.050  | 0.071 | -0.132 | 0.320 |
| LEV<sub>t</sub> | 0.494 | 0.518  | 0.222 | 0.043 | 0.906 |
| TAN<sub>t</sub> | 0.210 | 0.149  | 0.195 | 0.000 | 0.837 |
| SIZ<sub>t</sub> | 26.891 | 26.793 | 1.448 | 23.740 | 30.801 |
| TOB<sub>t</sub> | 1.054 | 0.846  | 0.772 | 0.203 | 4.589 |
| GRO<sub>t</sub> | 0.140 | 0.846  | 0.292 | -0.343 | 1.694 |
| REA<sub>t</sub> | 0.063 | 0.050  | 0.089 | -0.271 | 0.349 |
| BAR<sub>t</sub> | 0.378 | 0.383  | 0.210 | 0.010 | 0.828 |

Notes: PAY = paying propensity; DPR = dividend payout ratio; DPS = dividend per share; MGR = M2 growth rate; ROA = firm profitability; CAS = cash holding; LEV = firm leverage; TAN = tangibility; SIZ = firm size; TOB = Tobin’s Q; GRO = firm growth; REA = firm maturity; BAR = bank relationship; DPS is dividend per share; EPS = earnings per share.

RESEARCH RESULTS

Table 3 reports regression results of the baseline models to investigate the effect of M2 growth on dividend policy and the expanded models to analyse how cash holdings mitigate this effect. We find that M2 growth rate is positively related to the choice to pay dividends and payout ratio at 1% of significance. These findings are supporting evidence for credit transmission channel of monetary policy. When money supply is larger, credit is more available and the costs of external financing is lower under the effects of bank lending mechanism and broad credit mechanism; consequently, firms tend to raise more external funds to finance their investment projects and they are more likely to pay dividends. In addition, we also find a positive relationship between dividend initiation and M2 growth rate. This indicates that a monetary loosening also makes firms more likely to initiate their dividend payment after a dividend omission.

Moreover, our estimation results also show that the interactive term between M2 growth rate and cash holdings is negatively related to both the choice to pay and the magnitude of dividends. In line with Yang et al. (2017), these findings imply that firms with higher cash holdings are less affected by a monetary loosening. A higher M2 growth rate leads to a decrease in the cost of external financing; however, firms with more cash reserves are more flexible in their investment decisions and thus their dividend policy is less influenced by a monetary expansion. Besides, consistent with Denis and Osobov (2008), Fama and French (2001), and Tran et al. (2017), we find that firm profitability and firm growth affects dividend
policy positively and negatively respectively. Firms with higher growth rate have more investment opportunities; therefore, they need to restrict dividends in order to avoid external financing as suggested by the pecking order theory (Myers & Majluf, 1984).

Table 3. 
Monetary loosening, dividend policy and mitigating effect of cash

|                        | Baseline model | Initiation and omission | Mitigating effect of cash |
|------------------------|----------------|-------------------------|--------------------------|
|                        | PAY<sub>t</sub> | DPR<sub>t</sub>          | INT<sub>t</sub>         | OMT<sub>t</sub>         | PAY<sub>t</sub> | DPR<sub>t</sub> |
| MGR<sub>t-1</sub>     | 2.6617***      | 0.0257***               | 2.9728***              | –0.2672               | 3.5580***      | 0.0405***     |
|                        | (4.79)         | (3.58)                  | (4.77)                 | (–0.36)               | (4.95)         | (4.04)        |
| CAS<sub>t</sub>       | 5.2619***      | 0.0356***               | –0.7806               | –2.0856***            | 8.0380***      | 0.0685***     |
|                        | (5.44)         | (4.57)                  | (–1.34)               | (–2.83)               | (5.12)         | (3.54)        |
| MGR<sub>t-1</sub>*CAS<sub>t</sub> |                |                         |                        |                       | –13.5299*     | –0.1585**     |
|                        |                |                         |                        |                       | (–1.95)        | (–1.97)       |
| ROA<sub>t</sub>       | 11.0491***     | 0.3563***               | –0.5338               | –9.6390***            | 11.1009***     | 0.3586***     |
|                        | (6.36)         | (14.03)                 | (–0.39)               | (–5.54)               | (9.60)         | (14.08)       |
| LEV<sub>t</sub>       | 2.4335***      | –0.0102*                | –0.1312               | –0.9934*              | 2.4207***      | –0.0103*      |
|                        | (4.41)         | (–1.73)                 | (–0.25)               | (–1.66)               | (5.82)         | (–1.76)       |
| TAN<sub>t</sub>       | 0.6211*        | 0.0044                  | 0.3245                | –0.1815               | 0.6214***      | 0.0044        |
|                        | (1.88)         | (1.16)                  | (1.18)                | (–0.62)               | (2.73)         | (1.15)        |
| SIZ<sub>t</sub>       | 0.1794***      | –0.0007                 | –0.0779*              | –0.1047**             | 0.1813***      | –0.0007       |
|                        | (3.55)         | (–1.12)                 | (–1.84)               | (–2.41)               | (5.26)         | (–1.09)       |
| TOB<sub>t</sub>       | –0.1145        | 0.0042***               | –0.1567               | 0.0306                | –0.1192        | 0.0041***     |
|                        | (–1.23)        | (3.06)                  | (–1.60)               | (0.33)                | (–1.61)        | (2.99)        |
| GRO<sub>t</sub>       | –0.9125***     | –0.0299***              | 0.7197***             | –0.0553               | –0.9083***     | –0.0298***    |
|                        | (–6.24)        | (–12.86)                | (4.54)                | (–0.31)               | (–6.74)        | (–12.87)      |
| REA<sub>t</sub>       | 6.0813***      | 0.0134                  | 0.6886                | 2.9381***             | 6.0480***      | 0.0126        |
|                        | (4.45)         | (0.75)                  | (0.76)                | (3.02)                | (8.06)         | (0.71)        |
| BAR<sub>t</sub>       | –0.1120        | 0.0067                  | 0.4390                | 1.1922*               | –0.1008        | 0.0068        |
|                        | (–0.20)        | (1.22)                  | (0.81)                | (1.88)                | (–0.23)        | (1.24)        |
| Intercept             | –6.0069***     | 0.0204                  | –0.7420               | 0.9221                | –6.2451***     | 0.0167        |
|                        | (–4.42)        | (1.24)                  | (–0.67)               | (0.81)                | (–6.51)        | (0.99)        |
| Industry dummies      | Yes            | Yes                     | Yes                   | Yes                   | Yes            | Yes           |

(continued on next page)
Furthermore, Table 4 presents estimation results of the partial adjustment model to examine effect of money supply on dividend adjustment speed. We find that the interaction between money supply growth and the lagged dividend per share has a significantly negative coefficient. Based on the partial adjustment model presented in Equation (5), this finding indicates that M2 growth rate is positively associated with the speed of dividend adjustment. When money supply increases under the impact of a monetary loosening policy, firms face higher availability and lower costs of external funds. Therefore, they have lower propensity to retain earnings and adjust their dividends towards the target payout ratio faster.

Table 4.
**Monetary loosening and dividend adjustment speed**

| Dependent variable is DPS$_t$ | Fixed effects | Random effects | System GMM |
|-------------------------------|---------------|----------------|------------|
| EPS$_t$                       | 0.0945***     | 0.0871***      | 0.1141***  |
|                               | (4.76)        | (4.41)         | (5.44)     |
| EPS$_{t-1}$                   | 0.1109***     | 0.0938***      | 0.1145***  |
|                               | (8.09)        | (6.68)         | (3.27)     |
| DPS$_{t-1}$                   | 0.1692***     | 0.5279***      | 1.3696***  |
|                               | (3.22)        | (8.96)         | (3.49)     |
| MGR$_{t-1}$                   | 0.8483***     | 1.5676***      | 6.2396***  |
|                               | (3.00)        | (4.99)         | (2.91)     |
| MGR$_{t-1}$ * DPS$_{t-1}$    | –1.0354***    | –1.4525***     | –6.3805*** |
|                               | (–4.34)       | (–5.48)        | (–2.67)    |
| CAS$_t$                       | 0.2920        | 0.3968**       | 0.4489     |
|                               | (1.38)        | (2.05)         | (1.59)     |

(continued on next page)
### Table 4: (continued)

| Dependent variable is DPS<sub>t</sub> | Fixed effects       | Random effects       | System GMM       |
|------------------------------------|----------------------|----------------------|------------------|
| ROA<sub>t</sub>                   | 2.5810***            | 4.3366***            | 3.4148***        |
|                                    | (2.90)               | (5.51)               | (3.83)           |
| LEV<sub>t</sub>                   | -0.0366              | 0.0669               | 0.1364           |
|                                    | (-0.14)              | (0.46)               | (0.71)           |
| TAN<sub>t</sub>                   | 0.0075               | -0.1568**            | -0.0446          |
|                                    | (0.05)               | (-2.35)              | (-0.53)          |
| SIZ<sub>t</sub>                   | -0.0212              | -0.0111              | -0.0333**        |
|                                    | (-0.40)              | (-0.94)              | (-2.34)          |
| TOB<sub>t</sub>                   | 0.0617*              | 0.0282               | 0.0709**         |
|                                    | (1.65)               | (0.90)               | (2.09)           |
| GRO<sub>t</sub>                   | -0.3818****          | -0.5022***           | -0.3894***       |
|                                    | (-6.51)              | (-9.41)              | (-6.64)          |
| REA<sub>t</sub>                   | -1.6050***           | -0.9765***           | -1.7267***       |
|                                    | (-3.48)              | (-3.00)              | (-3.95)          |
| BAR<sub>t</sub>                   | 0.3492*              | 0.2375*              | 0.1681           |
|                                    | (1.69)               | (1.65)               | (0.88)           |
| Intercept                          | 0.8136               | 0.1990               | -0.2784          |
|                                    | (0.58)               | (0.61)               | (-0.52)          |
| Industry dummies                  | Yes                  | Yes                  | Yes              |
| No. observations                  | 4,079                | 4,079                | 4,079            |
| F-statistics/Wald chi-squared     | 21.54***             | 2502.15***           | 1103.64***       |
| AR(1)                             |                      |                      | -4.74***         |
| AR(2)                             |                      |                      | -0.28            |
| Hansen test                       |                      |                      | 25.93            |

*Notes: * is significant at 10%; ** is significant at 5%; *** is significant at 1%*

### CONCLUSION

According to the pecking order theory of dividends, firms tend to pay more dividends when they have better access to credit and lower costs of external financing. Many prior studies find supporting evidence to this theory with firm-specific variables. In this paper, we argue that monetary policy may affect corporate dividend policy since it influences both the availability and the costs of external financing via two
mechanisms of credit transmission channel, namely bank lending and broad credit. We find that Vietnam is a promising laboratory to examine the effect of monetary loosening policy on corporate dividend decisions because of three reasons: (1) Vietnamese government conducts monetary loosening policy continuously between 2007 and 2017; (2) the monetary policy relies mainly on money supply due to its under-developed financial system; and (3) credit channel is the dominant monetary transmission channel. Using a research sample of 4,493 observations firms from 2008 to 2017, we document that monetary loosening positively affects corporate dividend policy and this effect is mitigated by corporate cash holdings. Besides, we also find that firms tend to adjust their dividends faster under expansionary monetary policy. These findings imply that managers and investors need to recognise the effect of monetary on corporate financial decisions and managers may use corporate liquidity management to mitigate this effect. In addition, these understandings help policy makers conduct monetary policy more effectively to change corporate financial decisions.

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