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THE BANK LENDING CHANNEL REVISITED: EVIDENCE FROM INDONESIA

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Abstract

In this paper, we analyze the effectiveness of the bank lending channel in Indonesia. Our findings highlight that the bank lending channel occurs with a time lag of two quarters. In other words, monetary policy tightening deteriorates bank loan growth two quarters ahead. Moreover, we also find that the presence of the bank lending channel is conditional on the extent to which credit crunch may occur. Specifically, bank loan growth two quarters ahead is negatively affected by monetary policy tighthening when funding liquidity and undisbursed loans decrease. Hence, higher funding liquidity and undisbursed loans depicting credit crunch can impede the bank lending channel. In addition, we highlight that a decline in loan growth two quarters ahead following monetary policy tightening is partly attributed to a decline in bank capital ratio, supporting the bank capital channel hypothesis. Eventually, strengthening bank capital management is essential for the effectiveness of the bank lending channel, while other measures than monetary policy expansions are also worth considering to boost bank lending, particularly in times of credit crunch.

Keywords: Bank lending channel, credit crunch, bank capitalization, Indonesia
JEL Classifications: G21, G28

1. Introduction

The most severe pandemic in a century, driven by novel Coronavirus (i.e., COVID-19), has triggered widespread global uncertainty since the beginning of 2020. When the virus was discovered in Wuhan, China, it spreads rapidly over the world, triggering a global economic disaster. The confirmed cases of COVID-19 in Indonesia have risen to one million inviduals in early 2021 (Ministry of Health of Indonesia, 2021). Meanwhile, due to insufficient domestic demand, inflation tends to decline and banks are more circumspect when issuing credit amidst the COVID-19 pandemic.

According to Indonesia's Banking Survey (2021), the credit growth appears to have been highly fluctuating before and during the pandemic. Prior to the crisis, annual credit growth was 8.24% year-on-year (yoy) in 2017. Despite slowing credit growth, financing through capital markets, bonds and medium-term notes (MTNs) increase. In the second quarter of 2018, the banks' intermediation function improved progressively, with the aggregate credit growth of 10.75% yoy, led by working capital loans of 11.5% yoy. Nevertheless, the aggregate credit growth slowed in 2019 to 6.08% yoy driven by a decline in demand for business loans.

Indeed, the COVID-19 pandemic has restricted bank credit growth. In the beginning of 2020, the aggregate credit growth in banking reached 7.95% in March 2020, driven by a 16.84% increase in annual foreign currency credit. However, large-scale social restriction policies to contain the COVID-19 pandemic has decreased working capital credit due to the cessation of business activities after the first quarter of 2020. Despite increasing consumer and investment credit, working capital loans have fallen by 1.25% (yoy) since June 2020. Aggregate credit growth, subsequently, dropped to 0.47% in October 2020, owing to sluggish investment and consumer credit growth. Until March 2021, aggregate credit growth was only 3.77% yoy, while it reached 1.39% yoy in average throughout the COVID-19 crisis. This level was was lower than previous annual credit growth of 9.47% in average between 2017 and 2019. However, the Financial System Stability Index points out a normal-stable range below the threshold, increasing liquid assets to third-party funds and maintaining stable the non-performing loans (NPL) ratio. Specifically, NPL remains steady at 3.11% (gross) and 1.16% (net) in the second quarter of 2020, although working capital non-performing loans increase from 3.63% in January 2020 to 4.09% in March 2021.

Moreover, expanding COVID-19 preventive efforts and the need to stimulate the economy, the Central Bank of Indonesia (Bank Indonesia) pursues accommodative monetary and macroprudential policies to accelerate economic recovery and maintain financial system resilience. For instance, expansionary monetary policy is implemented in which Bank Indonesia decreases 7-Day Reverse Repo Rate (BI7DRR) by 125 basis points to 3.75% throughout 2020 as a precautionary measure to spur economic growth amidst the declining global economy. Following the policy rate drop, the average of deposit rate declined by 155 basis points to 4.88%, which is expected to stimulate credit growth through a decline in lending rates.

In times of crises, Bernanke & Blinder (1988) indeed emphasize the importance of the bank lending channel in transmitting monetary policy to affect economic growth. There has been substantial research conducted on the bank lending channel in the United States, Europe, and Africa (Ashcraft, 2006; Favero et al., 1999; Hsing & Hsieh, 2014; Kashyap & Stein, 1995, 2000; Kishan & Opiela, 2000; Matousek & Sarantis, 2009). However, studies on the bank lending channel are still limited in the context of emerging markets.

In this paper, we revisit and extend previous literature on the bank lending channel in the Indonesian context. Warjiyo (2004) points out that assessing the bank lending channel in Indonesia is relevant, because this is one of the mechanisms through which monetary policy may affect the real economy with a bank-based financial system. Specifically, the banking industry's total assets still contributes more than 70% of the Indonesian financial system's total assets in 2020. Moreover, the role of Indonesian banking is also essential at the global level, at least in the Asia-Pacific region. This is because return on average equities (ROAEs) of Indonesian banking outweighs ROAEs of other banking industries in the Asia-Pacific Region. Dahl et al. (2019) point out that ROAs in Indonesian banking reached 13.2% from 2014 to 2018, while ROAEs in Asia-Pacific banking was only 9.1% in average during the same period.

Eventually, the rest of this paper is structured as follows. Section 2 provides related literature review. Section 3 presents our data, variables and methodology. Section 4 discusses our empirical findings, while Section 5 concludes.

2. Literature review

The bank lending channel is an essential element of monetary policy transmissions in countries with a bank-based economy (Agung, 2000). Through the bank lending channel, monetary policy may affect the supply of bank loans, because bank loans and government bonds are not a perfect substitution of bank assets (Fungacova et al., 2021). In this sense, monetary policy expansion tends to decrease bank incentives to hold more deposits, which can in turn boost bank lending activities. However, bank lending behavior in responding monetary policy is indeed conditional on bank-specific and country-specific factors, such as bank liquidity, efficiency, capitalization, size of total assets, competition and money market development (Kasyhap and Stein, 1995 & 2000; Olivero et al., 2011; Fugacova et al., 2021; Zhan et al., 2021).

With regards to the impact of bank-specific factors on the bank lending channel, banks with more liquid assets can still boost lending activities in times of monetary policy contraction and hence, rendering the bank lending channel ineffective (Kasyhap and Stein, 2000). A recent study by Mishra and Burns (2017) also documents that although monetary policy has a direct impact on bank lending, the bank lending channel also operates through changes in bank liqudity with a time lag. Meanwhile, bank efficiency is also found to affect the bank lending channel. Higher bank efficiency tends to enable the bank lending channel, particularly for banks with low loans-to-deposits ratio and banks operating during the periods when shadow banking activities are more prevalent (Fungacova et al., 2021). The bank lending channel is more effective in large banks, because large banks may also exhibit lower incentives to hold more liquidity during monetary policy contractions (Fungacova et al., 2021).

Concerning the influence of country-specific environments, greater competition in the banking industry indeed reduces the effectiveness of monetary policy transmission throgh the bank lending channel as in Olivero et al. (2011). This is because higher competition will increase the cost of deposits, while holding more deposits is also more costly for banks during monetary policy expansion. Hence, banks in more competitive markets are still able to spur lending activities due to an increase in monetary policy rate, suggesting the absence of the bank lending channel. Using a sample of Chinese banks from 2010 to 2018, Zhan et al. (2021) find that money market development influences the bank lending channel differently for various sub-market types and bank-specific factors.

Despite a large number of studies highlight the issues of the bank lending channel, prior studies using a cross-country setting remains inconclusive. Using a sample of banks in developed countries in Europe (Italy, Spain, Germany and France), Favarro et al. (1992) do not find the presence of the bank lending channel, while De Bondt (1999) document the bank lending channel in Germany, Belgium and Germany. Altunbas et al. (2002) also find the presence of the bank lending channel from 11 Eurozone countries in which bank capitalization also matters in affecting the supply of bank loans. Unlike Favero et al. (1999), Ehrmann et al. (2003) also find the presence of the bank lending channel in Germany, Italy, France and Spain. Using a sample of commercial banks in Asia and Latin America, Olivero et al. (2011) document that the bank lending channel is dependent on the degree of bank competition.

In the meantime, some studies using a single country setting exhibit mixed results. A study in Zambia highlights that the bank lending channel does not occur (Simpasa et al., 2014). Abuka et al. (2015) find the presence of the bank lending channel in Uganda in which higher policy rate decreases the supply of bank loans calculated from the probability of loans are granted or the volume of loans, while bank capitalization also matters in bank lending activities. Meanwhile, Hsing and Hsei (2014) document the bank lending channel in South Africa using a simultaneous equation modeling. Recently, Matousek and Solomon (2018) find the bank lending channel in Nigeria, particularly for small banks and well-capitalized banks. For large banks and weakly capitalized banks, the bank lending channel does not exist. Fungacova et al. (2021) highlight the bank lending channel in China, although this finding may also be affected by bank efficiency in some cases.

Aside from the bank lending channel that focuses on the role of monetary policy contraction in affecting a decline in bank loan growth, another strand of literature shed light on the credit crunch hypothesis that explains a decline in bank lending. The notion of credit crunch is referred to as a decline in the availability of bank credit, which may be due to a contraction in the demand side. Ghosh and Ghosh (1999) point out the problems of credit crunch occurred dynamically for one to two years in Indonesia and South Korea following the 1997 Asian financial crisis. Consequently, the ratio of non-performing loans has increased, and bank capital has decreased. Moreover, credit demand also declines due to rising interest rates and the onset of economic recession, which resulted in the bankruptcy of numerous businesses. Furthermore, their findings indicate three factors contribute to slower credit growth. These include banks' limited ability to lend due to the capital shortage and withdrawal of deposits, banks' reluctance to disburse credit due to the high risk of lending, and weakening economic conditions.

Moreover, major industrial countries, including the US, UK, France, and Italy, have experienced credit crunch in the 2007-2009 global crisis period (Bijlsma et al., 2013). Banks were unwilling to perform lending to society with the rising open rates. The UK credit crunch also began in 2007 due to a local housing market phenomenon that was originated from the US. The UK credit crisis impacted the property market directly by closing the UK Mortgage-Backed Securities (MBS) market, increasing mortgage lending standards, and decreasing bank lending willingness. Hence, this phenomenon reduces banks' ability to lend and triggers public skepticism in borrowing. There were 13,027 mortgage packages available in August 2007, but just 3,748 a year later, with an average maximum LTV ratio of 80%. Land prices fell by about 20% in the first half of 2008, with further declines later in the year.

For Indonesia, research on credit crunch is limited. Only Agung et al. (2001) highlight credit crunch phenomenon in Indonesia around the 1997 Asian crisis period. Meanwhile, some recent studies tend to focus on the bank lending channel that may explain a decline in credit growth (e.g. Agung, 2000, 2003; Agung et al., 2001; E. Wimanda et al., 2014; Sahminan & Kusuma, 2021). These studies mostly use a time-series approach to assess the link between monetary policy and bank lending activities, while no previous studies use a panel data analysis with various types of banks and periods.

For instance, Sahminan & Kusuma (2021) examined the efficiency of monetary policy transmission in Indonesia through bank loans from 1990s to early 2019. The VAR (vector autoregression) model was used on monthly data and their study demonstrates that the transmission of monetary policy in Indonesia via bank loans functions properly. The results of the VAR model's impulse response reveals that rising policy interest rate causes a considerable fall in credit and GDP growth, followed by a decrease in inflation within a few months. Agung (2003) pointed out that, as a result of financial deregulation, the bank credit channels only functions through relatively small banks, while the transmission of monetary policy through large banks was less successful due to large banks' ability to mobilize public funds and obtain loans from abroad. This finding is in line with Matousek & Sarantis (2009) who assess the bank lending channel in Nigeria. They find that smaller banks in Nigeria are indeed more sensitive to monetary policy. Following the 1990s financial crisis, the Nigerian Central Bank implemented a banking system consolidation and restriction policy.

Our contribution in this paper is twofold. First, to our best knowledge, previous research on the bank lending channel do not take intertemporal effects of monetary policy rate in affecting bank loan growth. As a matter of fact, previous studies point out that bank behavior in responding changes in bank-specific factors due to various policies might need time adjustments (Saheruddin et al., 2020; Foos et al., 2010; Sobarsyah et al., 2020). In this regard, we assess whether monetary policy contraction will affect bank lending activities one quarter and two quarters ahead. Second, we incorporate the role of credit crunch in analyzing the bank lending channel. Credit crunch will likely affect demand for bank loans and hence, the impact of monetary policy on the supply of loans might also be affected by demand stagnation.

3. Dataset, variables and methodology

To tackle the issues of bank lending channel in Indonesia, we use quarterly balance-sheet and income statement data from 118 commercial banks during the 2017-2020 period, covering conventional and Islamic banks. Country-level data related to central bank policy rate is retrieved from Bank Indonesia, while inflation is obtained from the Indonesian Statistical Agency or *Badan Pusat Statistik* (BPS).

With regards to dependent variables to investigate the presence of the bank lending channel, we use two measures of loan growth following previous literature on financial intermediation (Sobarsyah et al., 2020; Soedarmono et al., 2017). For each bank *i* at period *t*, the first measure is simply quarterly loan growth (LOANG) measured as follows. TL is defined as total loans.

$$LOANG_{i,t} = \frac{TL_{i,t} - TL_{i,t-1}}{TL_{i,t-1}}$$

Meanwhile, the second measure of loan growth is constructed by the following formula in which loan growth is adjusted by bank total assets (DLOAN) and TA denotes total assets.

$$DLOAN_{i,t} = \frac{TL_{i,t} - TL_{i,t-1}}{0.5 * (TA_{i,t} + TA_{i,t-1})}$$

As an expanatory variable of interest to analyze the presence of the bank lending channel, we use PRATE defined as the central bank's reverse repo rate. Higher PRATE is associated with monetary policy tightening, while lower PRATE indicates monetary policy expansion.

Several control variables are incorporated. First, we include the cost-to-income ratio (CTI). Higher CTI means lower bank efficiency. Hence, higher CTI may exacerbate bank riskiness and deteriorate bank capacity to disburse loans. Second, the logarithm of bank total assets (SIZE) is incorporated to control for the "too big to fail" effect. Banks with higher total assets may undertake higher risk taking by expanding lending activities (Beck et al., 2013). Meanwhile, previous literature on credit risk procyclicality also highlights that credit risk can affect the extent to which banks expand lending (Bouvatier and Lepetit, 2008; Lepetit et al., 2012). For this reason, we also include the ratio of loan loss provisions to total loans (LLP) as a control variable. Finally, inflation (INF) from year to year is also incorporated as a control variable for macroeconomic development that may influence bank lending.

In terms of research methodology, we proceed in three stages. In the first stage, we conduct regressions of bank loan growth on the central bank's policy rate and control variables. In this context, we analyze one-quarter and two-quarter lagged values of PRATE, because banks may need some time to adjust their lending decisions in dealing with monetary policy tightening or expansion. The bank lending channel exists if there is a negative link between bank loan growth and the central bank's reverse repo rate. In the second stage, we investigate whether higher bank funding liquidity, which may depict credit crunch, matters in weakening the bank lending channel. Bank funding liquidity is measured by the ratio of total third party funds to total assets (DTA), in which third party funds comprise savings, demand deposits and time deposits. In the third stage, we repeat the second stage, but the role of funding liquidity is replaced by undisbursed loans. Higher undisbursed loans can also reflect credit crunch, because demand for loans tends to decrease. We use the quarterly growth of undisbursed loans (ULG) to analyze the role of undisbursed loans in the bank lending channel.

Concerning econometric estimation, a dynamic panel data model is employed. Specifically, we use the two-step system GMM estimation as in Blundell and Bond (1998) and Arellano and Bover (1995). The two-step system GMM estimation tends to exhibit higher efficiency in coefficient estimates than the standard GMM estimation

(Baltagi, 2005). In addition, the two-step system GMM estimation can overcome reverse causality problems and endogeneity in independent variables. To take into account bank-level effect, we consider orthogonal deviations transformation of instruments. However, we also construct first-difference transformation of instruments without considering bank-level fixed effect for robustness checks. To deal with panel data with relatively few observations, we also implement finite sample correction by Windmeijer (2005) as in previous studies (Santoso et al., 2021; Yusgiantoro et al., 2019). On the whole, our dynamic panel data analysis is valid if the AR(2) test and the Hansen-J test are not rejected, indicating that there is no second-order correlation of errors and our instruments are correctly specified, respectively.

4. Empirical results

4.1. Monetary policy transmission and credit crunch

Initially, summary statistics of all variables are presented in Table 1. We also perform data trimming for bank-specific variables to exclude potential outliers. Specifically, zero values are eliminated for all variables, while we also erase values exceeding the 99% percentile for ULG. Meanwhile, Table 2 shows that our independent variables do not exhibit strong correlation, suggesting that multicollinearity is less of a concern.

[Insert Table 1 and Table 2 here]

With regards to the bank lending channel analysis, Table 3 highlights that higher policy rate (PRATE) is positively associated with loan growth (LOANG) after one quarter, but PRATE also negatively affects loan growth two quarters ahead. In this regard, the bank lending channel occurs in Indonesian banking after two quarters. Banks indeed require some time to adjust their lending decisions in response to monetary policy tightening as shown by an increase in the central bank's policy rate. Our results in Table 3 are robust regardless of the composition of independent variables and our dynamic panel data are also valid. The AR(2) test and the Hansen-J test are not statistically significant at all levels of confidence.

[Insert Table 3 here]

Table 4 presents identical findings with Table 3 in which DLOAN is used as a dependent variable. We also find that the bank lending channel only occurs after two quarters. Our results in Table 4 remain robust with different econometric models. Our dynamic panel data estimation is also valid at least at the 1% level, as the AR(2) test and the Hansen-J test are not rejected.

[Insert Table 4 here]

In the next turn, we augment the analysis by investigate whether the bank lending channel also exists during credit crunch periods. To tackle this issue, Table 5 presents our empirical results when the interaction term between the central bank's policy rate (PRATE) and funding liquidity (DTA) is included. It is shown that the bank lending channel exists after two quarters, especially if we observe PRATE as a standalone variable. Conversely, the interaction term (PRATE x DTA) exhibits a positive association with loan growth regardless of loan growth measures used. Accordingly, we highlight that the bank lending channel can occur after two quarters, particularly for banks with lower funding liquidity. For banks with higher funding liqudity, which could be due to credit crunch that declines demand for loans, the bank lending channel does not exist. Hence, credit crunch problems may deteriorate monetary policy effectiveness through the bank lending channel.

[Insert Table 5 here]

Identical findings can also be found in Table 6 when we interact PRATE and ULG. Instead of considering funding liquidity to depict credit crunch, we postulate that credit cruch occurs if demand for loans by potential borrowers declines as shown by an increase in undisbursed loans, although loans have been approved by banks. Table 6 shows that the bank lending channel indeed occurs two quarters ahead, particularly when the values taken by ULG is relatively low. This suggests that the bank lending channel exists if credit crunch problems are less likely to occur. For banks with higher undisbursed loans growth, such banks are not able to response monetary policy tighthening or expansion. The effectiveness of monetary policy therefore disappears for banks with higher undisbursed loan growth.

[Insert Table 6 here]

Regarding the role of control variables in affecting bank lending, we find that bank loan growth is positively affected by funding liquidity (DTA) and inflation (INF). This is consitent with the notion that banks with higher third party funds are able to lend more than banks with liquidity constraints, while higher demand for goods and services as shown by an increase in inflation also matters in increasing demand for bank loans. To a lesser extent, bank size of total assets (SIZE) is positively associated with higher loan growth, suggesting that large banks tend to distribute more loans than small banks. Meanwhile, higher credit risk as shown by loan loss provisions (LLP) is found to reduce bank lending activities, suggesting that Indonesian banking remains procyclical.

4.2. Additional analysis: The bank capital channel

Moreover, previous literature also highlight the role of bank capital for monetary policy transmission (Shaw et al., 2013; Heuvel, 2002). According to Shaw et al. (2013), higher capital requirements do not necessarily deteriorate financial intermediation, as long as banks have choices to respond stricter capital regulation by increasing equity instead of reducing loan supply. Meanwhile, Heuvel (2002) emphasizes that bank lending decisions are not only affected by liquidity constraits, but also bank profits. If monetary policy decisions affect bank profitability, then it may affect bank capacity to maintain capitalization. Accordingly, changes in the level of capitalization over time can also influence bank capacity to grant new loans. Building on this notion, the effectiveness of monetary policy transmission through the bank lending channel on may also be conditional on the exent to which banks can increase capitalization.

Table 7 presents our findings whetehe bank capitalization measured by the ratio of total equity to total assets also responses to changes in the central bank's policy rate. For this purpose, we use two measurement of bank capital. We use EQTA1 if the ratio of total equity to total assets exclude negative values, while EQTA2 is used when we allow for negative values in the ratio of total equity to total assets. From Table 7, we show strong evidence that the bank capital channel also occurs after two quarters.

Specifically, higher PRATE is associated with a decline in bank capitalization two quarters ahead. Our regressions are also valid because the AR(2) test and the Hansen-J test are not rejected.

[Insert Table 7, Table 8 and Table 9 here]

Combining Table 4 and Table 7, it can be seen that the bank lending channel and the bank capital channel exist in Indonesian banking. The effectiveness of monetary policy transmission to affect bank lending decisions can be explained by bank capitalization. Banks responding to monetary policy tightening by reducing capitalization are those that also reduce lending activities. This notion remains consistent when we consider the role of funding liquidity and undisbursed loans. Table 8 and Table 9 shows that only PRATE as a standalone variable exhibits a negative impact on bank capitalization. Previous discussion on the ineffectiveness of monetary policy transmission through the bank lending channel during credit cruch are therefore unaltered. This is because the bank capital channel also does not occur in times of credit crunch as shown by an increase in bank funding liquidty or undisbursed loan growth.

5. Conclusion

In this paper, we assess whether the bank lending channel occurs in Indonesia. Our empirical findings indeed highlights that stricter policy rate by the central bank will likely reduce bank lending after two quarters, although stricter policy rate is not responded by banks through a decline in lending one quarter ahead. This suggests that the effectiveness of the bank lending channel might need time adjustments. However, our further investigation also shed light that the presence of the bank lending channel is conditional on several bank-specific factors.

Specifically, we find that banks with higher funding liquidity tends to increase bank lending although the central bank's policy rate increases two quarters before. Therefore, higher funding liquidity tends to diminish the effectiveness of the bank lending channel two quarters ahead. In addition, the effectiveness of the bank lending channel is also more pronounced when banks exhibit lower undisbursed loans. In other words, the bank lending channel dissappears for banks with higher undisbursed loans. In this context, credit crunch that potentially increases funding liquidity and undisbursed loans of banks tend to mitigate the effectiveness of the bank lending channel.

As an additional contribution, we also find that the presence of the bank lending channel can also partly be attributed to the bank capital channel. In this regard, the effectiveness of monetary policy transmission to affect bank lending after two quarters can be explained by the extent to which banks hold sufficient capitalization.

Eventually, this paper provides some policy implications. First, we advocate the importance of mitigating credit crunch, as credit crunch will diminish the effectiveness of the bank lending channel. Second, strengthening bank capitalization is necessary so as to ensure that bank capital can play sufficient roles in rendering the effectiveness of monetary policy transmissions through bank lending.

References

Abuka, C., Alinda, R.K., Minoiu, C., Peydro, J.L., and Presbitero, A.F. (2015). Monetary Policy in a Developing Country: Loan Applications and Real Effects. *IMF Working Paper, 2015* (270). https://doi.org/10.5089/9781513529813.001

Agung, J. (2000). Financial Structure, Firms' Investments and The Channels of Monetary Policy In Indonesia. *Bulletin of Monetary Economics and Banking, 3*(1), 146-178. . https://doi.org/10.21098/bemp.v3i1.291

Agung, J., Kusmiarso, B., Pramono, B., Erwin, G.H., Prasmuko, A., and Prastowo, N.J. (2001). Credit Crunch in Indonesia in the Aftermath of the Crisis: Facts, Causes and Policy Implications. *Directorate of Economic Research and Monetary Policy*

Agung, J., Morena, R., Pramono, B., and Prastowo, N.J. (2002). The Bank Lending Channel of Monetary Transmission in Indonesia. In Warjiyo, P., and Agung, J (Eds.). (2002). *Transmission Mechanisms of Monetary Policy in Indonesia*, 103-136

Agung, J. (2003). Financial Deregulation and The Bank Lending Channel in Developing Countries: The Case Of Indonesia. *Bulletin of Monetary Economics and Banking, 3*(1), 121-145. . https://doi.org/10.21098/bemp.v3i1.290

Altunbas, Y., Fazlov, O., and Molyneux, P. (2002). Evidence on the Bank Lending Channel in Europe. *Journal of Banking and Finance, 26*(11), 2093-2110

Ashcraft, A.B. (2006). New Evidence on the Lending Channel. *Journal of Money, Credit and Banking, 38* (3), 751-775

Baltagi, B. H. (2005). Econometric Analysis of Panel Data. *3rd Edition, John Wiley and Sons Inc., New York.*

Bernanke, B.S., and Blinder, A.S. (1988). Credit, Money and Aggregate Demand. *The American Economic Review, 78*(2), 435-439

Bijlsma, M., Dubovik, A., and Straathof, B. (2013). How Large was the Credit Crunch in the OECD?. *CPB Discussion Paper No.232, CPB Netherlands Bureau for Economic Policy Analysis*

Blundell, R., and Bond, S. (1998). Initial Conditions and Moment Restrictions in Dynamic Panel Data Models. *Journal of Econometrics, 87*(1), 115-143

Bouvatier, V., and Lepetit, L. (2008). Banks' Procyclical Behavior: Does Provisioning Matter?. *Journal of International Financial Markets, Institutions and Money, 18* (5), 513-526

Bouvatier, V., and Lepetit, L. (2012). Provisioning Rules and Bank Lending: A Theoretical Model. *Journal of Financial Stability, 8*(1), 25-31. https://doi.org/10.1016/j.jfs.2011.04.001

Bondt, G.D. (1999). Banks and Monetary Transmission in Europe: Empirical Evidence. *BNL Quarterly Review, Banca Nazionale del Lavoro, 52*(209), 149-168

Department of Statistics. (2021). Indonesia's Banking Survey. Jakarta: Bank Indonesia

Department of Economic and Monetary Policy. (2020). Indonesian Economic Report. Jakarta: Bank Indonesia

Department of Economic and Monetary Policy. (2020). Monetary Policy Review. Jakarta: Bank Indonesia

Ehrmann, M., Gambacorta, L., Martinez Pagés, J., Sevestre, P., and Worms, A. (2001). Financial Systems and The Role of Banks in Monetary Policy Transmission in the Euro Area. *Working Paper Series No 105, European Central Bank*

Favero, C.A., Giavazzi, F., and Flabbi, L. (1999). The Transmission Mechanism of Monetary Policy in Europe: Evidence from Banks' Balance Sheets. *NBER Working Paper No.7231, National Bureau of Economic Research Inc.* https://doi.org/10.3386/w7231

Foos, D., Norden, L., and Weber, M. (2010). Loan growth and riskiness of banks. *Journal of Banking and Finance* 34, 2929–2940

Fungacova, Z., Kerola, E., and Weill, L. (2021). Does Bank Efficiency Affect the Bank Lending Channel in China?. *The Ban of Finland Institute for Emerging Economies. BOFIT Discussion Paper No.3*

Gosh, S.R., and Gosh, A.R. (1999). East Asia in the Aftermath: Was There A Crunch?. *IMF Working Paper 1999/38*

Hsing, Y., and Hsieh, W. (2014). Test of The Bank Lending Channel for A Brics Country. *Asian Economic and Financial Review. 4*(8), 1016-1023

Kashyap, A.K., and Stein, J.C. (1995). The Impact of Monetary Policy on Bank Balance Sheets. *NBER Working Papers No. 4821, National Bureau of Economic Research Inc.* https://doi.org/10.3386/w4821

Kashyap A.K., and Stein, J.C. (2000). What Do a Million Observations on Banks Say about Transmission of Monetary Policy. *American Economic Review, 90* (3), 407-428. https://doi.org/10.1257/aer.90.3.407

Kishan R.P., and Opiela, T. (2000). Bank Size, Bank Capital, and The Bank Lending Channel. *Journal of Money, Credit, and Banking, Blackwell Publishing, 32*(1), 121-141

Matousek, R., and Solomon, H. (2018). Bank Lending Channel and Monetary Policy in Nigeria. *Research in International Business and Finance, 45*(C), 467-474. https://doi.org/10.1016/j.ribaf.2017.07.180

Matousek, R., and Nicholas, S. (2009). The Bank Lending Channel and Monetary Transmission in Central and Eastern European Countries. *Journal of Comparative Economics. 37* (2): 321-334. https://doi.org/10.1016/j.jce.2008.09.008

Ministry of Health of Indonesia. 2021. Total Confirmed Cases of COVID-19. Tim Publikasi Publik Gugus Tugas Nasional. Available at: https://covid19.go.id/peta-sebaran

Mishra, A., and Burns, K. (2017). The Effect of Liquidity Shocks on The Bank Lending Channel: Evidence from India. *International Review of Economics and Finance. 52*(C): 55-76. https://doi.org/10.1016/j.iref.2017.09.011

Olivero, M.P., Li, Y., and Joen, B.N. (2011). Competition in Banking and The Lending Channel: Evidence From Bank-Level Data in Asia and Latin America. *Journal of Banking and Finance, 35* (3), 560–571. https://doi.org/10.1016/j.jbankfin.2010.08.004

Olivero, M.P., Li, Y., and Joen, B.N. (2011). Consolidation in Banking and The Lending Channel of Monetary transmission: Evidence from Asia and Latin America. *Journal of International Money and Finance, 30* (6), 1034–1054. https://doi.org/10.1016/j.jimonfin.2011.06.006

Saheruddin, H., Ariefianto, M.D., and Soedarmono, W. (2020). The intertemporal impacts of market power on bank risk: Evidence from the Indonesian banking industry. *International Journal of Economics and Management* 14(2), 279-289.

Sahminan, S., and Kusuma, A.C.M. (2019). Transmisi Kebijakan Moneter di Indonesia Melalui Jalur Kredit Perbankan di Indonesia. In Mochtar, F., Sahminan, S., and Budiman, A.S. (Eds.). (2020). Transmisi Kebijakan Moneter di Indonesia Menuju Era Ekonomi Digital. *Economic and Monetary Policy Department, Bank Indonesia,* 55-89

Simpasa, A.M., Nandwa, B., and Nabassaga, T. (2014). Bank Lending Channel of Monetary Policy Transmission in Zambia: Evidence from Bank-Level Data. *Working Paper Series No 2147, African Development Bank*

Sobarsyah, M., Soedarmono, W., Yudhi, W.S.A., Trinugroho, I., Warokka, A., and Pramono, S.E. (2020). Loan Growth, Capitalization and Credit Risk in Islamic Banking. *International Economics, 163*(C), 155-162. https://doi.org/10.1016/j.inteco.2020.02.001

Soedarmono, W., Hasan, I., and Arsyad, N. (2017). Non-Linearity in The Finance-Growth Nexus: Evidence from Indonesia. *International Economics, 150* (C), 19-35. https://doi.org/10.1016/j.inteco.2016.11.003

Santoso, W., Yusgiantoro, I., Soedarmono, W., and Prasetyantoko, A. (2021). The Bright Side of Market Power in Asian Banking: Implications of Bank Capitalization and Financial Freedom. *Research in International Business and Finance, 56,* https://doi.org/10.1016/j.ribaf.2020.101358

Statistics Indonesia. (2020). Jakarta: Badan Pusat Statistik (BPS). Available at: https://www.bps.go.id/

Warjiyo, P. (2004), Mekanisme Transmisi Kebijakan Moneter di Indonesia. Seri Kebanksentralan No. 11, Bank Indonesia: Pusat Pendidikan dan Studi Kebanksentralan (PPSK)

Wimanda, R.E., Maryaningsih, N., Nurliana, L., and Satyanugroho, R. (2014). Evaluation of Bank Indonesia Policy Mix Transmission. *Working Paper No. 3/2014, Bank Indonesia*

Windmeijer, F. (2005). A finite Sample Correction for The Variance of Linear Efficient Two-Step GMM Estimators. *Journal of Econometrics, 126*(1), 25–51

Yusgiantoro, I., Soedarmono, W., and Tarazi, A. (2019). Bank Consolidation and Financial Stability in Indonesia. *International Economics, 159*, 94-104. https://doi.org/10.1016/j.inteco.2019.06.002

Zhan, S., Tang, Y., Li, S., Yao, Y., and Zhan, M. (2021). How Does The Money Market Development Impact The Bank Lending Channel of Emerging Countries? A Case from China. *The North American Journal of Economics and Finance, 57*(C). https://doi.org/10.1016/j.najef.2021.101381

Appendix

Table 1. Summary statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
LOANG	1,652	0.8743428	9.196728	-98.18575	28.16761
DLOAN	1,685	0.3817737	9.711779	-161.644	64.60724
EQTA1	1,726	18.71433	11.99421	0.3822666	88.95956
EQTA2	1,751	18.28041	12.53548	-47.47383	88.95956
PRATE	1,856	4.875	0.7344066	3.75	6
CTI	1,793	86.72674	19.27805	12.99162	456.3978
DTA	1,773	67.04763	17.08916	0.0001544	93.52834
SIZE	1,780	16.83398	1.511864	12.80859	21.12984
LLP	1,750	2.902167	6.204995	0.0000018	99.45676
ULG	1,587	3.35212	28.14185	-99.16611	208.281
INF	1,856	2.983125	0.760219	1.42	4.37

Source and notes: Authors' calculation.

Table 2. Correlation matrix

Variables	LOANG	DLOAN	EQTA1	EQTA2	PRATE	CTI	DTA	SIZE	LLP	ULG	INF
LOANG	1										
DLOAN	0.94	1									
EQTA1	0.0064	-0.0087	1								
EQTA2	0.0064	-0.0087	1	1							
PRATE	0.0852	0.0834	0.0333	0.0333	1						
CTI	-0.1059	-0.1171	0.1733	0.1733	0.0374	1					
DTA	0.0949	0.0891	-0.3358	-0.3358	-0.0323	0.1686	1				
SIZE	0.0226	0.0166	-0.3892	-0.3892	-0.0383	-0.2569	-0.0187	1			
LLP	-0.1035	-0.1527	0.1763	0.1763	-0.0713	0.229	-0.0914	0.1618	1		
ULG	0.0462	0.0438	-0.0073	-0.0073	0.0232	-0.0179	0.0206	-0.0124	-0.0091	1	
INF	0.1765	0.1698	0.0396	0.0396	0.2268	0.0462	0.0478	-0.0767	-0.0593	0.0457	1

Sources and notes: Authors' calculation.

Table 3. Central bank policy rate and loan growth: Baseline regressions

Explanatory variables	**Dependent variable:** LOANG					
	(1)	(2)	(3)	(4)	(5)	(6)
Dep.var(-1)	0.24140***	0.23719***	0.16039***	0.15692**	0.14100**	0.11889*
	(0.090)	(0.083)	(0.061)	(0.062)	(0.065)	(0.064)
PRATE(-1)	1.49514***	1.54192***	1.76918***	1.77891***	1.62429***	1.04384**
	(0.450)	(0.453)	(0.550)	(0.558)	(0.557)	(0.505)
PRATE(-2)	-1.39414**	-1.42635**	-1.48798**	-1.49561**	-1.54425**	-1.36553**
	(0.535)	(0.561)	(0.618)	(0.617)	(0.599)	(0.572)
CTI		-0.02445	-0.05002*	-0.04399	-0.03898	-0.04352
		(0.025)	(0.026)	(0.027)	(0.030)	(0.030)
DTA			0.14957***	0.14644***	0.11592**	0.11182**
			(0.048)	(0.046)	(0.054)	(0.053)
SIZE				0.35548	0.33421	0.40502
				(0.289)	(0.305)	(0.309)
LLP					-0.15275	-0.16354
					(0.169)	(0.165)
INF						1.67968***
						(0.381)
Observations	1,528	1,528	1,515	1,515	1,487	1,487
Number of banks	114	114	114	114	114	114
AR(2) test: *p*-value	0.313	0.324	0.624	0.634	0.645	0.815
Hansen-J test : *p*-value	0.278	0.260	0.238	0.259	0.242	0.284

Source and notes: Authors' calculation. Estimations are conducted using the two-step system GMM method developed, taking into account Windmeijer's (2005) finite sample correction. Robust standard errors are in parentheses. Constants are included, but not reported. *** reflects statistical significance at the 1% level, while ** and * reflect statistical significance at the 5% and 10% levels, respectively.

Table 4. Central bank policy rate and loan growth: Baseline regressions

Explanatory variables	**Dependent variable**: DLOAN					
	(1)	(2)	(3)	(4)	(5)	(6)
Dep.var(-1)	0.11140**	0.11243**	0.11717**	0.11820**	0.12564**	0.10092*
	(0.054)	(0.054)	(0.055)	(0.055)	(0.054)	(0.053)
PRATE(-1)	0.66066***	0.64886***	0.64584***	0.64782***	0.52467**	0.25068
	(0.240)	(0.240)	(0.237)	(0.237)	(0.228)	(0.219)
PRATE(-2)	-0.52583**	-0.49616**	-0.51164**	-0.51563**	-0.41628**	-0.34745*
	(0.225)	(0.223)	(0.223)	(0.221)	(0.197)	(0.197)
CTI		0.00806	0.00936	0.00907	0.00976	0.00851
		(0.010)	(0.011)	(0.011)	(0.012)	(0.012)
DTA			-0.00335	-0.00326	-0.00778	-0.01191
			(0.012)	(0.012)	(0.014)	(0.014)
SIZE				0.01226	0.01460	0.03665
				(0.105)	(0.110)	(0.114)
LLP					-0.04173*	-0.04530*
					(0.024)	(0.025)
INF						0.89053***
						(0.190)
Observations	1,547	1,545	1,529	1,529	1,496	1,496
Number of banks	114	114	114	114	114	114
AR(2) test: *p*-value	0.0463	0.0482	0.0515	0.0499	0.0222	0.0472
Hansen-J test : *p*-value	0.376	0.372	0.330	0.326	0.323	0.256

Source and notes: Authors' calculation. Estimations are conducted using the two-step system GMM method developed, taking into account Windmeijer's (2005) finite sample correction. Robust standard errors are in parentheses. Constants are included, but not reported. *** reflects statistical significance at the 1% level, while ** and * reflect statistical significance at the 5% and 10% levels, respectively.

Table 5. Central bank policy rate and loan growth: The role of funding liquidity

Explanatory variables	Dependent variables							
	LOANG	DLOAN	LOANG	DLOAN	LOANG	DLOAN	LOANG	DLOAN
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep.var(-1)	0.12406*	0.07167	0.05756	0.03454	0.12247*	0.07198	0.05613	0.03466
	(0.069)	(0.055)	(0.057)	(0.045)	(0.068)	(0.055)	(0.057)	(0.045)
PRATE(-1)	1.01196**	0.27562	0.54011	0.03693	1.03051**	0.27440	0.58030	0.04342
	(0.459)	(0.221)	(0.470)	(0.233)	(0.487)	(0.220)	(0.497)	(0.237)
PRATE(-2)	-6.22536**	-2.21101***	-5.96059**	-2.41327***	-6.23985**	-2.21233***	-5.99735**	-2.39903***
	(2.389)	(0.668)	(2.548)	(0.779)	(2.414)	(0.669)	(2.524)	(0.771)
PRATE(-2) x DTA(-2)	0.07016**	0.02659***	0.07384**	0.03231***	0.06980**	0.02658***	0.07330**	0.03200***
	(0.031)	(0.009)	(0.033)	(0.010)	(0.031)	(0.009)	(0.033)	(0.010)
DTA(-2)	-0.28984**	-0.13960**	-0.29740*	-0.16356**	-0.28798*	-0.13958**	-0.29447*	-0.16161**
	(0.146)	(0.059)	(0.160)	(0.063)	(0.146)	(0.058)	(0.158)	(0.062)
CTI	-0.03954	0.00660	-0.02388	0.00662	-0.03981	0.00637	-0.02386	0.00670
	(0.029)	(0.012)	(0.029)	(0.009)	(0.028)	(0.013)	(0.029)	(0.009)
SIZE	0.44359	0.01536	0.53494*	0.03830	0.45834	0.01549	0.54249*	0.04215
	(0.306)	(0.116)	(0.317)	(0.110)	(0.309)	(0.116)	(0.312)	(0.109)
LLP	-0.22443	-0.03999*	-0.29310*	-0.02652	-0.22541	-0.04007*	-0.29436*	-0.02619
	(0.160)	(0.023)	(0.173)	(0.025)	(0.159)	(0.024)	(0.174)	(0.024)
INF	1.80304***	0.96144***	1.97736***	1.08798***	1.83834***	0.96938***	2.00257***	1.09700***
	(0.374)	(0.181)	(0.488)	(0.216)	(0.370)	(0.179)	(0.503)	(0.216)
Observations	1,474	1,482	1,474	1,482	1,474	1,482	1,474	1,482
Number of banks	114	114	114	114	114	114	114	114
AR(2) test: p-value	0.759	0.0914	0.976	0.166	0.762	0.0596	0.979	0.120
Hansen-J test : p-value	0.289	0.260	0.298	0.262	0.289	0.260	0.298	0.262
Method	Two-step system GMM	Two-step system GMM	Two-step system GMM	Two-step system GMM	One-step system GMM	One-step system GMM	One-step system GMM	One-step system GMM
Instruments transformation	Orthogonal deviation	Orthogonal deviation	First Difference	First Difference	Orthogonal deviation	Orthogonal deviation	First Difference	First Difference

Source and notes: Authors' calculation. Estimations are conducted using the two-step system GMM method developed, taking into account Windmeijer's (2005) finite sample correction. Robust standard errors are in parentheses. Constants are included, but not reported. *** reflects statistical significance at the 1% level, while ** and * reflect statistical significance at the 5% and 10% levels, respectively.

Table 6. Central bank policy rate and loan growth: The role of undisbursed loans

Explanatory variables	Dependent variables							
	LOANG	DLOAN	LOANG	DLOAN	LOANG	DLOAN	LOANG	DLOAN
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep.var(-1)	0.16900**	0.05087	0.11282	0.03624	0.16715**	0.05048	0.11243	0.03566
	(0.079)	(0.053)	(0.074)	(0.047)	(0.079)	(0.053)	(0.074)	(0.047)
PRATE(-1)	0.35085	0.17195	0.13932	0.07168	0.32288	0.15050	0.12567	0.07359
	(0.364)	(0.227)	(0.380)	(0.247)	(0.380)	(0.233)	(0.389)	(0.250)
PRATE(-2)	-1.06083**	-0.41013*	-0.86785*	-0.31334	-1.07732**	-0.38865*	-0.90730*	-0.31795
	(0.435)	(0.210)	(0.479)	(0.235)	(0.458)	(0.206)	(0.480)	(0.234)
PRATE(-2) x ULG(-2)	0.01310	0.00933	0.00875	0.00861	0.01318	0.00944	0.00982	0.00941
	(0.008)	(0.006)	(0.009)	(0.006)	(0.009)	(0.006)	(0.009)	(0.006)
ULG(-2)	-0.06081	-0.04459	-0.04013	-0.04145	-0.06042	-0.04498	-0.04522	-0.04554
	(0.042)	(0.032)	(0.045)	(0.030)	(0.045)	(0.033)	(0.046)	(0.030)
CTI	-0.02261	0.01157	-0.00869	0.01029	-0.02228	0.01215	-0.01079	0.00990
	(0.022)	(0.015)	(0.026)	(0.011)	(0.022)	(0.015)	(0.026)	(0.011)
DTA	0.07816*	-0.01659	0.07583*	-0.01602	0.07768*	-0.01689	0.07670*	-0.01516
	(0.045)	(0.017)	(0.044)	(0.016)	(0.046)	(0.017)	(0.044)	(0.016)
SIZE	0.28745	0.06828	0.37856*	0.07970	0.30796*	0.06347	0.37429**	0.06221
	(0.183)	(0.133)	(0.192)	(0.124)	(0.175)	(0.135)	(0.182)	(0.122)
LLP	-0.63261***	-0.13510	-0.60062***	-0.06984	-0.64008***	-0.13906*	-0.60133***	-0.07143
	(0.115)	(0.082)	(0.124)	(0.095)	(0.114)	(0.080)	(0.123)	(0.096)
INF	1.99938***	1.14083***	2.33300***	1.25245***	2.06341***	1.13525***	2.38003***	1.25315***
	(0.382)	(0.205)	(0.419)	(0.247)	(0.377)	(0.207)	(0.415)	(0.243)
Observations	1,324	1,331	1,324	1,331	1,324	1,331	1,324	1,331
Number of banks	110	110	110	110	110	110	110	110
AR(2) test: p-value	0.0363	0.113	0.0748	0.129	0.163	0.0661	0.306	0.0727
Hansen-J test : p-value	0.405	0.351	0.392	0.365	0.405	0.351	0.392	0.365
Method	Two-step system GMM	Two-step system GMM	Two-step system GMM	Two-step system GMM	One-step system GMM	One-step system GMM	One-step system GMM	One-step system GMM
Instruments transformation	Orthogonal deviation	Orthogonal deviation	First Difference	First Difference	Orthogonal deviation	Orthogonal deviation	First Difference	First Difference

Source and notes: Authors' calculation. Estimations are conducted using the two-step system GMM method developed, taking into account Windmeijer's (2005) finite sample correction. Robust standard errors are in parentheses. Constants are included, but not reported. *** reflects statistical significance at the 1% level, while ** and * reflect statistical significance at the 5% and 10% levels, respectively.

Table 7. Central bank policy rate and bank capital ratio

Explanatory variables	Dependent variables			
	EQTA1	EQTA2	EQTA1	EQTA2
Dep.var(-1)	0.32671***	0.54039***	0.32693***	0.54098***
	(0.094)	(0.082)	(0.094)	(0.083)
PRATE(-1)	1.00739***	0.57170**	1.01507***	0.58513**
	(0.310)	(0.252)	(0.312)	(0.246)
PRATE(-2)	-1.37522***	-0.87713***	-1.38711***	-0.89605***
	(0.344)	(0.278)	(0.346)	(0.275)
CTI	0.10452***	0.06494**	0.10391***	0.06443**
	(0.036)	(0.030)	(0.035)	(0.030)
DTA	-0.15332***	-0.10429**	-0.15118***	-0.10461***
	(0.051)	(0.041)	(0.052)	(0.039)
SIZE	-1.82424***	-1.29531***	-1.80997***	-1.30010***
	(0.464)	(0.336)	(0.461)	(0.329)
LLP	0.24113	0.24220	0.24318	0.23839
	(0.176)	(0.163)	(0.178)	(0.162)
INF	-0.24553	-0.62744**	-0.25365	-0.63558**
	(0.427)	(0.314)	(0.432)	(0.316)
Observations	1,467	1,423	1,467	1,423
Number of banks	113	113	113	113
AR(2) test: *p*-value	0.334	0.364	0.267	0.346
Hansen-J test: *p*-value	0.637	0.651	0.637	0.651
Method	Two-step system GMM	Two-step system GMM	One-step system GMM	One-step system GMM

Source and notes: Authors' calculation. Estimations are conducted using the two-step system GMM method developed, taking into account orthogonal deviations transformation of instruments and Windmeijer's (2005) finite sample correction. Robust standard errors are in parentheses. Constants are included, but not reported. *** reflects statistical significance at the 1% level, while ** and * reflect statistical significance at the 5% and 10% levels, respectively.

Table 8. Central bank policy rate and bank capital ratio: The role of funding liquidity

Explanatory variables	Dependent variables							
	EQTA1	EQTA2	EQTA1	EQTA2	EQTA1	EQTA2	EQTA1	EQTA2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep.var(-1)	0.37280***	0.59160***	0.30555***	0.54791***	0.37196***	0.59130***	0.30548***	0.54743***
	(0.084)	(0.073)	(0.083)	(0.071)	(0.084)	(0.073)	(0.083)	(0.071)
PRATE(-1)	0.96511***	0.51827**	0.95196***	0.57389**	0.96652***	0.52726**	0.95287***	0.57909**
	(0.287)	(0.224)	(0.330)	(0.257)	(0.286)	(0.226)	(0.330)	(0.258)
PRATE(-2)	0.16066	0.77764	0.22888	0.60759	0.18585	0.82116	0.24926	0.69021
	(1.616)	(1.307)	(1.758)	(1.389)	(1.604)	(1.320)	(1.752)	(1.380)
PRATE(-2) x DTA(-2)	-0.02243	-0.02399	-0.02185	-0.02174	-0.02305	-0.02485	-0.02224	-0.02315
	(0.022)	(0.018)	(0.024)	(0.019)	(0.021)	(0.018)	(0.024)	(0.019)
DTA(-2)	-0.02567	0.03319	-0.05753	0.00496	-0.02179	0.03890	-0.05499	0.01177
	(0.132)	(0.103)	(0.136)	(0.107)	(0.131)	(0.103)	(0.136)	(0.105)
CTI	0.10788***	0.06651**	0.13905***	0.08797***	0.11117***	0.06823**	0.14024***	0.08866***
	(0.035)	(0.028)	(0.037)	(0.033)	(0.034)	(0.029)	(0.037)	(0.033)
SIZE	-1.75850***	-1.18825***	-1.90828***	-1.31123***	-1.73570***	-1.20239***	-1.91970***	-1.34059***
	(0.453)	(0.321)	(0.498)	(0.338)	(0.444)	(0.310)	(0.480)	(0.335)
LLP	0.27449	0.26502*	0.31767*	0.29291*	0.27329	0.26569*	0.31824*	0.29005*
	(0.175)	(0.158)	(0.188)	(0.168)	(0.176)	(0.159)	(0.187)	(0.166)
INF	-0.38084	-0.71793**	-0.27389	-0.80110**	-0.38460	-0.73649**	-0.28106	-0.79429**
	(0.418)	(0.303)	(0.428)	(0.360)	(0.419)	(0.309)	(0.434)	(0.364)
Observations	1,453	1,409	1,453	1,409	1,453	1,409	1,453	1,409
Number of banks	112	112	112	112	112	112	112	112
AR(2) test: p-value	0.316	0.380	0.675	0.499	0.276	0.380	0.632	0.497
Hansen-J test : p-value	0.658	0.698	0.645	0.666	0.658	0.698	0.645	0.666
Method	Two-step system GMM	Two-step system GMM	Two-step system GMM	Two-step system GMM	One-step system GMM	One-step system GMM	One-step system GMM	One-step system GMM
Instruments transformation	Orthogonal deviation	Orthogonal deviation	First Difference	First Difference	Orthogonal deviation	Orthogonal deviation	First Difference	First Difference

Source and notes: Authors' calculation. Estimations are conducted using the two-step system GMM method developed, taking into account orthogonal deviations transformation of instruments and Windmeijer's (2005) finite sample correction. Robust standard errors are in parentheses. Constants are included, but not reported. *** reflects statistical significance at the 1% level, while ** and * reflect statistical significance at the 5% and 10% levels, respectively.

Table 9. Central bank policy rate and bank capital ratio: The role of undisbursed loans

Explanatory variables	Dependent variables							
	EQTA1	EQTA2	EQTA1	EQTA2	EQTA1	EQTA2	EQTA1	EQTA2
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dep.var(-1)	0.31543***	0.54808***	0.24895***	0.50397***	0.31488***	0.54731***	0.24679***	0.50396***
	(0.098)	(0.088)	(0.091)	(0.083)	(0.098)	(0.087)	(0.090)	(0.083)
PRATE(-1)	0.99845***	0.57320**	0.95995***	0.55476*	1.03360***	0.57810**	1.01834***	0.55315*
	(0.315)	(0.243)	(0.357)	(0.292)	(0.315)	(0.244)	(0.366)	(0.289)
PRATE(-2)	-1.26561***	-0.81245***	-1.06038***	-0.73637**	-1.31918***	-0.81514***	-1.12089***	-0.72716**
	(0.358)	(0.272)	(0.395)	(0.304)	(0.362)	(0.272)	(0.414)	(0.308)
PRATE(-2) x ULG(-2)	0.00046	0.00630	0.00059	0.00849	0.00156	0.00650	0.00117	0.00798
	(0.009)	(0.009)	(0.010)	(0.012)	(0.009)	(0.009)	(0.010)	(0.012)
ULG(-2)	0.00374	-0.03429	0.00340	-0.04774	-0.00170	-0.03505	0.00033	-0.04514
	(0.051)	(0.047)	(0.057)	(0.064)	(0.050)	(0.047)	(0.056)	(0.063)
DTA	-0.16051***	-0.11387***	-0.19211***	-0.13331***	-0.16229***	-0.11272***	-0.19699***	-0.13348***
	(0.055)	(0.041)	(0.061)	(0.046)	(0.054)	(0.042)	(0.060)	(0.045)
CTI	0.09069**	0.05032*	0.12166***	0.07325**	0.09584**	0.05291*	0.13127***	0.07700**
	(0.038)	(0.029)	(0.040)	(0.035)	(0.037)	(0.030)	(0.040)	(0.034)
SIZE	-1.98320***	-1.44626***	-2.18567***	-1.61191***	-1.95191***	-1.41759***	-2.15022***	-1.57058***
	(0.466)	(0.338)	(0.517)	(0.366)	(0.461)	(0.323)	(0.497)	(0.344)
LLP	0.67891***	0.60050***	0.66791***	0.59218***	0.67066***	0.60077***	0.65844***	0.59270***
	(0.165)	(0.093)	(0.158)	(0.090)	(0.157)	(0.093)	(0.152)	(0.089)
INF	-0.24811	-0.66302**	-0.28336	-0.83555**	-0.23750	-0.67083**	-0.28465	-0.86881**
	(0.455)	(0.312)	(0.452)	(0.401)	(0.463)	(0.319)	(0.469)	(0.401)
Observations	1,315	1,271	1,315	1,271	1,315	1,271	1,315	1,271
Number of banks	109	109	109	109	109	109	109	109
AR(2) test: p-value	0.504	0.544	0.811	0.646	0.463	0.539	0.812	0.640
Hansen-J test : p-value	0.720	0.695	0.764	0.699	0.720	0.695	0.764	0.699
Method	Two-step system GMM	Two-step system GMM	Two-step system GMM	Two-step system GMM	One-step system GMM	One-step system GMM	One-step system GMM	One-step system GMM
Instruments transformation	Orthogonal deviation	Orthogonal deviation	First Difference	First Difference	Orthogonal deviation	Orthogonal deviation	First Difference	First Difference

Source and notes: Authors' calculation. Estimations are conducted using the two-step system GMM method developed, taking into account orthogonal deviations transformation of instruments and Windmeijer's (2005) finite sample correction. Robust standard errors are in parentheses. Constants are included, but not reported. *** reflects statistical significance at the 1% level, while ** and * reflect statistical significance at the 5% and 10% levels, respectively.