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Bank Lending Channel of Monetary Policy: Empirical Evidence from Bank Level Data of Selected Emerging Economies

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Abstract: Examining the effects of monetary policy on the bank lending channel is the main objective of this study on a sample of 18 emerging economies from 2006 to 2021 by using bank-level data. Research shows that the bank lending channel does operate and is functional in the banking sectors of the developing countries that were selected for the sample. The econometric models used in the study include sys-GMM, fixed effects, and instrumental variable regression. In particular, results suggest that monetary policy (or monetary tightening) negatively affects whereas economic growth positively influences bank lending. The specific characteristics of bank variables (i.e., liquidity and size) also expand bank lending. One of the most important factors in reducing the negative impact of monetary policy is the size and liquidity of banks. It has been reported through the robustness check exercise that the results largely remain robust when instrumental variable regression is used and when pandemic years are eliminated from the data sample. This research includes significant implications for policy for the selected emerging economies.

Key Words: Bank Lending, Monetary Policy, Emerging Economies, Size, Liquidity, Capitalization

JEL Classification: C33, E52, G21

Introduction

There has been a long-term debate among policymakers over the association between bank lending and its effects on monetary policy. The effects of policy rates and the response of lending, nevertheless, vary and depend on a number of factors and determinants. This research study aims to build upon the notable previous research conducted by Bernanke and Blinder (1988) on examining the effects of monetary transmission through bank lending channels. Practical and potential implications of monetary policy over the expansion and accessibility of loans in developing countries have recently been the subject of increasing academic research. (Kashyap 2000; Khan 2016; Altunbas 2010). It is widely recognized that size, liquidity, and capitalization are the three crucial elements that significantly impact the transmission of monetary policy via bank lending. Bernanke (1988) indicated the shrinking of bank lending is because of monetary policy contraction. This was because banks have challenges while pursuing to obtain other financing sources. As a result of monetary contraction, banks reduce lending, which reduces the amount of money that is borrowed. Bank characteristics (size, capitalization, and liquidity) affect how monetary policy affects bank lending. (Gambacorta, 2005; Kishan 2006; Yang, 2016). Gambacorta (2005), along with Kishan (2006), has shown that banks that have adequate capital and valuable assets can be less vulnerable to the effects of monetary policy adjustments, as compared to financial institutions (banks) that have insufficient capital or have liquidity problems. The effectiveness of a central bank and the capacity to control and modify monetary policy is strongly impacted by the level of responsiveness shown by bank lending.

A higher level of sensitivity in bank lending indicates a more effective central bank in terms of managing and adjusting monetary policy. This relationship was highlighted by Ramos-Talada in 2015.

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Since size, liquidity, and capitalization are not the sole factors influencing bank lending, according to many researchers (Matousek 2009; Morais 2019), it is necessary to assess how economic development affects bank lending. A growing economy positively affects bank lending growth because banks in a growing economy have more opportunities to not only expand lending, but the positive effects are also experienced in terms of being more liquid, well-capitalized, and have a large market capitalization (Lerskullawat, 2017; Tuna and Almahadin, 2021). Many studies have taken a look at the effects on different economies, but the effects on bank lending and the channel through which banks lend money are still subject to debate. Altunbas (2010) examined the European economies in the process of transmission of monetary policy; Borio and Gambacorta (2017) tested the effects in the case of large international bank-level data; Wu et al. (2011) used data from emerging economies, Ramos-Talada (2015) utilizes data from Brazil, respectively. Nevertheless, the study's findings are still up for discussion because they depend primarily on macro-level data to examine which channels are affected by monetary policy when banks lend money. According to Jimenez (2012), it is not easy to ascertain from the macro level data whether the effects on bank lending are from the demand side or the supply side. Furthermore, the researchers suggest that bank-level information may be used to address the issue of omitting unknown indicators. In response to the aforementioned debate, the current research will examine the channel of monetary policy transmission via bank lending and additionally look at how the economic growth variable affects emerging countries. This study will combine the findings of an enormous data set that includes data with respect to banks.

The proposed study aims to enhance the existing literature by examining the influence of monetary policy on emerging economies via the channel of bank lending. The only other research that is comparable to the current one but has a different scope and viewpoint is of Chen (2017). Concentrating on developing countries, his research added that the bank lending channel is sensitive and at risk, not only due to the distinctive characteristics of banks but also due to potential growth in the economy. This research will, therefore, contribute in the subsequent manners. First, the study utilizes large bank-level panel data over the years 2006–2021 and provides the most recent empirical evidence in a sample of 18 emerging economies. This question and contribution to the previous literature are worthy of investigation because the COVID-19 pandemic recently resulted in a sharp decline in economic activities not only across developed economies but also across emerging economies. The crisis led to severe lockdowns across the economies, which resulted in a sharp reduction in loan growth and a decline in policy rates (Merino, 2021). Examining how monetary policy influences the capital markets of developing countries is the central focus and goal of this research. For this purpose, eighteen emerging economies are taken into account: (Bangladesh, Cambodia, China, India, Indonesia, Kyrgyzstan, Malaysia, Nepal, Pakistan, Philippines, Russia, South Africa, Sri Lanka, Tajikistan, and Uzbekistan). Second, this study believes that since emerging economies have experienced consistent economic growth over the last decades, examining economic development and its impact (economic growth) on bank lending is highly important and relevant. Finally, the study adds further granularities to the empirical evidence by looking at how monetary policy affected bank lending earlier in the COVID-19 timeframe. This question, too, is very important from academic and policy perspectives. In the case of the latter, particularly, the research provides the provision of more accurate estimates and findings on the transmission of monetary policy via the bank lending channel. This, consequently, supports establishing and recommending targeted policy recommendations for the selected developing nations. Panel data analysis indicates that the chosen developing economies do, in fact, have a monetary policy channel that involves bank lending. The results indicate that monetary policy (i.e., policy rate) negatively influences bank lending when panel fixed effects and system GMM models are employed. In addition, estimates show that bank characteristics, size, and liquidity positively affect bank lending and are statistically significant at conventional levels, with market capitalization as an exception, which negatively affects bank lending but is statistically insignificant. Two further analyses are conducted as additional tests and an exercise of robustness check. First, replicating the same estimation strategy and models, the years of the pandemic are excluded, and analyses are performed for the years 2006–2019. Second, an additional test (i.e., 2sls) is conducted to deal with the issue of endogeneity and check whether the baseline estimates are altered. Results show that excluding the years of pandemic and 2sls (with robust standard errors) estimates do not alter the baseline results. The estimated results have important policy implications for emerging economies.

The remainder of the study is conducted in the following way. The subsequent portion, denoted as SECTION II, comprises the literature review pertaining to the bank lending channel. Section III explains the methodological part along with the data used. Section IV will show the findings of the study along with conducting a robustness check to ensure the accuracy of the results. The results are then compared to previous research in the subject matter. Section V is the last part of this paper, which concludes the study with future research direction and policy implications.

Literature Review

The role of bank lending as a means of transmitting monetary policy has been a subject of dispute and examination over an extended period of time but is inconclusive in terms of effects across developed, emerging, and developing economies (Kashyap 1995 and Bernanke 1988). Initial literature split into two different perspectives; first, Kashyap et al. (1995) and Bernanke et al. (1988) research link demand for bank deposit and loan supply, arguing for the two variables that are largely and negatively associated by the monetary policy. Second, some authors (Ehrmann et al., 2001; Kishan and Opiela, 2000) indicate that portfolio substitution effects and endogenous effects on bank deposits are often the results of changing monetary policy rates. The authors argue that the rate of return on bank deposits changes when the monetary policy rate changes, which results in a change in household preferences, forcing the latter to hold it rather than deposit it. The commonality is that a general consensus exists throughout these researches that bank lending channels are adversely impacted by restrictive monetary policy and positively influenced by expansionary monetary policy.

However, the effects in which different bank characteristics affect bank lending differ among economies. Ferri et al. (2014) indicate that bank liquidity plays a key role in expanding bank lending across Euro-area economies. Yang and Shao (2016) find bank size to be an important factor in influencing bank lending in China. Sapriza and Temesvary (2020) find a tight monetary policy to have a positive influence on bank lending in the US banking market. In 1995, Bernanke and Gertler studied that the monetary policy adversely affects the debtor's financial condition and net worth, which eventually not only results in disincentivizing bank loans but also the repercussions in terms of the deteriorating quality of the assets of banks. An analysis of OECD and EU countries focusing on bank lending was studied by Pena (2015) to analyze the monetary policy along with its effects from 1961 to 2002. The study used a system-GMM approach using an unbalanced panel data set to demonstrate the existence of a bank lending channel. Furthermore, the findings of the study reveal that a tightening of monetary policies is undermined by the inadequate liquidity that exists within the bank lending channel of the economies that are being subjected to examination. Petkovskia and Kioseyski (2014) conducted research on South Eastern and Central European countries, which employed system GMM model and bank credit, policy rate, and ratio of quasi-money as proxies for banking sector development. The findings show monetary policy negatively affects loan growth, but economic growth and the presence of credit to the private sector ratio have a beneficial effect (positive) over bank lending in the countries that were studied.

Albrizio (2020) studied the transmission of monetary policy shock (including spillover effects) to economically sound countries, which also includes the banking market of the United States. Employing the local projection model, the study indicates that exogenous shock to monetary policy in the US economy negatively affects bank lending in systemically important economies; however, the effects vary across size, liquidity, and capitalization. In the case of emerging economies for the years 2000–2012, it was studied that when the monetary policy is increased, the lending channel of banks in developing economies is affected by the increase of the bank risk index, as found by Chen (2017). Lerskullawat (2017) explored the influence of monetary policy on bank lending in five A.S.E.A.N. nations, namely Indonesia, Malaysia, the Philippines, Singapore, and Thailand, from 1999 to 2011. By using the panel data analysis, findings indicate that the greater the bank-level indicators (size, liquidity, capitalization), the more significant and stronger the effects on bank lending. Monetary policy, nevertheless, has adverse (negative) effects on bank lending in ASEAN countries. Bustaman (2019) studied the banking lending channel within the context of the Indonesian market using micro-level data from 2007–2016. Using static and dynamic panel data analyses, the study shows that less capitalized banks and those with weak liquidity face problems in expanding bank lending. The research additionally shows that the lending channels of Indonesian banks are significantly

impacted by a decline in economic growth. Hussain and Bashir (2019) examined the time frame of the study (2000–2012) in China's banking sector to determine whether the transmission of monetary policy has significant effects on the market. As per his research, market structure is a factor that affects bank lending in China's banking sector. They also found that neither balance sheets nor bank characteristics impact/affect bank lending. Abdul Karim (2011) employed a sys-GMM methodology in the case of the Malaysian banking sector and concluded that the tightening of monetary policy adversely (negatively) affects the bank lending channel.

A study conducted on the Zambian banking market by Simpasa et al. (2015), using GMM model on bank-level data, the study identifies the significant (positive) impacts of economic growth / economic development on bank lending channels and suggests that bank liquidity and size have a significant (positive) influence on bank lending. The effectiveness of bank lending channels in the case of Bangladesh, using structural VAR, is confirmed by Afrin (2017); that is, the bank's liquidity, size, and market capitalization positively affect bank lending, whereas monetary policy negatively affects bank lending. Shokr and Al-Gasaymeh (2018) use bank-level data in the Egyptian banking market, using GMM and stochastic frontier approach for the years 1996–2014. The study indicates that although monetary policy negatively influences bank lending in the country's banking market, the effects are, however, minimized with an efficiency strategy along with high economic growth. Ziaei (2012) studied the various bank lending channels of monetary policy in K.S.A (Saudi Arabia) banking market over the 1999–2007 period. Using the structural VAR model, results show that increasing policy rate negatively affects credit expansion, exchange rate, and bank liquidity. The study indicates that the nominal effective exchange rate reduces the prices of bank products but has no effect on the overall growth (GDP) of the economy. In particular, this research will look at how monetary policy affects the banking industry through bank lending. Financial markets and the economy as a whole depend strongly on banks. The government relies on banks to pass on money to individuals as an essential component for managing and adjusting inflation (Tadesse 2021; Tian and Tunio 2023). Another aspect of studying the monetary policy transmission is through bank characteristics. Bank characteristics involve various factors, such as over-viewing the broader picture of a bank's financial performance, the progress of the banking sector, and the way through which liberalization of the financial sector could be accomplished (Singh et al., 2008). Attasuda (2017), Yildirim (2018), Suhaibu (2020), and Chandio (2024) are a few of the researchers who have discovered some changes in bank characteristics indices in developing nations can have a substantial influence on the development of the banking industry and may also affect the roles of financial bank and institutes in the overall economy.

Data and Methodology

This study utilizes unbalanced panel data for 18 emerging economies comprising bank-level data for 6,154 banks and macroeconomic variables. The yearly data for the years 2006–2021 on bank-specific indicators such as liquidity, size and capitalization, and loans are extracted from Bank Focus, and macroeconomic indicators (variables) such as monetary policy and GDP growth are taken from the IMF Data Mapper. For the selection of variables, prior research on monetary policy and bank lending was the source of reference and guidance. Table 1 provides the summary statistics, whereas Table 2 includes the data sources and the definition of the indicators (variables). The bank-specific indicators (variables) are being selected in line with the previous literature. For instance, past literature suggests that large-size banks, banks with better liquidity positions, and well-capitalized banks entail loan expansion (Kashyap, 1995; Angeloni, 2003; Chowdhury et al., 2022). Angeloni et al. (2003) indicate that banks with better liquidity positions and well-capitalized indeed expand bank lending and, thus, significantly (positively) affect monetary policy via bank lending. Chowdhury (2022) studied the three key and specific characteristics of banks, which enhance the transmission of monetary policy, lead to the increase in bank lending, and subsequently have a favorable (significant) impact on longer-term economic development. Regarding the effects of monetary policy on GDP (economic growth), the literature suggests economic growth promotes bank lending, and monetary policy (or tightening) negatively affects bank lending (Duan 2019; Halvorsen 2016; Bekiros 2019). Duan et al. (2019) and Halvorsen and Jacobsen (2016) studied the significant effects (positive) of economic growth on bank lending, whereas Bekiros et al. (2019) indicated adverse effects of the monetary policies on bank lending. The summary figures in Table 1 imply that loan growth has a mean value of around 2%. In emerging economies, the mean policy rate is around 11%. In addition, the mean of economic growth

represented by the GDP growth is around 3.3 percent. The mean values of size and liquidity are 2.9 percent and approximately 9 percent. The mean value of capitalization is less than one percent in emerging economies over the sampled years.

Table 1
Summary Statistics

Variable	St. Deviation	Mean	Min	Max
Loan Growth	3.502	2.03	0.101	15.68
Policy Interest Rate	14.821	11.628	-13.73	41.713
Economic growth	4.139	3.339	-17.912	17.291
Size	3.837	2.887	-3.369	16.091
Liquidity	0.426	9.022	-9.513	-8.318
Capitalization	0.013	0.002	-0.177	3.865

Methodology

Based on the previous studies (Ogawa 2000; Alfaro 2004; Saiz 2018), this study applies panel data analysis while demonstrating the use of the fixed effect (F.E.), system G.M.M. (sys-G.M.M.) method, and instrumental variable regression (I.V. reg). The fundamental framework is represented as follows:

$$\Delta \ln.lg_{i,s} = \alpha_i + \sum_{s=1}^k \beta_1 \Delta \ln.lg_{i,s} + \sum_{s=1}^k \beta_2 \Delta mp_{j,s} + \sum_{s=1}^k \beta_3 \Delta g.d.p_{j,s} + \sum_{s=1}^k \beta_4 Z_{i,s} + \sum_{s=1}^k \beta_5 (\Delta mp \times Z_{i,s}) + \varepsilon_{i,t} \quad (1)$$

Where $\Delta \ln lg_{i,s}$ (loan supply) is the explanatory variable/ dependent variable, and for time s to $s-1$, it represents bank lending (for bank i). In line with earlier research, we take a lag of one year for the growth rate of the loan supply to see if the dependent variable remains persistent (Ehrmann 2001; Huybens 1999). The lagged economic growth, denoted as $\Delta g.d.p_{j,s}$ is incorporated into the model to account for the economic situation of emerging nations. As argued by Olivero et al. (2011), a growing economy promotes bank lending and has, therefore, positive effects on the supply of bank loans. Shifts (changes) in monetary policy, namely monetary tightening or relaxing, directly have an impact on bank lending. Monetary tightening has an adverse (negative) effect on bank lending, whereas monetary loosening has a positive effect. It is hereby denoted by $\Delta mp_{j,s}$. The model incorporates lagged monetary policy to account for the gap in bank lending response following the announcement of monetary policy (Kasman 2011; Papadamou 2014). Characteristics of the bank indicators are denoted by the vector $Z_{i,s}$. Bank size has been determined after taking the log. (logarithm) of total assets. Bank with greater size are favorable to have a significant impact on loan growth (Mushtaq and Siddiqui, 2017). The ratio of liquid assets to total assets is denoted by the term "liquidity." It is feasible for financial institutions to have more effective liquidity situations to expand the amount of loans they offer (Correa et al., 2022). The ratio of total equity to total assets is the parameter that is used to determine the capitalization of a bank. Banks with significant (large) capitalization have the ability to increase bank lending without any difficulties (Kishan and Opiela, 2006). The study also includes an interaction between monetary policy and bank characteristic indicators in order to study the effects of their response to monetary policy. Prior research suggests that bank with large size, better liquidity, and well-capitalized banks in interaction with monetary policy positively affects loan growth or bank lending (Kishan and Opiela, 2000; Furceri and Choi, 2018). The construction of bank characteristic indicators (capitalization, liquidity, and size) has been given below

$$Cap_{it} = \frac{E_{it}}{A_{it}} - \frac{\sum_{t=1}^T \left(\sum_{i=1}^N \left(\frac{E_{it}}{A_{it}} \right) / N_t \right)}{T}$$

$$Size_{it} = \ln A_{it} - \frac{\sum_{i=1}^N \ln A_{it}}{N_t}$$

$$Liq_{it} = \frac{l_{it}}{A_{it}} - \frac{\sum_{t=1}^T \left(\sum_{i=1}^N \left(\frac{l_{it}}{A_{it}} \right) / N_t \right)}{T}$$

Where E_{it} is represented as the equity (total equity) at time t of bank i ; N_t Is the number of banks and A_{it} is the total asset of the bank; l_{it} is the total loan of the bank.



The interpretation of eq (1.) means that the average value (mean) between bank-specific variables and monetary policy equals zero, and the parameters are expressed as showing the average influence of monetary policy on bank lending of emerging economies. Variables, definitions, and their sources with the expected

effects on loan growth are illustrated in Table 2. As for the empirical analysis, the study employs fixed effects (FE) and system GMM approaches. To add further granularity, the study also employs instrumental variable regression (2sls) and excludes the years of the pandemic in order to ascertain whether baseline results are altered over the sampled years.

Table 2

Definition, Variables, and Sources, along with Expected Relationship with Loan Growth

Variable	Symbol	Description, Expected Relationship	Source	Variable
Loan Growth	LG	The loan supply and its growth rate. (+ve / -ve)	Bank Focus	Loan Growth
Policy rate	MP	Policy rate (Monetary Policy) of the central bank. (-ve)	IMF	Policy rate
Economic growth	GDP	Annual growth rate of the overall economy. (+ve)	IMF	Economic growth
Size	Sz.	Size means (logarithm) log. of total assets. (+ve)	Bank Focus	Size
Liquidity	Liq.	Liquid assets to total assets. (+ve)	Bank Focus	Liquidity
Capitalization	Cap,	Bank total equity to total assets. (+ve)	Bank Focus	Capitalization
Policy rate *	MP *	Interaction between monetary policy and capitalization. (+ve)	Author's calculation	Policy rate *
Capitalization	Cap.			Capitalization
Policy rate *	MP*	Interaction between monetary policy and liquidity. (+ve)	Author's calculation	Policy rate *
Liquidity	Liq.			Liquidity
Policy rate * Size	MP*Siz	Interaction between monetary policy and size. (+ve)	Author's calculation	Policy rate * Size

Using the two-step sys-GMM allows us to tackle the problem of endogeneity in the data and provide more consistent and unbiased estimates by taking lagged values as instrumental of the independent variables (Bond et al. 1991). One feature of the sys-GMM approach is that it stacks the equation in levels with those in first-differences and estimates the system with lagged differences of the time-varying variables as additional instruments. The sys-GMM, thus, allows for control for the simultaneity, reverse causality, and unobservable heterogeneity. In addition, two tests are performed by the sys-GMM; first, it tests autocorrelations, which help in identifying serial correlation, and second, based on the Sargan test, identify the over-identification problem. The study, therefore, expects the AR (1) to be statistically significant and AR (2) to be statistically insignificant. If this condition is accurate, it implies the presence of first-order serial correlation while rejecting the null hypothesis of AR (2), which supports the existence of second-order serial correlation in the model. Similarly, If the null hypothesis of the Sargan test is rejected, it indicates that the model is accurately defined and the instruments utilized are valid.

Empirical Results and Discussion

The objective of this research is to have a closer look at how monetary policy is influencing bank lending in specific emerging economies using the dynamic panel model. Before performing and interpreting the analysis, the validity of the model is investigated. Since the p-values of AR (1) are statistically significant, this suggests the existence of first-ordered serial correlations. AR (2), which stands for second-ordered serial correlation, does not exist since its p-values are not statistically significant. Similarly, the results of the Sargan test do not indicate any statistically significant differences, which further supports the validity of the instruments and indicates that the model has been appropriately stated. Because the lagged dependent variable is statistically significant, it implies that the dependent variable is persistent and that the current study's dynamic panel model is an appropriate model to analyze the monetary policy

channel via bank lending. The correlation analysis is performed to investigate the possible collinearity between variables (table 3).

Table 3
Correlation Results

	LG	MP	GDP	Sz	Liq	Cap
LG.	1.000					
MP.	-0.091	1.000				
GDP.	0.062	-0.048	1.000			
Sz.	0.698	-0.061	-0.065	1.000		
Liq.	-0.277	-0.021	0.387	-0.315	1.000	
Cap.	0.031	-0.004	-0.002	0.122	0.016	1.000

Table 4 shows the results of equation (1). The table shows two tests, FE and sys-GMM, in order to examine and interpret the analysis on the lending channel of transmission of monetary policy in the sampled economies. Several observations can be made from the table. The FE estimates persistence in the dependent variable, are statistically significant in the anticipated outcome, and are consistent with prior research. The lagged dependent variable is statistically significant along with the anticipated outcome and is consistent with prior research. The availability of loans to emerging economies is negatively impacted by the policy rate (set by the central bank) in both FE and sys-GMM approaches, respectively. The magnitudes of the effects, nevertheless, are different in the two setups and are statistically significant at conventional levels. Policy tightening, in other words, reduces loan supply in emerging economies. The only exception is capitalization, which has mixed effects on loan supply, negatively affecting it in the FE and positively influencing the bank lending in the sys-GMM, but the effects are statistically insignificant in both models. Economic growth is statistically significant at a 10 percent significance level and positively influences the effects of bank lending in emerging economies. Regarding the effects of interaction between the bank characteristic indicators and monetary policy variables, it is observed that Monetary Policy, i.e. (denoted by MP) * Liquidity and MP * Size, are positively impacting (significant) and, in fact, enhance bank lending except MP * Capitalization which is statistically insignificant. The results in Table 4 show that the higher the bank-specific characteristic variables, the larger the expansion in bank lending. This is possible because large-size, well-capitalized banks and banks with better liquidity positions are better able to expand their bank lending due to stronger balance sheet conditions. This leads to minimal effects of the interaction between monetary policy and the effects of the three characteristic variables on bank lending; that is, bank lending continues to expand in emerging economies, which is in line with previous studies. For instance, Albrizio (2020) indicates that such influence of lagged dependent variable and policy rate is possible when the latter is tightened in emerging economies. Similarly, Zulkhibri (2013) finds that size, liquidity, capitalization, and their interaction with the policy rate of the central bank positively affect bank lending in emerging economies.

Table 4
The Bank Lending Channel (B.L.C) of Monetary Policy on Emerging Economies

	Dep. Variable: LG (i.e.Loan Growth)	
	Fixed Effect	System G.M.M
L.LG	0.496*** (0.003)	-0.041 (0.236)
MP	-4.841*** (1.831)	-0.497*** (0.108)
GDP	5.857* (3.446)	0.329 (0.381)
Sz.	0.309*** (0.003)	0.063** (0.026)
Liq.	0.157* (0.084)	0.498** (0.197)
Cap.	-0.004	1.676



	(0.195)	(162.298)
MP * Cap.	-0.0001 (0.01)	-0.995 (4.682)
Dep. Variable: LG (i.e.Loan Growth)		
	Fixed Effect	System G.M.M
MP * Sz.	7.094*** (1.601)	11.533* (4.495)
MP * Liq.	0.443* (0.258)	0.022*** (0.007)
Constant	-171.673*** (50.416)	196.303** (95.646)
N	86156	73848
R-sq	0.285	
Wald Test		$\chi^2(9) = 51.4$
Sargan- test		$\chi^2(19) = 68.56$
AR (1)		-2.45 p-value = 0.014
AR (2)		0.6 p-value = 0.549

Note: For the level of significance, 1 %, 5%, and 10% are denoted by ***, **, *, respectively.

Robustness Check

Excluding the Years of Pandemic

This study, besides the baseline results, runs a robustness check by first excluding the years of a pandemic from the sample and then running a different test of endogeneity known as instrumental variable regression with robust standard errors. The years of the pandemic are excluded because recent studies suggest that bank lending due to severe lockdowns results in deteriorating bank balance sheet conditions, partially thanks to the massive fiscal expansion during the COVID-19 pandemic, which averted a full-blown crisis in emerging economies. Merrino (2021) suggests that credit expansions by the bank were negatively affected even though economies were experiencing accommodating monetary policies across emerging economies. For analyzing the bank lending channel, higher lags of the indicators (variables) in the ranges of 2 and 4 were taken to ascertain whether it could alter the baseline effects.

Instrumental variable regression with the robust standard error was estimated with the aim of relating/comparing the outcomes to the baseline results by testing the influence of the chosen bank-specific and macroeconomic variables on bank lending. The outcome of sys-GMM and Fixed Effect is shown in Table 5. which illustrates that the results and effects are broadly unaltered, except in certain cases. Without taking the pandemic years into account, the results show that the MP (policy rate.) has a negative effect on bank lending in developing countries, indicating that the dependent variable is persistence. It is observed that economic growth positively affects bank lending but is only statistically insignificant in the second model. Similarly, liquidity and size being statistically significant at their conventional levels enhances bank lending except capitalization, which is statistically insignificant. The interaction with monetary policy shows that liquidity and size still spur bank lending in emerging economies when the years of the pandemic are excluded. However, one noted change from the main results is the statistical significance of the interaction between capitalization and monetary policy on bank lending; that is, capitalization, albeit statistically insignificant in the FE model, is negatively influencing bank lending in emerging economies. These findings are consistent with those of earlier research, such as Shim et al.(2021)and Brauning et al. (2020), which indicate that capital outflows and flight-to-safety result in a negative influence of capitalization on bank lending in emerging economies.

Finally, instrumental variable regression is performed so as to add further granularity and provide support to the baseline estimates. The empirical results in Table 6 show that the effects are broadly unaltered except for the changes observed in terms of statistical significance and magnitude. We studied

(in line with previous researchers) that the dependent variable exhibits persistence and that size positively affects bank lending. However, liquidity and capitalization, along with their interaction with monetary policy, are statistically insignificant. Findings reveal that MP (Policy Rate.) has an adverse (-) effect on bank lending in developing nations, but economic development has a favorable and positive effect.

Table 5

Results: Effects of BLC of Monetary Policy Excluding Pandemic Years

Dep. Variable: LG (i.e.Loan Growth)		
	Fixed Effect	System G.M.M
L.LG	0.504*** (0.003)	-0.231*** (0.08)
MP	-6.497*** (1.734)	-0.407*** (0.104)
GDP	9.829*** (3.444)	0.158 (0.273)
Sz.	0.412*** (0.003)	0.075* (0.041)
Liq.	0.34*** (0.094)	1.019*** (0.311)
Cap.	0.007 (0.183)	0.811 (0.593)
MP * Sz.	7.607*** (1.29)	0.218*** (0.051)
MP * Cap.	-0.001 (0.009)	-5.265* (3.172)
MP * Liq.	0.715*** (0.265)	0.041*** (0.013)
Constant	-22.92*** (5.22)	40.758*** (12.819)
N	73848	73848
R-sq	0.36	
Wald Test		$\chi^2(9) = 193.32$
Sargan- test		$\chi^2(16) = 16.35$
AR (1)		-2.13 p-value = 0.033
AR (2)		0.-0.09 p-value = 0.927

Note: For the level of significance, 1 %, 5%, and 10% are denoted by ***, **, and *, respectively.

Table 6

Robustness; Effects of BLC of Monetary Policy Excluding Pandemic Years

Dep. Variable: LG (i.e.Loan Growth)	
	2sls
L.LG	0.203*** (0.064)
MP	-0.301* (0.157)
GDP	0.056** (0.025)
Sz.	0.463*** (0.029)
Liq.	0.071 (0.065)



Cap.	-0.001 (0.002)
MP * Liq.	0.0004 (0.001)
MP * Sz.	0.002*** (0.0006)
MP * Cap.	-0.0002 (0.0003)
Constant	-0.989 (2.493)
N	86156
R-sq	0.902

Note: For the level of significance, 1 %, 5%, and 10% are denoted by ***, **, and *, respectively.

Conclusion

By utilizing the data collected from 6,154 banks of eighteen developing economies ranging between 2006 and 2021, the monetary policy channel via bank lending is examined in this research. The research concluded that in emerging economies, bank lending does significantly operate. The study utilizes the system G.M.M, fixed effect (FE), and instrumental variable approach. Bank lending is enhanced in the studied economies when capitalization, size, and liquidity are taken into account. This is viable since previous findings of the study have shown that banks that are bigger in size, have more liquidity, and accommodate advanced funding may confidently boost and broaden their bank lending. Bank lending has also been positively impacted by economic growth (GDP) over the years. The reason behind it is as the financial system, along with the economy, expands, more investment possibilities emerge, and banks are incentivized to lend more money, which allows them to extend their credit and balance sheets.

The findings made it very evident that contraction (tightening) in monetary policy causes a decrease in bank lending, which means the credit supply decreases. Because of the positive relationship between liquidity, size, and bank lending, large (in size) banks and banks with better liquidity positions can continue to lend more money even when monetary policy tightens up. This implies that major banks and banks with better liquidity positions can mitigate the effects of monetary policy by increasing their lending. Both using greater lags and excluding the years of the epidemic and instrumental variable regression in the analysis did not significantly change the results. The scope of the study could potentially be broadened further. The improvement of the banking sector and other indicators of bank characteristics must be considered when assessing the effects of monetary policy, bank loan growth, and financial development on emerging economies. Furthermore, this analysis incorporates the interest rate as a factor while monetary policy has been analyzed. When it comes to the current body of knowledge, it is generally agreed upon that recent research that investigates the influence of the reserve ratio and currency exchange rate as monetary policies offer a significant addition. Loan availability and economic growth in the countries that were examined can be improved by adjusting certain bank characteristic characteristics, according to the study. There would be a decline in the bank lending channel and an increase in the default risk if policymakers do not watch closely the country's financial development. Consequently, when regulating and controlling monetary policy and prior to publishing new financial development policies, policymakers should consider financial development, mainly due to the fact that these policies have the potential to negatively impact the economy via bank lending while making it harder for policymakers to exercise influence over the entire economic condition. In order to achieve successful future financial development, it is imperative to establish a robust system of supervision and implement appropriate risk management strategies in the banking sector.

According to the results of this research, emerging economies should increase capitalization in order to secure their banking sector. Statistics show that the results of capitalization are not statistically significant and that developing economies have a very low mean market capitalization. Furthermore, by considering a restrictive monetary policy, it seems feasible to prioritize the enhancement of liquidity and

expanding market capitalization to reduce the negative consequences of this strategy in order to increase (growth) the bank loans.

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Appendix

Name of Countries			
▪ Bangladesh.	▪ Brazil.	▪ Cambodia.	▪ China.
▪ India.	▪ Indonesia.	▪ Kyrgyzstan.	▪ Malaysia.
▪ Mongolia.	▪ Myanmar.	▪ Nepal.	▪ Pakistan.
▪ Philippines.	▪ Russia.	▪ South Africa.	▪ Srilanka.
▪ Tajikistan.		▪ Uzbekistan.	