

Article

Impact of Monetary Policy on Financial Inclusion in Emerging Markets

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Abstract: The study investigates the impact of monetary policy on the level of financial inclusion in the big-five emerging market countries from 2004 to 2020. Several indicators of financial inclusion and the central bank interest rate were used in the analysis. It was found that the monetary policy rate has a mixed effect on financial inclusion, and the effect depends on the dimension of financial inclusion examined. Specifically, a high monetary policy rate has a significant negative impact on financial inclusion through a reduction in the number of depositors in commercial banks. A high monetary policy rate also has a significant positive impact on financial inclusion through greater bank branch expansion. The policy implication is that both contractionary and expansionary monetary policies lead to positive improvements in specific indicators of financial inclusion, because increase in interest rate leads to bank branch expansion which is beneficial for financial inclusion and decrease in interest rate leads to increase in the number of depositors in commercial banks which is also beneficial for financial inclusion. It was also found that the rising monetary policy rate has a negative effect on all indicators of financial inclusion in the post-financial crisis period. Overall, the effect of monetary policy on financial inclusion seem to depend on the monetary policy tool used by the monetary authority and the dimension of financial inclusion examined. The monetary authorities should pay attention to how their monetary policy choices might affect the level of financial inclusion and reduce the benefits that society gains from financial inclusion.

Keywords: monetary policy; interest rate; financial inclusion; access to finance



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1. Introduction

Monetary policy refers to the actions taken by a central bank to control interest rate and the level of money supply in order to achieve economic growth (Mishkin 2007). The monetary policy rate, also known as the central bank interest rate, is commonly used as the reference lending rate in a country (Auclert 2019). The central bank often raises the interest rate to control high inflation and to slow down the rate of economic growth (Nelson et al. 2018). The central bank can also reduce interest rate to stimulate growth and to facilitate a quicker recovery from a recession (Bordo and Landon-Lane 2013).

Changes in the monetary policy rate affects the financial sector. Recent developments in the global financial system have shown that rising monetary policy rates can pose a significant risk for the financial sector. This was illustrated in the 2023 US banking crisis when a hike in the interest rate by the US Federal Reserve in led to the collapse of Silicon Valley Bank, Signature Bank, First Republic Bank, and Credit Suisse (see Ozili 2023a). A rising monetary policy rate not only affects the financial sector but also affects the level of financial inclusion, since financial sector agents are the main agents of financial inclusion.

Financial inclusion refers to access and the use of affordable financial services (Ozili 2021). Financial inclusion ensures that people have access to the basic financial services they need to improve their wellbeing (Ozili 2018). A rapid increase in the monetary policy rate, or interest rate, may adversely affect the level of financial inclusion, particularly access to credit and access to other financial services. This can happen in three ways. One, rising interest rates will decrease the demand for essential formal financial services,

especially formal credit. It will lead to a decrease in the number of people seeking formal credit and will discourage a large number of unbanked adults from joining the formal financial sector. Two, rising interest rates can compel financial institutions to decrease the supply of financial services. They will prefer to market their product offerings to specific customers who can afford the cost of financial services, while ignoring poor customers and prospective customers who cannot afford them, thereby leading to financial exclusion of the latter group. Three, the rise in the monetary policy rate has the potential to increase the cost of all financial services if financial sector agents rely mostly on the monetary policy rate to fix the price of financial services. The implication is that a rise in the monetary policy rate can lead to a fall in the demand and supply of essential financial services and increase the cost of essential financial services, which is averse to the goal of financial inclusion.

In this paper, I investigate the effect of monetary policy on the level of financial inclusion. I use the central bank interest rate as a proxy for the monetary policy rate. I also use the number of bank accounts per 1000 adults, the number of automated teller machines (ATMs) per 100,000 adults, the number of commercial bank branches per 100,000 adults, and a financial inclusion index as the indicators of financial inclusion. These financial inclusion indicators constitute the accessibility dimension of financial inclusion based on [Beck et al. \(2009\)](#).

Little research has been conducted on the effect of monetary policy on financial inclusion in the major emerging markets, where changes in the monetary policy rate often lead to large movements in emerging markets' stock price indexes¹, which ultimately affect financial institutions and affect their efforts to achieve high levels of financial inclusion. Therefore, there is a need to determine the impact of monetary policy on the level of financial inclusion in emerging markets. Insights gained from such analyses can help emerging markets' monetary authorities to make the right calls at the right time when setting the monetary policy rate. Insights gained from such analyses can also make central banks pay attention to how changes in the monetary policy rate might affect the level of financial inclusion.

This study contributes to the literature that examines the determinants of financial inclusion. It contributes to this literature by identifying monetary policy as a potential determinant of financial inclusion in emerging markets. Related studies in this literature include [Realini and Mehta \(2015\)](#), [Zeqiraj et al. \(2020\)](#), [Ozili \(2021\)](#), and [Lu et al. \(2021\)](#). The study also contributes to the literature by identifying how the monetary policy rate affects the accessibility dimension of financial inclusion. Related studies in this literature include [Gupte et al. \(2012\)](#), [Ozili \(2023b\)](#), [Chakravarty and Pal \(2013\)](#), and [Ozili et al. \(2023\)](#). The study also contributes to the development literature by showing the indicators of financial inclusion that would be enhanced or worsened by changes in the monetary policy rate.

The rest of the paper is organized as follows. Section 2 presents the literature review. Section 3 presents the data and research methodology. Section 4 presents the results. Section 5 presents the conclusion of the paper.

2. Literature Review and Hypothesis Development

2.1. Related Literature

The present study investigates the effect of monetary policy on the level of financial inclusion. The study is related to the literature that examines how policy choices affect the level of financial inclusion. For instance, [Mehrotra and Yetman \(2014\)](#) examined how the level of financial inclusion affects monetary policy. They found that high levels of financial inclusion improve the transmission of monetary policy. [Ozili \(2023c\)](#) investigated whether social inclusion policies promote financial inclusion in 48 low- and medium-income countries. The author examined three social inclusion policies: gender equality policies, environmental sustainability policies, and social protection policies. The author found that social inclusion policies did not have a significant effect on financial inclusion, implying that social inclusion policies do not significantly promote financial inclusion. [Lee et al. \(2022\)](#) investigated whether aid flows to the financial sector improve the recipient

country's financial inclusion. They analyzed 21 developing countries and found that financial aid is an important determinant of the recipient country's financial inclusion, and the positive effect is stronger in countries with low economic risk, a low unemployment rate, and low terrorism threats. [Goedecke et al. \(2018\)](#) showed that cultural norms and social institutions affect the propensity and opportunities to save, thereby affecting the level of financial inclusion. [Xu \(2020\)](#) examined the role of social trust in financial inclusion around the world, using several measures of financial inclusion and trust data from the World Values Survey. They found that social trust is a significant positive determinant of financial inclusion. They suggest that social policies can be used to increase trust in society to increase the level of financial inclusion. [Ozili \(2021\)](#) conducted a review of financial inclusion around the world and showed that financial inclusion affects, and is influenced by, the level of financial innovation, poverty level, financial stability, the state of the economy, financial literacy, and regulatory frameworks, which differ across countries. The study also emphasized the need for policies that remove barriers to financial inclusion. [Ozili \(2018\)](#) identified the benefits of digital finance for financial inclusion and emphasized the need for policies that support the development of digital finance and fintech towards increasing the level of financial inclusion. [Barajas et al. \(2020\)](#) pointed out that structural and policy-related factors play an important role in promoting greater financial inclusion. They argued that policy tools should be used to reduce frictions holding back financial inclusion, rather than targeting specific levels of inclusion. [Koomson et al. \(2020\)](#) examined the impact of financial literacy training on financial inclusion. They found that the beneficiaries of financial literacy training were about 7.2 percentage points more likely to own a formal account and 8.2 percentage points more likely to save. They also found that the beneficiaries of financial literacy training were more likely to join the formal financial sector, especially male and young beneficiary households. The authors call for policies that strengthen financial literacy training in order to close the gender financial inclusion gap. [Gupta and Kanungo \(2022\)](#) examined the challenges and intricacies of financial inclusion for the bottom-of-the-pyramid segment in developing and frontier economies. They found that a higher degree of financial inclusion for the bottom-of-the-pyramid segment is likely to be achieved through the digitalization of formal financial intermediaries, such as banks. [Kumar and Pathak \(2022\)](#) examined the association between financial awareness and financial inclusion in India. They found that financial awareness is significantly associated with financial inclusion. They also found that more financial awareness is associated with a higher level of financial inclusion, and being female and having a lower level of education and income are related to lower financial inclusion. [Khan et al. \(2023\)](#) examined the role of cybersecurity in financial inclusion using data from Pakistan. The authors found that strong cybersecurity reduces the consequences of cyber threats to financial inclusion. The authors conclude that banks should enhance their cybersecurity control to minimize the occurrences of cyber-attacks. [Shaikh et al. \(2023\)](#) investigated whether mobile money services are effective in promoting digital financial inclusion in Ghana. They showed that the use of mobile money services enhanced the level of financial inclusion in Ghana. [Gronbach \(2023\)](#) showed that social cash transfers that are delivered through digital payments are helping to increase digital financial inclusion. However, they point out that the financialization and digitalization of social cash transfers can lead to the collateralization of social cash transfers for the provision of credit, and it can lead to rising household debt and financial exploitation. [Ozili \(2023d\)](#) pointed out the presence of a financial inclusion expectation gap, which is a gap between citizens' expectations of providers of formal financial services and the providers' actual performance or behavior as perceived by citizens with regard to financial inclusion. The financial inclusion expectation gap is the gap between what banked adults expect from formal financial institutions and what formal financial institutions actually provide to banked adults. The author argued that this gap can be reduced by introducing policies that state, in clear terms, the responsibilities of agents of financial inclusion. [Ozili \(2023e\)](#) assessed the role of central bank digital currency (CBDC), fintech, and cryptocurrency in promoting financial inclusion and financial stability.

The author showed that fintech, CBDC, and cryptocurrency can increase financial inclusion by providing an alternative channel through which unbanked adults can access formal financial services. The author also showed that CBDC and fintech services have the potential to preserve financial stability, while cryptocurrency presents financial stability risks that can be mitigated through effective regulation. Zeqiraj et al. (2022) examined the dynamic impact of institutional quality on financial inclusion across seventy-three developing countries. They found that institutional quality promotes both access to, and the use of, formal financial services in developing countries. They also find that economic growth, the human development index, domestic credit, the financial development index (the depth and access to finance and the efficiency of financial institutions and financial markets), and remittances significantly contribute to financial inclusion.

2.2. Hypothesis Development

The relationship between monetary policy and financial inclusion is an indirect relationship. This is because monetary policy affects the level of financial inclusion through changes in the behavior of financial institutions (Yetman 2018). An increase in the monetary policy rate, or interest rate, may adversely affect the level of financial inclusion in three ways. One, rising interest rates will decrease the demand for essential formal financial services, especially formal credit. It will lead to a decrease in the number of people seeking formal credit and will discourage many unbanked adults from joining the formal financial sector. Two, rising interest rates can compel financial institutions to decrease the supply of financial services. They will prefer to market their product offerings to specific customers who can afford the cost of financial services, while ignoring poor customers and prospective customers who cannot afford them, thereby leading to financial exclusion of the latter group. Three, the rise in the monetary policy rate has the potential to increase the cost of all financial services if financial sector agents rely mostly on the monetary policy rate to fix the price of financial services (Yetman 2018). The implication is that a rise in the monetary policy rate can lead to a fall in the demand and supply of essential financial services and increase the cost of essential financial services, which is averse to the goal of financial inclusion.

3. Data and Methodology

The data used for the analysis were sourced from the Bank of International Settlement (BIS), the Financial Access Survey (FAS), and the International Monetary Fund (IMF). The data were extracted for the big five emerging market countries from 2004 to 2020. The big five emerging market countries are Brazil, China, India, Russia, and South Africa. The monetary policy variable used for the analysis is the central bank interest rate. Four financial inclusion variables were used for the analysis, namely the number of ATMs per 100,000 adults (ATM), the number of bank accounts (or depositors) with commercial banks per 1000 adults (BAC), the number of commercial bank branches per 100,000 adults (BR), and a simple financial inclusion index (FINDEX) derived from the average of the BR and ATM variables.

A univariate model was used to estimate the effect of monetary policy on financial inclusion as shown below. Equation (1) estimates financial inclusion as a function of the monetary policy rate, while Equation (2) estimates financial inclusion as a function of the lagged monetary policy rate. The variables in the model are described in Table 1, where e = the error term, i = country, and t = year.

$$\text{Financial inclusion} = f(\text{Monetary policy rate})$$

$$(BAC, BR, ATM, FINDEX)_{i,t} = \beta_0 + \beta_1 MP_{i,t} + e_{i,t} \dots \dots \dots (1)$$

$$(BAC, BR, ATM, FINDEX)_{i,t} = \beta_0 + \beta_1 MP_{i,t-1} + e_{i,t} \dots \dots \dots (2)$$

The data were analyzed using the panel fixed-effect regression method. The monetary policy rate is the explanatory variable, while the financial inclusion variables are the

dependent variables. A summary of descriptive statistics is reported in Table 2. On average, the monetary policy rate is 7.89 percent. The monetary policy rate is higher in Brazil at 11.04 percent and is much lower in China at 5.42 percent. The ATM variable is 110.7 on average. The ATM variable is higher in South Africa and is much lower in India. The BR variable is 25.84 on average. The BR variable is higher in South Africa and is much lower in China. The FINDEX variable is 152.39 on average. The FINDEX is higher in South Africa and is much lower in India. The BAC variable is 292.6 on average. The correlation result in Table 3 shows that the monetary policy rate has a significant positive correlation with the ATM, BAC, BR, and FINDEX variables, implying that the rising monetary policy rate is correlated with higher financial inclusion.

Table 1. Variables' description and source.

Variable	Variable Name	Source
MP	Central bank interest rate	Bank of International Settlement
ATM	Number of ATMs per 100,000 adults	Financial Access Survey (FAS), International Monetary Fund (IMF)
BR	Number of bank accounts (or depositors) with commercial banks per 1000 adults	Financial Access Survey (FAS), International Monetary Fund (IMF)
BAC	Number of commercial bank branches per 100,000 adults	Financial Access Survey (FAS), International Monetary Fund (IMF)
FINDEX	Average of the BR and ATM variables	Financial Access Survey (FAS), International Monetary Fund (IMF)

Source: World Bank, BIS, IMF, and FAS.

Table 2. Descriptive statistics for the variables.

Country/Variable	MP	ATM	BAC	BR	FINDEX
Big-Five EM countries	Mean	Mean	Mean	Mean	Mean
Brazil	11.04	110.78	550.51	19.37	130.15
China	5.42	51.73	17.64	8.48	82.19
India	6.619	12.65	-	11.57	24.39
Russia	9.51	114.37	-	31.98	146.36
South Africa	6.87	288.71	-	49.61	338.31
Mean	7.89	118.46	292.67	25.84	152.39
Median	7.13	105.81	380.15	20.34	127.67
Standard Deviation	3.09	105.79	279.67	15.695	119.92
Observations	85	82	31	77	76

Source: Author's calculation.

Table 3. Pearson correlation for the financial inclusion and monetary policy variables.

Variable	MP	ATM	BAC	BR	FINDEX
MP	1.000				
ATM	0.536 *** (0.00)	1.000			
BAC	0.574 *** (0.00)	0.801 *** (0.00)	1.000		
BR	0.727 *** (0.00)	0.848 *** (0.00)	0.967 *** (0.00)	1.000	
FINDEX	0.587 *** (0.00)	0.995 *** (0.00)	0.853 *** (0.00)	0.899 *** (0.00)	1.000

p-values are in parenthesis. *** represents 1 percent significance level. Source: Author's calculation.

4. Empirical Results

4.1. Effect of Monetary Policy on the Level of Financial Inclusion

The results are reported in Table 4. The MP variable has a significant negative effect on the BAC variable in the second column in Table 4. This indicates that a rising monetary policy rate leads to a decrease in the number of bank accounts in the banking sector, thereby reducing the level of financial inclusion. The significant negative relationship also means that a low monetary policy rate is beneficial for financial inclusion, as it will lead to an increase in the number of bank accounts (or an increase in the number of depositors) in the banking industry. In terms of economic significance, the MP coefficient is economically significant because a one percent increase (or decrease) in the monetary policy rate will lead to a 14.8 percent decrease (or increase) in the number of depositors, which leads to low financial inclusion.

Table 4. Effect of monetary policy rate on the level of financial inclusion. (Fixed-effect panel regression estimation: 2004–2020).

	BAC	ATM	BR	FINDEX
	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
c	420.342 *** (8.31)	108.650 *** (10.22)	20.055 *** (11.05)	134.209 *** (11.73)
MP	−14.871 *** (−2.56)	1.230 (0.95)	0.714 *** (3.29)	2.239 *** (1.65)
Country fixed effect	Yes	Yes	Yes	Yes
Year fixed effect	Yes	Yes	Yes	Yes
R ²	98.63	96.27	95.48	96.98
Adjusted R ²	96.83	94.90	93.64	95.64
D-W Statistic	0.48	0.30	0.59	0.38
F-Statistic	54.86	69.53	51.85	77.54

*** represents statistical significance at the 1% level. Source: Author's calculation.

In contrast, the MP variable has a significant positive effect on the BR variable in the fourth column of Table 4. This indicates that a rising monetary policy rate leads to bank branch expansion in the banking sector, thereby increasing the level of financial inclusion. The significant positive relationship also means that a low monetary policy rate will lead to low financial inclusion through bank branch contraction. In terms of economic significance, the MP coefficient is not economically significant because a one percent increase (or decrease) in the monetary policy rate will lead to a 0.71 percent increase (or decrease) in bank branch expansion.

Meanwhile, the MP variable has an insignificant relationship with the ATM variable in the third column in Table 4. However, the MP variable has a significant positive effect on the FINDEX variable in the fifth column in Table 4. This indicates that a rising monetary policy rate leads to a high financial inclusion index, thereby increasing the level of financial inclusion. The policy implication of the findings is that both contractionary and expansionary monetary policies lead to positive improvements in specific indicators of financial inclusion.

4.2. Lagged Effect of Monetary Policy on the Level of Financial Inclusion

Next, I consider the presence of lags in the transmission of monetary policy. Such lags can prevent monetary policy from having an immediate effect on the target variable, which, in this case, is the financial inclusion variable. To control for this, I used the one-year lagged MP variable as the explanatory variable and re-estimated the univariate models. The results are reported in Table 5.

Table 5. Effect of lagged monetary policy rate on the level of financial inclusion. (Fixed-effect panel regression estimation: 2004–2020).

	BAC	ATM	BR	FINDEX
	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
c	422.543 *** (8.56)	115.52 *** (10.22)	20.529 *** (9.38)	144.373 *** (11.51)
MP _{Lag}	−15.214 *** (−2.74)	0.473 (0.35)	0.645 ** (2.47)	1.141 (0.77)
Country Fixed effect	Yes	Yes	Yes	Yes
Year Fixed effect	Yes	Yes	Yes	Yes
R ²	98.68	96.83	95.22	97.37
Adjusted R ²	97.06	95.65	93.25	96.27
D-W Statistic	0.63	0.32	0.53	0.39
F-Statistic	60.83	81.68	48.39	88.21

*** and ** represent statistical significance at the 1% and 5% levels, respectively. Source: Author's calculation.

The lagged MP variable has a significant negative effect on the BAC variable in the second column of Table 5. The result remains consistent with the earlier result in Table 4 and suggests that a rising monetary policy rate decreases the number of bank accounts in the banking sector, thereby reducing the level of financial inclusion. The significant negative relationship also means that a low monetary policy rate is beneficial for financial inclusion as it will lead to an increase in the number of bank accounts (or an increase in the number of depositors) in the banking industry. In terms of economic significance, the lagged MP coefficient is economically significant because a one percent increase (or decrease) in the monetary policy rate will lead to a 15.2 percent decrease (or increase) in the number of depositors, which leads to low financial inclusion.

In contrast, the lagged MP variable has a significant positive effect on the BR variable in the fourth column of Table 5. This indicates that a rising monetary policy rate leads to bank branch expansion in the banking sector, thereby increasing the level of financial inclusion. The significant positive relationship also means that a low monetary policy rate will lead to low financial inclusion through bank branch contraction. In terms of economic significance, the lagged MP coefficient is not economically significant because a one percent increase (or decrease) in the monetary policy rate will lead to a 0.64 percent increase (or decrease) in bank branch expansion. Meanwhile, the lagged MP variable has an insignificant relationship with the ATM and FINDEX variables in the third and fifth columns in Table 5. The policy implication of the findings is that both contractionary and expansionary monetary policies lead to positive improvements in specific indicators of financial inclusion.

4.3. Further Analysis: Effect on the Post-Financial-Crisis Period (2010 to 2020)

In this section, I consider the effect of monetary policy on the level of financial inclusion in the post-financial-crisis period. To carry this out, I created a period subsample by dividing the full sample into the 2010 to 2020 period. Thereafter, I re-estimated the models. The results are reported in Table 6.

The lagged MP variable has a significant negative effect on the ATM, BR, and FINDEX variables in the post-financial-crisis period as shown in the third, fourth, and fifth columns in Table 6, respectively. This indicates that a rising monetary policy rate leads to a decrease in the number of ATMs, bank accounts, and the financial inclusion index in the post-financial-crisis period. The significant negative relationship also means that a low monetary policy rate is beneficial for financial inclusion as it will lead to an increase in the number of ATMs, bank branches, and the financial inclusion index.

Table 6. Effect of monetary policy rate on the level of financial inclusion in the post-financial-crisis period. (Fixed-effect panel regression estimation: 2010–2020).

	BAC	ATM	BR	FINDEX	BAC	ATM	BR	FINDEX
	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)	Coefficient (t-statistic)
c	322.64 *** (10.31)	163.33 *** (12.09)	31.32 *** (12.33)	195.77 *** (13.82)	369.14 *** (12.95)	139.49 *** (10.64)	29.546 *** (13.19)	171.67 *** (12.64)
MP _{Lag}	−1.734 (−0.43)	−3.305 * (−1.83)	−0.747 ** (−2.20)	−3.885 ** (−2.06)				
MP					−8.530 * (−2.26)	−0.403 (−0.22)	−0.483 (−1.55)	−0.676 (−0.36)
Country Fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year Fixed effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	99.81	98.61	97.83	98.86	99.79	98.19	97.72	98.56
Adjusted R ²	99.51	98.06	96.93	98.38	99.46	97.50	96.80	97.97
D-W Statistic	1.41	0.55	0.41	0.63	1.43	0.38	0.27	0.45
F-Statistic	330.99	177.50	109.61	209.69	313.35	141.65	105.94	169.10

***, **, and * represent statistical significance at the 1%, 5%, and 10% levels, respectively. Source: Author's calculation.

The MP variable has a significant negative effect on the BAC variable in the post-financial-crisis period in the sixth column in Table 6. This indicates that a rising monetary policy rate leads to a decrease in the number of bank accounts in the banking sector, thereby reducing the level of financial inclusion in the post-financial-crisis period. The significant negative relationship also means that a low monetary policy rate is beneficial for financial inclusion as it will lead to an increase in the number of bank accounts (or an increase in the number of depositors) in the banking industry in the post-financial-crisis period. In terms of economic significance, the MP coefficient is economically significant because a 1 percent increase (or decrease) in the monetary policy rate will lead to an 8.53 percent decrease (or increase) in the number of depositors, which leads to low financial inclusion in the post-financial-crisis period. Meanwhile, the MP variable has an insignificant relationship with the ATM, BR, and FINDEX financial inclusion indicators in the seventh, eighth, and ninth columns in Table 6, respectively.

5. Conclusions

The study examined the impact of monetary policy on the level of financial inclusion in emerging markets. Several indicators of financial inclusion and the central bank interest rate were used in the analysis. The findings of the study show that the monetary policy rate has a mixed effect on financial inclusion and that the effect depends on the dimension of financial inclusion being examined. Specifically, a high monetary policy rate has a significant negative impact on financial inclusion through a reduction in the number of depositors. The monetary policy rate also has a significant positive impact on financial inclusion through greater bank branch expansion. It was also found that a rising monetary policy rate has a significant negative effect on all indicators of financial inclusion in the post-financial-crisis period.

The implication is that both contractionary and expansionary monetary policies lead to positive improvements in specific indicators of financial inclusion, because increase in interest rate leads to bank branch expansion which is beneficial for financial inclusion and decrease in interest rate leads to increase in the number of depositors in commercial

banks which is also beneficial for financial inclusion. The effect of monetary policy on financial inclusion depends on the monetary policy tool and the dimension of financial inclusion examined. Therefore, central banks should pay attention to how their monetary policy choices might affect the benefits that society gains from financial inclusion. They should consider the trade-off between price stability and financial inclusion objectives when making monetary policy decisions because monetary policy decisions can affect the costs of formal borrowing and reduce the benefits that society gains from financial inclusion. Additionally, in times of global headwinds such as the COVID-19 pandemic and the Russia–Ukraine War, the monetary authorities should consider adopting an accommodative monetary policy stance by lowering interest rates, which is beneficial for financial inclusion.

A limitation of the study is that the study analyzed only one tool of monetary policy, which is the central bank interest rate. It did not analyze other tools of monetary policy such as the cash reserve ratio and the liquidity ratio of banks. Additionally, the study did not consider other dimensions of financial inclusion other than the accessibility dimension of financial inclusion.

Future research can examine how changes in the cash reserve ratio might affect the level of financial inclusion in emerging markets. Future research should also examine the effect of changes in the money supply on the level of financial inclusion. Future research should also examine the link between financial inclusion and monetary policy in sub-Saharan Africa.

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Data Availability Statement: Data is available at the Bank of International Settlement (BIS) and World Bank database.

Conflicts of Interest: The author declares no conflict of interest.

Note

¹ such as the MSCI Emerging Markets Index Performance.

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