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Influence of Financial Soundness on Financial Inclusion and MSMEs: A Macro-Level Investigation in Indonesia

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Abstract

Strengthening the financial system is urgently needed in line with the threat of the global crisis after the Covid-19 pandemic and the heating up of world politics due to the war in Ukraine. The endurance of the financial system potentially increases the public trust in financial institutions and ultimately accelerates financial inclusion, especially in the Micro, Small, and Medium Enterprises (MSMEs) sector. Using the ARCH Maximum Likelihood Model, this study focuses on the effect of the financial soundness of the banking industry and macroeconomic conditions on financial inclusion and MSMEs during 2012-2022. The banking soundness variable is measured from financial indicators in the form of capital namely Capital Asset Ratio (CAR), profitability namely Return on Assets (ROA) and Return on Equity (ROE), credit risk namely Non-Performing Loan (NPL), and liquidity risk namely Loan to Deposit Ratio (LDR). Furthermore, the financial inclusion indicator uses the Number of Account Credits per 1,000 Adults, while the MSMEs indicator uses MSMEs Credit to GDP at the Current Price. In addition, the inflation variable is included as an indicator of economic conditions. The results show that partially CAR, NPL, LDR, and LAC(-1) significantly influence financial inclusion, while RoA and inflation were found insignificant. Furthermore, CAR, NPL, LDR, and inflation partially influence the MSMEs credit, while the RoA and RoE are insignificant.

Keywords: Financial Inclusion, Financial Soundness, MSMEs, Banking Industry
JEL Classification: B26; E02; G21

INTRODUCTION

The global financial crisis in 2007-2008 becomes the starting point for some developing countries to endorse the objective of financial inclusion to establish economic prosperity and growth. Globalization is associated with financial inclusion (Cahyadin, 2020) and many multilateral organizations have made commitments to advance the role of financial inclusion. For instance, the G20 created the 'Global Partnership for Financial Inclusion in 2010 at the Seoul Summit where the goal is to promote financial inclusion, particularly in developing countries. The World Bank has identified financial inclusion as a vital factor that contributes to the goal of the United Nation Sustainable Development Goals (SDGs).

The awareness of financial inclusion made it the prior pillar of development policy. Financial inclusion is associated with financial system stability (Le et al., 2019; Malik et al., 2022; Vo et al., 2021) and becomes a critical aspect to reduce extreme poverty, minimizing the prosperity gap, and eventually promoting sustainable inclusive economic growth and development. Furthermore, the inclusive financial systems open access for poor people to save and get a loan, build their assets, invest in ventures, and ultimately improve their livelihoods. In addition, the poor can smooth their consumption and insure themselves against socioeconomic vulnerabilities. Whereas developed economies have enhanced access to and provision of quality and sustainable formal financial services like credit, savings, payment systems, insurance, and pension among others, in most of the developing economies, the bulk of the adult population still lacks access to basic financial services.

As a key element for development, financial inclusion becomes a policy priority and firmly placed the government's agenda. More than the aspect of providing financial access, financial inclusion includes more important issues such as helping people to manage their resources in a better way attempt to build society's financial capabilities. Financial inclusion encourages economic growth (Cui et al., 2022; Iqbal & Sami, 2017), thereby reducing poverty and inequality especially in low- and lower-middle-income countries (Aracil et al., 2022; Erlando et al., 2020; Geng & He, 2021; Gutiérrez-Romero & Ahamed, 2021).

Furthermore, in the business sector financial inclusion supports enterprises and individuals to access financial products and services at a sustainable and affordable cost. The digitization of financial inclusion has several benefits (Ozili, 2018) and conduce the majority of enterprises and people to access financial products and services including mobile payment, online loans, and others. The rapid development of communication technology supports digital financial inclusion and leads to financial development being extensively applied in some countries. Digital finance inclusion has been proven to reduce per capita energy consumption and improve the GDP per capita (Zheng & Li, 2022).

The threat of the global crisis after the Covid-19 pandemic and the heating up of geopolitics due to the war in Ukraine causes the strengthening of the financial system becomes urgent. The endurance of the financial system can increase public trust in financial institutions and ultimately accelerate financial inclusion. However, formal financial institutions as the trusted institutions have stringent regulations. Consequently, only a particular group of people or business

units are feasible to access the financial services provided. Meanwhile, other community groups and business units need capital to support the business that can not reach the financial institution services. These community groups are called exclusive financials the opposed to financial inclusion, and this group is commonly related to Small Medium Enterprises (MSMEs). The smaller size of businesses compared to big corporations causes the MSMEs to face the hardness to access the financial institution. As a sector that had been proven to solve the unemployment problem effectively, the growth and vibrancy of MSMEs are also important to broader economic growth. The awareness of MSMEs large influence on the economy attracts policymakers not only at the national level but also globally. The big role of MSMEs in the economy is the reason why it is important to give a greater focus on the financial inclusion of MSMEs. The accessible financial institution for MSMEs will contribute to the development of MSMEs and eventually will positively affect economic growth. The financial institution is the big source of funding for MSMEs, therefore MSMEs and the banking industry must be linked to each other.

As an intermediary institution, the banking industry plays a substantial role in the global economy, especially by providing financial services to individual households and corporations. Therefore, the banking industry's performance will affect the economy and through their intermediary function, banking stability promotes financial inclusion. However, increased financial inclusion also can be a threat to banking stability through asymmetric information, adverse selection, and moral hazard (Shalihin & Safuan, 2021).

The significant impact of the COVID-19 pandemic on the global economy leads to the movement of countries around the world to pursue economic recovery and sustainable development. Re-examining the strategy of global financial inclusion is crucial to promote inclusive growth effectively. As the main financial inclusion factor, financial soundness is a vital requirement for supporting the health of a country's financial system as well. There is a strong positive association between financial inclusion and bank quality (Ahamed et al., 2021). The lack of banking sector soundness becomes one of the main reasons that causes the crisis, also affecting their market values (ŞİT, 2022). Furthermore, the Financial Soundness Indicators (FSI) can be successfully used for accurate macro-financial surveillance for early detection of financial sector distress.

The bank's soundness can maintain continuity and reach profitability targets easily and eventually greatly contribute to the development of the country's economies. Bank profitability is one of the factors of bank soundness where the increase in the soundness of banks causes an increase in profits and vice versa (ŞİT, 2022). Banks increase their profitability by extending more loans, which is the bank's main activity and by collecting more deposits. In addition, to maximize profitability banks undertake an accurate investment analysis so they can minimize the business risk. In addition, the optimal decisions of the bank regarding financing, investment, and distribution decisions can increase the bank's market value and finally result in the bank's soundness.

However, only a few research have specialized in analyzing the financial soundness of financial inclusion, particularly for MSMEs sector. Previous research is limited to the relationship between financial soundness and bank profitability (Albulescu, 2015; Sedera et al., 2022) as well as financial stability (Almahadin et al., 2020; Pietrzak & Espinosa-Vega, 2021; ŞİT, 2022). Furthermore, the analysis of financial inclusion is only limited to its determinants (Datta & Singh, 2019; Susilowati & Leonard, 2019; Zins & Weill, 2016), the relationship between financial inclusion and economy (Fauzan et al., 2020; Geng & He, 2021; Iqbal & Sami, 2017), financial inclusion and stability (Le et al., 2019; Malik et al., 2022; Shalihin & Safuan, 2021; Vo et al., 2021). In that context, the purpose of this research was to analyze the impact of financial soundness on financial inclusion and MSMEs in Indonesia from 2012 to 2022.

LITERATUR REVIEW

The initial study about financial inclusion has been started by McKinnon (1973) and Shaw (1973) consider financial liberalization as a mainstay of economic reforms in developing countries. Both stated that involving the establishment of higher interest rates, the demand and the supply of savings, will lead to an increase in savings. They believed that leveling up the financial intermediation represents a substitute for the curb market, and the shift to organized finance eventually becomes more beneficial because of the greater efficiency associated. The earlier theoretical literature that emphasized financial liberalization also determined the interest rates involved interest rate ceilings, restrictions on competition of financial institutions and market inefficiencies. Those were more conducive to a higher growth path as opposed to financial repression.

Then the financial reforms of the 1980s and 1990s took place in most economies. Countries were expected to improve the financial depth and formal financial services access such as loans, savings, payment services, and other related services (Arun & Kamath, 2015). There are several indicators used to analyze financial inclusion based on works of literature. Some of these indicators are the availability of financial products, the adoption of products, the use of products, and the importance of the product (Susilowati & Leonard, 2019). The availability of financial products measures the availability of institutions, products, and financial services, particularly banking for the community. This indicator measures from the supply side — the adoption of products measures ownership of bank accounts by individuals and companies. Use of products measures the degree of frequency of consumers in using financial products or services over some time, through saving or accessing the loan (Datta & Singh, 2019). Typically, the value of a financial index is determined by 3-dimensional aspects namely accessibility, determining how the poor access the formal financial sector, availability, the number of financial sectors services spread to all communities, and usability, the ability of the poor to use formal financial services (Erlando et al., 2020).

The measurement of financial inclusion is mainly depicted from individual financial surveys or global financial surveys such as those conducted by

the World Bank or the IMF. ⁷ The World Bank provides the Global Financial Inclusion database, which includes more than 850 indicators information across 151 economies and focuses on the demand side of financial services. However, the constraint of this database is the limitation of its periodicity where it is only available for annual data and sometimes not up-to-date, so it is not possible to extend comparative analysis across countries over time. An alternative source is the Financial Access Survey gathered by the IMF which provides the largest ⁷ global supply-side annual data series on financial inclusion. It offers data on access to and usage of financial services by firms and households and is comparable across countries over time (Gutiérrez-Romero & Ahamed, 2021). Additionally, Gutiérrez-Romero & Ahamed (2021) divided the empirical literature on financial inclusion into three categories. The first category uses randomized control experiments to ensure the influences of financial services or improving outreach to individuals, households, and companies. Furthermore, they used quasi-experiments and case studies, and lastly the evaluation of financial inclusion impacts for cross-country aggregate analysis.

Over the past few years, financial inclusion has increasingly been embraced by the global policy community as an essential goal for the financial sector and economic development. The G-20 forum agreed to carry on the financial inclusion agenda in 2008, and in 2010 established the Global Partnership for Financial Inclusion and bring the agenda forward. The Alliance for Financial Inclusion (AFI) was founded in 2008 as a peer exchange body for developing countries authorities. The AFI created the Maya Declaration as the first global and measurable set of commitments for policymakers in emerging and developing countries to unlock the economic and social. As a result of these global economic movements, financial inclusion strategies were established by several governments around the world (Arun & Kamath, 2015).

Moreover, the current literature found an ambiguous relationship between financial inclusion and bank industry performance. The higher level of financial inclusion brings an un-banked, group of people with no access to bank services, firms, and consumers into the formal banking system. It enhances the financial institutions in diversifying the loan portfolio and depositor base. The diversification potentially supports the financial institutions to be resilient and withstand a financial crisis. The more extensive financial sector will support the un-banked to access the financial instruments and eventually reduce asymmetries in information and problems between lenders and borrowers. As inclusive banking provides sufficient chances for the customer to deposit funding, reduces the return volatility of banks operating in such markets by expanding branches to the unbanked, especially in remote areas. On the other hand, inclusive finance could increase agency problems due to a large product mix and organizational structure since the broadening access to financial services for all income groups requires banks to maintain product lines targeted at different categories of customers.

The implementation of financial inclusion policies in some economies has provided support for low-income people to obtain financial services, they are conducive to push the income gap and as a result a more prosperous economy and higher economic growth. Additionally, financial inclusion is a good tool to mitigate the impact of macroeconomic shocks on households and MSMEs. Financial inclusion can boost the savings of households and then encourage

entrepreneurs to invest to increase production, thereby promoting economic growth. Moreover, financial products have a direct part in promoting economic growth also financial inclusion is a good tool to promote inclusive economic growth.

DATA AND METHODOLOGY

As previously mentioned, the main purpose of this study is to explore the role of banking soundness in the financial inclusion of Indonesia. To capture this purpose, the following functional model is suggested:

$$\text{Financial inclusion} = f(\text{financial soundness}) \dots\dots\dots (1)$$

The above model expresses that financial inclusion is a function of banking soundness; it indicates that financial inclusion is mainly construed through banking soundness indicators. Accordingly, the functional model of Equation (1) should be rearranged as an econometric model as follows:

$$\begin{aligned} LAC = & \alpha + \beta_1 CAR + \beta_2 RoA + \beta_3 RoE + \beta_4 NPL + \beta_5 LDR \\ & + \beta_6 INF + \varepsilon \dots\dots\dots (2) \end{aligned}$$

$$\begin{aligned} MSME = & \alpha + \beta_1 CAR + \beta_2 RoA + \beta_3 RoE + \beta_4 NPL + \beta_5 LDR \\ & + \beta_6 INF + \varepsilon \dots\dots\dots (3) \end{aligned}$$

Here, the exogenous variables are the capital adequacy ratio, CAR; the return on asset, RoA; the return on equity, RoE; the non-performing loan, NPL; loan to deposit ratio, LDR; and the inflation rate of the economy, *INF*. Inflation is a macroeconomic variable used to explore the role of economic fluctuation in financial inclusion; presumed as one of the essential elements that affect financial inclusion. In this analysis, the proxy of financial inclusion is measured by the fraction of the account credit number per 1,000 adults and the MSMEs credit to total credit. The ratio of capital, profitability, credit risk, and liquidity risk are the measurement of financial soundness (Salina et al., 2020).

The financial systems of the developing economies, Indonesia as a sample, are characterized as bank-based systems. It means the banking sector has a crucial role in emerging economies, which affects the stability not only the financial system but also the economic growth of a certain country (Almahadin et al., 2020). In developing economies, the well-functional and healthy banking sectors are considered among the main issues to maintain relatively stable financial systems. The well-functional means the bank's facility can be accessed easily by society since the main function of the bank is as the intermediary media. Therefore, the theoretical background provides enough arguments to use the number of loan accounts and the MSMEs credit as a proxy of financial inclusion to empirically investigate the role of banking soundness in financial inclusion, especially in emerging economies.

Econometrically, this study adopts the Maximum Likelihood Autoregressive Conditional Heteroscedasticity (ML-ARCH) to estimate the model suggested in equations (2) and (3). All of the variables are aggregate metrics collected for the banking industry as a whole during the period of t, which refers to the time series data of each variable spanning from 2012 to 2022. The β 's (β_1 to β_4) are the model coefficients to be estimated, where the α is the constant term, and ε is the error term. The data description and sources of all variables are summarized in Table 1. The abbreviations of all variables are also explained here.

Table 1.
Variable Description and Data Sources

The table shows the list of dependent and independent variables used in the analysis. The symbols of the variables, their measurement and data sources are presented. These symbols have been used throughout the analysis.

Variables	Symbols	Measurement	Data Sources
Dependent Variables			
Loan Account	LAC	Number of Account Credit per 1.000 Adults	Bank Indonesia (2022)
MSMEs Credit	MSMEs	MSMEs Credit to Total Credit	Bank Indonesia (2022)
Independent Variables			
Capital Asset Ratio	CAR	Total regulatory capital to Risk-weighted assets	Bank Indonesia (2022)
Return on Asset	RoA	Net income before taxes to total asset	Bank Indonesia (2022)
Return on Equity	RoE	Net income after taxes to capital	Bank Indonesia (2022)
Non-Performing Loan	NPL	Non-Performing Loans to Total gross loans	Bank Indonesia (2022)
Loan to Deposit Ratio	LDR	Customer Deposits to Total (Non-Interbank) Loans	Bank Indonesia (2022)
Inflation Rate	INF	The monthly rate of inflation	Indonesian Statistics (2022)

RESULTS AND DISCUSSION

The initial stage in the model formulation is to test the classical assumptions to ensure that the model is feasible and becomes valid as an

estimator. The Maximum Likelihood Autoregressive Conditional Heteroscedasticity approach is used to solve the problem of autocorrelation and heteroskedasticity. The result of the statistical test is shown in Table 2.

The t-test shows that partially CAR, NPL, LDR, and LAC(-1) significantly influence financial inclusion, while RoA and inflation were found insignificant. Furthermore, CAR, NPL, LDR, and inflation partially influence the MSMEs credit, while the RoA and RoE are insignificant. The obtained model is based on the statistical test as follows:

$$\text{LACC} = -399.479 + 5.991 \cdot \text{CAR} + 2.837 \cdot \text{ROA} - 19.349 \cdot \text{NPL} + 2.117 \cdot \text{LDR} + 1.027 \cdot \text{INF} \cdot \text{NPL} + 1.446 \cdot \text{LACC}(-1) \dots\dots\dots (3)$$

$$\text{MSME} = 13.958 + 0.046 \cdot \text{CAR} + 0.346 \cdot \text{ROA} - 0.046 \cdot \text{ROE} - 0.550 \cdot \text{NPL} + 0.056 \cdot \text{LDR} + 0.045 \cdot \text{INF} \cdot \text{NPL} \dots\dots\dots (4)$$

The coefficient determination shows that the adjusted R² value for both equations are 0,96 and 0,308 means the independent variable can explain the variation of loan account by 96% and 30% for MSMEs credit.

Table 2 Statistical Result

Variable	Coefficient	Std. Error	z-Statistic	Prob.
Loan Account				
C	-399.4792	28.75652	-13.89178	0.0000
CAR	5.991967	1.175425	5.097702	0.0000
ROA	2.836769	6.659679	0.425962	0.6701
NPL	-19.34934	6.134272	-3.154300	0.0016
LDR	2.116629	0.084968	24.91077	0.0000
INF*NPL	1.027392	0.550893	1.864957	0.0622
LAC(-1)	1.445799	0.082109	17.60826	0.0000
MSMEs				
C	13.95825	0.170722	81.76024	0.0000
CAR	0.046475	0.003184	14.59539	0.0000
ROA	0.346770	0.180957	1.916314	0.0553
ROE	-0.046208	0.026465	-1.746000	0.0808
NPL	-0.550456	0.108400	-5.077990	0.0000
LDR	0.056510	0.004538	12.45332	0.0000
INF	0.045561	0.023038	1.977646	0.0480

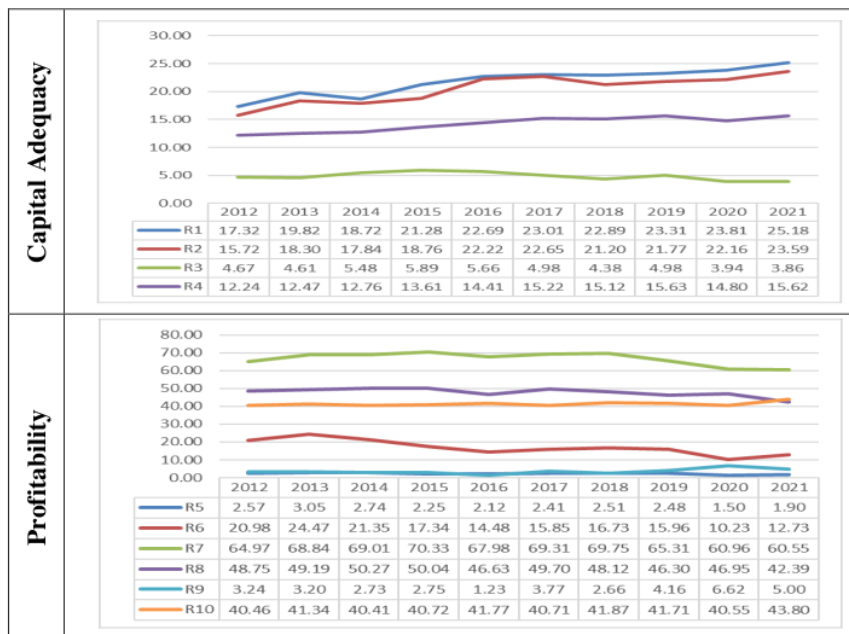
Generally, the result of this study indicates that bank soundness affects both financial inclusion and MSMEs in Indonesia. The financially sound bank can provide more facilities to reach broader the society. They can build new branches in each area and also the small town so the consumer can easily access the banking facility. Owen & Pereira (2018) found that greater banking industry concentration allows financial inclusion because people have more access to deposit accounts and loans. Furthermore, the development of technology supports access to the financial institution so each people can use bank services anywhere

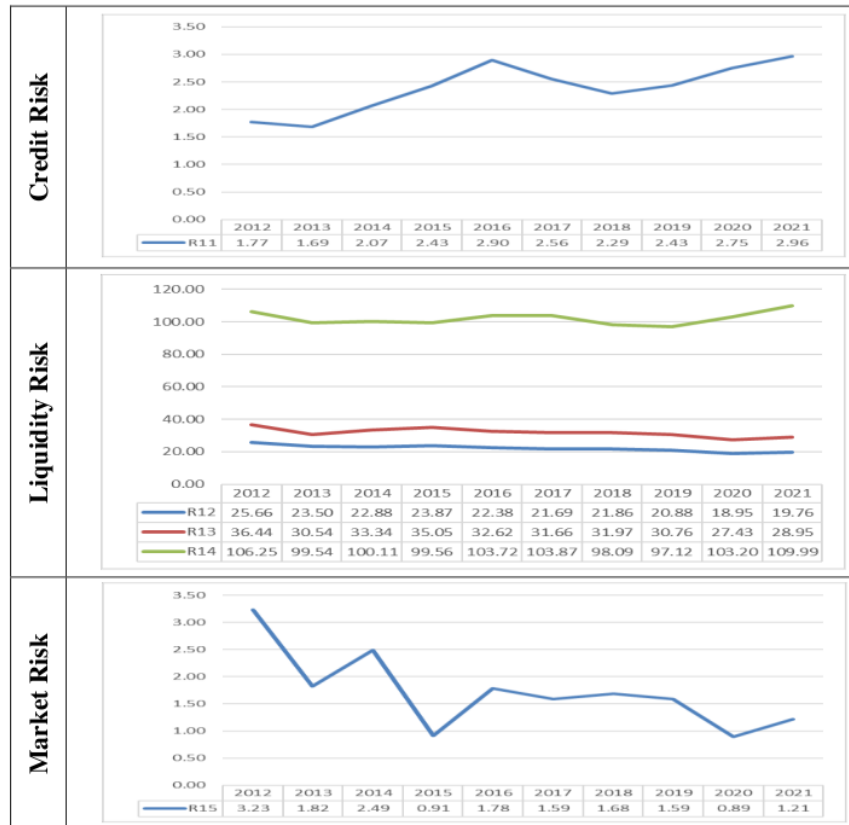
anytime therefore digital finance has brought financial inclusion (Yue et al., 2022).

This finding is supported by the previous research that bank soundness plays a vital role in maintaining a stable financial system and also can be served as a good signal of financial stability (Almahadin et al., 2020). Furthermore, financial soundness has a high accuracy compared to other macro-financial variables to predict financial sector distress (Pietrzak & Espinosa-Vega, 2021). The higher the financial inclusion, the lower the poverty level since the financial sector can contribute in reducing poverty by providing capital. Erlando et al. (2020) found that financial inclusion has a significant positive impact on economic growth and a negative relationship between inequality and poverty. Otherwise, lack of access to financial institutions generates inequality in the developing world (Úbeda et al., 2022).

Previous studies have proven how financial soundness and macroeconomic influence financial stability. Analysis by Almahadin et al. (2020) indicated that the rise of non-performing loans will treat the stability of the financial system as well as the macroeconomic policies (Almahadin et al., 2020). Therefore the sound of the banking industry must be a concern to create a stable financial system.

Gambar 1 Financial Soundness Indicators





Financial soundness is also associated with profitability (Albulescu, 2015; Sedera et al., 2022). Figure 1 shows the development of the financial soundness of Indonesia's banking industry. The ratios of capital adequacy for the banking industry in Indonesia are getting better year by year. It can be shown that there is a rising trend for the ratio of total regulatory capital to risk-weighted assets, R1; regulatory tier 1 capital to risk-weighted assets, R2; non-performing loans net of provisions to capital, R3; capital to assets, R4. Since capital adequacy indicates the ability of banks to provide funds that are used to overcome the possible risk of loss. This ratio is important because keeping the ratio at a safe limit also means protecting customers and the stability of the financial system as a whole. The greater the value of the ratio, the better the ability of banks to deal with the possible risk of loss. The slight change occurs for profitability and liquidity risk. The profitability is shown by the ratio of return on assets, R5; return on equity, R6; interest margin to gross income, R7; non-interest expenses to gross income, R8; trading income to gross income, R9; personnel expenses to non-interest expenses, R10. The liquidity risk is shown by the ratio of liquid assets (core) to total assets, R12; liquid assets (core) to short-term liabilities, R13; customer deposits to total (non-interbank) loans, R14. On the other hand credit risk and market risk have a different trends. There is a rising trend of credit risk as shown

by the ratio of non-performing loans to total gross loans, R11. Oppositely the downtrend happened in market risk as shown by the net open position in foreign exchange to capital, R15.

Furthermore, the interaction of financial inclusion is an important factor for banking stability in developing and all countries worldwide therefore the authorities need to synchronize each policy on financial inclusion and financial openness (Shalihin & Safuan, 2021). The more funds obtained by banks because of the implementation of financial inclusion and financial openness policy, then the more potential for banks to maintain their stability.

Although financial inclusion has an essential role in the economy, case in Indonesia access to the financial institution is low compared to other ASEAN countries (Fauzan et al., 2020; Susilowati & Leonnard, 2019). The main factor that prevents individuals from accessing financial services is a lack of money. The capital limitation is commonly related to MSMEs. Sometimes MSMEs have difficulty accessing bank facilities because they do not have enough funds to save or not feasible to apply for a bank loan.

MSMEs play important role in the economy and social development because they can deal with the goods and services shortage and make MSMEs become new business solutions (Fraymovich et al., 2021). Since the financial crisis in 2008, MSMEs have made a large contribution to employment growth that why it is important to focus on financial inclusion for MSMEs. The MSMEs are challenged to adapt to digitalization since it can increase productivity, cost reduction, and innovation through new business models (Viswanathan & Telukdarie, 2021).

CONCLUSION

Financial inclusion becomes a key element for development since financial inclusion encourages people to manage their resources in a better way and attempt to build society's financial capabilities. Financial inclusion and MSME encourage economic growth thereby reducing poverty and inequality, especially in developing countries. Using the ARCH Maximum Likelihood Model, this study examines the effect of the financial soundness of the banking industry and macroeconomic conditions on financial inclusion and MSMEs during 2012-2022. The banking soundness indicators used are bank ratios such as capital adequacy namely Capital Asset Ratio (CAR), profitability namely Return on Assets (ROA) and Return on Equity (ROE), credit risk namely Non-Performing Loan (NPL), and liquidity risk namely Loan to Deposit Ratio (LDR). The financial inclusion indicator uses the Number of Account Credits per 1,000 Adults, while the MSMEs indicator uses MSMEs Credit to GDP at the Current Price. In addition, the inflation variable is included as an indicator of economic conditions. The results show that partially CAR, NPL, LDR, and LAC(-1) significantly influence financial inclusion, while RoA and inflation were found insignificant. Furthermore, CAR, NPL, LDR, and inflation partially influence the MSMEs credit, while the RoA and RoE are insignificant.

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