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Financial Inclusion's Effects on Asia's GDP, Poverty, Income Inequality, and Stability

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Abstract

Several countries have prioritized the inclusion of financial services on their policy agendas to promote sustainable development and enhance the well-being of their citizens. The aim of this research is to determine how financial inclusion impacts the stability of the financial system, income distribution, poverty levels, and economic growth rates in various Asian countries. Financial inclusion is quantified using three criteria. The criteria include banking penetration, accessibility of banking services, and consumption of banking services. Both the Gini coefficient and the poverty ratio, which measures the proportion of people falling below the federal poverty limit, serve as indicators for assessing poverty and economic inequality. The Z-score and the percentage of nonperforming loans are two indicators used to assess a bank's financial stability. The hypothesis test findings reveal that all aspects of financial stability significantly influence economic growth, poverty, and income inequality simultaneously. Additionally, they exert a significant influence on the stability of financial systems. However, the financial inclusion characteristic has had a limited impact on economic growth, income inequality, poverty alleviation, and financial stability in eleven Asian nations. When formulating plans to expand financial inclusion, it is incumbent upon governments of all nations to thoroughly examine and incorporate the findings obtained from the study. Only when this prerequisite is fulfilled, will policies aimed at promoting sustainable growth and enhancing public welfare be put into effect.

Keywords: Financial Inclusion, Economic Growth, Poverty, Income Inequality, Financial Stability

Introduction

Given the recent start of the new millennium, worldwide officials have been actively discussing the issue of financial inclusion. Financial inclusion is a strategic approach that several countries have implemented to promote a more fair and balanced economic growth (Collard, 2010). The United Nations (UN) has implemented the Millennium Development Goals (MDG) to advance social, economic, and environmental progress, while also achieving sustainable development and improving global well-being via equality and human rights. One of the main objectives of the MDG is to guarantee universal access to financial services for all individuals. Pearce (2011) has asserted that the importance of financial inclusion has received extensive recognition and has even been translated into a policy in certain countries. In Malaysia, the indicator rose to 80.7 in 2014, representing a growth of 14.5 percent compared to 2011. Conversely, in India and Indonesia, the indicator increased by twice as much in 2014 as it did in 2011. This information is sourced from the World Bank, 2015, and can be further visualised in Figure 1. The primary goal of the initiatives designed to foster financial inclusion in Asia, as stated by Bank Indonesia (2014), is to stimulate inclusive economic expansion by diminishing poverty, enhancing

development, ensuring a more equitable distribution of income, and safeguarding the integrity of the financial system. However, there was a noteworthy surge in the population's access to financial services throughout Asia in 2014. Nevertheless, the absence of economic development was concurrent with a downturn in the economies of several countries. The Asian Development Bank's assessment on economic growth in the area, as depicted in Figure 1, demonstrates a significant decrease in GDP growth rates for several Asian countries in 2014.

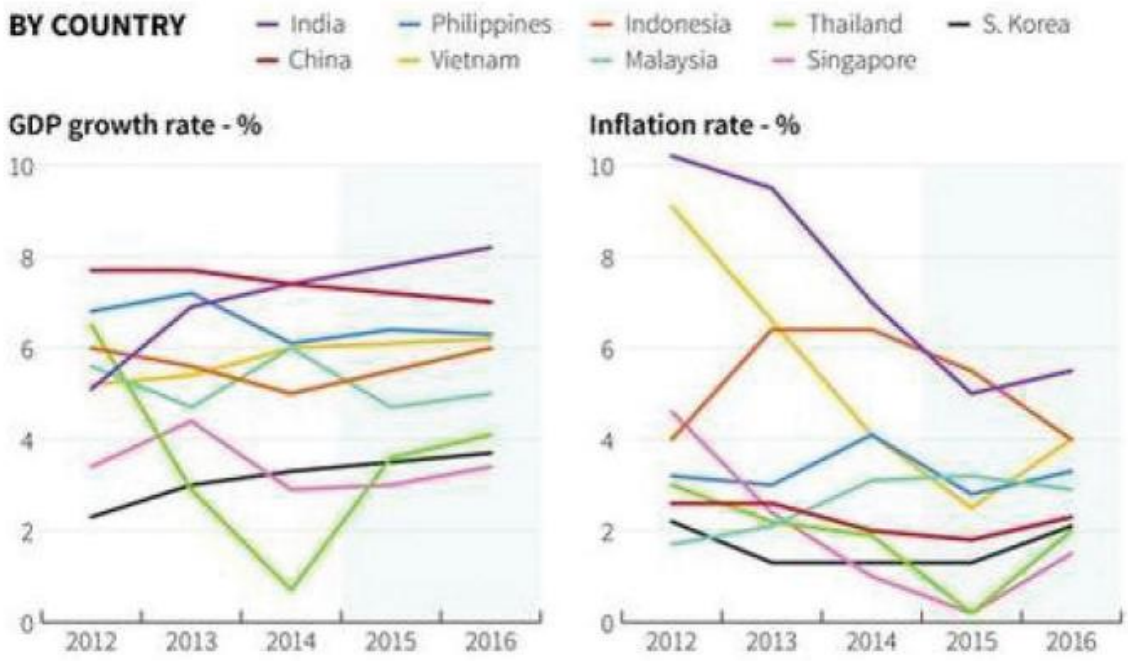

Figure 1: GDP Growth Rates in Several Countries in Asia
Source: Asian Development Bank

In 2014, several countries, such as Thailand, Singapore, Indonesia, the Philippines, and others, experienced a decline in their GDP growth rates along with an increase in income inequality. This is evident in Figure 1, which presents a comparison of these countries with other countries. Based on data from the World Bank (2016) and Figure 2(a), the income inequality in various Asian countries has increased over the past few decades. This observation highlights that the current situation in Asia contradicts the main objective of financial inclusion, which is to potentially enhance economic growth and decrease income disparity. Conversely, there has been a significant decrease in the percentage of individuals living in poverty in several Asian nations, as illustrated by Figure 2(b), which shows a substantial dip in the proportion of the Asian population that is impoverished.

Hence, the increase in the population with financial access in Asia in recent decades has coincided with a decline in the overall poverty rate, aligning with the goals of financial inclusion (refer to Figure 2).

Literature Review

Financial Inclusion and Economic Growth

Economic growth is a process that involves the contribution of various economic sectors, including the financial sector. Levine (2005) states that the financial sector does four actions that

contribute positively to the economy. The obligations can be categorised as follows: (1) mitigating risk; (2) promoting savings; (3) minimising transaction and information costs; and (4) fostering specialisation. Furthermore, Fabya (2011) stated that the financial industry has the potential to offer borrowers a range of low-risk, high-quality financial instruments, hence accelerating economic growth.

A significant amount of recent research publications have focused on investigating the correlation between economic growth and financial inclusion. Kendall et al. (2010) and Ghosh (2011) analyse data from the subnational level in India to assess the impact of financial access on economic growth. Their findings illustrate the positive effects of utilising financial services and having access to them on India's economic growth. Mihasonirina and Kangni (2011) shown that the usage of communication technology and the integration of financial services are crucial for fostering economic growth. The authors Martinez et al. (2011) assert that governments and policy makers acknowledge the significance of financial access as a crucial tool in their endeavours to promote economic growth. When all economic participants have access to funding that is both cost-effective and readily accessible, it will facilitate the growth of economic activity, hence resulting in an augmentation of output. Sarma and Pais (2011) demonstrated the existence of a link between financial inclusion and economic growth by analysing data from 1949 nations. Falahaty and Hook (2013) have demonstrated that the growth of the financial sector plays a crucial role in forecasting economic expansion. According to the results of this study, it is evident that enhancing the efficiency of the banking sector is crucial for promoting economic development. Law, Azman-Saini, and Hui (2014) underscored the indispensable role of a robust financial sector in driving economic progress.

Furthermore, Sarma (2016) did a study to examine the cause-and-effect link between different aspects of financial inclusion and economic growth. The inquiry findings established a reciprocal causal connection between economic growth and the availability of banking services. A series of recent studies undertaken by Pradhan et al. (2016), Kim et al. (2018), and Raza et al. (2019) have demonstrated a strong and positive correlation between economic advancement and the level of financial inclusion.

Alternatively, Naceur and Ghazounai's 2007 study examined the correlation between financial development and economic growth in 11 Middle Eastern and North African nations. The researchers discovered that the establishment of banks had a substantial influence on the expansion of the economy.

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Sarma (2016) did a study to examine the causal relationship between several aspects of financial inclusion and economic growth. The inquiry findings revealed a bidirectional causal connection between economic growth and the availability of financial services. Pradhan et al. (2016), Kim et al. (2018), and Raza et al. (2019) have recently undertaken research that demonstrates a strong and positive correlation between economic advancement and financial inclusion. However, based on the results of a study conducted by Naceur and Ghazounai in 2007, it was shown that the growth of the economy in 11 countries in the Middle East and North Africa is negatively affected by the development of banks. Furthermore, Khan (2011) demonstrated that the incorporation of financial services has a detrimental effect on the growth of the economy. Financial institutions are striving to extend their services to the underprivileged population by decreasing loan conditions. This endeavour towards financial inclusion can lead to a decrease in lending prerequisites. Nevertheless, this might also heighten the peril to a bank's reputation due to the relaxation of standards in certain countries for the formation of financial organisations. These institutions are designed to cater to rural communities.

Financial Inclusion, Poverty, and Income Inequality

According to Beck et al. (2007), financial inclusion has the capacity to improve the financial situation and quality of life of those who are economically disadvantaged, while also decreasing income inequality. According to Brune et al. (2011), families can enhance their capacity to endure financial setbacks, control spending, amass wealth, and allocate funds for healthcare and education by saving money. Dixit and Ghosh (2013) argue that granting individuals access to financial services has the capacity to disrupt the cycle of poverty for people who are economically disadvantaged. This can be achieved by fostering a culture of saving and creating payment procedures that are both efficient and fair. Sanjaya's (2014) research suggests that including impoverished individuals in the financial system via microcredit initiatives has the capacity to enhance their social and economic status. Park and Mercado (2015) conducted a study and discovered concrete proof that there is a detrimental connection between financial inclusion, poverty, and income inequality. This evidence was discovered as a result of their investigation. In a study conducted by Boukhatem (2016), the researcher examined the impact of financial development on poverty reduction in 67 low and middle-income countries from 1988 to 2012. The investigation's findings indicate a clear correlation between the growth of financial development and a decrease in poverty.
Dhrifi (2013) found that the establishment of financial systems in countries with high incomes and middle-class populations results in enhanced economic growth and a decrease in poverty. However, this development does not have a beneficial effect on the economic growth of nations with low incomes. In contrast, Nguyen et al. (2020) discovered a favourable correlation between economic growth and poverty reduction in Vietnam, based on their study. According to Seven and

Coskun (2016), financial development has a positive impact on economic advancement. However, it does not always provide assistance to individuals with low incomes in developing countries. The lack of financial inclusion is not a key factor in reducing poverty. A study done by Neaime and Gaysse (2018) found no discernible correlation between financial inclusion and poverty.

Financial Inclusion and Financial Stability

Conversely, financial inclusion can have both beneficial and detrimental effects on the stability of the financial system. Examples of the adverse impact encompass a loosening of loan criteria, the possible harm to the bank's standing, and the lack of sufficient oversight. Positive outcomes include the broadening of bank assets, the enhanced stability of the deposit base, and the reinforced transmission of monetary policy.

Hannig and Jansen (2010) suggest that financial inclusion can enhance financial stability. This is because it can enhance households' capacity to handle financial vulnerabilities resulting from the adverse impacts of the crisis, broaden the funding sources of financial institutions, thereby reducing the impact of global crises, boost economic resilience by promoting growth, facilitate diversification, and alleviate poverty. Prasad (2010) states that financial inclusion can boost domestic savings and investments, leading to improved efficiency in financial intermediation and promoting financial stability at the state level. Aduda and Kulanda (2012) found that financial inclusion is essential for the economic growth and development of Kenya, based on their analysis of financial inclusion and financial stability in the country. This is because different financial efforts affect the financial stability of the country. Morgan and Pontines (2014) suggest that enhancing the utilisation of small and medium-sized firms (SMEs) will lead to a boost in financial stability. Dienillah and Anggraeni (2016) suggest that enhancing financial stability can be achieved through many ways such as augmenting banking assets, increasing GDP per capita, promoting portfolio investment, and enhancing financial inclusion. All of these methods are effective in promoting financial stability. Neaime and Gaysse (2018), Ahmed and Mallick (2019), and Pham and Doan (2020) concur that an increase in financial inclusion is positively correlated with financial system stability.

Khan (2011) and Dupas et al. (2012) arrived at divergent findings about the correlation between financial stability and inclusion. Their findings were compared and found to be different from each other. Khan (2011) argues that financial inclusion has an adverse impact on financial stability due to its potential to decrease lending criteria. This is because financial organisations endeavour to cater to lower-income populations by decreasing the terms of loans offered to them. Dupas et al. (2012) found that a higher availability of banking services in Kenya does not necessarily lead to enhanced financial stability in the country. This can be attributed to a deficiency in trust, a decline in borrowing rates for the lower middle class, and an improvement in service quality. Mehrotra and Yetman (2015) argue that if financial inclusion is achieved by rapid loan growth or fund intermediation without sufficient regulation, it can potentially harm the stability of the financial system. Based on the assessment of the pertinent literature, the hypothesis offered in this study is as follows:

H1. Financial Inclusion (banking penetration, access to banking services, and use of banking services) significantly influences Economic Growth in Asia.

H2. Financial Inclusion (banking penetration, access to banking services, and use of banking services) significantly influences Poverty in Asia.

H3. Financial Inclusion (banking penetration, access to banking services, and use of banking services) significantly influences Income Inequality in Asia.

H4a. Financial Inclusion (banking penetration, access to banking services, and use of banking services) significantly influences Financial Stability (bank non-performing loans to total gross loans) in Asia.
H4b. Financial Inclusion (banking penetration, access to banking services, and use of banking services) significantly influences Financial Stability (Bank Z-Score) in Asia.

Research Method

This study specifically examines ten developing Asian nations: Afghanistan, Bangladesh, Brunei Darussalam, India, Indonesia, Malaysia, Pakistan, Philippines, Singapore, and Thailand. These countries are all instances of developing Asian nations. These nations were selected based on the Financial Inclusion Index published by the International Monetary Fund (IMF). The research period utilised covers from 2009 to 2018, encompassing the years following the financial crisis to the most recent accessible data.
The study is investigating the independent variable of Financial Inclusion (X). It consists of three elements: banking penetration (X1), which is determined by the proportion of the population with a bank account; access to banking services (X2), which is determined by the number of bank branches and ATMs in a specific area; and use of banking services (X3), which is determined by the amount of loans and deposits being made. The dependent variables used in this study include economic growth (Y1), measured by the increase in GDP per capita; poverty (Y2), measured by the percentage of the population living below the federal poverty line; income inequality (Y3), measured by the Gini coefficient; and financial stability (Z), measured by the bank Z-score and the ratio of nonperforming loans to total gross loans. This analysis utilised annual secondary data acquired from many sources, such as the International Monetary Fund (IMF) database, the World Bank, and other sources.
The study used a dynamic data panel model of the Generalised Method of Moments (GMM) for hypothesis testing, as suggested by Rioja and Valev (2004), Beck et al. (2007a, b), and Neaime and Gaysse (2018). Researchers, such as Ramallion and Datt (1999), Easterly and Fischer (2001), Dollar and Kray (2002), and Neaime and Gaysse (2018), have utilised the inflation rate control variable to assess the extent of the relationship between financial inclusion and income inequality/poverty. This was conducted to ascertain the magnitude of the correlation. The equation employed in the dynamic panel data model to estimate the correlation between financial inclusion and income inequality, poverty, and economic growth is as follows:

$$Z_{it} = \alpha_i + \sum_{j=1}^{P} \varphi_j Z_{it-1} + \sum_{j=1}^{N} \gamma_j X_{jit} + \sum_{k=1}^{L} \beta_k Y_{kit} + \varepsilon_{it},$$

Note: i = Cross-country units (country)
t = Period of time t (years)
X = Proxy for financial inclusion variable
Y = Independent economic variable vector (inflation)
Z = Proxy for variable of economic growth, poverty, and income inequality α
i = Unobserved fixed effect
εit = The error rate that distributed independently
Furthermore, to see how banking penetration, access to banking services, and use of banking services can improve financial stability, this equation is proposed:

$$STAB_i = \alpha + \sum_{j=1}^{N} b_{ij} X_{ij} + \sum_{k=1}^{L} c_{ik} M_{ik} + \varepsilon_i$$

Note: i = Cross-country units (country)
STAB = Proxy for financial stability
X = Proxy for financial inclusion variable
M = Vector of the factors related to country i
a, bj, and ck = Parameter
εi = Error rate

The vector of the M variable comprises the following components: (1) the rate of growth of the GDP per capita; (2) the logarithmic size of the population; (3) the Gini coefficient measuring income inequality; and (4) the average inflation rate observed during a specific period. In order to mitigate issues related to multicollinearity, it is imperative to employ the generalised method of moments (GMM) estimation strategy while estimating linear models in a panel data context. The model estimation approach enables the inclusion of the AR (1) autocorrelation type in the panel, as well as the consideration of cross-sectional and heteroscedasticity correlation between panels.

Results and Discussion

Descriptive Statistic Analysis

Table 1 displays the descriptive statistics for the factors that were examined in the research. The substantial discrepancy between the minimum and maximum values of the variables provides clear evidence of a major variance in financial inclusion among 10 developing Asian countries. The data for the "number of commercial bank branch offices" has a low standard deviation score of 4.979, indicating minimal variance in the data. The disparities in data for the number of automated teller machines (ATMs), outstanding loans from commercial banks, and outstanding deposits with commercial banks are similar to each other. Therefore, there is a uniformity in the way banking services are accessed and utilised in different Asian countries today.

Hypothesis Testing

The Influence of Financial Inclusion toward Economic Growth in Asia

The hypothesis regarding the impact of financial inclusion on economic growth in Asia is assessed using the EViews 7 software. The Generalised Method of Moments (GMM) employs the dynamic data panel model for this purpose. The findings are displayed in Table 2 below: The F test results, provided in Table 2, indicate that financial inclusion has a significant and substantial simultaneous impact on economic growth in Asia, with a significance level of 1%. However, the coefficient of determination (R2) for financial inclusion is quite low, measuring only 37.7%. Consequently, factors other than financial inclusion account for 62.3% of the economic improvement, while financial inclusion only explains 37.7% of the phenomena. According to the graphic illustrating the advancement of economic growth, it seems that the expansion of financial institutions in Asia has the capacity to spur economic growth. The rapid growth of banking penetration, banking service consumption, and access in Bangladesh, Pakistan, Singapore, and Indonesia has the potential to significantly enhance economic growth from 2013 to 2018. One of the goals of expanding access to financial services is to promote the accumulation of capital, which in turn fosters economic growth.

Febya (2011) asserts that more financial inclusion can result in heightened investment in high-value endeavours by means of larger loan sums. Consequently, this will enhance the nation's economic growth by boosting its production. As economic activity rises and financial resources

become more accessible and affordable for all economic participants, a nation's output will increase. Law, Azman-Saini, and Tan (2014) assert that a robust banking sector is important for economic growth.

According to Martinez et al. (2011), financial access is a crucial tool utilised by governments and policy makers to stimulate economic growth. This finding aligns with their previous research. Furthermore, Sarma and Pais (2011), Sarma (2016), Sanjaya (2016), Kim et al. (2018), and Raza et al. (2019) have conclusively demonstrated that financial inclusion plays a crucial role in fostering economic growth.

Based on the findings of the GMM test, as shown in Table 2, only one indicator of financial inclusion has a statistically significant positive impact on economic growth. This indicator represents the quantity of loan repayments with a significance level of 5%. This illustrates how the allocation of loans by banks may greatly help to the growth of the economy. This aligns with the National Financial Inclusion Strategy of 10 Asian countries, which is currently the subject of research. Most countries, including Afghanistan and Indonesia, are prioritising the expansion of credit availability, specifically for economically productive sectors like agriculture and micro, small, and medium-sized companies (MSMEs) in rural areas. The government of Bangladesh and the central bank are intensifying their endeavours to enhance the availability of financial services by extending loans to enterprises involved in waste management, renewable energy, micro and small firms, and agricultural commodities production.

Loans obtained from financial organisations play a crucial role in the process of financing an economy. Loans enable businesses and individuals to increase their investment and consumption beyond what they could afford with their own funds. Goldsmith (1969), Beck et al. (2000), and Christopouluos and Tsionas (2004) argue that an augmentation in bank loans will result in heightened productivity, subsequently leading to an escalation in the prospective rate of economic growth.

Efficient economic growth can be achieved by augmenting the availability of loans to productive sectors, specifically agriculture and micro, small, and medium-sized enterprises (MSMEs), as this leads to a substantial boost in productivity.

Additional indicators of financial inclusion attributes that have minimal influence on economic growth encompass the quantity of commercial bank accounts, the quantity of commercial bank branches, the quantity of automated teller machines (ATMs), and the quantity of deposits. This hypothesis is plausible given these indicators lack any immediate impact on the economic growth.

The Influence of Financial Inclusion toward Poverty in Asia

The findings of the hypothesis test examining the correlation between financial inclusion and poverty in Asia are displayed in Table 3.

With a significance threshold of 1%, the F test demonstrates that financial inclusion has a substantial simultaneous influence on the degree of poverty in Asia. The level of inclusion in the financial system is strongly correlated with poverty at a rate of 69.5%. Financial services contribute to 69.5% of existing poverty, while other variables account for the remaining 31.5%. These data demonstrate that enhancing financial inclusion in Asia can effectively decrease poverty rates. The poverty rate in Pakistan, Bangladesh, India, Indonesia, Malaysia, the Philippines, and Thailand showed a decline between 2013 and 2018, which aligns with this discovery regarding the evolution of poverty. An inclusive financial system is crucial for poverty reduction. A study conducted by Ashraf et al. (2006) revealed that persons who have access to financial services demonstrate higher levels of productivity. This is due to their ability to allocate and invest greater financial resources to enhance their quality of life. Financial inclusion can greatly benefit

marginalised individuals with low incomes by helping them increase their earnings, accumulate wealth, mitigate risks, and strive to overcome poverty.
The National Financial Inclusion Strategy aims to enhance access to the official financial system for individuals in the lower middle class, with the additional goal of reducing poverty. Individuals experiencing poverty can potentially gain access to formal financial institutions, which can enhance their capacity to effectively handle the adverse impacts of the crisis on their finances. This access can also contribute to the diversification of financial institution funding, stimulate economic resilience by facilitating faster growth, promote diversification, and ultimately reduce poverty (Hanning & Jansen, 2010).
The limited access to financial resources can significantly hinder the economic growth and poverty reduction as it poses challenges for the impoverished individuals to save money, invest in income-generating businesses, and establish assets for risk mitigation.
The results of this study support the findings of Dixit and Ghosh (2013), who proposed that expanding access to financial services could lead to a decrease in the poverty rate. Sanjaya (2014) argues that the utilisation of microcredit schemes, which aim to foster financial inclusion, can improve the social and economic status of impoverished individuals. Several scholars, such as Beck et al. (2007), Brune et al. (2011), Park and Mercado (2015), and Boukhatem (2016), have discovered empirical data that shows a substantial and adverse correlation between financial inclusion and economic growth. Please examine Table 3.
The GMM test results, as shown in Table 3, indicate that the number of commercial bank branches and the number of accounts in commercial banks have a statistically significant negative impact on economic growth. The significance level for both of these measures is established at 1%. By utilising these two indicators, families can access official financial services in a manner that is both straightforward and cost-effective. Increased accessibility to financial services would have widespread benefits, particularly for economically disadvantaged and marginalised individuals who currently have limited access. This opportunity would enable them to improve their living conditions and enhance their wealth.
Additional metrics of financial inclusion, such as the quantity of automated teller machines, savings accounts, and loans, exert less influence on the extent of poverty. This predicament has emerged due to the underdeveloped banking systems in some Asian nations, which hinder the utilisation and access of financial services that may significantly reduce poverty. Interestingly, a significant portion of the population, especially those who are economically challenged, are not experiencing an increase in their savings and loans due to financial inclusion (Pierce, 2011). In order to effectively reduce poverty, it is not enough to just focus on expanding public access to the formal financial sector and encouraging people to open bank savings accounts. This is due to the fact that these interventions are inadequate in mitigating poverty. Additional motivation is necessary to offer microloans to micro, small, and medium-sized organisations (MSMEs) as well as individuals.
The banking industry can enhance its efficiency by offering greater support to micro, small, and medium-sized firms (MSMEs), specifically in terms of facilitating the use of financial services (Neaime & Gaysse, 2018). The financial sector's inefficiency, stemming from the suboptimal allocation of capital, is the primary factor behind low economic productivity. Similarly, when there is limited competition in the financial sector, it leads to lower long-term interest rates. This discourages saving and creates large profit margins for banks, making it difficult for micro, small, and medium-sized enterprises (MSMEs) and low-income groups to access loans. To enhance the expansion of the financial system is necessary to improve people's lives and increase investment

opportunities. This is particularly accurate in rural regions, where financial institutions must broaden their network of branches and facilitate the exchange of currency for individuals.

The Influence of Financial Inclusion toward Financial Stability in Asia

In this study, financial stability is measured using two indicators: the ratio of non-performing loans to total gross loans, which reflects the level of loan risks resulting from the risk-taking behaviour of each bank, and the bank Z-score, which assesses the stability of the banking sector's risk-adjusted profitability achievement (Carretta et al., 2015). Both of these ratios are considered to determine the degree of financial soundness. The Bank Z-score, as defined by Berger et al. (2009), is a metric used to assess the financial stability of a bank by quantifying the probability of the bank being insolvent or going bankrupt. A higher score indicates a greater level of financial stability. The proportion of nonperforming loans in relation to the total gross loans held by banks serves as a dependable measure of the default risk and asset quality of the banking sector. Huang (2005) states that a high ratio of non-performing bank loans to gross loans indicates a substantial amount of non-performing loans, hence increasing the danger of bank or financial institution collapse and financial instability.

Table 5 demonstrates the significant influence of financial inclusion, economic growth, poverty, and income inequality on Asia's financial stability, as measured by the ratio of nonperforming loans to total gross loans in banks. This is illustrated by the F test, which indicates that all of these factors have a concurrent impact. This observation highlights the interconnection between financial inclusion, economic growth, poverty, and income inequality, and their profound influence on the stability of the financial system in Asia. The independent factors in this model, namely financial inclusion, economic growth, poverty, and income inequality, can explain 64.1% of the financial stability variables, specifically bank nonperforming loans to total gross loans. The remaining 35.9% of the variance is attributed to other variables. The R2 score for this model is 64.1%.

The study's findings demonstrate that enhanced financial inclusion can lead to substantial enhancements in financial stability. The data consistently shows a decline in nonperforming loans in banks, particularly in the Philippines, Malaysia, Thailand, Indonesia, and Singapore, in relation to the overall decrease in gross loans. Financial inclusion can accelerate the process of financial intermediation by bridging the gap between savings and investments, leading to enhanced financial stability. From a macroeconomic standpoint, financial inclusion refers to the promotion of greater involvement in the formal financial system by diverse enterprises and industries. Financial inclusion enhances the effectiveness of transmitting monetary policy, thereby integrating these policies into the mainstream (refer to Table 5).

The sole metric of financial inclusion in Asia that has a significant positive effect on the stability of the financial system is the quantity of accounts maintained in commercial banks, as depicted in Table 5. Consequently, the degree of financial stability will rise in direct correlation with the quantity of accounts that are maintained. Factors such as poverty, income inequality, and economic growth exert a substantial impact on the stability of the financial system in Asia. Usage and access to banking services, together with other measures of financial inclusion, have a negligible effect on income disparity.

The reason for this is that the substantial volume of loans issued by banks actually leads to an increase in the number of loans that are not being repaid. As a result, the proportion of nonperforming loans compared to the total amount of loans issued by the bank grows, although not to a major extent. This is the cause behind this situation. In addition to the matter of accessibility to banking services, financial inclusion may also heighten the risk to a bank's

reputation. This phenomenon can be attributed to the relaxation of rules and norms in numerous countries regarding the establishment of financial institutions in remote regions, with the aim of enhancing the calibre of financial services. This may lead to instability as microfinance organisations are still in their nascent stage and lack sufficient regulatory measures at now. Dupas et al. (2012) found that improved banking services do not lead to greater financial stability. This is because borrowing costs remain high for the lower middle class, service quality is low, and trust remains low.

Table 6 presents the findings of a hypothesis test that examined the relationship between financial inclusion and financial stability in Asia. The analysis utilised Bank Z-score indicators. Four indicators of financial inclusion in Asia significantly and positively impact the stability of the financial system. The indicators encompass the aggregate credit volume, the count of automated teller machines (ATMs), the quantity of commercial banks, and the magnitude of savings. The banking penetration dimension does not directly affect the financial stability indicated by the bank Z-score, and hence does not have an observable impact on the stability of the financial system.

Financial stability greatly aids in providing banks with a reliable basis for accepting deposits. Instead of depending on borrowed funds, banks might enhance their resilience by obtaining capital from trustworthy retail institutions.

Individuals with low earnings frequently exhibit financial behaviour that aligns with their economic circumstances when it comes to saving money and borrowing loans. Amidst the systemic crisis, deposits made by consumers with low incomes served as a reliable source of capital. This was in stark contrast to other sources of credit, which were scarce or depleted. A small number of clients is a crucial component that enables the formation of secure deposits. Without these deposits, financial institutions may face challenges in maintaining their ability to provide loans. The presence of this credit facility may exacerbate the economic repercussions of the crisis on the region's economy, as seen in Table 6.

The F test demonstrates that financial inclusion, economic growth, poverty, and income inequality all have a major impact on financial stability in Asia, as indicated by the Bank Z-score indicators. The impact is statistically significant at a 1% level of significance. This is exemplified in Table 6, which illustrates the substantial influence of these factors when paired with population and inflation control considerations. The model's R2 value is 70.3%, indicating that the independent variable can explain 70.3% of the observed financial stability (Bank Z-score), while the remaining 29.7% is accounted for by other variables. This outcome supports the conclusions of studies conducted by Dienillah and Anggraeni (2016), Morgan and Pontines (2014), Hannig and Jansen (2010), Prasad (2010), Aduda and Kulanda (2012), Neaime and Gaysse (2018), and other researchers who have identified a substantial correlation between financial inclusion and financial stability.

According to Khan (2011), financial inclusion can assist to the maintenance of financial stability in three fundamental ways: To mitigate the overall risk of a bank's loan portfolio, it can enhance asset diversification by increasing lending to small businesses. Additionally, expanding the number of small savers will bolster the deposit base, making it more substantial and stable, thereby reducing the bank's dependence on "non-core" financing. Lastly, enhancing the transmission of monetary policy will ultimately result in improved financial stability. In addition, according to Hannig and Jansen (2010), the inclusion of low-income populations in the financial system is anticipated to enhance the stability of the deposit and lending foundation. This is because low-income populations are relatively resistant to fluctuations in the economy.

Khasnobis and Mavrotas (2008) argue that in order to achieve economic growth and reduce poverty, it is crucial to efficiently utilise domestic funds for private investment. As a result, individuals will have increased authority, the facilitation of trade and services will be enhanced, the integration of society and the economy will occur, and the effects of economic shocks will be mitigated due to an efficient and inclusive financial system. Prasad (2010) states that financial inclusion has the capacity to enhance domestic savings and investment, hence resulting in improved efficiency of financial intermediation and further progress of financial stability. According to Morgan and Pontines (2014), an increased volume of loans from small and medium-sized firms (SMEs) will enhance financial stability and decrease the probability of a financial institution's failure.

Implication

One potential theoretical conclusion from this study is that financial inclusion in Asia can boost economic growth, reduce poverty, minimise income inequality, and maintain financial stability. It should be emphasised that not all factors contributing to financial inclusion have a significant influence on the outcomes. By prioritising the implementation of these measures, the government may effectively attain the main goal of financial inclusion, which is to enhance economic growth and financial stability while also eradicating poverty and reducing income disparities. This objective can indeed be accomplished.

References

Aduda, J., & Kalunda, E. (2012). Financial Inclusion and Financial Sector Stability with Reference to Kenya: A Review of Literature. Journal of Applied Finance and Banking, 2(6), 95 -120.

Ahamed, M. M., & Mallick, S. K. (2019). Is financial inclusion good for bank stability? International evidence. Journal of Economic Behavior & Organization, 157, 403-427

Amidžić, G., Massara, A., & Mialou, A. (2014). Assessing Countries' Financial Inclusion Standing: A New Composite Index. IMF Working Paper Series No. WP/14/36. https://www. imf.org/external/pubs/ft/wp/2014/wp1436.pdf

Asian Development Bank. (2014). Financial Inclusion in Asia Country Surveys. Institute Working Paper. Asian Development Bank. https://www.adb.org/sites/default/files/ publication/159308/

adbi-financial-inclusion-asia.pdf Bank Indonesia. (2013). National Strategy for Financial Inclusion. Jakarta, Indonesia: Central Bank of the Republic of Indonesia.

Bank Indonesia. (2014). Inclusive Finance Booklet. Jakarta, Indonesia:

Bank Indonesia. Beck, T., Demirguc-Kunt, A., & Levine, R., (2007). Finance, Inequality, and the Poor. Journal of Economic Growth, 12(1), 27–49.

Beck, T., Demirguc-Kunt, A., & Martinez, P. M., (2007). Reaching Out: Access to and Use of Banking Services Across Countries. Journal of Financial Economic, 85(1), 234–266.

Berger, A. N., Klapper, L. F., & Turk-Ariss, R. (2009). Bank Competition and Financial Stability. Journal of Financial Services Research, 35(2), 99-118.

Bhanot, D., Bapat, V., & Bera, S. (2012). Studying Financial Inclusion in North-East India. International Journal of Bank Marketing, 30(6), 465–484.

Bhaskar, P. (2013). Financial Inclusion in India. An Assessment. Speech at the MFIN and Access-Assist Summit, New Delhi, India.

Boukhatem, J. (2016). Assessing the Direct Effect of Financial Development on Poverty Reduction in a Panel of Low-And Middle-Income Countries. Research in International Business and Finance, 37, 214–230.

Brune, L., Giné, X., Goldberg, J., & Yang, D. (2011). Commitments to Save: A Field Experiment in Rural Malawi. World Bank Policy Research Working Paper Series No. 5748. Washington, DC: World Bank. https://doi.org/10.1596/1813-9450-5748 Carretta, A., Farina, V., Fiordelisi, F., Schwizer, P., & Lopes, F.S.S. (2015). Don't stand so close to me: The role of supervisory style in banking stability. Journal of Banking & Finance, 52, 180–188.

Chakravarty, S. R., & Pal, R. (2013). Financial Inclusion in India: An Axiomatic Approach. Journal of Policy Modeling, 35(5), 813–837.

Collard S. (2010.) Toward financial inclusion in the UK: Progress and challenges. Public Money & Management, 27(1), 13-20.

Cumming, D., Johan, S., & Zhang, M. (2014). The Economic Impact of Entrepreneurship: Comparing International Datasets. Corporate Governance: An International Review. 22(2), 162–178

Demirguc-Kunt, A., & Klapper, L. (2012). Measuring Financial Inclusion: The Global Findex Database. World Bank Policy Research Working Paper Series No. 6025. Washington, DC: World Bank. https://openknowledge.worldbank.org/ handle/10986/6042

Dhrifi, A. (2013). Financial development and the growth inequality poverty triangle. International Journal of Economics, Finance and Management, 2(7), 472–481.

Dienillah, A. A., & Anggraeni, L. (2016). Impact of Financial Inclusion on Financial System Stability in Asia. Bulletin of Monetary Economics and Banking. [Indonesian]

Dixit, R., & Ghosh, M. (2013). Financial Inclusion for Inclusive Growth of India: A Study of Indian States. International Journal of Business Management & Research, 3(1), 147–156.

Dollar, D., & Kray, A. (2002). Growth is Good for the Poor. Journal of Economic Growth, 7(3), 195–225

Dupas, P., Green, S., Keats, A., & Robinson, J. (2012). Challenges in Banking the Rural Poor: Evidence from Kenya's Western Province. NBER Working Paper No. 17851. Cambridge, MA: National Bureau of Economic Research. https://www.nber.org/ papers/w17851

Easterly, W., & Fischer, S. (2001). Inflation and the Poor. Journal of Money Credit Bank, 33(2), 160–178.

Fabya. (2011). Analysis of the influence of financial sector developments on economic growth in Indonesia. Scientific Journal of the Faculty of Economics and Management. Bogor Agricultural Institute, Indonesia.

Falahaty, M., & Hook, L. S. (2013). The Effect of Financial Development on Economic Growth in the MENA Region. Journal of Economic Cooperation and Development, 34(3), 35-60.

Ghosh, S. (2011). Does financial outreach engender economic growth? Evidence from Indian states. Journal of Indian Business Research, 3(2), 74-99.

Gul, F., Usman, M., & Majeed, M. T. (2018). Financial Inclusion and Economic Growth: A Global Perspective. Journal of Business & Economics, 10(2), 133-152.

Hannig, A., & Jansen, S. (2010). Financial Inclusion and Financial Stability: Current Policy Issues. Asian Development Bank Institute Working Paper No. 259. Asian Development Bank. https://www.adb.org/sites/default/files/publication/156114/ adbi-wp259.pdf

Hassan, M. K., Sanchez, B., & Yu, J. S. (2011). Financial Development and Economic Growth: New Evidence from Panel Data. The Quarterly Review of Economics and Finance, 51(1), 88-104.

Huang, D. F. (2005). The Predictive Power of Capital Adequacy Ratios on Bank Risk. Journal of Contemporary Accounting, 6(1), 1-22.

Kendall, J., Mylenko, N., & Ponce, A. (2010). Measuring financial access around the world. World Bank Policy Research Working Paper Series No. 5253. Washington, DC: World Bank. https://www.cgap.org/sites/default/files/CGAP-Measuring-FinancialAccess-around-the-World-Mar-2010.pdf

Khan, H. R. (2011). Financial Inclusion and Financial Stability: Are They Two Sides of the Same Coin. The Indian Bankers Association and Indian Overseas Bank, India.

Khasnobis, B. G., & Mavrotas, G. (2008) Financial Development, Institutions, Growth and Poverty Reduction. London, UK: Palgrave Macmillan.

Kim, D.-W., Yu, J.-S., & Hassan, M. K. (2018). Financial inclusion and economic growth in OIC countries. Research in International Business and Finance, 43, 1–14.

Kumar, N. (2013). Financial inclusion and its determinants: evidence from India. Journal of Financial Economic Policy, 5(1), 4–19.

Law, S. H., Azman-Saini, W. N., & Tan, H. B. (2014). Economic Globalization and Financial Development in East Asia: A Panel Cointegration and Causality Analysis. Emerging Markets Finance and Trade, 50(1), 210-225.

Le, Q. H., & Nguyen, B. N. (2020). The Impact of Credit on Income Inequality in Vietnam. Journal of Asian Finance, Economics, and Business, 7(5), 111-118. https://doi.org/10.13106/ jafeb.2020.vol7.no5.111

Levine, R. (2004). Finance and Growth: Theory and Evidence. NBER Working Paper No. 10766. Cambridge, MA: National Bureau of Economic Research. https://www.nber.org/papers/ w10766

Masoud, N., & Hardaker, G. (2012). The Impact of Financial Development on Economic Growth: Empirical Analysis of Emerging Market Countries. Studies in Economics and Finance, 29(3), 148-173.

Mehrotra, A., & Yetman, J. (2015). Financial Inclusion: Issues for Central Banks. BIS Quarterly Review, 2015(March), 83-96. https://www.bis.org/publ/qtrpdf/r_qt1503h.pdf

Mihasonirina, A., & Kangni, K. (2011). ICT, Financial Inclusion, and Growth: Evidence from African Countries. International Monetary Fund Working Paper No. WP/11/73. Washington, DC: International Monetary Fund. https://www.imf.org/ external/pubs/ft/wp/2011/wp1173.pdf

Martinez, M. V. (2011). The Political Economy of Increased Financial Access. Thesis, Georgetown University, Washington, DC. Morgan, P., & Pontines, V. (2014). Financial Stability and Financial Inclusion. Asian Development Bank Institute Working Paper No. 448. Asian Development Bank.

Naceur, S. B., & Samir, G. (2007). Stock Markets, Banks, and Economic Growth: Empirical Evidence from the MENA