DOI: https://doi.org/10.64428/rm/v5.i3.1 Volume 5, Issue 3, September 2025, PP. 01-13
ISSN: (O) 2959-1821 (P) 2959-1813
Website: https://researchmosaic.com/index.php/rm/index
Email: rm@researchmosaic.com

The Role of Sustainability and Stability in Enhancing Financial Inclusion: Empirical Evidence from South Asian Banks (2014–2023)

Jawad Abdul Ghaffar, Faculty of Management Sciences, Hamdard University, Islamabad, Pakistan
Sanober Shaheen, Faculty of Management Sciences, Hamdard University, Islamabad, Pakistan

Keywords

Financial Inclusion, Financial Stability, Sustainable Development, Banking Sector, South Asia.

JEL Classification

O16, G01, B26, Q56, E50

Abstract

The United Nations' 2030 Sustainable Development Goals agenda is acknowledged to be significantly facilitated by financial inclusion (FI). Therefore, FI has significantly improved financial services' affordability and accessibility over the past two decades and has made a substantial contribution to economic growth, but its effects on financial stability cannot be disregarded. In light of this, the study looks into how stability affects FI and also highlights the role of sustainability in FI in the banking sector of South Asia. Data from South Asian banking institutions from 2014 to 2023 is included to accomplish the aim of the study. To analyze the data, the OLS and system generalized moment method (GMM) were used. The study's results show that banks' stability has a positive significant impact on FI. The outcome of this study is beneficial for financial institutions, as they may gain market share, lower operating costs, and higher profits as a result of joining the financial system. Numerous research directions have been proposed in light of the study's findings. This study stands out for giving an analytical analysis of the South Asia region.

INTRODUCTION

Many countries understand that facilitating greater financial services accessibility is essential to promoting sustainable growth (Wang et al., 2022). Sustainability was defined as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" by the United Nations Commission in 1987 (Ahmed et al., 2024). Sustainability is also "the integration of social equity, economic vitality, and environmental health in order to create thriving, healthy, diverse, and resilient communities for this generation and generations to come." The broad availability of goods and services provided by respectable financial institutions via the use of conventional banking facilities is referred to as FI (Irum & Abbas, 2025). A robust financial system is crucial for fostering inclusive and sustainable growth, enabling individuals to apply for credit and insurance, save, and settle money transfers. To achieve this goal, increasing market participation in traditional banking services can be achieved by implementing tax savings mechanisms for corporations and households, safeguarding income streams, and monitoring loan approval activities (Tay et al., 2022). These benefits will materialize since inclusion will facilitate the establishment of tax shelters that will facilitate the use of softer resources by both individuals and businesses (Chang et al., 2023). Efficient allocation of economic resources within the financial sector is crucial for investing in projects

that enhance a country's human and physical capital (Gao, 2023; Kumar & Ahuja, 2025).

South Asia's economy has experienced explosive growth, with GDP expanding twice as quickly as that of the industrialized world between 1970 and 2016 (Allen, 2024; Boachie et al., 2023). This growth has led to a significant drop in poverty rates in the 1990s (Damane & Ho, 2024). South Asia's economic growth has raised concerns about FI, with increasing accessibility seen as a successful strategy to reduce poverty and wealth gaps (Wang et al., 2022). FI involves providing affordable financial services to underprivileged and low-income groups, improving risk management, investments, and savings. South Asia is expected to generate half of the world's GDP by 2040 and is expected to become a future financial and economic hub (Seong et al., 2023). With China and India's significant population contributions, South Asia is home to 1.6 billion internet users and has the most youthful workforce in the world (Tay et al., 2022). South Asian financial institutions accounted for 37% of the global banking industry's pre-tax profit in 2018, and the Pradhan Mantri Jan Dhan Yojana (PMJDY) opened over 500 million bank accounts in 2024.

The increasing availability of financial services may have unexpected effects on income distribution, poverty alleviation, and economic growth, as research has primarily focused on this topic (Boussaidi & Hakimi, 2025). The majority of the statistics, according to a review of the pertinent literature, indicate that inclusion reduces financial barriers for individuals and businesses, boosts income, encourages economic expansion and reduces poverty levels. The effect of expanding access to banking facilities on the general well-being of the country's financial industries has not received much attention in research (Tay et al., 2022).

Since 2010, the World Bank and G-20 have focused on expanding access to financial services to alleviate poverty in emerging or undeveloped nations. Economic participation is crucial in this effort. The United Nations Development Program defines four pillars of social development: high-impact measures, human objectives for development, financial accessibility, and an employment-led prosperity approach (Yu & Tang, 2023). Expanding FI can potentially jeopardize financial stability by increasing loan eligibility conditions, rapid credit expansion, higher debt, increased business risk, and reduced profits. Recent events like the Greek crisis and the US subprime mortgage debacle have highlighted the risks of economic expansion and debt (Hasan & Lu, 2023; Vo et al., 2021).

Financial inclusion refers to the rapid expansion and adoption of new technological solutions in the financial industry (Boachie et al., 2023). South Asia's economic progress relies heavily on the expansion of financial services, with the banking sector playing a key role in driving this growth. Banks act as intermediaries between customers and financial institutions, enhancing interactions with existing clients and attracting new ones, while ensuring a significant portion of the population can access and utilize existing financial assistance systems (Boachie et al., 2023; Irum & Abbas, 2025). People who live in less accessible parts of the nation and those who are economically disadvantaged are particularly impacted. Given that climate change is an unavoidable reality of the modern world, FI may be related to environmental changes (Hasan & Lu, 2023; Kumar & Ahuja, 2025; Ozili, 2023). According to Sanderson et al. (2018), ecological growth and the exploration of future energy sources are important components of environmental and FI sustainability (Asif et al., 2023). On the basis of all this discussion, the main question arises: how do financial sustainability and financial stability have an impact on financial

inclusion? The main objective of this study is to examine the link between FI and bank financial sustainability as well as the link between FI and financial stability, focusing on South Asia's banking industry.

The rationale behind this study is that it emphasizes the significance of banking systems for inclusive development in South Asia's financial sector. Despite advancements, South Asia still has issues with low financial literacy, rural-urban divides, and gender gaps. In order to promote FI and sustainable growth, policymakers can create targeted strategies rather than one-size-fits-all solutions by having a thorough understanding of how FI affects stability and sustainability. By examining the link between FI and stability using a sample from South Asia, this study contributes to the body of knowledge on sustainable development along with FS and FI. Its focus is unusual in that it encourages research on the variables that influence it and looks for solutions to accomplish UN goals. Second, our empirical work has taken into account important facets of FI. These elements include, for example, the features of specific banks and indicators of the macroeconomy. Third, ordinary least squares (OLS) regressions and the system generalized method of moments (GMM) technique were used for estimation in this study, ensuring the reliability of the findings and potentially preventing potential endogeneity issues with panel data.

LITERATURE REVIEW AND THEORETICAL BACKGROUND

Financial Inclusion (**FI) and Banking Development:** The term "financial inclusion" describes how people and businesses can obtain formal financial services that allow them to access high-quality credit, insurance, savings, and payment services. By boosting bank deposits, lowering susceptibility to income shocks, enhancing credit availability, and reducing low-risk assets, it contributes to the reduction of poverty (Irum & Abbas, 2025). By simplifying transactions, offering investment opportunities, mobilizing savings, and facilitating foreign capital inflows such as FDI, portfolio investment, bonds, and remittances, it also contributes to economic growth. Through the strengthening of financial institutions, the expansion of markets for financial service providers, the effective allocation of capital, the facilitation of risk management through insurance, and the improvement of money transfer efficiency and speed, financial inclusion contributes to stability (Antwi et al., 2024). An inclusive financial system can increase negotiating leverage in the money market and reduce marginal financing costs for banks. This could lead to more people accessing financial and banking services, thereby enhancing the potential benefits of FI (Boachie et al., 2023).

FI is a powerful weapon for maintaining the financing system's protection and promoting economic progress, poverty alleviation, and human development. Tay et al.'s (2022) study reveals that countries with higher FI are less likely to experience significant declines in lending and borrowing. The Reserve Bank of India has introduced policies for FI, while the Pakistan Financial Participation Program aims to close the gender gap and increase financial participation. However, many countries in the South Asia region still lack financial development, digital financial literacy, and regulatory frameworks (Yu & Tang, 2023).

Financial Stability in the banking sector: FS is "a state in which the financial system is not unstable, encompassing financial markets, institutions, and infrastructure" (Kaur & Kaur, 2025). Access to financial services and banking facilities can enhance economic stability, but market volatility may not rise as more services become more accessible. FI positively impacts lending to

SMEs and can work in tandem or oppose each other. Access to financial services does not necessarily indicate economic activity, and easy access to credit can lead to a higher likelihood of payment default. Gao (2023) found that FS and accessibility are interconnected goals that can impact a population's financial health. Studies have found that unique factors mitigate the effects of FS and FI in six African and South Asian nations. However, Abdelfattah (2023) provided a nonlinear description of the association between FS and FI, citing a lack of data. Vo et al. (2021) found that local financing, wealth disparity, and economic integration had a detrimental impact on financial integration, income inequality, domestic credit, and FI.

Sustainability in the Banking Sector: Sustainability in banking is defined as "the ability of an entity (such as a company, organization, or project) to sustain operations and accomplish its objectives over an extended period of time through efficient financial management" and is commonly referred to as financial sustainability. This entails making enough money, controlling expenses, and obtaining enough capital to pay bills and accomplish goals without taking on unsustainable debt or using unsustainable methods. Sustainable banking, sometimes referred to as ethical or green banking, integrates social and environmental factors into financial decision-making. It includes FI promotion, ethical investing, responsible lending, and climate risk management. In addition to following the law, sustainable banking tackles environmental and social concerns while continuing to be profitable. According to research, indicators of financial success have a positive correlation with sustainable banking practices (Kaur & Kaur, 2025).

Macro and Bank-Specific Features: Macroeconomic variables like GDP growth, inflation, trade openness, and exchange rate volatility, as well as exchange rate fluctuations and outside shocks in emerging economies, and bank-specific factors like ownership concentration and size all have an impact on the stability and performance of the banking sector. According to Vo et al. (2021), smaller banks may be more nimble but susceptible to liquidity issues, while larger banks enjoy economies of scale and diversified portfolios. The interaction of internal characteristics and external macroeconomic forces shapes overall banking stability.

Theories

This study uses two theories to support its conclusions. The first is the financial fragility theory, which suggests that bank problems can undermine confidence in other banks, leading to closures, liquidity shortages, and fire sales. The second theory is the triple bottom-line theory, i.e., it relates to banking sustainability. According to this theory, banking performance is not focused on financial but also social and environmental aspects.

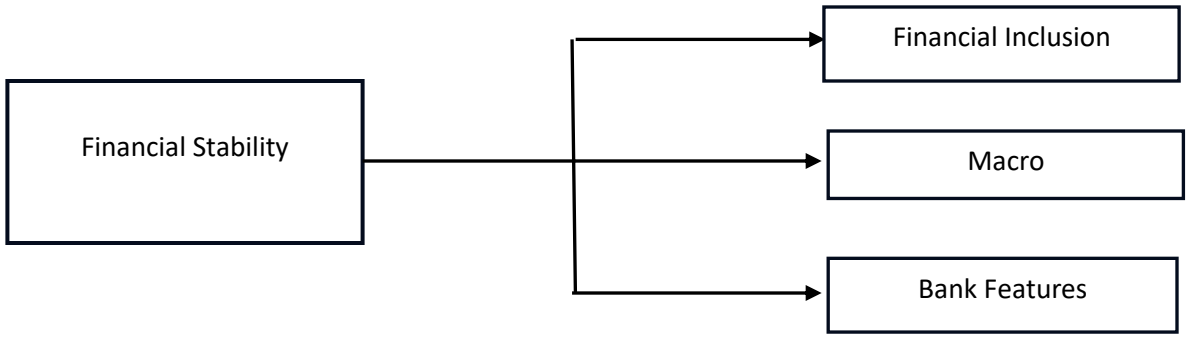

Figure 1: Conceptual Framework

DATA AND METHODOLOGY

The study uses data from 3071 banks in four South Asian countries from 2014-2023 to construct the Financial Inclusion Index (FII). The data was collected to assess the relationship between stability, sustainability, and FI. South Asia was chosen due to issues like political unpredictability, income inequality, climate vulnerability, and inadequate banking systems. The 2014-2023 timeframe was chosen as many South Asian nations implemented financial reforms after the 2008-2009 global financial crisis. The data was collected using Stata for estimations and cleaned to ensure accuracy. The study improved the dataset's consistency and dependability for analysis by eliminating duplicate entries, using mean/median imputation, and winsorizing extreme outliers.

Eq. (1) illustrates the connection between market stability and financial services accessibility in the first section of regression analysis.

$$(\text{Financial Stability})_{it}=f(\text{Financial Inclusion})_{it}+f(\text{Macro})_{it}+f(\text{Bank features})_{it}+e_{it} \text{ ----------Eq (1)}$$

Where the financial stability is measured using z-score, while macro factors like inflation and unemployment affect bank profits. Bank features include attributes affecting return on assets (ROA) at time t. The PCA approach creates an index of FI that was measured using different indicators.

This study includes macroeconomic and bank-specific variables using bank-level panel data nested within countries. Standard errors are clustered at the npradational level in fixed-effects panel regression to account for this hierarchical structure. This method corrects for intra-group correlation and accounts for unobserved heterogeneity. The FI index based on PCA is regarded as a construct at the bank level. To handle temporal shocks, time-fixed effects are incorporated. To capture cross-level interactions, multilevel modeling is recommended whenever possible.

Developing an Index of Financial Inclusion (**FI):** A study using IMF data from 2014 to 2023 developed two Financial Inclusion (FI) measures for South Asian nations. The first set represents the money supply, while the second set represents the currency's demand. The ease of using banking services is crucial, measured by the density of ATMs and tellers per clientele. To evaluate the degree of FI, the number of bank branches and ATMs per 100,000 individuals can be divided by the country's population. The utilization dimension of credit and debit cards can be estimated by examining the percentage of a thousand people using them. The study considers the relationship between these variables and assigns equal weight to each variable.

Principal component analysis (PCA) is a statistical method that examines the relationship between evaluation types and data. It reveals that the first component of an orthonormal pattern is responsible for most variation in the dataset. The Kaiser-Meyer-Olkin (KMO) statistics and Bartlett's test of sphericity were used to assess the data's factorability. The KMO value is 0.5, slightly below the predicted 0.6, and the Bartlett's test results are significant at 1%. Thus, PCA is supported for creating a Factoring Index (FII) with provided indicators.

Table 1: Key Components

Name	Eigenvalue	Proportion of	Cumulative

		Variance (%)	Variance (%)
Number of credit cards per 1000 people	0.2168	0.2082	0.1315
Prepaid card numbers per 1000 people	0.4134	0.2932	0.0768
ATM count per 100,000 people	0.7830	0.4567	0.1696
Banking density per 1,000 people	0.5891	0.1007	0.6847

Ahamed and Mallick (2019) found a significant correlation between the FI index and other measures of national economy health. The study used principal component analysis to standardize input data and found that the first component could account for up to 71% of the variance in the data. The remaining three eigenvectors were less than 1. The study also analyzed data from four South Asian nations (Sri Lanka, Bangladesh, India, and Pakistan) and found that Pakistan had the lowest levels of FI, while Sri Lanka had the highest levels. The findings suggest that FI can significantly impact bank stability and national economic health.

Table 2: Financial Inclusion (FI) Score in all 4 South Asian Countries

Country	Mean	Stand-dev
Sri Lanka	0.512	0.1789
Bangladesh	0.115	0.5767
India	0.505	0.3224
Pakistan	0.133	0.0012

RESULTS AND ANALYSIS

Descriptive statistics: The initial descriptive ratings for the explanatory and outcome components are shown in Table 3 below. According to reports, the mean trend of FS over the research period was 6.4731, with a skewness of 9.5881. The mean value for market power is 446.09, while the standard deviation for return on assets is 56.92. The FI index is 0.36, while the stand-dev is 0.29 and 3.22 when contrasting GDPC with loan guarantees.

Table 3: Descriptive Statistics

	Stand-Dev	Kurtosis	Mean	Skewness
FS	22.4807	222.8031	6.4731	9.5881
FII	0.2984	2.8001	0.3663	0.5446
DFM	0.8537	3.5553	7.2677	0.2351
EFI	0.7343	3.664	8.6437	-4.1561
GDPG	3.9954	4.3775	4.7087	-6.1443
BS	3.1334	2.3598	21.1785	-0.3658
CAQ	44.3671	235.9147	32.4064	21.379
MP	446.0982	2159.7293	65.5218	33.2987
ROA	56.9248	705.3283	0.9849	-22.5451
OI	41.0191	878.9864	647,317.54	33.8736
N	-	-	1636	-

Note: Where FS stands for financial stability, FII (financial Inclusion Index), DFM (Development of financial market), FI (Economic freedom index) GDPG (GDP growth), BS (bank size), CAQ (capital Adequacy), MP (Power of markets), ROA (return on assets), OI (operational income), and N (number of observations)

The Lerner index measures a bank's size, capital adequateness, current-year operating income, return on assets, and market power. It also considers the growth rate of the gross domestic product and money created per person. Instrumental components include physical infrastructure, economic freedom index, and financial market growth. These variables are graded on a scale of 1 to 10.

Ordinary Least Squares (OLS) Regression Analysis: The study uses the ordinary least squares (OLS) technique for regression analysis, using four sub-indicators to measure FI. The baseline regression considers bank-related parameters like loan provision, bank size, operational income, return on assets, the K index, and market dominance. The Pagan-Breusch test, Wald test, and Wooldridge test are used to determine heteroscedasticity and correlation coefficient. The model's Wald test results show equal autocorrelation and heteroskedasticity, leading to variance-covariance matrix estimates and robust standard errors. The model includes GDP growth rate and GDP per capita, which are positively correlated, especially in countries with higher economic development and per capita income. The model does not employ multiple linear regression if the VIF value is less than 10.

System Generalized Moment Method (GMM): Endogeneity is a significant issue for researchers using panel data sets with different macroeconomic conditions, as it is uncontrollable and can impact the financial sector's health and the economy's current position. Investigating the relationship between Financial Inclusion (FI) and Financial Stability (FS) is a strong research subject. The study's methodology was found to have problems with autocorrelation and heteroskedasticity, which was corrected using System GMM (Kaur & Kaur, 2025). This method is suitable for dynamic panel data with lagged dependent variables, such as FS, and is suitable for panels with numerous cross-sectional units and short time periods. The hypothesized findings and OLS regression analysis indicate a correlation between stability and FI, but the main focus will be computations made with the GMM. The favored model, model 1, shows that FI significantly improves a nation's political and economic well-being. The study also examined models 2 (GMM) and 3 (GMM without GDP) to strengthen the validity of the findings.

Table 4: Regression Results

	OLS	**GMM Model 1**	**GMM Model 2 (without GDP)**	**GMM Model 3 (without GDPC)**
FII	31.487**	7.346**	31.64**	31.36**
	– 6.31	− 3.31	− 3.63	− 3.1
DFM		3.644*	3.444*	3.464*
		– 3.48	− 3.67	− 3.44
EFI		– 0.787	− 0.464	− 0.464
		0.976	0.467	− 0.644
GDPG	0.978	0.768		0.464
	– 4.86	− 0.23		− 1.43
GDP per capita	– 0.977	0.210	0.216	0.237
	– 3.64	− 3.48	− 3.464	− 1.36
BS	0.466**	0.644**	− 0.268	1.368
	– 4.647	− 0.2487	− 3.368	− 0.647
CAQ	1.364*	1.347	0.234	0.214

	3.444	− 3.344	− 1.444	− 0.234
MP	− 0.21	− 0.210	0.214	− 0.11
	– 0.260	− 0.776	− 0.444	− 0.446
ROA	0.466**	3.668**	1.478**	1.786
	– 6.344	− 3.447	− 3.34	− 0.248
OI	− 0.001	0.201	0.101	− 0.231
	– 3.476	− 1.336	− 3.34	0.44
Constants	− 6.464	− 6.464	− 6.467	31.446
	– 3.487	− 1.474	− 0.244	− 0.976
N	1022	1022	1022	1022
AR-2 tests		− 3.343	− 3.364	− 1.476
		– 0.543	− 0.654	− 0.564
Hansen test		32.546	21.656	0.986
		0.689	− 0.354	− 0.899

Note: Where FS stands for Financial Stability, FII (financial Inclusion Index), DFM (Development of financial market), EFI (Economic freedom index), GDPG (GDP growth), BS (bank size), CAQ (capital Adequacy), MP (Power of markets), ROA (return on assets), OI (operational income), and N (number of observations)

- * Significant at 10 percent, ** significant at 5 percent, and *** significant at 1 percent,

The addition of financial services has a positive and statistically significant impact on stability in South Asia, according to models 1, 2, and 3. According to our research, FI significantly improved South Asia's macroeconomic stability. We arrive at this conclusion because our outcomes are consistent in every scenario. According to our findings, models 1 and 2 demonstrate that increasing GDP per capita, return on equity, and financial market complexity all contribute positively and significantly to bank stability in South Asia, which in turn fosters regional economic growth (Kumar & Ahuja, 2025).

To validate the System GMM results, the study should report the p-values for the Hansen J-test and AR (2) test. Whereas an AR (2) *p*-value > 0.05 verifies the absence of second-order autocorrelation, a Hansen *p*-value > 0.05 denotes valid instruments. To ensure instrument reliability and model consistency, these tests are essential.

DISCUSSION

The impact of FI and the banking industry's contribution to sustainability were examined in this study for a sample of 4 South Asian economies. Due to a variety of considerations, we chose to examine 4 South Asian countries. More than a quarter of Asia's GDP is generated by these four economies (Pandey & Chaudhary, 2024). According to research, India leads South Asia in both sustainability and FI per capita.

South Asia's climate change strategy is expected to be rated "normal" if fossil fuel subsidies persist, with India and Bangladesh having high oil consumption and emissions (Kumar & Ahuja, 2025). Sustainable funding strategies could positively impact the country's social, economic, and environmental well-being, as long-term building growth is expected. Initiatives to enhance environmental quality, such as climate change initiatives, are linked to faster income growth.

This initial version of sustainability may provide regulatory insight and offer scores for environmental sustainability analysis (Boachie et al., 2023; Hakimi et al., 2024).

The study, based on the VECM, shows a long-term unidirectional causal relationship between improved environments and climate financing potential. It supports previous research and aligns with previous findings. Damane and Ho (2024) and Hassan (2023) recommended statistical significance at the 5% level. However, it cannot establish a connection to the promising future of South Asian nations. The study has drawbacks, including potential endogeneity due to instrument weakness or misspecification, outliers, inconsistencies, or missing values in the dataset, especially in operational income and FI metrics. The study's applicability to different economic cycles may be limited by timeframe restrictions and the exclusion of significant factors like digital banking adoption or regulation quality. It fails to establish a connection to the promising future of South Asian nations. The System GMM used in the study has limitations, including potential endogeneity, outliers, inconsistencies, and missing values in operational income and FI metrics (Abbas et al., 2024; Asif et al., 2023).

CONCLUSION AND POLICY IMPLICATION

Globally, governments are focusing on the soundness of their financial systems to mitigate the impact of the COVID-19 pandemic on their populations and economies. Financially inclusive growth is crucial for governments to have a safety net during crises. To promote economic growth and development, many developing countries and international financial institutions have implemented strategies like Financial Stability (FS) and Financial Inclusion (FI). However, it is widely believed that banks cannot afford to help underprivileged groups while still contributing to the economy (Dong et al., 2025).

This study uses a GMM model to analyze financial institutions in four South Asian countries from 2014 to 2023. The results show that FI benefits South Asian countries' economies by encouraging more people to save and invest, increasing economic efficiency, and improving financial sustainability and stability (Boachie et al., 2023). FI promotes saving, enables efficient risk-sharing arrangements, and reduces reliance on unofficial credit sources, leading to resilient financial systems, sustainable long-term development, and inclusive economic growth.

A financially inclusive economy also allows governments to enact policies that support the poor and help individuals and families escape poverty. Local banks may be more inclined to lend money to local individuals and businesses if residents in rural areas save more and deposit more money. Banks should focus on underserved communities and the capital market for funding to strengthen and stabilize their operating income. A more comprehensive approach that utilizes less costly demand deposit options may improve a bank's bottom line. Although moral hazard affects financial institutions generally, it might be lessened if banks take a more customized approach to lending that takes into account the needs of specific borrowers and businesses. A safer monetary system could be created by expanding people's access to financial services (Asif et al., 2023). Every economy's growth is contingent upon its citizens' capacity to access the financial system. System security and FI are two sides of the same coin, and both need to be taken into account when creating and implementing regulations.

South Asia's banking system could be strengthened through FI. Reaching people who are underserved by the financial system, such as the poor, those residing in rural areas, and small businesses, is crucial in one of the world's fastest-growing economies. Financial institutions would be more likely to find new and reliable sources of funding for their lending operations if banking services were more widely available to the unbanked. Individual banks' and the industry's overall financial situation would both improve as a result. Economic development officials may decide to cut their outrageous costs if banks are unable to maintain micro-accounts (Singh, 2024). More demand may be stimulated by even modest incentives to open accounts than by financial education. The high fixed costs of managing a small number of accounts and payments are being decreased by technological advancements and financial industry innovations (Gao, 2023).

According to the findings, policies should be put in place to boost energy efficiency, which is a crucial component of achieving a number of Sustainable Development Goals (SDGs), including environmental and sustainable energy. Enhancing energy efficiency and expanding access to renewable and alternative energy sources are the main objectives of the Sustainable Development Goals (Dong et al., 2025). Therefore, the USA needs to increase its investment in energy infrastructure in order to prioritize energy efficiency. Increased energy efficiency will benefit the most vulnerable by enabling them to benefit from the economic opportunities brought about by the transition to a low-carbon future. Utilizing energy resources more effectively would also reduce environmental risks and expenses (Vo et al., 2021). The state of the economy has a significant impact on energy efficiency as well, so addressing that would be very beneficial. The financial system must provide funding for the energy-saving project (Tay et al., 2022). The contribution of renewable energy to the global energy mix will increase with increased access to capital.

Theoretical and Practical Implications: This study explores the relationship between financial inclusion (FI) and financial stability (FS) by integrating macroeconomic and bank-specific factors. It supports the idea that inclusive finance enhances systemic stability and validates financial intermediation theory. The study suggests that expanding access to financial services can support banking industry stability. It recommends banks incorporate inclusive practices without compromising their financial standing. The study also emphasizes the need for data transparency and uniform financial reporting across nations. It also suggests promoting renewable energy investments and expanding financial services for public and private sector improvements.

Future Recommendations: Future research should consider factors like governance quality, fintech adoption, and financial literacy to improve the understanding of institutional stability impacted by financial inclusion (FI) mechanisms. A longer time horizon and larger regional sample could enhance generalizability. Mixed-methods approaches or qualitative data could provide in-depth insights. Case studies of South Asian banks or interviews with banking experts could validate quantitative findings. The study's results may be useful to Europe and other countries like the OECD, G8, and BRICS. Further research is needed to determine the causes and consequences of this relationship in energy efficiency and energy source investment.

Acknowledgement: Deep gratitude is due to my supervisor at the Faculty of Management Sciences, Hamdard University, Islamabad, Pakistan, for assisting me in this research. Clarity on various concepts would not have been possible without timely guidance.

Author's Contributions: This article is part of my PhD thesis; the co-author is my PhD supervisor, who has guided and directed my research from the beginning.

Conflict of Interest: The authors declare that there is no competing interest.

Funding Information: This research article is part of my PhD research thesis; therefore, I have not received a specific grant from any funding agency.

REFERENCE

Abbas, S., Dastgeer, G., Nasreen, S., Kousar, S., Riaz, U., Arsh, S., & Imran, M. (2024). How Financial Inclusion and Green Innovation Promote Green Economic Growth in Developing Countries. Sustainability, 16(15), 6430.

Abdelfattah, R. M. M. (2023). The Impact of Fintech on Financial Inclusion in Egypt.

Ahamed, M. M., & Mallick, S. K. (2019). Is Financial Inclusion Good for Bank Stability? International Evidence. Journal of Economic Behavior & Organization, 157, 403-427.

Ahmed, D., Hua, H. X., & Bhutta, U. S. (2024). Innovation through Green Finance: A Thematic Review. Current Opinion in Environmental Sustainability, 66, 101402.

Allen, R. C. (2024). Technical Change, Globalization, and the Labour Market: British and American Experience since 1620. Oxford Open Economics, 3(Supplement_1), I178-I211.

Antwi, F., Kong, Y., & Gyimah, K. N. (2024). Financial Inclusion, Competition and Financial Stability: New Evidence from Developing Economies. Heliyon, 10(13).

Asif, M., Khan, M. N., Tiwari, S., Wani, S. K., & Alam, F. (2023). The Impact of Fintech and Digital Financial Services on Financial Inclusion in India. Journal of Risk and Financial Management, 16(2), 122.

Boachie, R., Aawaar, G., & Domeher, D. (2023). Relationship between Financial Inclusion, Banking Stability and Economic Growth: A Dynamic Panel Approach. Journal of Economic and Administrative Sciences, 39(3), 655-670.

Boussaidi, R., & Hakimi, A. (2025). Financial Inclusion, Economic Growth, and Environmental Quality in the MENA Region: What Role Does Institution Quality Play? Natural Resources Forum,

Chang, L., Iqbal, S., & Chen, H. (2023). Does Financial Inclusion Index and Energy Performance Index Co-Move? Energy Policy, 174, 113422.

Damane, M., & Ho, S. Y. (2024). The Impact of Financial Inclusion on Financial Stability: Review of Theories and International Evidence. Development Studies Research, 11(1), 2373459.

Dong, Q., Balsalobre-Lorente, D., & Syed, Q. R. (2025). The Critical Role of Financial Inclusion in Green Growth: Evidence from BRICS Countries. Research in International Business and Finance, 76, 102847.

Gao, M. (2023). Role of Financial Inclusion and Natural Resources for Green Economic Recovery in Developing Economies. Resources Policy, 83, 103537.

Hakimi, A., Boussaada, R., & Karmani, M. (2024). Financial Inclusion and Non-Performing Loans in MENA Region: The Moderating Role of Board Characteristics. Applied Economics, 56(24), 2900-2914.

Hasan, M. M., & Lu, Z. (2023). Nexus among Financial Inclusion and Sustainability in Asia: Role of Banking Sector. Environmental Science and Pollution Research, 30(22), 62481-62493.

Hassan, M. M. (2023). Financial Inclusion and Sustainability in Asia Using Bank-Level Statistics.

Irum, S., & Abbas, M. (2025). Development of Financial Inclusion Index and Its Impact on the Banks' Financial Stability in Pakistan. Journal of Management & Social Science, 2(1), 74-90.

Kaur, M., & Kaur, M. (2025). Determinants of Banking Stability in India. The Bottom Line, 38(1), 49-70.

Kumar, J., & Ahuja, A. (2025). Journey of Financial Inclusion: A Systematic Literature Review and Conceptual Framework for Future Research. Asia-Pacific Journal of Business Administration, 17(3), 632-656.

Ozili, P. K. (2023). Financial Inclusion and Environmental Sustainability. In Digital Economy, Energy and Sustainability: Opportunities and Challenges (Pp. 25-39). Springer.

Pandey, P., & Chaudhary, A. K. (2024). The Role of Micro, Small, and Medium Enterprises in India's Economic Development: A Critical Analysis. Asian Journal of Economics, Business and Accounting, 24(7), 366-384.

Sanderson, A., Mutandwa, L., & Le Roux, P. (2018). A Review of Determinants of Financial Inclusion. International Journal of Economics and Financial Issues, 8(3), 1.

Seong, J., Bradley, C., Woetzel, L., Ellingrud, K., Kumra, G., & Wang, P. (2023). Asia on the Cusp of a New Era. Mckinsey Global Institute, 22.

Singh, V. (2024). Environment, Development, and Sustainability. In Textbook of Environment and Ecology (Pp. 327-339). Springer.

Tay, L.-Y., Tai, H.-T., & Tan, G.-S. (2022). Digital Financial Inclusion: A Gateway to Sustainable Development. Heliyon, 8(6).

Vo, D. H., Nguyen, N. T., & Van, L. T.-H. (2021). Financial Inclusion and Stability in the Asian Region Using Bank-Level Data. Borsa Istanbul Review, 21(1), 36-43.

Wang, L., Wang, Y., Sun, Y., Han, K., & Chen, Y. (2022). Financial Inclusion and Green Economic Efficiency: Evidence from China. Journal of Environmental Planning and Management, 65(2), 240-271.

Yu, Y., & Tang, K. (2023). Does Financial Inclusion Improve Energy Efficiency? Technological Forecasting and Social Change, 186, 122110.