Does Financial Inclusion Lead to Financial Stability? Evidence From South Asian Countries – A Case of SMEs

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Financial inclusion (FI) and financial stability (FS) are the top policy agendas worldwide. The governments of Asian countries emphasized their concerns about macroeconomic instability due to high FI. With limited studies, especially in South Asia, this study examines the relationship between financial inclusion and stability of the small and medium enterprises (SMEs) using Generalized Method of Moments by considering eight South Asian countries for the period 2000-2020. Also, the effects of various FI measures on FS indicators. The findings indicate that FS can be attained by increasing the lending to SMEs, decreasing NPLs and also high per capita GDP.

Keywords: financial inclusion, financial stability, GMM, SME, financial instability, bank z-score

CONTEXT

From the beginning of 2000, the notion of financial inclusion has received a great attention as a result of empirical findings suggesting that promoting financial inclusion (FI) has a positive impact on a country's goal of reducing poverty (Shiimi, 2010). Given the limitations, in recent years, regimes, central banks, and regulatory bodies at the global level have launched new visions and guidelines to encourage FI in their nations. Due to the recent global financial crisis of 2007–2009, the notion of financial stability has almost simultaneously attracted increased attention from researchers all over the world. There is evidence that financial stability improves nation's long-term growth. On the other hand, financial instability could seriously impede the expansion of developing economies, with developed economies also being impacted Creel et al., (2015). Therefore, it is considered that financial stability aids in the process of national development. This study seeks to determine whether or not financial inclusion increases financial stability based on this premise.

The debate of whether or not FI promotes financial stability (FS) is still up for controversy. According to certain studies, there is a direct link between financial inclusion and financial stability (Cull, R. and Kunt 2012; Okpara 2011; Prasad, 2011). As per researchers, by granting unrestricted access to and use of banking products and services to a large segment of society, financial intermediation occurs, which increases financial stability if a country has robust financial infrastructure with professional control. While other research revealed that financial inclusion may not necessarily lead to financial stability. SME, or Small and Medium-sized Enterprise, inclusion characteristics were not taken into account by researchers while

calculating financial inclusion. Generally speaking, it is simpler for SMEs to acquire and utilize money. A higher financial inclusion ultimately leads to a greater the financial stability of the economy. Due to their enormous impact on job creation and poverty reduction in every economy as well as their relative robustness to shocks and business cycles, SMEs are viewed as a crucial component of global social and economic stability. Shinozaki (2013). Data indicate that SMEs improve economic stability, but there is still limited research on the connection between SMEs' access to and use of credit and financial stability.

In order to fill the above gaps, this paper uses panel data from 2000 to 2020 to empirically assess the impact of financial inclusion on financial stability in SAARC countries. The study adds to the empirical literature by supporting (or opposing) the results of earlier research that was conducted all around the world. The empirical findings of this study are more crucial for developing countries with low levels of financial inclusion, as the policy makers of these nations can design the policies that support financial inclusion through SMEs, which will ultimately benefit the long-term financial stability of their respective economies.

LITERATURE REVIEW

Theorizing Financial Inclusion and Financial Stability

Financial Inclusion

The implications of financial inclusion and financial stability towards a country's economic development motivate researchers, academics, and politicians to concentrate on and subsequently solve these concerns. Based on the diverse contexts and study scopes, different authors defined financial inclusion in different ways. Because it is such a broad term, there is no established way to measure financial inclusion. The World Bank (WB) and International Monetary Fund (IMF) quantify financial inclusion using various metrics. The G20's Basic Set of Financial Inclusion Indicators, which assesses the dimensions of access, usage, and quality, was published in 2012. The indicators used by the IMF and WB have been integrated.

Financial inclusion intends to bring the "unbanked" people into the mainstream financial structure so they can avail financial services like credit, insurance, and payments, payments, and transfers Hannig and Jansen (2010). The process of ensuring that vulnerable groups, such as weaker sections and low-income groups have timely access to financial services and enough funding where needed at a reasonable price is known as financial inclusion. Having access to a bank account with deposit insurance, having access to credit, and utilising the payments system are the main concepts of FI. Khan (2012). Siddik and Kabiraj (2018) discussed a set of FI indicators and made the argument that it should be evaluated using an all-inclusive index that includes a number of indicators, including access, availability and usage.

Financial Stability

Financial stability is one of the universally recognized public goals that has become a policy priority across international decision-makers due to its importance in the course of a country's economic growth. However, it is challenging to define financial stability due to the complexity of financial systems. Additionally, the speculative conception of FS has been continuously changed and adjusted in the light of current conditions following the major financial crises of 1980, 1990, and 2007, and as a result, there is no widely accepted definition.

Financial institutions need to concentrate their efforts on a credit intermediation system that encompasses companies and activities outside the banking sector since it can constitute a systemic risk, according to the Financial Stability Board FSB (2011). According to Padoa-Schioppa (2003), the ability of the financial system to absorb shocks without collapsing is a key component of financial stability. These processes can have an impact on how funds are allocated to investment opportunities and how payments are processed in the economy. A financial system, according to the IMF, consists of markets and institutions that together offer a system for carrying out economic transactions and monetary and fiscal policy that supports economic growth. A stable financial system is one that can "enable the performance of an economy and absorb financial imbalances that occur endogenously or as a result of large adverse and unexpected events," Schinasi (2004).

EMPIRICAL STUDIES

The primary objective of the present study is to determine whether and how financial inclusion to SMEs and financial stability are related. There is not much of research on this subject, and the evidence is contradictory. Some researchers found a positive relationship between financial inclusion and financial stability, while others found a negative relationship. These contradictory findings give researchers a chance to investigate and determine the relationship between the issues. Pontines and Morgan (2014) examined the causal link using data from 2004 to 2011 and discovered that the percentage of credit supplied to SMEs — a measure of financial inclusion—contributes to the stability of the financial system. Okpara (2011) noted a unidirectional positive influence of financial inclusion to small sized firms on financial stability using data from 1990–2011 and claimed that there is a long-term relationship between these two. Fafchamps (2011) examined how local financial growth affected the performance of businesses. The study discovered a strong correlation between SMEs' rapid expansion and the availability of local banks. According to Khan (2012), there are three main ways that financial inclusion can enhance financial stability. First of all, by intensifying credit to SMEs, banks could expand their asset collection widely, lowering the banks' overall riskiness. Second, smaller savers participating in the financial system translates into greater financial inclusion. Diversified range of small savers would increase deposit volume and stability, which would reduce reliance on non-core finance, having negative effects, especially during times of financial calamity. A decrease in procyclical uncertainty reflects this. Thirdly, more financial inclusion might indicate improved monetary policy, which would help to accomplish the goal of financial stability. Prasad (2011) commented on how labour is typically expensive for SMEs. According to the author, levels of job growth among countries decline when SMEs do not have sufficient access to financing facilities.

On the other hand, Sahay et al. (2015) discovered that, based on cross-country data, financial inclusion has a detrimental impact on financial stability. When credit is given to everyone without effective management, the risk of financial stability will increase. According to Mehrotra and Yetman, (2015), increased financial inclusion weakens financial stability when there is excessively rapid credit expansion. Additionally, the stability of the country's regulated financial system may be weakened by the rapid expansion of unregulated portions of the financial system. Financial inclusion and financial stability had no apparent relationship, according to 2014 World Bank research. Higher efficiency in financial institutions is correlated with greater use of formal accounts with banking products and services (account penetration rate and loan deposit rate). However, the relationship between account penetration and financial stability is not very strong. However, past studies neglected the importance of SMEs; as a result, in this study, we focused on financial inclusion from the perspectives of SMEs.

METHODOLOGY

Sources of Data

The following table displays the various variables used in the study along with their sources and measurements respectively.

TABLE 1
LIST OF VARIABLES WITH THEIR MEASUREMENTS, SPECIFICATION AND DATA SOURCES

Variable	Measurement	Legend	Sources
Financial Stability	Bank Z-score	bzs	GFDD
Financial Inclusion	Number of SME borrowers to total borrowers	smeb	FAS
	Ratio of outstanding SME loans to total loans	smel	FAS
Control Variables	Logarithm of GDP per capita	lgdp	GFDD
	Liquid assets to deposits and short-term funding (%)	liq	GFDD
	Proportion of private credit by deposit money banks and other financial institutions to GDP	cgdp	GFDD
	Broad money (% of GDP)	M2_gdp	WDI
	Real Interest rate	RIR	WDI

GFDD=Global Financial Development Database, FAS=Financial Access Survey
WDI= World Development Indicators

Variable Selection

Dependent Variables

Financial stability is considered as the dependent variable because the main objective of this study is to clarify how financial inclusion affects financial stability. This study used data for Bank Z-score and Non-performing loans (NPLs) replaced resilience measurements. Han and Melecky (2013); Pontines and Morgan (2014) and many other researchers have used the Bank-Z score extensively as a financial stability indicator. It is a statistical dimension of the default probability of a country's banking sector and is frequently used as a financial stability measure at the level of specific establishments.

Independent Variables

SME outstanding loans as a percentage of commercial banks' outstanding loans (*smeli,t*) and the proportion of SME borrowers to all commercial bank borrowers are the two indicators of financial inclusion utilised in the analysis (*sembi,t*).

Control Variables

The study used a number of macroeconomic variables as control variables that define country characteristics conditions in order to find accurate impact of financial inclusion on financial stability.

First, according to Pontines and Morgan (2014), financial inclusion is considered to have a positive impact on financial stability. A higher level of financial inclusion will be encouraged by rising Gross Domestic Product (GDP) per capita, which will ultimately increase the stability of financial sector. As a result, GDP per capita (represented by GDP) is added to the model with a positive expected sign.

Second, the level of stability may also be influenced by domestic credit positions offered by the financial system. A higher focus of financial resources delivered for non-governmental units would imply a higher proportion of domestic credit delivered by the financial system to various sectors (apart from the central government), which could increase the possibility of financial instability Pontines and Morgan (2014). As a result, a negative sign is assigned and anticipated for the Domestic Credit Provided by Financial Sector (% of GDP) variable *(cgdp).*

Finally, the size of the financial sector, as measured by the broad money (M2_gdp) to GDP ratio, is another control variable that is included into the model. Various researchers have employed this indicator

extensively in their research on financial development and economic growth, and it is found to have a promising effect on such growth. The other controlled variable used in this model is the real interest rate (RIR). There are numerous chances for people to use credit services when interest rates are lower; leading to a positive effect on financial stability.

MODEL

We estimate the following dynamic-panel equation to formally evaluate the relationship between financial stability and financial inclusion in SAARC countries.

$$finstab_{i,t} = \alpha\,(fininclusion_{i,t}) + \beta X_{i,t} + \varepsilon_{i,t} \quad (1)$$

where $finstab_{i,t}$ is the measure of financial stability; $fininclusion_{i,t}$ is the measure of financial inclusion; X is a vector of controls (logarithm of GDP per capita ($lgdp_{i,t}$), private credit by deposit money banks and other financial institutions to GDP ($cgdp_{i,t}$), liquid assets to deposits and short-term funding ($liq_{i,t}$), broad money per GDP (M2_gdp) and Real interest rate of the country (RIR); β are a set of nuisance parameters; $\varepsilon_{i,t}$ is an error term; i =1, …, N represents the country; and t = 1, …, T represents time. Finally, α is the coefficient of interest, which measures the effect of financial inclusion on financial stability.

This analysis employs panel data for the years 2000 to 2020 in SAARC countries to estimate equation (1), for which data on the two financial inclusion indicators used in this section are available from the World Bank's GFDD and the International Monetary Fund (IMF's) FAS. SME outstanding loans as a percentage of all commercial banks outstanding loans ($smel_{i,t}$) and the proportion of SME borrowers to all commercial bank borrowers($semb_{i,t}$) are the two indicators of financial inclusion utilised in the analysis. The study also used two financial stability variables in the regressions, Specifically, bank non-performing loans as a percentage of gross loans by banks ($npl_{i,t}$) and bank Z-score ($bzs_{i,t}$), which is calculated as the sum of capital to assets and return on assets divided by the standard deviation of return on assets. Both the financial stability measures are acquired from GFDD. The World Bank's World Development Indicators database provides the information on broad money to GDP *(M2_gdp)* and real interest rate *(RIR).* Lastly, the ratio of liquid assets to GDP ($liq_{i,t}$) and the ratio of private credit by deposit money banks *($cgdp_{i,t}$)* is obtained from the GFDD.

EMPIRICAL FINDINGS AND THEIR DISCUSSION

Descriptive Statistics

The following tables 2 and 3 present the descriptive statistics and correlations of the variables used in the empirical analysis, respectively. The two measures of financial inclusion, $smel_{i,t}$ and $semb_{i,t}$, have a very limited number of available observations only 60 and 34 with respectively.

From Table 2, it is clear that the dependent variable's Bank Z-score has a range of values, with Afghanistan having the greatest value at 46.88 and Pakistan having the lowest at 7.21. In SAARC nations, the average Bank Z-score is 19.92. The variance from the mean score is over 8.02. Another dependent variable *npl* has a lowest value as 1.56 in Nepal and highest in Bangladesh with 31.50 and the variance from the mean is 5.99, it indicating that there are significant regional differences in the level of financial stability. Regarding the independent variables, credit to SME's that is indicating as *smel* access and *smeb* usage are mostly used by SMEs in South Asian countries.

TABLE 2
DESCRIPTIVE STATISTICS

Variable	Mean	Std. Dev.	Min	Max
Bzs	19.92	8.02	7.21	46.88
Npl	9.12	5.99	1.56	31.50
Smel	4.06	3.18	0.14	10.49
Smeb	4.89	1.64	2.01	7.09
Lngdp	3.19	0.38	2.50	4.01
Cgdp	35.43	19.01	3.02	87.83
Liq	26.99	16.74	6.71	74.29
M2_gdp	55.61	16.63	23.34	117.75
RIR	5.06	5.52	-27.42	17.58

Source: Authors' calculations

Correlation Statistics

The study observed that there is a low correlation among the variables on the right-hand side as shown in Table 3, which suggests that multicollinearity is unlikely to be a problem for our empirical analysis.

TABLE 3
CORRELATIONS OF THE VARIABLES

Variable	*bzs*	*npl*	*smel*	*smeb*	*lngdp*	*Cgdp*	*liq*	*M2_gdp*	*RIR*
Bzs	1								
Npl	-0.3615	1							
Smel	0.7569	-0.5417	1						
Smeb	0.2651	-0.1231	0.4039	1					
Lngdp	0.0371	0.3665	-0.1189	0.2458	1				
Cgdp	0.8462	-0.4428	0.9505	0.3871	-0.1188	1			
Liq	0.8286	0.2596	0.7435	0.4296	-0.0366	0.8701	1		
M2_gdp	0.5017	0.6404	0.8554	0.3723	-0.0313	0.6961	0.4815	1	
RIR	0.0202	-0.0557	0.0958	-0.2765	-0.1435	0.0507	-0.009	0.2798	1

Source: Authors' calculations

Analysis

For the purpose of estimating our specified model, the study used the Blundell and Bond (1998) system-GMM dynamic panel estimator, a technique that consists of first-differences instrumented on lagged levels and of levels instrumented on lagged first-differences. This offers a strict remedy for endogeneity bias, in order to estimate our specified model. It also has two additional appealing statistical features. First, when dealing with measurement error, the GMM dynamic panel estimator is more reliable than cross-sectional regressions. Second, the GMM dynamic panel estimator maintains its stability if the instrumental variables were properly lagged. According to Wooldridge (2010), this study used the two-step estimator because it tackles the problems of heteroscedasticity, error autocorrelation, simultaneity bias, and measurement errors.

Column (1) shows that our first measure of financial inclusion ($smel_{i,t}$) is positive but not significant, suggesting that more lending to SMEs may reduce the likelihood of financial institutions defaulting ($bzs_{i.t}$). In column (3), we find a reliable estimate, in which $smel_{i,t}$ is both positive and significant, implying that

larger lending to SMEs leads to rise in bank Non-Performing Loans ($npl_{i,t}$), this result is strongly significant at the 0.01% significance level.

Columns (2) and (4) of Table 4 provide the findings about the relationship between financial inclusion and financial stability using our second indicator of financial inclusion ($semb_{i,t}$). In column 2, we discover that $semb_{i,t}$ is negative and significant, indicating that a higher proportion of SME borrowers reduces the likelihood that financial institutions will experience default. Column (4) shows that $semb_{i,t}$ is positive and significant, i.e., more SME borrowers result in higher bank NPLs. But both the cases are helpful at minimal.

TABLE 4
DYNAMIC PANEL ESTIMATION RESULTS, 2000–2020

	(1)	(2)	(3)	(4)
VARIABLES	$bzs_{i,t}$	$bzs_{i,t}$	$npl_{i,t}$	$npl_{i,t}$
$L.bzs_{i,t-1}$	0.467546***	0.322381		
	(0.132075)	(0.263013)		
$Smel_{i,t}$	0.016115		0.232261***	
	(0.043632)		(0.056485)	
$Lngdp_{i,t}$	5.694205***	6.378702	5.753042***	-7.236741
	(1.666251)	(7.435464)	(2.180481)	(5.076571)
$Cgdp_{i,t}$	0.204025***	0.227830	-0.088447***	0.091429
	(0.074972)	(0.165624)	(0.029517)	(0.092606)
$Liq_{i,t}$	0.098179***	0.202680***	0.022203	-0.203160
	(0.026799)	(0.014710)	(0.032673)	(0.149956)
$M2\_gdp_{i,t}$	-0.092688	-0.008929	0.048675	-0.166169***
	(0.060124)	(0.102204)	(0.067561)	(0.009229)
$RIR_{i,t}$	0.132459***	0.051553	-0.058788	-0.003806
	(0.020791)	(0.049004)	(0.071652)	(0.030701)
$Smeb_{i,t}$		-0.467741*		0.620465***
		(0.256479)		(0.015245)
$L.npl_{i,t-1}$			0.767238***	0.619938***
			(0.041470)	(0.216822)
Constant	-12.291927***	-16.367250	-17.160712**	33.265480*
	(3.425710)	(16.364775)	(8.481562)	(18.511237)
Observations	58	32	41	23
AR(1)	0.144	0.172	0.978	0.173
AR(2)	0.331	0.227	0.786	0.915
Hansen	1	1	1	1
Sargan	0.362	0.251	5.76e-09	0.0551
Number of Instruments	58	32	41	23

Source: Authors' calculations
Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

In terms of our study controlling variables, we obtain the results as following. In two out of four regressions, income measured by $lgdp_{i,t}$, FS is significantly affected, that is, high financial inclusion countries are less susceptible to financial instability. The study also finds in two regressions that greater or more private sector credit relative to GDP ($cgdp_{i,t}$) results in higher financial stability. From the four regressions, it is evident that greater liquidity by banks ($liq_{i,t}$) results in greater financial instability through higher probability of default by financial institutions. The last two control variables that is broad money

(*M2_gdp*) and real rate of interest (*RIR*) indicated that more money circulated in the market with less rate of interest leads to financial instability.

The standard tests of the four regressions in Table 4 indicate that there are no misspecification errors. The Hansen test for over-identifying restrictions and the AR2 test both fail to reject the null hypotheses that there is no second-order residual autocorrelation and that instruments are valid.

CONCLUSION

In order to determine whether there are significant trade-offs between financial stability and inclusiveness, this study examined at their relationship to see if they support one another. Based on the literature, increased financial inclusion may or may not have a positive or negative impact on financial stability. Diversification of bank assets, which lowers their riskiness; higher stability of their deposit base, which lowers liquidity concerns; and improved transmission of monetary policy are examples of positive benefits. A few detrimental outcomes are the deterioration of credit standards (such as subprime lending), reputational risk for banks, and insufficient oversight of MFIs. Data on financial inclusion are difficult since they are few and have a short life span. Some observations have only limited year's data. Nevertheless, working with panel data enables us to employ the system-GMM dynamic panel estimator to solve for the more serious endogeneity problem despite the relatively modest size of the data.

Greater financial inclusion has been found to have positive effects on financial stability in earlier studies, indicating that there is no trade-off between the two, but rather that they are complementary. Additionally, our analysis work supports this. This suggests that policy initiatives to promote financial inclusion—at least among SMEs—would also have the unintended effect of promoting financial stability. Furthermore, the study discovers that while a larger ratio of private bank loan to GDP tends to diminish financial stability, a higher per capita GDP tends to increase it. These findings hold true for both of the study's financial stability indicators.

Future study could be done by including the household sector in the nation's financial system, depending on the data that is available. Likewise, once information on additional financial stability indicators such as stock market volatility, increases or decreases in bank deposits, financial crises, and so on would be accessible, one might use these indications to assess the full impact of financial inclusion on financial stability.

REFERENCES

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics*, *87*(1), 115–143. https://doi.org/10.1016/S0304-4076(98)00009-8

Creel, J., Hubert, P., & Labondance, F. (2015). Financial stability and economic performance. *Economic Modelling*, *48*, 25–40. https://doi.org/10.1016/j.econmod.2014.10.025

Cull, R., & Kunt, A. (2012). Financial Inclusion and Stability: What Does Research Show? *CGAP Brief*, pp. 1–4. Retrieved from www.cgap.org

Fafchamps, M. (2011). Local Financial Development and Firm Performance:Evidence from Morocco. *CSAE Working Paper, WPS/2011-0*, pp. 1–46.

FSB. (2011). Strengthening the oversight and regulation of shadow banking. In *An Integrated Overview of Policy Recommendations.*

Han, R., & Melecky, M. (2013, August). Financial inclusion for financial stability access to bank deposits and the growth of deposits in the Global Financial Crisis. *World Development Report*, *6577*, 2–24.

Hannig, A., & Jansen, S. (2010). *Financial Inclusion and Financial Stability: Current Policy Issues Asian Development Bank Institute* (Issue 259). Retrieved from www.adbi.org

Khan, H.R. (2012). *Financial Inclusion and Financial Same Coin ?* (pp. 553–563).

Okpara, G.C. (2011). Financial inclusion and financial stability: A Toda-Yamamoto causality approach. *Social Sciences (Jamelss)*, *1*(1), 86–100.

Padoa-Schioppa, T. (2003). Central Banks and Financial Stability: Exploring a Land in Between. *The Transformation of the European Financial System*, *25*(10), 48.
Prasad, E.S. (2011). Financial sector regulation and reforms in emerging markets: An overview. *Financial Market Regulation and Reforms in Emerging Markets*, pp. 3–24. https://doi.org/10.2139/ssrn.1693330
Sahay, R., Cihak, M., Barajas, A., & Gao, Y. (2015). *Rethinking Financial Deepening: Stability and Growth in Emerging Markets*. IMF Staff Discussion Notes 15/08, International Monetary Fund.
Schinasi, G.J. (2004). Defining Financial Stability. *IMF Working Papers*, *4*(187), 1. https://doi.org/10.5089/9781451859546.001
Shiimi, I. (2010). *Ipumbu Shiimi : Financial inclusion – An imperative towards Vision 2030*. *October*, 1–5.
Shinozaki, S. (2013). *A New regime of SME Finance in Emerging Asia* (p.104).
Siddik, M.N.A., & Kabiraj, S. (2018). Does financial inclusion induce financial stability? Evidence from cross-country analysis. *Australasian Accounting, Business and Finance Journal*, *12*(1), 33–46. https://doi.org/10.14453/aabfj.v12i1.3
Turner, B. (2014). Asian Development Bank Institute. In B. Turner (Eds.), *The Statesman's Yearbook* (p.75). Palgrave Macmillan UK eBooks. https://doi.org/10.1007/978-1-349-67278-3_116
Wooldridge, J.M. & NetLibrary, I. (2002). *Econometric analysis of cross section and panel data [electronic resource]*. xxi, p.752.
Yetman, M. & Mehrotra, A. (2015). Financial inclusion – Issues for central banks. *BIS Quarterly Review*, (5), 83–96.