AN EMPIRICAL STUDY OF A TRAIN OF CAUSATIVENESS FROM FINANCIAL STABILITY TO FINANCIAL INCLUSION

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Abstract

As part of the overall goals for economic and financial growth, developing nations are working to promote financial inclusion, or increased access to financial services for low-income families and businesses. This prompts the query of whether, generally speaking, financial stability and financial inclusion are alternatives or complements. Do efforts to enhance financial inclusion tend to improve or worsen financial stability, in other words? Financial inclusion may have both beneficial and negative effects on financial stability, according to a number of studies, although there haven't been many empirical investigations of this link. This is due in part to the dearth and relative youth of the statistics on financial inclusion. By evaluating the impact of several financial inclusion measures (along with certain control variables) on various financial stability metrics, such as bank non-performing loans and bank Z-scores, this study adds to the body of knowledge on the issue. We find modest evidence that more lending to small and medium-sized businesses (SMEs) promotes financial stability, primarily by lowering the number of non-performing loans (NPLs) and the likelihood that financial institutions would default. This indicates that governmental initiatives to promote financial inclusion—at least among SMEs—would also have the unintended consequence of promoting financial stability.

Keywords: Financial Stability, Financial Inclusion, SMEs, NPLs.

INTRODUCTION

The need to control systemic financial risk and preserve financial stability was one of the most important lessons learned from the global financial crisis (GFC) of 2007–2009. In addition, as part of their broader objectives for economic and financial growth, emerging economies are working to encourage financial inclusion, or wider access to financial services for low-income people and small businesses. This calls into question whether or not financial inclusion and stability are, generally speaking, alternatives or complements. In other words, tends financial stability to be increased or decreased by the march towards greater financial inclusion? Financial inclusion has been linked to financial stability in a variety of studies in both good and negative ways, but there haven't been many empirical examinations of the relationship. This is due in part to the dearth and relative youth of the

statistics on financial inclusion. By evaluating the impact of different financial inclusion measures (along with certain control variables) on various financial stability indices, this study adds to the body of knowledge on the issue. We find modest evidence that more lending to small and medium-sized businesses (SMEs) contributes to financial stability, primarily by lowering the number of non-performing loans (NPLs) and the likelihood that financial institutions would fail.

Theoretical Background

Financial stability and financial inclusion

The terms "financial stability" and "financial inclusion" are defined in this section along with the potential effects of increasing financial inclusion on both.

Financial Stability

A macro prudential component to financial surveillance and regulation is now more important than ever because to the GFC. Despite this, there is no universally accepted definition of financial stability due to the complexity of financial systems, which include many characteristics, institutions, products, and markets. Financial instability is, in fact, probably easier to define than stability. Financial stability, according to the European Central Bank website, is "a condition in which the financial system—comprising of financial intermediaries, markets, and market infrastructures—is capable of withstanding shocks, thereby reducing the likelihood of disruptions in the financial intermediation process that are severe enough to significantly impair the allocation of savings to profitable investment opportunities." (ECB 2012) Further, the ECB defines three particular conditions associated with financial stability:

1. The financial system must be capable of transferring funds from savers to investors in an effective and seamless manner.

2. It is important that financial risks are identified, estimated, and handled in a manageable manner.

3. The financial system has to be in a state where it can easily withstand shocks and surprises in the financial and real economies. (ECB 2012)

The third requirement may be the most crucial since the failure to absorb shocks can generate a downward cycle in which they spread across the system and start to reinforce one other. This might result in a general financial crisis and severely damage the system of financial intermediation.

Schinasi (2004:8) proposes, at a more theoretical level:

"A financial system is in a range of stability whenever it is able to facilitate (rather than impede) the performance of an economy and of dissipating financial imbalances that arise endogenously or as a result of significant adverse and unanticipated events," according to the Financial Stability Board.

Once more, the focus is on shock tolerance and the ability to continue performing the fundamental task of mediating savings and investment (and consumption) in the real economy. Threats to financial stability are seen in the same light as systemic problems. Systemic risk is "a risk of disruption to financial services caused by an impairment of all or parts of the financial system and has the potential to have serious negative effects," according to the Committee on Global Financial Stability (CGFS 2010:2). Risk to the financial system is divided into two categories by Borio (2011): temporal and cross-sectional. In the first, it is discussed how the overall risk of the financial system changes over time. Because of the positive feedback between the financial system and the economy, or the so-called macro-financial channel, the financial system has a propensity to be procyclical. These feedback loops can come from a variety of sources, such as the following:

(i) Bank funding or loans. A reduction in bank capital requires it to reduce lending, but overall, this can have a detrimental impact on the economy, resulting in more capital losses, etc.

(ii) Asset value and bank lending. Banks can lend less when the value of the assets they use as security, such as real estate, declines, but this could lead to more asset value declines, etc.

(iii) Interactions between the exchange rate and the balance sheet (mismatched currencies). If businesses have borrowed money in foreign currencies, a decrease in the exchange rate results in a decline in net assets. However, this decline might impede economic development, which then fuels more currency depreciation, etc.

(iv) Interest rate/credit risk. Rising interest rates may reduce the ability of firms to repay debt, leading to higher risk premiums reflected in higher interest rates, etc.

As a result of shared exposures and interconnections within the financial system, the cross-sectional dimension deals with how risk is assigned throughout the financial system at a particular point in time. These connections can be made by, among other things: (i) sharing exposures to similar asset classes, like mortgage loans or securitized financial products; (ii) indirectly through counterparty risks; (iii) ownership structure; (iv) exposure to systemically important financial institutions (SIFIs); (v) infrastructure-based risks that could develop in payment or settlement systems, like centralized clearing parties; and (vi) the stage of financial development.

Financial Inclusion

Financial inclusion is more straightforward to define and recognize. Large portions of the population and businesses in lower-income countries frequently lack access to formal financial services for a variety of reasons, including: the lack of ATMs and ATM branch networks; the relatively high costs of servicing small deposits and loans; the availability of insufficiently reliable personal identification; and the lack of collapsible assets and credit data. According to two definitions, "financial inclusion" strives to bring the "unbanked" people into the mainstream financial system so they may access financial

services including credit and insurance as well as savings, payments, and transfers. (2010) Hannig and Jansen. The process of ensuring vulnerable groups, such as weaker parts and low income groups, have cheap access to financial services and timely, enough credit as needed. It largely refers to having access to a bank account with deposit insurance, having access to credit that is reasonably priced, and the payments system.(Khan 2011) Although the notion of financial inclusion includes many aspects, it is most frequently thought of in terms of having access to credit from a formal financial institution. Loans and deposits are regarded formal accounts from the perspectives of how frequently they are used, how they are accessed, and for what objectives. Alternatives to conventional accounts may also exist, such as mobile money through mobile devices. The main other financial service besides banking is insurance, especially for health and agriculture (Demirguc-Kunt and Klapper 2012).

Interactions between Financial Inclusion and Financial Stability

The train of causation from financial inclusion to financial stability is the main topic of this essay. Does more financial inclusion likely to improve or harm financial stability, in other words? This is due to the possibility that growing financial inclusion may have both favorable and unfavorable effects on financial stability. Another question is whether rising financial stability results in rising financial inclusion. The likelihood that a rise in financial stability would result in a fall in financial inclusion, however, makes this option less appealing. Khan (2011) identifies three key ways that increasing financial inclusion might benefit monetary stability. By doing this, the entire portfolio's volatility and the relative size of any one borrower would both decrease. This would lessen the "inter-connectedness" hazards of the financial system, in accordance with the strategy presented in the preceding section. Second, more small savers would boost the deposit base's size and stability, lowering banks' reliance on "non-core" funding, which is more prone to volatility in times of crisis. This translates into a decreased procyclicality risk. Third, improved monetary policy transmission might result from increased financial inclusion, which would also increase financial stability.

Inclusion of low-income populations in the financial sector, according to Hannig and Jansen (2010), will tend to increase the stability of the deposit and lending bases since they are comparatively resistant to economic fluctuations. They mention anecdotal data that shows financial firms that cater to the lower end typically fare well during macro-crises and support regional economic activity. Prasad (2010) also notes that as small and medium-sized businesses and small-scale entrepreneurs tend to be significantly more labour-intensive in their operations, there are negative consequences on total employment growth. Khan (2011) lists a variety of other ways that greater financial inclusion may undermine financial stability. The most apparent case is when lowering lending conditions happens as a result of trying to increase the pool of potential borrowers. The severity of the "sub-prime" crisis in the US was greatly influenced by this. Second, if banks outsource different tasks, including credit evaluation, in order to work with smaller borrowers, they run a higher reputational risk. Last but not least, increased lending by microfinance institutions (MFIs) may reduce the overall efficacy of regulation

in the economy and raise risks to the financial system if those institutions are not effectively regulated.

Data on financial inclusion and financial stability

The World Bank's Global Financial Development database (GFDD) is the most significant cross-country database in this field. In addition to macroeconomic indicators and certain variables linked to financial development and stability, it includes a significant number of variables relevant to financial inclusion. The database includes data series for up to 52 years (since 1960) and spans 164 economies, while the time series for the most important variables are significantly shorter. The number of bank branches per 100,000 people, the number of bank accounts per 1,000 people, the proportion of businesses with a line of credit to all businesses, the percentage of adults with at least one account at a formal financial institution, and the percentage of adults with at least one account are some examples of variables related to financial inclusion. The World Bank's Global Financial Inclusion Database (Global Findex), which offers information on financial inclusion for 148 economies and contains indicators on how individuals save, borrow, make payments, and manage risk, is one source of substantial survey data on financial access that is included in the GFDD.

However, many economies have some missing data. In the GFDD, information on the number of bank branches is normally accessible for roughly 8 years (2004–2011). The percentage of individuals having at least one account (or loan) at a formal financial institution, which is likely the single greatest indicator of inclusion, at least for families, is one of the statistics from the Global Findex database that are only available for 2011. This substantially restricts the amount of potential observations that may be utilised because this variable can only be used in cross-section analysis, not panel data. For information on the percentage of businesses with a line of credit, whether it pertains to large businesses or SMEs, the situation is only slightly better. In this scenario, economies with data often display one or two observations, but once more, many economies have no values. Thus, a significant challenge for researchers in this field is the lack of data regarding financial inclusion characteristics.

Bank Z-scores, a measure of the likelihood that the nation's banking system will fail, the ratio of non-performing loans (NPLs), the ratio of bank credit to bank deposits, the ratio of bank regulatory capital to risk-weighted assets, and the ratio of bank liquid assets to deposits and short-term funding are some examples of data on financial stability in the GFDD. Although, once again, there are significant gaps in nation coverage, data on these things are often accessible for at least ten years and, in some cases, substantially longer. As a result, the lack of data on financial stability is less of a problem than the lack of statistics on financial inclusion. Additional helpful information can be found in the Financial Access Survey (FAS) of the International Monetary Fund (IMF), which also includes information on the inclusion of non-bank financial institutions like credit unions, insurance companies, and MFIs, the accessibility of ATMs, and the volume of commercial bank loans and deposits made to SMEs. 3 The data may be used to determine the percentage of SMEs in total commercial bank loans and deposits, a crucial indicator of inclusion,

because it also covers total commercial loans and deposits. Even though there are several missing numbers in the database, which includes 193 economies and has time series going back up to 9 years (from 2004 to 2012), the actual size of the database is substantially lower. The detection of financial crises is one of the additional financial stability indicators. A complete worldwide catalogue of instances of financial crises of all kinds, stretching back to 1800, was produced by Reinhart and Rogoff in 2009 and 2010. A different database created by Laeven and Valencia (2008) lists 124 systemic financial crises that occurred between 1970 and 2007. Reinhart and Rogoff (2009) identify the full time of a crisis, but Laeven and Valencia (2008) simply identify the year connected with the beginning of a banking crisis, making the latter database more relevant for estimating the severity of a crisis.

Stylized facts of financial stability and financial inclusion

This section offers some straightforward comparisons of the correlation between financial stability and inclusion indicators gleaned from the datasets mentioned in the preceding section. The first is that, as per capita GDP rises, financial inclusion also grows (Figure 1). According to the graph, financial access typically ranges from less than 20% when per capita income is under $1,000 to more than 80% when per capita income is above $30,000.
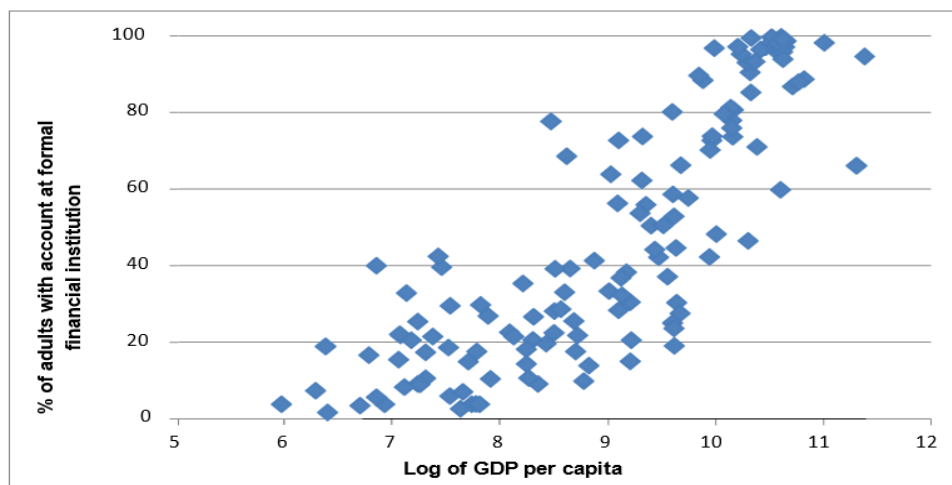

Figure 1: Share of Adults with an Account at One or More Formal Financial Institution versus per Capita GDP.

GDP = gross domestic product.
Source: World Bank Global Financial Inclusion Database

However, there is minimal connection between indicators of financial soundness and adult access to formal bank accounts. For instance, Figure 2 demonstrates that the relationship between the percentages of individuals with accounts at least one formal financial institution and the number of NPLs is essentially flat. Similar patterns may be seen in the graphic that compares adult account access to banks' Z-scores.
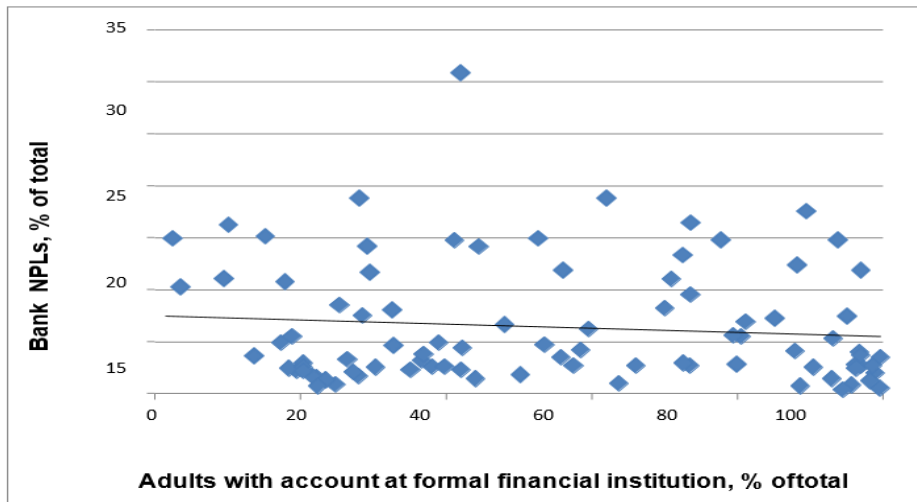
Figure 2: Share of Adults with an Account at One or More Formal Financial Institution versus Bank NPLs

When considering how easily enterprises may obtain funding, the results are marginally more encouraging. Figure 3 demonstrates a relationship between the percentage of SMEs receiving financing and bank NPLs. The downward slope of the line suggests that expanding SMEs' access to financing tends to lower the percentage of bank NPLs, which is consistent with the encouraging aspect mentioned in Section 3. These results must be interpreted with caution, though, because there are few data points and a large degree of dispersion.
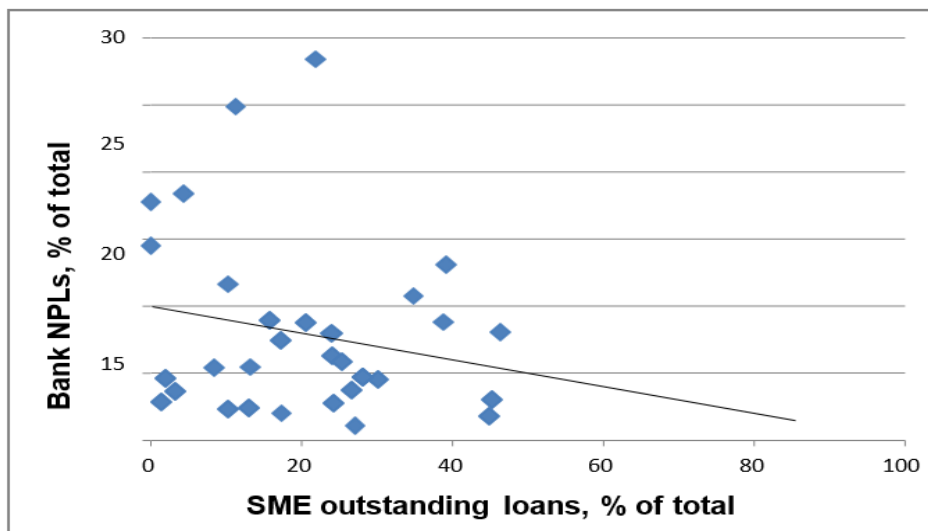

Figure 3: Bank NPLs and the Share of SMEs in Total Commercial Bank Loans

NPL = non-performing loan, SME = small and medium-sized enterprise.
Source: IMF Global Financial Access Survey

In conclusion, there is a correlation between per capita income and financial inclusion, however there is less of a correlation between financial inclusion and financial stability. Our analytical model and econometric findings for several measures of this connection are presented in Section 6 respectively.

Survey of earlier studies

The lack of empirical research in this field was already acknowledged. Adasme, Majnoni, and Uribe (2006) discovered that NPLs of small enterprises had quasi-normal loss distributions whereas those of large firms have fat-tailed distributions in their analysis of Chilean banks. They point out that because of the quasi-normality of small loans' loss curves, it is important to avoid experiencing big, sporadic losses. As a result, lending procedures for this class of loans may be considerably streamlined. Accordingly, more loans to SMEs should lower the overall riskiness of banks' lending portfolios, which should be good for financial stability and is consistent with our preliminary conclusion in the preceding section. This suggests that the systemic risk of the former category is lower than that of the latter. The World Bank data mentioned above were examined by Han and Melecky in 2013. They postulated that a higher proportion of the population holding bank deposits would increase banks' shares of stable funding (deposits) and tend to reduce volatility of total bank deposits during economic downturns, contributing to financial stability by reducing the procyclical effect of economic downturns on bank liquidity. The greatest decline in bank deposit growth between 2006 and 2010 served as their dependent variable. They used a number of control variables along with the previously mentioned Demirguc-Kunt and Klapper (2012) measure of the share of people who used banking deposits in 2011 and an index of Honohan (2008) measuring access to bank deposits before the 2008 financial crisis period as independent variables. The researchers discovered that a 10% increase in the proportion of individuals having access to bank accounts can lower deposit growth declines (or deposit withdrawal rates) by 3- 8 percentage points, supporting the idea that financial inclusion is good for financial stability.

Model, Data, and Results

To formally verify the link between financial stability and financial inclusion, we estimate the following dynamic-panel equation:

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

where X is a vector of controls (logarithm of GDP per capita [lgdpi,t], private credit by deposit money banks and other financial institutions to GDP [cgdpi,t], liquid assets to deposits and short-term funding [liqi,t], non-FDI capital flow to GDP [nfdii,t], and financial openness [opnsi,t]); β are a set of nuisance parameters in this scenario; An error term is denoted by εi,t, where i = 1,... N is the nation and t = 1,... T denotes time. Lastly, we are interested in the coefficient, which expresses how financial inclusion affects financial stability. The World Bank's GFDD and the IMF's FAS provide the data used in this section's estimation of equation (1). The two financial inclusion measures used in the analysis are the number of SME borrowers as a percentage of all borrowers from

commercial banks ($semb_{i,t}$) and the SME outstanding loans as a percentage of all outstanding loans of commercial banks ($smel_{i,t}$). In the regressions, we also included two additional measures of financial stability: bank NPLs as a percentage of total bank loans ($npl_{i,t}$) and bank Z-score ($bzs_{i,t}$), which is calculated as the product of capital to assets and return on assets divided by the standard deviation of return on assets. The GFDD provided both financial stability metrics as well. The World Bank's World Development Indicators database provided the GDP per capita and capital flow statistics that were used to calculate the ratio of non-FDI capital flow to GDP. The foreign assets and foreign liabilities database of Lane and Milesi-Ferretti (2007) provided the information needed to create the financial openness variable. Lastly, the GFDD provided the ratio of liquid assets to deposits and short-term funding as well as the percentage of private credit extended by deposit money banks and other financial institutions to GDP. The variables utilised in the ensuing empirical study are shown in Tables 1 and 2, respectively, with descriptive statistics and correlations. A significant caution from Table 1 is that, although the majority of the variables have at least 1,000 available observations, the two financial inclusion measures, $smel_{i,t}$ and $semb_{i,t}$, have very problematic numbers of available observations (266 and 161, respectively). Table 2's correlations are quite low, especially those between the variables on the right side, indicating that multicollinearity is unlikely to be a problem for our empirical research.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std Dev	Min	Max
Bzs	1999	15.08	9.98	-6.17	70.51
Npl	1124	6.67	7.20	0.10	74.10
Smel	272	0.27	0.20	0.00	0.85
semb	165	0.17	0.27	0.00	0.96
Lgdp	1975	8.72	1.30	5.47	11.39
cgdp	1820	49.88	50.07	0.55	434.09
Liq	1809	38.75	20.71	0.32	146.23
Nfdi	1141	6.37	27.28	-137.92	314.08
opns	1975	381.60	1612.61	27.20	24143.10

Source: Authors' calculations.

Table 2: Correlations of the Variables

Variable	*Bzs*	*npl*	*smel*	*semb*	*lgdp*	*cgdp*	*liq*	*nfdi*	*opns*
bzs	1								
npl	0.2846	1							
smel	0.042	0.6784	1						
semb	-0.0807	0.1081	-0.1113	1					
lgdp	0.0923	-0.1351	-0.0708	0.0193	1				
cgdp	-0.375	0.2112	0.3305	0.1689	0.3389	1			
liq	0.4688	-0.0626	0.1827	-0.1593	0.1707	-0.207	1		
nfdi	-0.1117	-0.1634	-0.3901	-0.1541	-0.1867	0.2191	-0.2629	1	
opns	-0.1793	-0.2067	-0.0934	-0.1408	0.7219	0.4878	0.1164	0.0994	1

Source: Authors' calculations.

Using Blundell and Bond's (1998) system-GMM dynamic panel estimator, we estimate equation (1) above. The foundation of System-GMM is a system made up of levels instrumented on lagged first-differences and first-differences instrumented on lagged levels. Besides offering a strict solution to endogeneity bias, dynamic panel GMM estimation has two more benefits. Firstly, compared to cross-sectional regressions, it is more resilient to measurement error. Second, provided the instrumental variables are appropriately delayed, dynamic panel GMM stays consistent even in the case where the explanatory variables are endogenous, meaning that $E[Xt\varepsilon s] \neq 0$ for $s \leq t$.

We use the two-step estimator and add Windmeijier's (2005) adjustment to the two-step estimator's standard errors to account for small-sample bias. Certain requirements limit the maximum number of delays in the instrument sets in order to prevent over-fitting. In order to check for over-identifying constraints, we report Hansen tests (Blundell and Bond 1998). Our estimate findings are shown in Table 3.

Table 3: Dynamic Panel Estimation Results

	(1) Bank Z-score $(bzs_{i,t})$	(2)B Bank Z-score $(bzs_{i,t})$	(2) Bank NPLs $(npl_{i,t})$	(3) Bank NPLs $(npl_{i,t})$
$bzs_{i,t-1}$	-0.96 (0.04)***	0.61 (0.20)***		
$npl_{i,t-1}$			0.17 (0.04)***	0.92 (0.11)***
$smel_{i,t}$	24.59 (6.06)***		-5.70 (3.19)*	
$smeb_{i,t}$		92.07 (44.58)**		-41.35 (19.38)**
$lgdp_{i,t}$	2.07 (0.93)**	13.79 (5.81)**	-11.57 (1.64)***	-0.58 (5.06)
$cgdp_{i,t}$	-0.09 (0.4)**	-0.18 (0.05)***	0.21 (0.05)***	0.01 (0.07)
$liq_{i,t}$	0.13 (0.05)**	0.28 (0.10)**	0.20 (0.05)***	-0.12 (0.12)
$nfdi_{i,t}$	-0.01 (0.06)	-0.02 (0.06)	-0.27 (0.05)***	-0.01 (0.14)
$opns_{i,t}$	0.004 (0.002)*	0.002 (0.08)	-0.002 (0.002)	-0.003 (0.005)
No. of observations	168	89	122	65
No. instruments	32	49	39	18
AB test AR2	[0.82]	[0.86]	[0.14]	[0.13]
Hansen J test	[0.50]	[1.00]	[0.62]	[0.61]

Source: Authors' calculations.

Notes: Time dummies and unreported intercept are included in all calculations. The two-step standard errors used in Windmeijer's (2005) finite sample correction provide the basis for the estimated system-GMM. Parentheses are used to report standard mistakes. P-values are the values that are provided in brackets. "AB test AR2": the average autocovariance in residuals of order 2 has a p-value of 0 according to Arellano-Bond tests.

P-values for the test of over-identifying limitations are found in the Hansen J test, and they are asymptotically distributed as 2 under the instrument validity null.

Statistical significance is indicated by the symbols *, **, and *** at the 10%, 5%, and 1% levels, respectively.

With reference to column (1), our first financial inclusion measure (smeli,t) enters positively and considerably, meaning that more lending to SMEs reduces the likelihood that financial institutions would default (bzsi,t). Greater lending to SMEs results in lesser bank NPLs (npli,t), according to column (3)'s consistent finding, smeli,t entering negatively. However, this result is only weakly significant at the 10% significance level. Columns (2) and (4) of Table 3 present the findings on the impact of financial inclusion on financial stability utilizing our second financial inclusion metric (sembi,t).

We find that sembi,t in column (2) is positive and significant, indicating that a higher proportion of SME borrowers is associated with a reduced likelihood of financial institution default. We find that sembi,t is negative and significant in column (4), indicating that a higher proportion of SME borrowers is associated with a decrease in bank NPLs.

We get the following outcomes in terms of our conditioning factors. Income as determined by lgdpi,t strongly influences financial stability in three (columns [1]–[3]) of our four regressions, indicating that high-income nations are less likely to experience financial instability. According to earlier research (e.g., Drehmann et al., 2011; Gourinchas and Obstfeld, 2012; Drehmann and Juselius, 2013), we also find that in three (columns [1]–[3]) of our four regressions, there is a positive correlation between the likelihood of financial instability and the level of private sector credit relative to GDP (cgdpi, t). In two (columns [1] and [2]) of our four regressions, we find—following Han and Melecky (2013)—that higher bank liquidity (liqi,t) increases financial stability by lowering the likelihood that financial institutions would default.

However, we also find evidence that larger bank NPLs (column 3) are correlated with higher bank liquidity (liqi,t). According to three of the four GMM regressions, we find that the ratio of non-FDI capital flows to GDP (nfdii,t) has no significant impact on financial stability, which is consistent with the previous finding by Calderon and Serven (2011). However, in one of the regressions, we find the counterintuitive result that short-term capital flows reduce bank non-performing loans (NPLs). Lastly, we show that financial openness (opnsi,t) can only be positively correlated with financial stability in one (although weakly significant) of the four regressions, which is consistent with the finding of Frankel and Saravelos (2012).

The four regressions in Table 3 do not appear to have misspecification issues based on standard diagnostic tests. The AR2 test and the Hansen test for over-identifying restrictions both fail to reject the null hypothesis that there is no second-order residual autocorrelation and that the instruments are valid.

CONCLUSION

This article examined the relationship between financial stability and inclusivity to see if there are any notable trade-offs between the two in order to assess whether there are. The literature indicates that there is no guarantee that more financial inclusion would improve or worsen financial stability. Positive effects include reduced risk associated with bank assets due to diversification; reduced concerns about liquidity due to better deposit base stability; and enhanced monetary policy transmission. A few negative effects include the weakening of lending standards (such sub-prime loans), damage to banks' reputations, and inadequate regulation of MFIs. Because the available data on financial inclusion is limited and has a limited duration, it can be problematic. There has only been year and a half of observation for some aspects. Even though the data set is very small, using panel data enables us to use the system-GMM dynamic panel estimator to account for the more important endogeneity problem.

Previous study has showed that greater financial inclusion has positive effects on financial stability, suggesting that there is no trade-off between the two but rather that they are complementary. Our estimation work also confirms this. In particular, we show evidence that increased bank lending to SMEs lowers the risk of financial institution failure and reduces non-performing loans (NPLs), both of which are key drivers of financial stability. This suggests that government programs aimed at advancing financial inclusion would, at the very least, unintentionally advance financial stability. We also find that higher per capita GDP tends to improve financial stability, but a bigger ratio of private bank loans to GDP tends to decrease it. These two results are equivalent. Subsequent studies might examine the relationship between financial stability measurements and household inclusion metrics, such as the percentage of individuals with loans or savings at a licensed financial institution. We may also examine bank deposits, bank loans, GDP growth volatility, and the frequency of financial crises as additional measures of financial stability.

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