

THE EFFICACY OF FINANCIAL STABILITY ON ECONOMIC GROWTH: THE EXPERIENCE OF DEVELOPING COUNTRIES WITH LARGE FINANCIAL SECTORS

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Abstract: *Recent years have attracted the attention of policymakers about the effect of financial stability on economic growth. These developments raise more concern for developing countries with large financial sectors. From a recent history of financial crises, we learn that countries highly exposed to international financial markets experience adverse economic trajectories. The focal countries for this study are Brazil, India, Indonesia, Malaysia, Mexico, and South Africa. This empirical study has a sample period from 1996 to 2022, capturing the most recent quantifiable events. The study considers aggregate measures of financial stability from the financial system. We make use of the random effects panel data methodology which captures the heterogeneity associated with the developing countries in variegated continents. The implication of this study is that financial stability policies that aim to stabilize financial institutions and their functions will significantly affect economic growth. This study finds that financial stability has a significant and negative effect on economic growth.*

Keywords: *financial stability, economic growth, large financial sector, developing countries, panel data econometrics.*

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INTRODUCTION

In developing countries with large financial sectors, the efficacy of financial stability on economic growth takes on a unique and multifaceted significance. These nations often experience rapid expansion in their financial systems, characterized by the proliferation of banks, stock exchanges, and other financial intermediaries. While the growth of the financial sector can be a promising sign of economic development, it also introduces a set of challenges and opportunities that require careful consideration. The stability of these financial systems in such contexts becomes even more critical, as it not only influences the broader economic landscape but also determines the ability of countries to harness the full potential of their financial sectors.

We provide some insights into the financial stability of six developing countries with large financial sectors which includes Brazil, India, Indonesia, South Africa, Malaysia, and Mexico. After the 2008 global financial crisis, Brazil felt the effects of reduced global demand, affecting its trade balance and economic growth. There were disruptions in financial markets, and the country's stock market faced declines. The crisis contributed to increased volatility in currency markets. Brazil experienced currency depreciation as investors sought safe-haven assets, impacting the value of the Brazilian real (Barroso and Nechio, 2020) [1].

India's financial stability is influenced by a diverse and growing financial sector. The country has a robust banking system and a well-regulated stock market. However,

India has experienced non-performing loan issues in its banking sector, and regulatory reforms are ongoing to address these concerns. The government has also introduced measures to encourage foreign investment and economic growth (Kumar et al., 2022) [2].

Indonesia's financial stability has benefited from prudent financial regulation and economic reforms. The country has seen stable economic growth, supported by strong commodity exports. Nonetheless, Indonesia faces challenges related to income inequality, infrastructure development, and managing inflation (Machdar, 2020) [3].

South Africa's financial stability is influenced by a well-developed financial sector and a relatively open economy. The country faces challenges related to high unemployment, income inequality, and political uncertainty. South Africa's fiscal situation has also been a concern, leading to credit rating downgrades in the past (Mishi & Khumalo, 2019) [4].

Malaysia has a diversified economy with a well-regulated financial sector. The country has a history of prudent financial management and has taken measures to maintain economic stability. However, challenges include addressing issues related to government debt, managing fiscal deficits, and enhancing the efficiency of state-owned enterprises (Koong et al., 2017) [5].

Mexico's financial stability is closely tied to its economic relationship with the United States, given its extensive trade ties. The country has benefited from structural reforms, such as energy sector liberalization, but it faces challenges related to high levels of informality in the labor market, income inequality, and security concerns (Gambacorta, L., & Murcia, 2019) [6].

The interplay between financial stability and economic growth in developing countries with substantial financial sectors is a topic of great importance, as it holds the potential to unlock or hinder their journey towards sustained prosperity. In this context, understanding how financial stability affects these economies is vital for policymakers, investors, and the general populace. This exploration will delve into the specific dynamics at play in such nations, examining how financial stability impacts economic resilience, and how it shapes the overall trajectory of development in these rapidly evolving financial landscapes.

The goal of the study is to estimate the effect of financial stability on economic growth in developing countries with large financial sectors. Therefore, the empirical hypothesis of this study is that "financial stability has a causal effect on economic growth in developing countries with large financial sectors." The study deploys the random effects as a panel data model to account for the heterogeneity of developing countries in different part of the world. The sample period of the study comprises annual data from 1996 to 2022. The study finds that financial stability is causal on economic growth. From the sample period, there is a negative and highly significant effect of financial stability on economic growth.

LITERATURE REVIEW

Financial stability refers to a financial system that is resilient to systemic shocks, facilitates efficient financial intermediation and mitigates the macroeconomic costs of disruptions in such a way that confidence in the system is maintained (SARB, 2015) [7]. Financial stability is the efficient allocation of economic resources through smooth savings and investment processes that enhance economic growth (Schinasi, 2011) [8]. Financial stability is affected by both exogenous and endogenous factors. Shocks and surprises are not the only components that pose a threat to the financial system, also disorderly

adjustment of imbalances can cause financial instability. For example, there could be a misperception of expectation of future returns that could subsequently miss-price future price (Schinasi, 2011) [8].

Inefficient allocation of capital and mispricing of risk can cause vulnerabilities and imbalances thus threaten financial stability (Peukert, 2010) [9]. Financial stability is to protect the economy from financial crises and enabling a financial system so that it limits and addresses emergence of imbalances before they constitute a threat to stability. This may be received by self-corrective, market disciplining mechanisms that can create resilience and that can endogenously prevent development of system-wide risk (Peukert, 2010) [9]. Forces are allowed to resolve potential problems but there is room for intervention through liquidity injections.

A financial system is a system that allows the transfer of money through the savers to investors. The financial system comprises of three broad closely related concepts (Schinasi, 2011). These are financial intermediaries, financial markets, and the financial infrastructure. Financial intermediaries are financial institutes that pool funds and reallocate funds for different uses. Financial institutions are not simply limited to banking services; they include a variety of institutes, such as, hedge funds, pension funds, non-financial hybrids, that provide a range of different services. Financial markets are markets that directly serve investors and savers through the direct buying and selling of equities and bonds. Finally, the financial infrastructure, comprises of clearance, payments, and settlement systems, and regulatory, supervisory and surveillance infrastructure (Schinasi, 2011). Furthermore, private, and public persons who participate in the financial market are an essential part of the financial infrastructure (Allen and Wood, 2006) [10]. The key concepts identified here are important to grasp and monitor their activities for understanding how well a financial system works and how well they are performing.

Systemic risk is the threat of a possible collapse of the financial system; it is a risk of an event that may cause a loss of real economic value or confidence such that it may have some serious adverse effects on the economy (Taylor, 2010). Systemic risk may be an event that arise suddenly and unexpectedly, or it could be built up over time due to inappropriate policy responses (Taylor, 2010). Real economic effect of systemic risk mainly emerges from disruption to payment systems, credit flows and through destructions of asset values (Taylor, 2010) [11].

To prevent potential problems from materializing a financial stability framework requires a continuous process of monitoring and information gathering on macroeconomic conditions, financial markets, financial institutes, and financial infrastructure (Silva et al., 2017) [12]. As, the real economy is linked to the financial system (Schinasi, 2011). The process will be more useful and successful if there is a linkage between economic and financial dimensions. The framework involves a continuous process of gathering information, monitoring and assessment (Silva et al., 2017). The process requires a comprehensive and analytical approach. There is a need to develop measurement technique for detecting growing imbalances and calibrating risk and vulnerabilities to keep up to par with important monitoring phases (Silva et al., 2017). The approach also involves the process of supervision, surveillance, and regulation of financial and economic actors. Supervisory processes could be enhanced through the knowledge about the economy's position in the business and credit cycle and the overall performance of markets. The reason for this is that the macro economy and the market provide the background to which performance of individual institutes should be assessed. Finally, the purpose of information

gathering is to assess if the financial system is performing its main functions well enough to be within the corridor of financial stability (Silva et al., 2017).

According to Blejer (2006) [13] financial stability is essential for economic growth because it provides a stable and predictable environment for investment, innovation, and entrepreneurship. A stable financial system helps to reduce uncertainty and risk, which encourages businesses to invest in new projects, creates jobs, and promotes economic growth. In addition, financial stability helps to maintain confidence in the financial system, which is essential for the effective functioning of financial intermediation.

Glocker (2021) [14] postulate that financial instability can result in a credit crunch, a decrease in investment, and a decline in economic activity. For example, financial crises can lead to a decrease in lending, a rise in non-performing loans, and a loss of confidence in the financial system, which can lead to a recession and long-term economic damage. Therefore, it is crucial for policymakers to ensure financial stability in developing countries with large financial sectors. This may include measures such as strengthening prudential regulation, improving risk management practices, and promoting transparency and accountability in the financial sector. Ben Ali, Intissar, and Zeitun (2018) [15] supports the existence of a stabilizing effect on concentration on financial stability for developing countries. These countries should also prioritize building resilient financial systems that can withstand shocks and prevent financial crises.

Schoenmaker (2011) [16] postulates that when a country's financial system become increasingly integrated the domestic policies become less effective. This means that high exposures of the developing country's financial system to global financial institutions and markets have the potential to inject financial instability. Therefore, financial stability is a key prerequisite for sustainable and inclusive economic growth in developing countries with large financial sectors. According to Shaw (1973) [17] a poorly regulated financial system can be prone to instability and financial crises, which can have negative effects on economic growth. In addition, a large financial sector can create incentives for excessive risk-taking and speculative investments, which can lead to financial instability and macroeconomic imbalances.

Understanding the connection between financial stability and economic growth can be justified by the semi-endogenous growth model. Both financial stability and economic growth are endogenous factors that are sensitive to exogenous factors. By including exogenous elements, the model provides a more comprehensive framework that captures the interaction between endogenous and exogenous factors in driving growth (Jones, 2005) [18]. By focusing on these factors, the model offers insights into how policies and investments can promote economic growth (Barcenilla-Visús et al., 2014) [19]. Therefore, it is important to utilize an empirical model that takes into account both endogenous and exogenous factors.

METHODOLOGY AND DATA

Our point of departure is from the Solow growth model which we utilize to understand the sources of economic growth in the long run. This is a vanilla framework the help macroeconomics scholars identify causes of growth and their process. The Solow model, also known as the neoclassical growth model, is one of the most widely used frameworks for understanding economic growth. It was developed by Robert Solow in the 1950s and 1960s and has been influential in shaping the field of macroeconomics. Economists continue to debate and refine growth frameworks, seeking to improve our

understanding of economic growth and inform policy decisions. Therefore, we use this framework to include the financial stability variable as a source of growth not addressed by the basic Solow model.

According to Cooray (2009) [20] the inclusion of financial factors allows the financial augmented Solow model to explore how changes in financial conditions, such as improvements in financial markets and institutions, can affect economic growth. It recognizes that financial factors can amplify or dampen the effects of capital accumulation and technological progress on economic growth.

To show the importance of financial factors in the development of growth, Atje and Jovanovic (1993) was the first to explicitly add the financial variable to the initial Solow model as described by *Equation 1*. Thereafter, other scholars utilized the financial augmented Solow model (Cooray, 2009, 2010; Haibo, Manu, and Somuah, 2023) [21].

$$Y(t) = K(t)^\alpha [A(t)L(t)]^{1-\alpha}, \quad 0 < \alpha < 1 \quad (1)$$

$$Y(t) = K(t)^\alpha H(t)^\beta [A(t)L(t)]^{1-\alpha-\beta}, \quad 0 < \alpha, \beta < 1, \quad \alpha + \beta < 1 \quad (2)$$

$$Y(t) = F(t)^\alpha K(t)^\beta H(t)^\gamma [A(t)L(t)]^{1-\alpha-\beta-\gamma}, \quad 0 < \alpha, \beta, \gamma < 1, \quad \alpha + \beta + \gamma < 1 \quad (3)$$

, where Y is economic growth, F is financial stability, K is capital, H is human capital, A is the level of technology, L is the labour force, α is the elasticity of economic growth with respect to financial capital, β is the elasticity of economic growth with respect to physical capital, and γ is the elasticity of economic growth with respect to human capital. *Equation 3* culminates with three forms of capital: financial, physical, and human capital.

The financial augmented Solow model enables us to study of how financial crises and disruptions can impact long-term growth. It captures the negative effects of financial crises which can have lasting consequences for economic performance. By incorporating financial factors, the model enhances our understanding of the relationship between financial stability and sustained growth.

We therefore utilize the panel data econometrics to study the effect of financial stability on economic growth. All the variables in the model have data availability and making our panel balanced. To conduct a panel data analysis of the effect of financial stability on economic growth we applied necessary panel data steps as scientifically demonstrated by Angrist and Pischke (2009) [22]. Firstly, we identified seven developing countries with large financial sectors. Secondly, we collect data on financial stability, economic growth, and control variables. Thirdly, we utilize a linear panel data model, the random effects model. According to the theoretical and empirical literature we estimate *Equation 4*, which reflects the random effect model.

$$GDP_{i,t} = \sum_{i=1}^n \beta_1 F_{i,t} + \sum_{i=1}^n \beta_2 X_{i,t} + \alpha_i + \varepsilon_{i,t} \quad (4)$$

, where $GDP_{i,t}$ is the real GDP growth for country i at time t , $F_{i,t}$ is the vector of financial stability variables, $X_{i,t}$ is the vector of control variables, α_i is the country-specific intercept that captures the unobserved heterogeneity, and $\varepsilon_{i,t}$ is the error term. According to

Hausman and Taylor (1981) [23] α_i is the individual-specific intercept that is randomly distributed across individuals in the random effects model. According to Joshi and Wooldridge (2019) [24] the random effects model assumes that the coefficients of the independent variables are the same for all countries but allows for individual-specific intercepts that are randomly distributed.

Table 1 presents a list of variables for the financial stability and economic growth analysis. The main dependent variable is the real GDP growth rate. The main independent variables of interest are the Bank capital to total assets and Bank regulatory capital to risk-weighted assets which serve as proxies for financial stability. We control for the effect of recent major financial crises and include them in the model.

Table 1. Variables

<i>Code</i>	<i>Variable description</i>
<i>Dependent variable: Economic growth</i>	
<i>gdp</i>	Real GDP growth (annual %)
<i>Independent variable: Financial Stability</i>	
<i>bcap</i>	Bank capital to total assets (%)
<i>breg</i>	Bank regulatory capital to risk-weighted assets (%)
<i>Independent variable: Control variables</i>	
<i>tro</i>	Trade Openness, % of GDP
<i>caf</i>	Fixed capital formation, % of GDP
<i>labgr</i>	Total labour force, % change year-on-year
<i>mix</i>	Monetary policy independence index
<i>y2001</i>	Year dummy, 2001 Dot.com bubble burst, 1=Crisis, 0=No crisis
<i>y2008</i>	Year dummy, 2008 Global financial crisis, 1=Crisis, 0=No crisis
<i>Covid</i>	Covid-19 dummy, 1=Crisis, 0=No crisis

Source: Compiled by the author. Note: Data collected from Fitch Connect, World Bank, KAOPEN, Penn World Table, and author's own construct of dummy variables.

The 2001 Dot-com bubble burst was a major economic event that had a significant impact on economic growth in the United States and around the world. The Dot-com bubble was a period of rapid growth in the technology sector, fuelled by the growth of the internet and the proliferation of technology start-ups. According to Wheale and Amin (2003) [25] the bubble was characterized by a frenzy of speculative investment in internet-based companies, many of which had little or no revenue and were not profitable. As the bubble grew, investors became increasingly concerned about the underlying value of these companies. However, this was followed by a sharp decline in the value of technology stocks, which began in March 2000 and continued for more than a year, leading to the Dot-com bubble burst in 2001.

The 2008 Global financial crisis had a significant and far-reaching impact on economic growth in the United States and around the world. The crisis was triggered by the collapse of the U.S. housing market, which had been fuelled by a speculative bubble in the housing sector. According to Afonso and Blanco-Arana (2022) [26] when the bubble burst, it led to a widespread collapse of the housing market and a sharp decline in the value of mortgage-backed securities and other financial instruments that were tied to the housing

market. This led to a major financial crisis, as banks and other financial institutions faced large losses on their investments in these securities.

Many developing countries with large financial sectors are closely tied to the global economy. The covid-19 pandemic led to a global economic downturn, affecting international trade, investment, and financial markets. The financial sectors in these countries, particularly those heavily reliant on international capital flows, experienced significant volatility. Capital flight and abrupt changes in investor sentiment contributed to financial instability (Calderon and Kubota, 2022) [27].

FINDINGS

This section provides comprehensive analysis of the efficacy of financial stability on economic growth in developing countries with large financial sectors. We provide an analysis of the correlations between variables and the culminates with the panel data regression results utilizing the random-effects model.

Table 2 depicts the correlation matrix of all the variables for this study. These correlations provides sentiments into what we can expect from the efficacy. We find that there is a negative and weak correlation between financial stability [*bcap* and *breg*] and economic growth [*gdpgr*] from 1996 to 2022. The financial stability indicators, *bcap* and *breg*, have a positive and strong correlation. While financial stability and economic growth are weakly correlated, other unobserved factors may be having an influence on this nexus. This reflects the complexity of the relationship between financial stability and economic growth. We also find that the 2001 [*y2001*] and 2008 [*y2008*] global financial crisis is negatively associated with both financial stability and economic growth. The *covid-19* pandemic [*covid*] is also negatively associated with economic growth.

Table 2. Correlation matrix

	<i>gdpgr</i>	<i>bcap</i>	<i>breg</i>	<i>tro</i>	<i>caf</i>	<i>labgr</i>	<i>mix</i>	<i>y2001</i>	<i>y2008</i>	<i>covid</i>
<i>gdpgr</i>	1.00									
<i>bcap</i>	-0.21	1.00								
<i>breg</i>	-0.20	0.82	1.00							
<i>tro</i>	0.12	-0.10	-0.03	1.00						
<i>caf</i>	0.47	0.00	-0.05	0.02	1.00					
<i>labgr</i>	0.58	-0.15	-0.04	0.03	0.12	1.00				
<i>mix</i>	0.16	0.07	0.01	-0.21	0.24	-0.15	1.00			
<i>y2001</i>	-0.06	-0.04	-0.06	-0.10	-0.11	-0.16	0.10	1.00		
<i>y2008</i>	-0.03	-0.16	-0.06	0.06	0.01	0.13	-0.05	-0.02	1.00	
<i>covid</i>	-0.49	0.24	0.23	-0.01	-0.04	-0.25	-0.23	-0.03	-0.09	1.00

Source: Authors' own computation

Table 3 provides panel data results from the random-effects model. Model 1 captures financial stability as represented by the Bank capital to total assets [*bcap*]. Model 2 captures financial stability as represented by the Bank regulatory capital to risk-weighted assets [*breg*]. We find that financial stability has a negative and highly significantly effect on economic growth at 1% level. The Bank capital to total assets reduced real GDP growth by an estimated 0.233. The Bank regulatory capital to risk-weighted assets reduced real GDP growth by an estimated 0.203. This study utilizes a parsimonious model that controls for the financial crises and the covid-19 pandemic. The 2008 global financial crisis had a

negative effect in the developing countries with large financial sectors but the efficacy is not significant. In contrast, the 2001 and 2008 global financial crisis had a negative and significant effect on economic growth. Covid-19 pandemic had a negative effect and highly significant effect on economic growth. The remaining control variables [*tro*, *caf*, *labgr*, *mix*] have a positive and highly significant effect on real GDP growth. Developing countries with large financial sectors are exposed to investment inflows and outflows of international financial institutions and markets. These gives rise to financial stability efforts that hampers growth. The general expectation is that financial stability should contribute positively to economic growth.

Table 3. Random-effects regression

Variables	Model 1	Model 2
<i>bcap</i>	-0.233*** (0.0846)	
<i>breg</i>		-0.203*** (0.0270)
<i>tro</i>	0.00845*** (0.00297)	0.00958*** (0.00365)
<i>caf</i>	0.229*** (0.0259)	0.221*** (0.0385)
<i>labgr</i>	0.125*** (0.0227)	0.148*** (0.0232)
<i>mix</i>	0.234*** (0.205)	0.266*** (0.227)
<i>y2001</i>	-0.083** (0.776)	-0.080* (0.021)
<i>y2008</i>	-0.697* (0.880)	-0.808* (0.042)
<i>covid</i>	-0.623*** (0.674)	-0.458*** (0.795)
<i>Constant</i>	-0.491*** (0.376)	-0.476*** (0.156)
<i>R-squared</i>	0.5307	0.5935
<i>Observations</i>	162	162
<i>Number of countries</i>	6	6

Source: Authors' own computation. Note: Robust standard errors in parentheses, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

This study postulates that the economic growth of developing countries with large financial sectors has not been resilient enough to curb the costs from the financial system. The financial institutions and markets in most these countries are more volatile than developed countries. Therefore, these countries should enact stronger domestic financial structures. They should also increase the resilience of their financial institutions and markets through robust domestic and regulatory capital to effectively mitigate systemic risk. The negative efficacy of financial stability on economic growth may also mean that the financial stability has not achieved inclusive economic growth in these countries.

CONCLUSIONS

Financial stability has become a metric that policymakers monitor drastically, especially after the 2008 global financial crises. From the literature, we learn that a positive and robust domestic and international financial system is desired. We examined if financial stability can partially serve as a transmission mechanism to economic growth. Financial stability is a financial variable that can be added to the financial sector augmented Solow growth model. This study examines the efficacy of financial stability on economic growth by grouping developing countries with large financial sectors from 2006 to 2022. The random-effects model from panel data methodology is an empirical method utilized to obtain the efficacy. From the sample period, financial stability is negatively associated with economic growth. Most importantly, the study finds that financial stability is significantly causal and has a negative effect on economic growth. Future research can examine how moderating factors influence the efficacy of financial stability on economic growth in developing countries with large financial sectors.

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