Journal of Finance – Marketing Research; Vol. 15, Issue 2; 2024
ISSN: 1859-3690
DOI: https://doi.org/10.52932/jfm.vi2

Journal of Finance – Marketing Research
http://jfm.ufm.edu.vn

RELATIONSHIP BETWEEN FINANCIAL INCLUSION, INFLATION AND FINANCIAL STABILITY OF COUNTRIES AROUND THE WORLD AND LESSONS FOR VIETNAM

Pham Tien Dat[1], Tran Thi Kim Oanh[1*]
[1]University of Finance – Marketing

ARTICLE INFO

DOI:
10.52932/jfm.vi2.498

Received:
February 08, 2024
Accepted:
March 23, 2024
Published:
March 25, 2024

Keywords:
Financial inclusion;
Financial stability;
Inflation.

ABSTRACT

The study examines the correlation between financial inclusion, inflation, and financial stability across 58 countries during the period 2004-2022, employing PVAR analysis. Impulse-response function outcomes indicate a negative relationship between financial stability and both financial inclusion and inflation rate, while financial inclusion and inflation rate display a positive correlation. These results suggest that financial inclusion may exacerbate financial instability, potentially leading to prolonged inflation. Additionally, variance decomposition results affirm the interconnectedness of financial inclusion, inflation, and financial stability. Based on these findings, we offer policy suggestions for enhancing financial stability in Vietnam.

*Corresponding author:
Email: kimoanh@ufm.edu.vn

1. Introduction

Since the onset of the 21st century, the concept of financial inclusion (FI) has garnered attention from governments and central banks worldwide due to its role in enhancing macroeconomic stability and improving the implementation of monetary policies for nations. As per the World Bank (2015), FI refers to a system that ensures equal access for individuals and businesses to financial products and services at reasonable costs. Likewise, FI encompasses both qualitative and quantitative expansions, aiming to facilitate easy access to financial products and services for individuals and businesses, as measured by the prevalence of formal financial product ownership and usage (Jungo et al., 2021). The relationship between FI and a country's financial stability (FS) is closely intertwined, as it aids in the effective execution of monetary policies. According to Anatolyevna and Ramilevna (2013), FS reflects the resilience of the financial system, including financial markets, intermediaries, and market infrastructure, to withstand shocks that disrupt the allocation of savings for profitable investments. Thus, the provided definition highlights the crucial role of FS in ensuring the ability of financial intermediaries to recover from shocks and continue efficiently fulfilling their core functions of facilitating savings, investments, and consumption within the economy.

The implementation of FI initiatives within a nation can potentially introduce instability into the financial market. According to Garcia (2016), an unchecked financial system coupled with rapid credit expansion resulting from FI efforts and associated tools can elevate risks within the financial market, ultimately leading to macroeconomic instability and increased inflation. Insights gleaned from the global financial crisis of 2007-2009 illustrate how widespread FI, in conjunction with low-interest rates, injected significant credit into the real estate sector, precipitating the collapse of the financial system. Therefore, it becomes evident that financial development plays a crucial role in assessing the interplay between FI, inflation rates, and FS, an aspect sometimes overlooked in earlier studies such as those by Smadi (2018) and Siddik and Kabiraj (2018).

The FS system has undergone significant changes through crises such as the Asian financial crisis in 1997, which prompted Asian countries to improve their financial systems by establishing financial regulatory bodies and enhancing financial regulations. For instance, South Korea established a Financial Supervisory Service, while Indonesia and Thailand also established independent financial supervisory boards to manage and oversee banks. The global financial crisis of 2008 also spurred countries and international organizations to create a type of credit insurance contract (CDS) to help financial institutions mitigate credit risks and minimize losses in the event of bankruptcy. Additionally, Basel III was introduced to enhance the stability of the global financial system by requiring banks and financial institutions to strengthen capital and improve risk management. These changes in the FS system aim to help the financial system operate smoothly, without disruptions, and promote financial development (Oanh et al., 2023).

Since 2015, Vietnam has engaged in a series of Free Trade Agreements (FTAs), including the Vietnam – Korea Free Trade Agreement (VKFTA, 2015), the Vietnam – Eurasian Economic Union Free Trade Agreement (VN-EAEU FTA, 2016), the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP, 2018), the ASEAN – Hong Kong Free Trade Agreement (AHKFTA, 2019), and the Vietnam – European Union Free Trade Agreement (EVFTA, 2020). These agreements offer significant opportunities for Vietnam to

expand trade and access extensive markets, attract foreign investment, reform institutions, and modernize the economy following regional and global trends and development levels. However, alongside these opportunities from international integration, Vietnam also faces various challenges, including limited competitiveness of enterprises, low labor productivity, and weak administrative capacity in the public sector. To address these realities, Vietnam requires effective strategies and policies to leverage opportunities and overcome challenges in the economic integration process. A critical aspect in this regard is ensuring stability in the national financial system. Vietnam's deepening integration into the international financial market has brought substantial benefits, but it has also exposed the country to risks such as inflationary pressures, exchange rate risks, and other market shocks. Therefore, financial security can only be ensured when the national financial market operates stably, securely, and is resilient to negative external influences. FS remains a top priority for all countries, with governments considering it as a vital prerequisite for sustaining macroeconomic stability. Given the urgency of this matter, the author undertakes research on the relationship between FI, inflation, and FS across various nations, offering policy implications for countries and extracting valuable lessons for Vietnam.

2. Relationship between financial inclusion, financial stability and inflation

2.1. The theory of the relationship between financial inclusion, financial stability, and inflation

According to World Bank, an inclusive financial system ensures equitable access for both individuals and businesses to attain financial products and services conveniently and affordably. Likewise, FI encompasses both qualitative and quantitative growth, facilitating accessible financial products and services for investors. This is gauged by the ownership and utilization of formal financial instruments by individuals. (Jungo et al., 2021). FI cannot be measured by a single variable because one variable cannot accurately describe it (Oanh et al. 2023). Therefore, there are various different indices used to measure FI. Although there are various metrics available, the authors such as Oanh et al. (2023) and Jungo et al. (2022) have developed FI measurement tools based on two primary categories: financial usage indices and financial access indices. The theory of the relationship between FI, FS, and inflation can be approached based on the following two theories:

George's theory of asymmetric information (1970) suggests that the differentiation between good and bad borrowers in the marketing of financial services presents a challenge due to information asymmetry, where one party in a credit agreement possesses more knowledge or superior information compared to the other. Bofondi and Gobbi (2003) argue that this information asymmetry restricts credit availability, impacting the efficiency and stability of financial institutions. The advent of FI involves integrating numerous inexperienced new customers into the formal financial sector, posing a challenge in the debt market as lenders struggle to assess the creditworthiness of borrowers, thus compromising financial efficiency and stability. Consequently, banking activities encounter difficulties in the context of FI due to issues of asymmetric information. Moreover, banks operate as financial intermediaries between borrowers and savers, mobilizing and lending capital, thereby bridging the gap between deficit-spending and surplus-spending customers in the market. This highlights the importance of a well-functioning financial market in determining the extent to which underserved customers can access capital for consumption and investment in

physical assets (Diamond, 1984). By enhancing financial inclusiveness, banks aim to reduce transaction costs in the market, mitigating issues of asymmetric information and reducing market imperfections among participants. This, in turn, promotes FS and facilitates inflation control.

Bagehot's (1973) financial growth theory suggests that when a significant portion of the population struggles to access financial products within their repayment capabilities, it results in income inequality and prolonged economic imbalance, ultimately slowing down the pace of economic growth and development. This viewpoint is supported by Dos Santos (2009) in his examination of banking during the ongoing privatization process. He contends that the achievement of economic growth hinges on FI, with FS enabling countries to effectively execute their monetary policies. These theories underscore the interconnectedness of FI, FS, and inflation, emphasizing the critical role they play in fostering sustainable economic development.

2.2. Empirical studies of comprehensive financial relationships, monetary policy and financial stability

On a theoretical basic, empirical studies have been conducted, showing both positive and negative impacts of FI on FS. In addition, different approaches lead to different results:

Neaime and Gaysset (2017) investigated the interplay between FS and FI across 8 MENA nations (Middle East/Southwest Asia and North Africa) spanning from 2002 to 2015. Their findings indicate a positive contribution of FI to the FS of MENA countries. In a similar vein, Siddik and Kabiraj (2018) conducted a study on the impact of FI on FS across 217 countries worldwide, focusing on the enterprise level, as the stability of businesses is crucial for macro-FS. They utilized two variables to represent FI: SMEBTB, which denotes the number of small and medium enterprises borrowing to total borrowers, and SMELTL, representing the loan-deposit ratio of small and medium enterprises to total debt. FS was measured by the Z-score variable. Their analysis, conducted using GMM regression, revealed that FI variables, specifically those measured by the number of SME borrowers to the total number of borrowers and the ratio of outstanding SME loans to total loans, had a significant positive impact on stability.

Olusegun and partners (2021) conducted research focusing on the internal dynamics of the Nigerian nation. They utilized the Z-score as a measure of the FS of banks within the country. Their ARDL regression results indicated that FI has a positive influence on FS, suggesting that a higher level of FI is associated with greater FS. Morgan and Pontines (2014) argue that the approach to enhancing FI in the small and medium enterprises (SMEs) sector primarily involves reducing non-performing loans (NPLs) and the likelihood of default by financial institutions. This implies that policy interventions aimed at bolstering FI, particularly for SMEs, can also contribute to enhancing FS. In a broader perspective, Danisman and his partners (2020) adopt a holistic approach to finance, focusing on the societal benefits, particularly for disadvantaged individuals. This suggests a recognition of the broader social impact of FI beyond its effects on FS alone.

Amatus and Alireza (2015) investigated FI concerning deposits and found that the results indicated a negative impact on the FS of the country. Similarly, Barik and Pradhan (2021) conducted a study on financial inclusiveness and observed a negative effect on FS. The adverse effects of FI on FS are attributed to several factors, including the rapid expansion of credit to the private sector, deterioration of credit standards among banks, challenges in credit assessment, rise in non-performing assets, defaults by borrowers, and insufficient

supervision of the banking sector. These factors collectively contribute to destabilizing the financial system, highlighting the complexities involved in balancing FI objectives with the maintenance of FS.

In a recent study by Arshad et al. (2021), the focus was on exploring the connection between FI and various monetary policy strategies across both developed and developing nations spanning from 2004 to 2018. The findings indicate a notable causal link from monetary policy to FI, particularly evident in underdeveloped countries.

Bourainy et al. (2021) approach finance as a means to lower inflation rates and extend FI to rural regions. Their study, focusing on FI and monetary policy across 37 developing countries from 2009 to 2018, utilized inflation rates as indicators of monetary policy and employed Principal Component Analysis (PCA) to compute the FI index. Using the GMM model, the study concluded that heightened FI correlated with a reduction in inflation rates in developing nations.

Dauda (2022) investigates the influence of FI on the efficiency of the interest rate channel in monetary policy transmission across 15 West African countries during the period 2005-2020. Utilizing Principal Component Analysis (PCA) to compute a comprehensive FI index, with monetary policy represented by the inflation rate variable, the study employs the Generalized Method of Moments (GMM) regression analysis. The findings indicate that enhanced FI improves the effectiveness of the interest rate channel in transmitting monetary policy. Jungo (2022) delves into the correlation between FI and monetary policy across Sub-Saharan Africa (SSA), Latin America, and the Caribbean (LAC) countries. Employing PCA to generate a FI index and Panel Vector Autoregression (PVAR) for analysis, the study uncovers intriguing insights. It suggests that in the SSA region, FI amplifies the efficacy of monetary policy, while in LAC nations, incorporating finance bolsters the effectiveness of monetary policy. Therefore, broadening access to and utilization of financial services enhances the efficacy of monetary policy in managing inflation. This underscores the importance for governments to devise or strengthen policies that foster the expansion of financial services and investments in developing economies. In their research, Oanh and colleagues (2023) scrutinize the intricate interplay among FI, monetary policy, and FS, with a particular focus on the role of financial development across different countries. Spanning the years from 2004 to 2020, their study employs Panel Vector Autoregression (PVAR) and impulse response analysis to elucidate key findings. They reveal a positive association between FS and FI in countries with lower levels of financial development. Conversely, in highly financially developed nations, FS exhibits a negative correlation with both FI and inflation rates. The variance decomposition results underscore a more pronounced relationship in financially developed countries, indicating that while increased FI fosters FS and mitigates inflation in less-developed nations, the opposite dynamic unfolds in highly developed economies.

Prior studies have mainly focused on the dual relationships between FS and FI or inflation and FI. There is a lack of empirical research examining the tripartite relationship between FI, inflation, and FS in Vietnam. Moreover, earlier studies have predominantly employed methods such as GMM. In contrast, this research utilizes PVAR to investigate the transmission mechanisms of FI and inflation to FS on a global scale, aiming to derive lessons for Vietnam.

3. Description of research variables and data

3.1. Research variables

The variables proposed for this study, based on theories from Section 2 and building upon the research by Oanh et al. (2023), include: Z-score, representing FS, and INF, representing the inflation growth rate. As stated in Section 2, financial inclusion cannot be measured by a single variable because one variable cannot accurately capture it (Oanh et al., 2023). Therefore, various different indices are used to measure financial inclusion. Consequently, the PCA method is employed to construct a financial inclusion index, with component variables that are highly correlated with each other (Oanh et al. 2023). FI, representing financial inclusion, calculated based on the Principal Component Analysis (PCA) method:

1. The number of commercial bank branches per 1000 km² (CBBP);
2. The number of commercial bank branches per 100,000 adults (CBP);
3. The number of ATMs per 1000 km² (ATMKM);
4. The number of ATMs per 100,000 adults (ATM).

The author utilizes the PCA method to calculate the comprehensive financial variable (FII). Not all countries around the world can access the internet (Oanh, 2024). Specifically, concerning internet access rights, as of 2021, Pakistan had an internet penetration rate of 21.04%; the Philippines had 52.68%; Nicaragua had 57.1%... This indicates that the FI strategy through internet connectivity in these countries still faces many challenges. Therefore, the use of comprehensive FI – conventionally measured by CBBP, CBP, ATMKM, and ATM – continues to be favored by many researchers as a means of stabilizing finances in the post-pandemic era: Danisman & Tarazi (2020), Oanh et al. (2023).

The research model is as follows:

$$FII_j = W_{j1}X_1 + W_{j2}X_2 + ... + W_{j4}X_4$$

where FII represents the comprehensive financial index, W represents the weight, and X is the measurable variable comprising the 4 components listed above.

3.2. Panels Var Model (PVAR)

Table 1. Description of variables in the model

Variable	Sign	Measurement	Empirical Research	Source
Main variable				
Financial stability	Z-score	Zscore=(ROA+EA)/(σ(ROA)) with: EA is Equity/ Total Assets	Jungo and coworker (2022);	World Bank; FAS
Monetary policy				
+ Inflation rate	INF	Annual CPI growth rate	Maher (2022); Jungo (2022); Dauda (2022); Oanh and coworker (2023);	World Bank; FAS
Financial inclusion	FII			
+ Number of commercial bank branches per 1000 square kilometers	CBBP	Number of commercial bank branches per 1000 square kilometers	Jungo (2022); Dauda (2022); Oanh and coworker (2023).	World Bank; FAS

Variable	Sign	Measurement	Empirical Research	Source
+ Number of commercial bank branches per 100,000 population	CBP	Number of commercial bank branches per 100,000 population		World Bank; FAS
+ Number of ATMs per 1000 square kilometers	ATMKM	Number of ATMs per 1000 square kilometers		FAS
+ Number of ATMs per 100,000 population	ATM	Number of ATMs per 100,000 population		World Bank; FAS
Control variable				
Economic growth	GDPN	Annual GDP growth rate	Anarfo and coworker (2019); Oanh and coworker (2023).	World Bank; FAS
Trade openness	OPEN	The ratio of total Import and export of goods and services to GDP	Neaime and Gaysset (2017); Oanh and coworker (2023).	World Bank; FAS
Economic integration	FDG	FDI net/GDP	Smadi (2018); Dienillah and coworker (2018); Oanh and coworker (2023).	World Bank; FAS

In this research, the author used the PVAR model, which does not distinguish between the exogenous and endogenous variables, instead all variables are considered collectively endogenous. Moreover, each variable in PVAR depends on its past data and all other variables (Oanh et al. 2023, Trần & Lê, 2023). Therefore, it is a very suitable model for this research. PVAR model to study the dynamic correlation between FS, FI, and inflation as below:

$$Y_{i,i} = A_1 Y_{i,t-1} + A_2 Y_{i,t-2} + ... + A_k Y_{i,t-k} + \beta_x X_{i,t} + u_i + \varepsilon_{i,t}$$

with

$Y_{i,t}$ = ($Zscore_{i,t}$, $FII_{i,t}$, $INF_{i,t}$) are random vector level (1×3) endogenous variables with: Zscore: FS level, FII: Index of FI, and INF: Inflation rate

$Y_{i,t-k}$ is vectors level (1×3) endogenous variables lag;

A_1, A_2,…, A_k is vector level (k×k) estimated coefficients;

k is optimal latency;

$X_{i,t}$: Vector exogenous variables include Economic Growth (GDPN), Trade Openness (OPEN), and Economic Integration (FDG);

β_x: are matrices (l×k) of the estimated coefficients.

u_i: is dependent variable fixed effects vector.

$\varepsilon_{i,t}$: is the specific error vector.

3.3. Research data

Due to limitations in accessing data, this study examines 58 countries (including Vietnam) over the period from 2004 to 2022.

4. Research results and discuss

4.1. Principal components analysis

Table 2. Principal Components Analysis Result according to 4 indicators

FII	ATM	ATMKM	CBP	CBBP
	-0.196	0.314	0.316	-0.291

4.2. Regression result in the var model

Descriptive statistic

Table 3. Descriptive statistic result

Variable	58 nations in the period from 2004-2022			
	Average	Standard Deviation	Minimum	Maximum
Zscore	17.364	9.416	1.472	67.649
FI	26.134	18.465	-13.649	99.164
INF	6.136	4.631	-3.946	35.787
GDPN	3.984	5.464	-13.463	35.1365
OPEN	89.979	33.135	15.698	431.974
FDG	5.046	8.316	-38.646	99.963

Table 3 – Descriptive statistical result of the variables shows that the average of Zscore variables, FII, and inflation of nations respectively 17,364; 26,134, and 6,136, in there, the standard deviation of FI is relatively high at 18,465, this is shown in research period FI variable is strong swing.

Stationarity tests

Estimating the PVAR model requires data sequences to ensure stationarity. From the existing data set, the ADF method (Augmented Dickey-Fuller) on table data is used to test the stationarity of data. Test results show variables such as Zscore, FI, and FDG stop at a level I(0), and variables such as INF, GDPN, and OPEN do not stop at a level I(0), the author deals with taking the first-order difference, and INF, GDPN và OPEN variables, it stopped at the level I(1). The unit root test result is presented in Table-4 below:

Table 4. The unit root test by ADF method

Variable	58 nations in the period from 2004-2022	
	Coefficient	Probability
Zscore	57.6026	0.0001***
FI	34.546	0.0432**
INF	19.2080	0.6325
GDPN	6.4858	0.9994
OPEN	18.5677	0.6718
FDG	57.6026	0.0001***

Determine optimal latency

Before estimating PVAR, it is necessary to determine the optimal latency to use in equations. The results show that all norms of LR (sequential modified LR test), FPE (final prediction error test), AIC (Akaike information criterion test), SC (Schwarz information criterion test), and HQ (Hannan-Quinn information criterion test) optimal latency of variable in PVAR model is proposed for nations in the worldwide is latency 3.

Table 5. Results of testing the optimal lag of model variables for 58 countries

Latency	LogL	LR	FPE	AIC	SC	HQ
0	-421.2000	NA	4.6337	12.8849	13.0176	12.9373
1	-258.3541	301.0182	0.0542	8.4350	9.0985	8.6972
2	-220.7948	64.8750	0.0284	7.7817	8.9760*	8.2536
3	-195.9027	39.9782*	0.0219*	7.5122*	9.2374	8.1939*
4	-182.4075	20.0384	0.0243	7.5881	9.8441	8.4796

Model self-correlation testing

Table 6. Model correlation selt-test results

Developed countries		
Latency	**LM Statistics**	**Probability**
1	9.4072	0.3600
2	1.0406	0.9993
3	4.7112	0.8586

Self-correlation test with hypothesis H0: In the model, there is no self-correlation with each other. The research model needs a probability value (p-value) of >5%, which is not yet possible to refute H0, which can conclude that the model does not occur autocorrelation. Table 6 of the model self-correlation test shows that at latency 3, the model does not occur autocorrelation. The author goes on to perform the repulsion reaction function and the variance decay result.

4.2.5. Repulsion function results and variance decay results

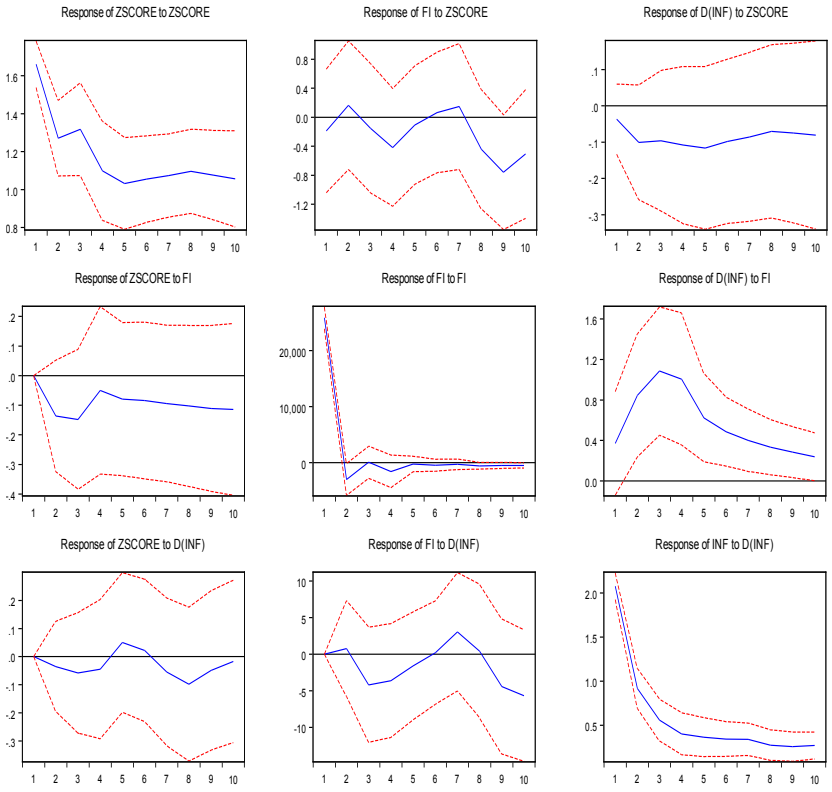

Figure 1. Reaction equation result

The study findings indicate that when the FI index rises by one standard deviation, there is a subsequent decrease in FS by 0.14% and an increase in the inflation rate by 0.37%, persisting for over 10 years. These results confirm a negative correlation between FS and FI, while also revealing a positive correlation between FI and inflation rates. When the inflation rate increases by one standard deviation, there is a subsequent decrease in FS by 0.04% in Year 1, persisting for several years. Additionally, FI increases by 0.80% in the initial year. These results reveal a negative correlation between the inflation rate and FS, as well as a positive correlation between the inflation rate and FI. When the FS index increases by one standard deviation, there is a subsequent decrease in FI by 0.19% in the first year, with this decline persisting until the end of the year. Additionally, the inflation rate decreases by 0.04%. These findings suggest a negative correlation between FS and FI, as well as between FS and both inflation rates and money supply growth rates.

This suggests that the robust development of financial institutions has created favorable conditions for providing more financial services to the economies of these countries, thus enhancing accessibility and usability for people. However, prolonged usage, until liquidity instability occurred, resulted in the collapse of the banking systems in those countries, as evidenced by the 2007-2009 financial crisis that originated in the US and quickly spread to highly financially developed countries such as the UK and France. In countries with high levels of FI, the abundance of financial institutions enables easy financial access for consumers. By alleviating difficulties and barriers imposed by external financial constraints on businesses, FI facilitates the expansion and development of production and services. Over time, excessive growth in the production and service sectors

can lead to heightened inflation, impacting input costs and cash flows within the financial market. This inflationary pressure can contribute to instability in the production and service sectors, ultimately leading to economic instability. Consequently, high levels of FI are often linked with increased inflation, prompting Central Banks to implement measures aimed at stabilizing the economy (Seth and Kalyanaraman, 2017). Evidence from the Dot-com crisis in 2000 illustrates how the Federal Reserve maintained low interest rates to encourage borrowing for investment and consumption, resulting in unchecked growth and the proliferation of substandard loans. This easy access to money, particularly channeled into real estate, fueled rapid expansion, leading to heightened inflation. However, when the Federal Reserve adjusted interest rates, the inability to repay loans triggered financial instability, culminating in a collapse of the financial system. Consequently, Central Bank interventions are typically prioritized when instability coincides with FI (Barik and Pradhan, 2021).

Figure 1 also shows the two-way relationship between financial inclusion, inflation and financial stability. This implies that financial stability stems from good financial inclusion, which helps prevent inflation from rising.

Variance decay results

After analyzing the pulse response function, the author proceeds to perform variance decay to see what percentage of the remaining variables a shock in Zscore, FII and INF variables will be interpreted by. The variance decay results are presented in Table 7.

Table 7. Variance decay results of research variables

Variance decay of the Zscore variable				
Period	**Zscore**	**FII**	**INF**	**Other variables**
1	100	0.000	0.000	0.000
2	97.391	1.760	0.608	0.242
3	95.544	3.359	0.633	0.465
4	94.732	3.881	0.702	0.685
Variance decay of the FI variable				
Period	**Zscore**	**FII**	**INF**	**Other variables**
1	0.444	99.556	0.000	0.000
2	11.556	88.407	0.022	0.015
3	16.505	83.336	0.144	0.016
4	17.925	81.739	0.321	0.016
Variance decay of the INF variable				
Period	**Zscore**	**FII**	**INF**	**Other variables**
1	0.002	0.007	99.99	0
2	11.646	0.039	84.314	4.002
3	15.456	0.035	79.185	5.324
4	15.631	0.045	78.181	6.142

The variance decay across countries reveals significant interdependencies among FI (FII), FS (Zscore), and inflation (INF). Specifically, the Zscore variable largely explains its own variance at approximately 96.92%, with FII contributing 2.25%, INF accounting for 0.49%, and the remaining variables explaining 0.348% (averaged over four periods). Similarly, FII's variance is primarily explained by itself at about 88.25%, with Zscore explaining 11.61%, INF contributing 0.121%, and the remaining variables explaining 0.01%. As for INF, its variability is predominantly explained by itself, while Zscore and FII contribute 10.68% and 0.03%, respectively. These findings underscore the close interrelationship among FI, FS, and inflation.

5. Conclusions and policy implications

5.1. Conclusion

Researching the relationship between FI, inflation and FS in 58 countries around the world in the period 2004-2022 using the PVAR method, the results of the push reaction function show that FS is related to FS. disobedient officials. with FI and inflation rate, while FI has a positive correlation with inflation rate. This implies that increasing FI will increase financial instability leading to long-term inflation. The variance decomposition results show that FI, FS and inflation are closely related to each other.

5.2. Policy implications for Vietnam

This study provides in-depth information for financial institutions and governments to develop appropriate financial development strategies, refine legal frameworks, and thereby enhance FS across the entire system, enabling effective monetary policy implementation. Countries should implement policies to promote comprehensive economic growth, such as investing in underserved communities, supporting small and medium-sized enterprises, and fostering entrepreneurship among vulnerable groups, thereby expanding comprehensive FI to drive economic growth. Nations should invest in financial infrastructure, including banking networks, financial markets, public financial mechanisms and payment systems to enhance access to finance for businesses and individuals. Additionally, maintaining low inflation is a prerequisite for promoting FS.

Some lessons learned for Vietnam include the following: Allocating additional transaction devices for bank cards in areas with difficult conditions, expanding the installation of ATMs with deposit functions, and issuing cards to facilitate customers' needs for card issuance or depositing funds into accounts to serve card payment transactions; Additionally, expanding partnerships and waiving or reducing transaction fees at ATMs of banks outside the system to create favorable conditions for customers of other banks to use ATMs of different banks for transactions. To ensure FS in Vietnam, policymakers and regulators need to control the supply of finance to individuals and businesses more effectively to limit excessive financial consumption. Additionally, research suggests that policymakers should implement appropriate policy measures before enacting financial policies, enhance the effectiveness of their banking sector by monitoring credit standards, and improve credit assessment procedures and lending practices for their customers.

References

Amatus, H., & Alireza, N. (2015). Financial inclusion and financial stability in Sub-Saharan Africa (Ssa). *International Journal of Social Sciences*, *36*(1), 2305-4557.

Anatolyevna, M. I., & Ramilevna, S. L. (2013). Financial stability concept: main characteristics and tools. *World Applied Sciences Journal*, *22*(6), 856-858. https://doi.org/10.5829/idosi.wasj.2013.22.06.609

Anarfo, E., Osei, K. A, Abor, J. Y. & Dako, A. G. (2019). Monetary Policy and Financial Inclusion in Sub-Sahara Africa: A Panel VAR Approach. *Journal of African Business, 20*(4), 549-572. https://doi.org/10.1080/15228916.2019.1580998

Arshad, M. U., Ahmed, Z., Ramzan, A., Shabbir, M. N., Bashir, Z., & Khan, F. N. (2021). Financial inclusion and monetary policy effectiveness: A sustainable development approach of developed and under-developed countries. *Plos One*, *16*(12), e0261337. https://doi.org/10.1371/journal.pone.0261337

Barik, R. & Pradhan, A. K. (2021). Does financial inclusion affect financial stability: evidence from brics nations? *The Journal of Developing Areas*, *55*(1), 341-356. https://doi.org/10.1353/jda.2021.0023

Bagehot, W. (1873). Lombard Street, Homewood, IL: Richard D. *Irwin,(1962 Edition)*, 128-138.

Bofondi, M., & Gobbi, G. (2003). Bad loans and entry in local credit markets. *Bank of Italy*.

Bourainy, M., Salah, A. and Sherif, M. (2021) Assessing the Impact of Financial Inclusion on Inflation Rate in Developing Countries. *Open Journal of Social Sciences*, 9, 397-424. . https://doi.org/10.4236/jss.2021.91030

Danisman, G. O. & Tarazi, A. Financial inclusion and bank stability: evidence from Europe. *The European Journal of Finance, 26*(18), 1842-1855. https://doi.org/10.1080/1351847X.2020.1782958

Dienillah, A., Anggraeni, L., & Sahara, S. (2018). Impact of Financial Inclusion on Financial Stability based on Income Group Countries. *Buletin Ekonomi Moneter Dan Perbankan*, *20*(4), 429-442. https://doi.org/10.21098/bemp.v20i4.859

Dauda, R. O. (2022). Impact of financial inclusion on the effectiveness of interest rate channel of monetary policy transmission in West Africa. *Journal of Emerging Economies and Islamic Research*, *10*(1), 60-75. https://doi.org/10.24191/jeeir.v10i1.15783

Dos Santos, P. (2009). On the content of banking in contemporary capitalism. *Historical Materialism*, *17*(2), 180-213. https://doi.org/10.1163/156920609X436171

Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *The review of Economic Studies*, *51*(3), 393-414. https://doi.org/10.2307/2297430

García, M. J. R. (2016). Can financial inclusion and financial stability go hand in hand?. *Economic Issues*, *21*(2), 81-113.

George, A. (1970). The market for 'Lemons': Quality uncertainty and the market mechanism. *Quarterly Journal of Economics*, *84*(3), 488-500.

Jungo, J., Madaleno, M., & Botelho, A. (2022). The relationship between financial inclusion and monetary policy: a comparative study of countries' in Sub-Saharan Africa and Latin America and the Caribbean. *Journal of African Business*, *23*(3), 794-815. https://doi.org/10.1080/15228916.2021.1930810

Maher, S. (2022). *Financial Inclusion and Monetary Policy – Investigating the Relationship between Financial Inclusion and Monetary Policy: The Case of Egypt*. The American University in Cairo. https://fount.aucegypt.edu/etds/1856

Matsebula, V., & Sheefeni, J. (2022). Financial Inclusion and Macroeconomic Stability in South Africa. *International Journal of Economics and Financial Issues*, *12*(4), 56–64. https://doi.org/10.32479/ijefi.13053

Mbutor, O. M., and Uba, I. A. (2013). The impact of financial inclusion on monetary policy in Nigeria. *Journal of Economics and International Finance*, *5*(8), 318-326.

Lapukeni, A. F. (2015). The impact of financial inclusion on monetary policy effectiveness: the case of Malawi. *International Journal of Monetary Economics and Finance*, *8*(4), 360-384. https://doi.org/10.1504/IJMEF.2015.073229

Morgan, P., & Pontines, V. (2014). *Financial Stability and Financial Inclusion*. East Asian Bureau of Economic Research.

Neaime, S., & Gaysset, I. (2017). Sustainability of macroeconomic policies in selected MENA countries: Post financial and debt crises. *Research in International Business and Finance, 40,* 129-140. https://doi.org/10.1016/j.ribaf.2017.01.001

Olusegun, T. S., Evbuomwan, O., & Belonwu, M. C. (2021). Does Financial Inclusion Promote Financial Stability in Nigeria? *Central Bank of Nigeria Economic and Financial Review*, 59, 77-99.

Oanh, T. T. K., Van, L. T. T., & Dinh, L. Q. (2023). Relationship between financial inclusion, monetary policy and financial stability: An analysis in high financial development and low financial development countries. *Heliyon*, *9*(6), e16647. https://doi.org/https://doi.org/10.1016/j.heliyon.2023.e16647

Oanh, T. T. K. (2024). Digital financial inclusion in the context of financial development: Environmental destruction or the driving force for technological advancement. *Borsa Istanbul Review, 24,(*2), 292-303. https://doi.org/10.1016/j.bir.2024.01.003

Seth, R. & Kalyanaraman, V. (2017). Effect of Financial Development on the Transmission of Monetary Policy. *Theoretical Economics Letters, 7,* 795-813. https://doi.org/10.4236/tel.2017.74058

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), 34-46. http://dx.doi.org/10.14453/aabfj.v12i1.3

Simon, N. & Gaysset, I. Financial inclusion and stability in MENA: Evidence from poverty and inequality. *Finance Research Letters*, 24, 230-237. https://doi.org/10.1016/j.frl.2017.09.007

Smadi, M. O. A. (2018). The role of financial inclusion in financial stability: Lesson from Jordan. *Banks and Bank Systems*, *13*(4), 31-39. https://orcid.org/0000-0002-5100-7910

Trần Thị Kim Oanh, Dĩnh Lê Quốc (2023). Mối quan hệ giữa giá vàng, chỉ số thị trường chứng khoán và tỷ giá tại Việt Nam: nghiên cứu trong bối cảnh đại dịch Covid-19 và xung đột chính trị Nga-Ukraina [The relationship between gold prices, stock market indices and exchange rates in Vietnam: a study in the context of the Covid-19 pandemic and the Russia-Ukraine political conflict]. *Tạp chí Kinh tế và Phát triển, 308*(2), 81-91.