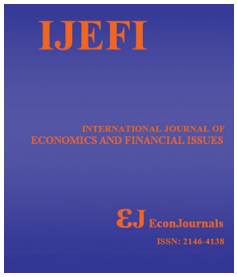

International Journal of Economics and Financial Issues

ISSN: 2146-4138

available at http: www.econjournals.com

International Journal of Economics and Financial Issues, 2022, 12(6), 30-37.

Examining the Effect of Financial Markets Shocks on Financial Stability in South Africa

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Received: 23 July 2022 **Accepted:** 21 October 2022 **DOI:** https://doi.org/10.32479/ijefi.13452

ABSTRACT

The paper analyzed the impact of financial market shocks on financial market stability. The goal was achieved by employing quarterly time-series data spanning from 2003:Q1 to 2020:Q4. The study used various econometric techniques such as stationarity, determining optimal lag length, cointegration analysis, estimating a vector error correction model, impulse response functions and forecast error variance decomposition. Following this, the long run relationship amongst the variables was established. The findings revealed that inflation has a negative impact on financial stability in both the short and long run. Lastly, it was only the shocks in economic activities that was found to have a significant impact on financial stability.

Keywords: Financial Stability, Financial Markets, Money Supply, Consumer Price Index
JEL Classifications: B22, G10, C10

1. INTRODUCTION

In The financial market is an integral part of any vigorous and well-functioning economy (Evans and Moten, 2011). Sub-Saharan countries, such as South Africa, have witnessed the deepening of financial systems and increased prominence of the financial market over the past years, partially driven by improvements in the institutional finance framework and increased demand (Andrianaivo and Yartey, 2010). However, South Africa's financial market and global investment landscape continue to be pressured by uncertainty arising from social and economic impediments as well as geopolitical factors (Ernst and Young, 2017). Moreover, South Africa's post-crisis recovery and growth performance following the global financial crisis of 2008/9 has been relatively weak (Mminele, 2017).

Most recently, the financial markets reacted to the expected effect on economic activity of the public health measures to contain Covid-19 and the uncertainty around their scope and duration. Since then, there have been very large and sudden changes in a range of financial asset prices. Schnabel (2020) attested that, market liquidity deteriorated, and volatility was greater than in the global financial crisis. In financial markets, a flight to safety devolved into an abrupt and dramatic rush for cash, in which investors sold off even safe assets like long-term government bonds in favour of short-term, highly liquid assets. This represented several fundamental market difficulties.

The Bank of England (2020) stated that, non-banks tried to raise cash to meet margin calls on derivative positions, leveraged investors withdrew from government bond markets, and dealers stepped back from repo markets. Selling pressure in bond markets became acute Investors seeking liquidity were forced to sell assets and make redemptions from money market funds. Other open-ended funds experienced large redemptions, indicating there may have been potential incentives to redeem investments ahead of others.

The presence and persistence of shocks that affect the economy and financial stability includes political, monetary and macroprudential

shocks. According to Greenwood-Nimmo and Tarassow (2016), financial fragility is prone to contractionary monetary policy shock. While it is necessary to have easy financial conditions for a protracted period to sustain economic recovery, this may lead to extreme stretch of asset valuations and could exacerbate financial vulnerabilities (International Monetary Fund, 2021). This study examines the impact of financial market shocks on financial stability in South Africa.

2. LITERATURE REVIEW

2.1. Theoretical Literature

In the theoretical context of macroeconomic administrative capacity, Schinasi (2006) indicated that real economic performance depends on stability of the financial system. Moreover, if the state of financial system is stable, it can offer administrative solutions in controlling risks of financial imbalance that may result amid adverse phenomena. Despite the likelihood of economic shocks, it is imperative to safeguard the functioning and performance of real economic system, as far as the macroeconomic administrative capacity is concerned (Mishkin, 1999). Also, the normal flow of economic activities is susceptible to macroeconomic financial shocks, therefore preventing the financial system motion of channelling funds towards productive opportunities. Seitan (2015) contends that the ability of the financial system to tolerantly absorb the real economic and financial shocks is one of its defining features. Aside from that, financial risks need to be accurately measured, evaluated, and managed.

Theoretically, financial markets are intended to serve the real economy. However, the pursuit of market efficiency pertaining to completeness might erode financial market stability as Marsili (2009) argues, after observing the conditions of perfect competition and symmetric information in the market. According to Jacobs and Swilling (2015), financial markets recently seem to be separated from the real economy, albeit their initial evolvement was to source the resources required for industrial investments and commercial enterprises. That being on the spotlight, according to Seitan (2016), liberalization of the capital account in economies with stiff real wages was what caused an excessive number of resources to be directed toward the highly capitalized industries. As a result, replacing labour with capital during industrial activities will make resource allocation worse.

Against the theoretical background discussed thereof, Schinasi (2006) cited the need to prevent imbalances and instability in the financial market by identifying and analysing stability risks, and potential sources and vulnerability in the financial system. Thus, suggesting the availability of relevant mechanisms and policy tools to remedy the situation and ensure financial market stability, especially because shocks may arise at any time without even being anticipated. In supplement to the discoursed theoretical background thereof, the selected theories discussed below are, the legal theory of finance; the market hypothesis theory; and the Capital Asset Pricing Model.

The legal theory of finance has been proposed by Katharina Pistor contending that, financial markets are constructed legally. As Weber (2016) observed that, in times of crisis the hierarchy of the financial system features a hierarchy with respect to the vindication of property rights. Therefore, financial stability is regarded as a public good. Hence, there should be robust social responsibility in financial markets. According to Goodhart and Tsomocos (2006), it is important to incorporate the probability of default and bankruptcy into the analysis of financial stability. The author highlighted the dynamic implications of financial distress and bankruptcy law, indicating that endogenous cycles are triggered by the impact of liquidations on the capital goods price awing to financial imperfections.

The financial market theory termed efficient market hypothesis stipulates that the market price of a financial asset reflect all known information incorporated into the system. Hence, Malkiel (2003) coined out the idea of random walk pertaining to efficient market hypothesis, implying that unimpeded flow of information reflects immediately in stock prices. In its nature, the financial market behaves in a random way. Hence the association with the random walk theory. Therefore, it is somewhat not possible for any of the investors to utilize historical prices of the stock/security to predict future prices nor profit via technical analysis (Amoah and Korle, 2020). As Goodhart and Tsomocos (2006), stated, demand and supply are the key factors that influences the asset prices in the competitive market with rational investors. The unpredictability of stock market prices is attributed to new information, particularly news which by nature are not predictable.

The efficient market hypothesis is categorized into weak form, semi-strong form, and strong form; based on the level of information reflected in the market prices. Firstly, the weak form implies that stock prices incorporate all past price information quickly, and that everyone has the knowledge of past movement of market price. Secondly, semi-strong form states that market prices incorporate information that is publicly available. Therefore, making it impossible for technical analyst nor fundamental analyst to assist investors to outperform the market. Thirdly, the strong form implies that all private and public information is incorporated into market prices.

The Capital Asset Pricing model (CAPM) focuses on the investment decisions, which depends on the macroeconomic environment. The idea is that prices of the assets are not affected by all risks. According to Perold (2004), the development of CAPM emerged during a period when theoretical foundations of decision making under uncertainty were comparatively new. The CAPM relates the asset return, discounted at a risk averse rate, and is explained by the market return with the same discount rate (Ganz et al., 2020). The equation below represents the CAPM, which was developed by Sharpe, Mossin and Lintner in 1960 s:

$$E\left(Ri\right)=r+\beta i\left[E\left(Rm\right)-r\right]$$

Where $E\ (Ri)$ is the expected rate of return, and R is the rate of return.

This equation provides the expected return of a security in terms of its risk, expected market return and the riskless rate. As discovered

by Horenstein (2021), assets that exhibits low realised CAPM alphas outperform those with high alphas. By definition, alpha is an estimator of the future performance of an asset post-adjustment for risk. An investor realizes higher returns at lower risk by holding an index when alpha is positive.

2.2. Empirical Literature

This section provides the review of empirical literature to capture various results discovered regarding financial market shocks and financial market stability. As revealed in the literature, financial shock as one of the key macroeconomic variables that gained traction amid policy debates, especially after the global financial crisis. The relevant studies are discussed in the below paragraphs, and discussion ultimately lead to the provision of the research gap and Takawira and Mwamba (2021) examined the effects of sovereign ratings on financial stability in South Africa for the period spanning from 1999 to 2018, using quarterly data. The study thereof made use of stepwise linear regression model and Structural Vector Auto-Regression (SVAR) model to appraise the effect of shocks that were not expected. The chief shock to financial stability discoursed by Takawira and Mwamba (2021) concerns the sovereign credit ratings. Therefore, the Principal Component Analysis (PCA) was additionally applied to create the indices for sovereign credit rating (SCRI) and rating outlook. Consequently, financial stability was reported to be less influenced by SCRI and significantly affected by foreign debt and gross domestic product (GDP), also noting unemployment, household debt, balance of payment and interest rates as important variables of concern in this regard.

Balcilar et al. (2021) assessed the connection between uncertainty in the economy and conditions of the financial market in South Africa, using non-linear VAR. The study acknowledged that macroeconomic implications of an uncertainty shock is different across financial regimes. It was found that deterioration of output because of uncertainty shock is critically important during normal periods than during stressful periods. Nevertheless, uncertainty shocks have been discovered to be inflationary in both regimes, with the impact being greater in the stress regime. While the study did not specify the period assessed and the type of data incorporated into the model, the findings are important and relevant for the analysis of literature. According to IIesanmi and Tewari (2020), the financial stress indicator (FSI) reflects the systemic nature of financial instability and measures the vulnerability of the financial system to external and internal shocks. This has been highlighted in their study that developed a financial stress indicator for the financial market in South Africa using the principal component analysis (PCA). Additionally, a recursive Vector Autoregression (VAR) model was applied to estimate the impact of financial stress on investment and output. Consequently, it was found that investment and economic growth are negatively affected by the manifestation of financial stress. Hence, the FSI serves as a useful tool to gauge the effectiveness of government policies aimed at mitigating the impact of financial stress.

Globally, Carvallo and Pagilacci (2016) investigated shocks that illuminates financial stability and house prices in Venezuela. The study observed that tight monetary conditions appreciated domestic currency and skyrocketing interest rates are associated with a surge in financial instability. Though, the methodology applied, and period of analysis were not clearly signified, the findings suggested the need for macroprudential prescription to stabilize the bank funding.

Since shocks to the financial markets lead to volatility, it is important and relevant to review the study relating to the impact of financial development on volatility and channels through which finance influence volatility. Thus, Ibrahim and Alagidede (2017) assessed 23 sub-Saharan African countries for the period 1980–2014 using the newly developed panel cointegration estimation strategy. The results discovered that, financial developments affect business cycle volatility in a non-linear fashion, and that well developed financial sectors dampen volatility. The strengthening of financial sector supervision and cross-border oversight emerged as key recommendations of the study, indicating the cruciality of those two in examining the right levels of price and finance stability in the interest of faltering economic fluctuations.

Among the empirical studies in relation to the variables under investigation, some have used a theoretical approach. A couple of them are discussed in this paragraph. Firstly, Leventides et al. (2019) evaluated the resilience of financial systems to exogenous shocks, deploying the techniques from the theory of complex networks. The fragility of several network topologies was investigated by means of Monte Carlo simulation using a simple default model of contagion applied on interbank networks of varying sizes. An important contribution of the theoretical study thereof was the analyses of the interplay of several crucial drivers of interbank contagion, like inter alia, network topology, interconnectedness, leverage, and heterogeneity. Secondly, Sary et al. (2015) used the network theory to develop a dynamic model that applies a bipartite network of banks and their assets to analyze the sensitivity of the system to external shocks in individual asset classes. The case study of Venezuela banking system from 1998 to 2013 was applied into the model, capturing monthly changes in the structure of the system and the sensitivity of bank portfolios to different external shock scenarios as well as to identify vulnerabilities of the system and time evolution.

Alluding to lessons from the periods of financial instability, Genberg (2017) posited that, when financial markets are increasingly integrated and globalised, there might be potential threads for policy spill-over effects and transmission of shocks that may further jeopardise stability in the financial market. That being on the spotlight, a well-known global financial crisis (GFC) event that occurred in 2007/08 can be used as an example. In response to the crisis thereof, central banks in advanced economies (such as European central bank and US Federal reserve) have implemented expansionary polices to ensure that financial market is injected with liquidity to remain functional. As such, emerging market economies experienced capital inflows attributable to the "search for yield" phenomenon (Genberg, 2017). Thus, attesting to the point that, integrated financial markets are prone to policy spill-over effects and transmission of shocks. To reiterate, Mahajan (2018) have also made a point that, in the presence of robust global financial linkages, emerging markets are prone to an increased exposure to external shocks.

While multiple shocks to the financial system can be identified and discussed, the ultimate impact on the economy and financial market stability appears to be common. According to Zhou and Tewari (2019), various studies have utilised stock market index data in the context of GVAR model to simulate financial shock transmissions across national borders. As per Mahajan (2018) study, an attempt was made to gauge the nature and degree of integration of equity market in India, with the global financial market at the back of 2008 external shock. Zhou and Tewari (2019) cited a shadow banking system as a threat to financial stability.

The coronavirus decease (Covid-19) emerged as a health shock and transmitted to the global macroeconomy. Therefore, prompting the need for expansionary policies. However, a concurrent surge in global search for yield as stipulated by the Central Bank of Ireland (2021), causes valuations in certain market segments to be stretched and susceptible to vulnerability as far as adjustments in the global growth expectations are concerned. This provides evidence that shocks have greater impact on the financial market stability. Most importantly, it is worth mentioning the fact that financial markets are naturally fragile and volatile. In reaction to domestic and international news, there could be a dramatic rise/drop of prices in the financial market. It may even be worse when the news is politically related.

2.3. Literature Gap

The identification of research gap is based on the inadequacy regarding the specific periods and type of data utilized by most studies that contributed to the literature on various shocks to financial market stability. It is challenging to reach a conclusion noting the limitation of data and models applied in the recent literature. Therefore, there is a leeway to clearly incorporate specific type of data into various econometric techniques. Hence, this study makes use of quarterly time-series data, incorporated into multiple econometric techniques to ensure that results are relatively more robust.

3. METHODOLOGY

3.1. Model Specification and Estimation Approach

The estimated model was informed by recent empirical studies including Hoque et al., (2019), Mahajan (2018), Zhou and Tewari (2019). The estimated model, with a few modifications, can be expressed as:

$$FS = \alpha_0 + \beta_1 cpi_{t-1} + \beta_2 ms_{t-1} + \beta_3 gdp_{t-1} + \beta_4 geai_{t-1} + \beta_5 int_{t-1} + \beta_6 fcons_{t-1} + \beta_7 dum1_{t-1} + \beta_8 dum2_{t-1} + \varepsilon_t \quad (1)$$

Where

FS is financial stability proxied by credit to non-financial sector,

CPI is the consumer price index capturing the effects of inflation in the financial sector,

MS is money supply measured by broad money (M2),

GDP is the gross domestic product measuring the impact of domestic economic activity,

GEAI is the global economic activity index measuring the influence of the international economic activities,

FCONS is final consumption expenditure by the government measuring fiscal policy conduct,

*DUM*1 is a dummy variable to capture the shock of the 2008 financial crisis,

*DUM*2 is a dummy variable to capture the effects of the 2016 sovereign debt crisis on the South African financial system and,

ε_t is the error term.

There are several financial market indicators which have been previously used as a proxy for financial stability. This includes credit to non-financial firms, capital adequacy, liquidity ratio and market volatility, amongst others (Gadanecz and Jayaram, 2009, Baum et al., 2017). The inclusion of Interest rates, Money supply and Inflation in the model was to capture the effect of monetary policy conduct on financial market stability. Similarly, the inclusion of Final consumption expenditure by the government was to capture the influence of government conduct on financial stability. Economic activities taking place at a global level may likewise have an influence on the domestic financial system through spill-over effects, hence the inclusion of the Global economic activity index developed by Lutz Kilian in 2009.

The study followed the below estimation approach in relation to achieving the primary objective of the impact of financial market shocks on financial stability. Firstly, the unit root tests was conducted in order to determine the order of integration. This is achieved by making use of the Kwiatkowski, Phillips, Schmidt, and Shin test (KPSS). This was followed by determining the stability condition as well as the optimal lag length for the VAR model. Furthermore, the cointegration test was conducted using the Johansen cointegration test before estimating a vector error correction model (VECM). For the robustness of the model, the study employed the diagnostic tests, lastly the study also considered impulse response analysis and variance decomposition.

3.2. Data and Sources

The study made use of quarterly time-series data collected from several secondary data servers including the South African Reserve Bank online statistical query and St Louis Federal Reserve database. The period ranged from 2003Q3 to 2020Q4. The variables are credit to non-financial firms, consumer price index, money supply, gross domestic product, global economic activity index, interest rate and final consumption expenditure by the government.

4. EMPIRICAL RESULTS

4.1. Stationarity Analysis

Table 1 above shows that the order of integration of the variables is a mixture of I(0) and I(1). The unit root analysis indicated that the variables credit to non-financial sector, consumer price index, financial consumption expenditure by government and gross domestic products are all integrated of order zero. This is to say they are stationary at level. On the contrary, the variables global economic activity index, interest rate and money supply are integrated of order one.

4.2. Lag Order

This process is extremely crucial in econometric analysis to ensure that the correct number of lags is specified in the model as well as to ensure that the model is not over-fitted. The results are provided in Table 2.

The three common information criterions utilized include the Akaike information criterion, Schwarz information criterion and Hannan-Quinn information criterion. However, this study make use of the Schwarz information criterion. The number of lags recommended by the Schwarz information criterion is one. The downside of utilizing information criterions with a higher lag length is a loss in degrees of freedom.

4.3. Cointegration Analysis

The Johansen cointegration analysis was conducted in order to determine whether to estimate a restricted or an unrestricted VAR. The results are given in Table 3 above. The results shows that there is cointegration because both the trace statistic and max-eigenvalue have greater calculated values than the critical values at the 5% level of significance. This is indicative of a long run relationship and thus, the null hypothesis of no cointegration is rejected against the alternative hypothesis of cointegration. Given these findings, the appropriate step would be to estimate the vector error correction model.

4.4. Vector Error Correction Model

Table 4 shows that the consumer price index, which is a proxy for price stability, has a negative impact on financial stability. Meanwhile, final consumption spending by government and gross domestic product are found to have a positive impact on financial stability. To make sense of this, government spending stimulates the economy bringing about balanced and sustainable growth, at least in the short run. When the economy is performing well, market participants rely less on credit and more on generated income. This places less pressure on the financial system. In the long run however, the consequence of increased government spending is an increase in the general level of prices, provided national output fails to match the monetary injection by government.

Money supply and interest rates as monetary policy instruments were likewise found to exhibit a positive impact on financial stability. This is indicative of the effectiveness of monetary policy tools in maintaining price and exchange rate stability and consequently, financial market stability. Dummy 1, which is a proxy for the 2008 global financial crisis, has a positive impact on financial market stability. The reasoning is that, during the

Table 1: Stationarity results

Variable	Model specification	KPSS		Order of integration
		Level	1st difference	
CNFS	Intercept	0.26	0.24	I (0)
	Trend and intercept	0.08	0.16	
CPI	Intercept	0.16	0.10	I (0)
	Trend and Intercept	0.13	0.09	
FCONS	Intercept	0.46	0.29	I (0)
	Trend and Intercept	0.04	0.29	
GDP	Intercept	0.21	0.30	I (0)
	Trend and Intercept	0.11	0.30*	
GEAI	Intercept	0.81*	0.15	I (1)
	Trend and Intercept	0.15*	0.15	
INT	Intercept	0.27*	0.33	I (1)
	Trend and Intercept	0.19*	0.27	
MS	Intercept	0.49*	0.14	I (1)
	Trend and Intercept	0.12*	0.06	

Author's computations, Asterisk *and **Rejection of the null hypothesis at 10% and 5% level of significance, respectively. KPSS: Kwiatkowski, Phillips, Schmidt, and Shin test

Table 2: Optimal lag length selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	−1452.16	NA	2.71e+08	44.96	45.26	45.08
1	−1156.14	500.96	371090.1	38.34	41.35*	39.53
2	−1066.48	126.91	325632.1	38.07	43.79	40.33
3	−987.37	90.06	506398.9	38.13	46.56	41.46
4	−872.83	98.68	421026.8	37.10	48.24	41.49
5	−652.87	128.59*	33970.16	32.83	46.68	38.29
6	−343.89	95.07	1643.80*	25.81*	42.37	32.35*

Source: Author's computations. *Lag order selected by the criterion. LR: Sequential modified LR test statistic, FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion, HQ: Hannan–Quinn information criterion

Table 3: Johansen cointegration output

Unrestricted cointegration rank test (trace)				
Hypothesized	Trace 0.05			
Number of CE (s)	Eigenvalue	Statistic	Critical value	P**
None*	0.77	257.36	197.37	0.00
At most 1	0.54	155.61	159.52	0.08
At most 2	0.37	102.51	125.61	0.52
At most 3	0.31	71.40	95.75	0.67
At most 4	0.19	46.31	69.81	0.78
At most 5	0.18	31.32	47.85	0.64

Trace test indicates 1 cointegrating eqn (s) at the 0.05 level. *Rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) P-values

Unrestricted cointegration rank test (maximum Eigenvalue)				
Hypothesized	Max-Eigen 0.05			
Number of CE (s)	Eigenvalue	Statistic	Critical value	P**
None*	0.77	101.76	58.43	0.00
At most 1*	0.54	53.09	52.36	0.04
At most 2	0.36	31.12	46.23	0.71
At most 3	0.31	25.08	40.08	0.76
At most 4	0.19	14.99	33.87	0.97
At most 5	0.18	13.67	27.58	0.84
At most 6	0.14	10.25	21.13	0.72
At most 7	0.10	7.29	14.26	0.45
At most 8	0.00	0.11	3.84	0.74

Source: Author's computations. Max-eigenvalue test indicates 2 cointegrating eqn (s) at the 0.05 level. *Rejection of the hypothesis at the 0.05 level, **MacKinnon-Haug-Michelis (1999) P-values

Table 4: Vector error correction model estimates

Variable	Short-run coefficients	Long-run coefficients
CPI	−0.03** [−2.67]	−0.10** [−10.42]
FCONS	0.01 [0.20]	0.21** [3.47]
GDP	[2.81]	0.30** [3.20]
GEAI	−0.00 [−0.10]	0.00 [0.37]
INT	0.30 [0.52]	1.34** [3.06]
MS	0.00 [0.01]	0.31** [3.38]
D1	1.63 [0.63]	6.79** [4.98]
D2	−0.34 [−0.18]	−0.85 [−1.76]
C	−0.03 [−0.12]	−20.96
ECM	−0.37** [−2.80]	

Source: Author's computations, t-stat in parenthesis [ ]. ECM: Error correction model
Note: asterisk ** denote the level of significance at 5%

2008 global financial crisis, interest rates in emerging market economies, South Africa included, were relatively competitive than those in advanced market economies. As a result, capital inflows increased significantly and this to some extent, might have minimized the turbulence triggered by the financial crisis and provided relief to the South African financial system. The estimated speed of adjustment is 37%, indicating that 37% of disequilibrium are corrected in the long run. The R-squared value of 52% implies that at least 52% of the variations in financial stability (proxied by credit to non-financial firms) are explained by the independent variables. Thus, given the high r-squared value, it can be reasonably conclude that the model fits the data well.

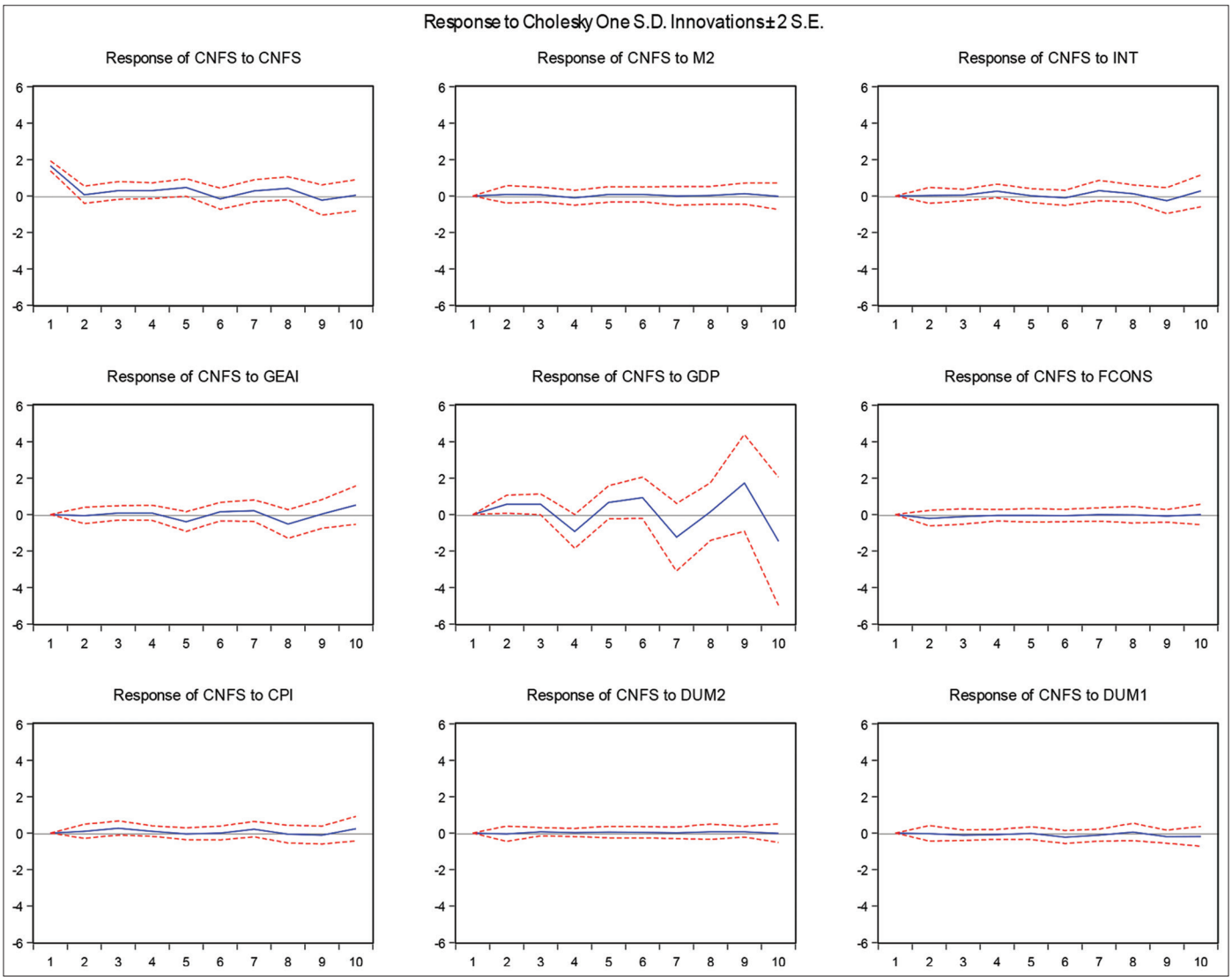
4.5. Impulse Responses

The impulse response function was performed to determine the reaction of endogenous variables when a shock is added to the error term. The findings are presented in Figure 1. From the analysis, the findings reveal that credit to non-financial firms responds positively to a one standard deviation shock although the response is minimal.

The response of credit to non-financial firms to shocks on inflation and money supply remains muted. This indicates that inflationary shocks have little to no effect on financial market stability. High inflation influences the financial market by eroding the value of returns. A similar trend can also be observed in respect of government conduct. Although there is a coordination between monetary policy and fiscal policy, it appears that shocks as a result of government conduct have a minimal impact on financial stability. In contrast, the response of credit to non-financial firms to a one standard deviation shock on interest rates is somewhat different. In the short run, the response is muted although in the long run the response is negative. The effects of the shocks in all cases appear to be temporary as they blue line always goes back to the initial equilibrium.

Interestingly, shocks as a result of economic activity as measured by the gross domestic product and global economic activity index are found to have a significant impact on financial stability both

Figure 1: Impulse responses



Source: Author's computations

Table 5: Variance decomposition

Period	SE	CNFS	M2	INT	GEAI	GDP	FCONS	CPI	DUM2	DUM1
1	1.65	100.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	1.76	87.64	0.18	0.01	0.11	10.28	1.42	0.27	0.06	0.02
3	1.90	77.53	0.29	0.06	0.27	17.42	1.55	2.28	0.18	0.39
4	2.16	61.81	0.48	1.56	0.38	31.91	1.24	2.00	0.15	0.44
5	2.34	56.43	0.52	1.34	3.07	35.25	1.09	1.73	0.18	0.37
6	2.54	48.35	0.54	1.32	3.00	43.08	0.98	1.47	0.18	1.06
7	2.88	38.71	0.43	2.07	2.87	52.35	0.76	1.66	0.14	1.00
8	2.96	38.51	0.41	2.10	5.79	49.68	0.73	1.60	0.19	0.97
9	3.46	28.66	0.42	2.12	4.25	61.43	0.58	1.28	0.18	1.06
10	3.81	23.61	0.34	2.26	5.34	65.26	0.48	1.45	0.15	1.10

Source: Author's computations

in the short run and long run. This is because, during economic downturns, the domestic country usually experiences capital flight as investors seek returns in competitive countries. This can have a huge knock-on effect on the financial system of the domestic country. Furthermore, a larger proportion of the population, especially the working class, relies heavily on credit facilities during economic downturns which can weigh heavily on the financial system due to an influx of credit applications and payment defaults. Thus, one can conclude that in South Africa, shocks as a result of economic conduct have a significant impact on financial market stability.

4.6. Forecast Error Variance Decomposition

Table 5 above presents the forecast error variance decomposition. In period 1, all of the variations in credit to non-financial firms are explained by its own shocks. This trend however gradually declines with time. For example, in period 3.77% of the variations in credit to non-financial firms are explained by its own shocks while in period 5, only 56% of the variations in credit to non-financial firms are explained by its own innovation and 44% of the variations are explained by explanatory variables. In period 10, typically the long run, 65% of the variations in financial stability are explained by shocks in domestic economic activity while 5% of the variations are explained by shocks in global economic activity. This indicates that shocks as a result of economic activity have a significant contribution to financial stability. Money supply and interest rates are found to explain a relatively smaller share of the shocks in credit to non-financial sector.

5. CONCLUSION

The primary goal of this study was to analyze the impact of financial market shocks on financial market stability. The goal was achieved by employing quarterly time-series data spanning from 2003:Q1 to 2020:Q4 on various econometric techniques. The initial analysis involved testing the variables for stationarity, determining optimal lag length, cointegration analysis, estimating a vector error correction model, impulse response functions and forecast error variance decomposition. Following this, the long run relationship amongst the variables was established using the Johansen cointegration test. In addition, the impact of selected macroeconomic variables on financial stability was estimated by means of the vector error correction model. The findings for the VECM revealed that inflation has a negative impact on financial stability in both the short and long run. In addition, the variables final consumption by government, economic activities, interest rate and money supply were found to positively affect financial stability in the long run. Interestingly, it was only the shocks in economic activities that was found to have a significant impact on financial stability.

As a result, the study contends that sound macroprudential policies might significantly aid emerging markets to strengthen resilience against the financial market shocks in a global scale. To maximize the benefits of macroprudential policies, policymakers should think about using a wide range of metrics rather than focusing on a narrow set of tools. Imposing capital controls to limit cross-border financial transactions does not appear to be a valid substitute to adopting a solid macroprudential framework.

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