

MACROECONOMIC VARIABLES AND SMALL AND MEDIUM-SIZED ENTERPRISES (SMES) RESILIENCE IN NIGERIA

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Abstract

This study investigated the relationship between macroeconomic variables and the resilience of small and medium-sized enterprises (SMEs) in Nigeria using a data from the Central Bank of Nigeria spanning 2000 to 2022. The study examined how inflation, exchange rates, and GDP impact SMEs by employing an ex-post-facto research design and ordinary least squares (OLS) econometric techniques. The results indicated that inflation and exchange rates exert a significant negative effect on SME resilience while the impact of GDP, though positive, lacks statistical significance. The study recommended supportive policies and an enabling business environment to bolster SME adaptability and sustainability in a volatile economic environment.

Keywords: Exchange rate, GDP, Inflation, SMEs resilience, Uncertainties rate

Introduction

The evolution of Small and Medium Enterprises (SMEs) resilience in uncertainties is one of the key research areas, especially when focusing on domestic activities in developing countries (Iborra, Safon, & Dolz, 2020). Many developing countries have been exposed to various economic uncertainties ranging from inflation, currency devaluation, conflicts, foreign exchange fluctuations and the pandemic (Ahiadorme, 2022). The economic environment in Nigeria has been characterised by inflation (Njindan Iyke & Odhiambo 2017) due to the over-dependence on oil revenues, excessive government expenditure and the devaluation of the Naira (Ikein, 2017). These factors, in turn, significantly impact the performance and survival of SMEs. For instance, the high exchange rate of the naira has resulted in increased costs of imported raw materials for SMEs, thereby reducing their profitability and competitiveness. Moreover, Nigeria's foreign exchange and GDP fluctuations have compounded SMEs' challenges (Adefolake & Omodero, 2022). Nigeria's over-reliance on oil exports for foreign exchange earnings makes the economy vulnerable to oil price shocks, leading to

drastic fluctuations in the country's GDP and foreign exchange rates (Fasanya et al., 2022). These fluctuations, in turn, create an unstable business environment for SMEs, affecting their ability to plan, invest, and grow (Mendy et al., 2021).

SMEs constitute about 90% of businesses in developing countries (Chege & Wang, 2020). They are vital to economic development, especially in Nigeria (Umukoro, 2021). SMEs in Nigeria have had to develop resilience due to the inherent uncertainties in the economy. Factors like currency devaluation, inflation, and fluctuations in the foreign exchange rate have forced SMEs to find innovative ways to remain operational (Itaman & Wolf, 2021). For instance, some have sourced local raw materials instead of relying solely on importation (Ijirshar, 2019). However, uncertainties present certain benefits for SMEs because it inspire innovation as SMEs seek new ways of doing business in response to changing circumstances (Eggers, 2020). COVID-19 prompted many SMEs to adopt digital technologies and develop new business models to survive reduced physical interactions (Amankwah-Amoah et al., 2021). The COVID-19 pandemic challenged SMEs to adapt quickly to unprecedented circumstances (Modgil et al., 2022). SMEs had to shift towards remote work arrangements, develop e-commerce platforms, and adjust their product or service offerings to meet changing consumer demands (Lashitew, 2023). Such adaptive capacities indicate the resilience characterising SMEs in Nigeria and other African economies.

Given the importance of SMEs, there are abounding studies on the barriers and benefits of uncertainties in SMEs (Gandhi, Thanki, and Thakkar 2018; Verreyne et al. 2019, Etemad 2020; Cheffi et al. 2021; Dheer and Salamzadeh 2022). Despite the breadth of existing research, little is known about SMEs' resilience amidst uncertainties. This study filled this gap by investigating how Nigerian SMEs have developed resilience over time in the face of uncertainties. Likewise, prior research Sinkovics, Kurt, and Sinkovics (2018); Doan, Le, and Tran (2020); Eggers (2020); (Klein & Todesco, 2021);

Sharfaei, Wei Ong, and Ojo (2023) considered the challenges of economic uncertainties in SMEs. Against this backdrop, this study investigated the relationship between macroeconomic variables and the resilience of small and medium-sized enterprises (SMEs) in Nigeria using a data from the Central Bank of Nigeria spanning 2000 to 2022.

Literature Review

SMEs form a vital sector of the economy in low and middle-income countries like Nigeria, Botswana, and India and high-income countries like the United Kingdom, the United States and China (Kaplinsky & Kraemer-Mbula, 2022). They represent approximately 96% of all businesses in Nigeria, with nearly 90% in the industrial and manufacturing sectors (Eniola & Entebang, 2017). Factors such as difficulty accessing credit, and unstable economic conditions due to inconsistent government policies are general challenges for SMEs in developing countries (Bi & Zhang, 2023). While, infrastructure deficiency, soaring operating costs, and lack of government support limit the survival of Nigerian SMEs (Bakhtiari et al., 2020). Recognising these challenges SMEs face in Nigeria, various programmes have been initiated by the government to spur SMEs' growth since the country's independence because of the significant role of SMEs in the economy. These efforts have led to considerable resource allocation to advance this sector (Bi & Zhang, 2023). However, despite the substantial investment, SMEs' contribution to Nigeria's GDP remains minimal, and their growth has been less than robust (Effiom & Edet, 2022).

SMEs Resilience

The capability of SMEs to adapt, survive and grow in the face of shocks and disruptions epitomises SMEs' resilience (Otache & Usang, 2022). Understanding this concept evolves from the broader field of organisational resilience, which focuses on an organisation's ability to withstand adversity (Hillmann & Guenther, 2021). However, SMEs are distinct due to their unique characteristics, such as their limited resources, dynamic capabilities, and the often close relationship between the business, its owner and other SME operators within a locality (Miklian & Hoelscher, 2022).

Geographically, SMEs in Nigeria are spread across different zones, forming clusters (Oluwale et al., 2013). Notable clusters include the computer village (Ikeja ICT) cluster in Lagos State (West); Aba's fabric and leather industry in Abia State (East), and the Nnewi vehicle cluster in Anambra State (East), among others (Umukoro, 2021). Despite their

geographical distribution, most SMEs in Eastern, Western, and Northern Nigeria are generally underfunded (Oyelaran-Oyeyinka, 1997).

SMEs' ability to absorb and transform in the face of uncertainties is vital for economic sustainability and growth (Denicolai et al., 2021). They are often more vulnerable to macroeconomic challenges than larger companies due to their limited resources and the higher risks associated with their operations (Eggers, 2020). Nevertheless, research has shown that SMEs could develop resilience through innovative business models, diversification, and building strong relationships with stakeholders (Mazzei, Flynn, and Haynie 2016; Evans et al. 2017; Richter et al. 2017; Hock-Doepgen et al. 2021; Khurana, Dutta, and Ghura 2022).

SMEs' resilience can be viewed through two perspectives: static and dynamic. The static perspective suggests that resilience is a property that a firm either has or does not have. In contrast, the dynamic perspective suggests that resilience is a process that develops over time in response to challenges (Brito et al., 2022). These perspectives are not mutually exclusive but are intertwined in the overall resilience of an SME (Do et al., 2022).

Gunasekaran, Rai, and Griffin (2011) assert that internal and external factors could influence SMEs' resilience. The internal factors include the firm's resources, capabilities, leadership, and culture. For instance, a firm with strong leadership and a culture of adaptability is more likely to be resilient in the face of adversity (Klein & Todesco, 2021). Similarly, SMEs with more resources are better equipped to handle disruptions, while those with diverse resources can better adapt to different types of disruptions (Saad et al., 2021).

The external factors that could influence SMEs' resilience include the business environment, such as market conditions, industry characteristics, and regulatory frameworks (Klein & Todesco, 2021). SMEs operating in volatile markets or industries may need more resilience to survive (Bondeli & Havensvid, 2022). Furthermore, favourable regulatory environments can support the resilience of SMEs by providing stability and predictability (Ali et al., 2017).

Macroeconomic Uncertainties

Considering macroeconomic uncertainties is vital in decision-making processes for SMEs based on their expectations about future economic conditions (Patel & Tsionas, 2022). The potential future states

of the economy are not yet known. These uncertainties can stem from unpredictable changes in key macroeconomic variables such as interest rates, inflation, unemployment, and economic growth (Elbanna et al., 2017). Uncertainty arises due to the lack of perfect knowledge about the future (Manfredi & Capik, 2022). In macroeconomics, uncertainties stem from the unpredictable nature of macroeconomic variables. These variables can be influenced by factors like government policies, technological innovations or global challenges (Shankar, 2020).

Government institutions like the Central Bank of Nigeria (CBN) often monitor the Nigerian macroeconomics to make informed decisions. This helps to manage the high levels of uncertainty that can lead to increased risk aversion among SME investors, leading to lower investment levels and potentially slowing down economic growth (Ghosal & Ye, 2015). Thus, understanding the sources and implications of macroeconomic uncertainties is crucial for managing economic stability (Freel, 2005). High uncertainties can lead to wait-and-see behaviour among SMEs, which can delay investment decisions and slow economic recovery during a downturn (Brodeur et al., 2021). Hence, policymakers need to consider macroeconomic uncertainties when formulating economic policies because it has significant implications for economic policies (Sohail et al., 2022).

One common macroeconomic approach is to use economic indicators, such as the volatility of stock market returns or the dispersion of economic forecasts, as proxies for uncertainty (Bakas & Triantafyllou, 2018). These indicators can provide valuable insights into the level of uncertainty in SMEs and its potential impact on economic development (Megaritis et al., 2021). It is important to note that these measures are not without limitations and may not accurately reflect the level of uncertainty in the real economy, particularly in evolving economies like Nigeria, where financial markets are less developed (Chittoor et al., 2015). Therefore, there is a need to probe the resilience potential of Nigerian SMEs in uncertainties.

SMEs Resilience and Inflation

One of the shocks that could impact SMEs by eroding their economic power, increasing operating costs, and affecting overall competitiveness is inflation (Kaya, 2022). However, SMEs are more susceptible to economic shocks than larger enterprises due to their resource limitations and vulnerability to market fluctuations (Laskovaia et

al., 2019). On the other hand, resilience in SMEs is crucial in mitigating the impacts of inflation and other economic shocks. The flexibility of SMEs, because they typically have less bureaucracy and more room for innovation, could be a strong point in counteracting inflationary pressures (Eggers, 2020). Their adaptability is a significant aspect of resilience (Shirokova et al., 2020). SMEs can swiftly shift production processes, products, or target markets in response to increased costs or changing customer behaviour due to inflation (Manfredi & Capik, 2022).

Generally, inflation increases the cost of inputs, such as raw materials, labour, and energy, which SMEs use in their production processes (Naughton et al., 2020). This cost-push inflation can reduce profitability and strain SMEs, particularly those with tight profit margins. SMEs often struggle to absorb cost shocks from inflation, reducing profitability and potentially leading to business failures (Gurbuz et al., 2023).

Inflation can also affect the prices of goods or services offered by SMEs. As costs rise, firms may need to increase their prices to maintain profitability (Boadi et al., 2017). However, demand-side factors, such as consumer sensitivity to price changes, can limit the ability of SMEs to pass on cost increases to customers. This inability to adjust prices can further strain SME resilience as they struggle to balance profitability and customer retention (Tran et al., 2017). Nevertheless, due to their scale and scope, SMEs often have less buff to cope with the adverse effects of inflation, making resilience a crucial characteristic for their survival. SMEs with diverse resources can better adapt to different types of disruptions that might arise from inflation (Brito et al., 2022).

SMEs Resilience and GDP

Countries with robust GDP are inclined to better stability because they have access to a growing domestic market mainly facilitated by SMEs for copious resources (Yong et al., 2022). Foreign exchange rates could determine a country's economic output through the resilience of SMEs (Sandberg et al., 2019). Hence, economic output could be substantially affected due to the risk and lack of resources posed by foreign exchange volatility (Alagidede & Ibrahim, 2017). Consequently, SMEs require resilience as they often lack the resources and expertise to effectively manage these risks that may arise from instability in foreign exchange (Klein & Todesco, 2021).

SMEs Resilience and Exchange Rate Volatility

Studies have revealed that SMEs could explore various strategies to mitigate foreign exchange risks to enhance resilience (Kamalahmadi and Parast 2016; Ali, Nagalingam, and Gurd 2017; Herbane 2019; Caballero-Morales 2021; Hu and Kee 2022). They could use natural hedging by matching their foreign currency revenues with similar currency expenses (Zhou et al., 2023). Financial instruments such as forward contracts and options, to hedge against foreign exchange risk are another strategy (Clapp & Isakson, 2018). These strategies require certain financial sophistication and may not be feasible for all SMEs. However, this dynamics could provide a buffer against fluctuations in foreign exchange rates and the associated risks (Kassouri & Altıntaş, 2020).

Theoretical Background

The resource-based view (RBV) provides an insightful lens to understand SMEs' resilience (Cooper et al., 2023). The RBV posits that firms' competitive advantage and survival depend on their unique resources and capabilities (Estensoro et al., 2022). For SMEs, resources such as flexibility, innovation, and entrepreneurial orientation are crucial in building resilience (Zighan et al., 2022). The RBV underscores the importance of resource allocation and capability development in enhancing SMEs' resilience amidst uncertainties.

Anchored in the RBV, the resilience of SMEs is seen as a dynamic process that necessitates constant adaptation to changing environments (Gunawan et al., 2016). It proposes that SMEs interact with their environment, and their survival or success depends on their ability to adapt and respond to environmental changes (Do et al., 2022). This perspective suggests that resilience is not a static attribute but evolves over time in response to changing circumstances (Ortiz-de-Mandojana & Bansal, 2016).

Methodology

The study adopted a census sampling technique where the population is the same as the sample size. This is because the variables adopted are macro in nature and cover the entire population. The target population for this research is the Nigerian economy. The study used data computed by the Central Bank of Nigeria in their Statistical Bulletin for the study. The data ranged from 2000 to 2022. An empirical model was analysed using the ordinary least squares (OLS) econometric techniques to ascertain SMEs' resilience amidst uncertainties in Nigeria. The ex-post-facto research design used in this study applies to management and social sciences. The researcher does not have the ability or opportunity to vary or manipulate the independent variables in an ex-post-facto study that uses secondary data (Sharma, 2019).

The selection of an appropriate econometric model is dependent on the current economic situation(s) and the availability of economic data about the variable(s) under consideration (Ullah et al., 2021). Essentially, the current study model is functionally expressed below:

$$SMEP_t = f(INFR_t, EXR_t, GDP_t) \text{-----} (1)$$

The multiple linear regression analysis model used is given as follows:

$$SMEP_t = \beta_0 + \beta_1 INFR_t + \beta_2 EXRT_t + \beta_3 GDP_t + \varepsilon_t \text{-----} (2)$$

Where:

$SMEP_t$ = SMEs resilience measured contribution of SMEs to the Nigerian economy

$INFR_t$ = Inflation rate at time t

$EXRT_t$ = Exchange rate at time t

GDP_t = Gross domestic product at time t

β_0 is the intercept

β_1, β_2 and β_3 are parameters to be estimated

ε_t = Error term

The a priori expectation is,

$\beta_0 > 0; \beta_{2,3} > 0; \beta_1 < 0$

This implies a positive relationship between the independent variables (exchange rate and Gross domestic product) and SMEs' resilience is expected. In contrast, a negative relationship between inflation and SMEs resilience is expected.

Results and Discussions

Table 1 below summarises the variables used in this research, such as their average, maximum, minimum, standard deviation, and Jarque-Bera (normality) test results. A total of 23 observations were captured for each variable, spanning a timeframe from 2000 to 2022, as detailed in the descriptive analysis.

Table 1: Descriptive Statistics

Variable	SMER	EXRT	GDP	INFR
Mean	0.448	198.291	5.430	13.072
Median	0.460	151.830	5.520	12.000
Max	0.500	425.410	14.600	23.800
Min	0.350	101.770	-1.920	6.600
Std Dev	0.050	100.513	3.867	4.294
Skewness	-0.761	1.146	0.106	0.840
Kurtosis	-0.814	-0.056	0.416	0.581
Jarque-Bera	2.705	4.469	0.044	2.403
Probability	0.259	0.107	0.978	0.301

Source: Authors' Computation from E-view 10.0.

The mean value of SMEs resilience as measured by SMEs contribution to the Nigerian economy is 0.448, with a median of 0.460. This suggests that, on average, SMEs contributed about 45% to the economy, with the distribution slightly skewed towards lower values (skewness of -0.76) indicating a longer left tail in the distribution. The minimum value observed was 0.35 while the maximum contribution was 0.50. The standard deviation of 0.0498 reflects relatively low variability. This signifies that the contribution of SMEs remained fairly consistent over the years. The negative skewness and kurtosis (-0.81) indicate a flatter distribution with fewer extreme values. The Jarque-Bera test statistic of 2.71, with a probability of 0.2586, suggests that the data does not significantly deviate from a normal distribution.

The exchange rate had a mean value of 198.29 with a considerable degree of fluctuation as evidenced by a high standard deviation of 100.51. The minimum and maximum values were 101.77 and 425.41, respectively which indicates a wide range of exchange rate variability over the period. The positive skewness (1.15) suggests that the distribution is right-skewed with a tendency for higher values, and the kurtosis near zero (-0.06) indicates a distribution close to normality. The Jarque-Bera statistic of 4.47 with a probability of 0.1070 is still within acceptable bounds for normality.

The mean real GDP growth during the period was 5.43%, with the median being slightly higher at 5.52%. This indicates that the Nigerian economy experienced positive growth on average, despite some negative growth periods as reflected by the minimum value of -1.92%. The relatively high standard deviation of 3.87 points to substantial variability in economic growth. The distribution is slightly right-skewed (0.11), and the kurtosis of 0.42 suggests a distribution with mild tails. With a Jarque-Bera statistic of 0.044 and a probability value of 0.978, the GDP data is very close to being normally distributed, reflecting a balanced economic trend over time.

Inflation had a mean of 13.07% indicating a moderate inflationary environment over the period. However, the data shows significant variability, with a standard deviation of 4.29%. The minimum and maximum values of 6.60% and 23.80%, respectively showed periods of both lower and high inflation. The positive skewness (0.84) suggests that higher inflationary periods were more frequent while the kurtosis (0.58) indicated moderate tail behaviour. The Jarque-Bera test statistic of 2.40 and a probability value of 0.3008 suggest no significant deviation from normality.

The Ordinary Least Squares (OLS) analysis is presented in Table 2 below:

Table 2:

OLS result

Dependent Variable: SMER

Method: Least Squares

Sample: 2000 2022

Included observations: 23

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INFR	-23.846	10.974	-2.173	0.035
EXR	-15.171	5.390	-2.815	0.012
GDP	1.097	0.655	1.675	0.112
C	2122.494	6103.773	0.348	0.732
R-squared	0.807	Mean dependent var		569.075
Adjusted R-squared	0.773	S.D. dependent var		225.877
S.E. of regression	107.508	Akaike info criterion		12.363
Sum squared resid	196485.900	Schwarz criterion		12.562
Log likelihood	-125.808	Hannan-Quinn criter.		12.406
F-statistic	23.762	Durbin-Watson stat		1.749
Prob(F-statistic)	0.000			

Source: Authors' Computation Using E-View Version 10.0

Table 2 showed that inflation rate ($\beta = -23.846$; $t = -2.173$; $p = 0.035$) and exchange rate ($\beta = -15.171$; $t = -2.815$; $p = 0.012$) have a negative and statistically significant impact on SMEs resilience. However, the relationship between GDP ($\beta = 1.097$; $t = 1.675$; $p = 0.112$) and SMEs resilience is positive but not statistically significant. The R^2 value from Table 2 is 0.807 and the adjusted R^2 value is 0.773 indicating a robust explanatory power of the variables under consideration. It can be inferred that nearly 77.3% of the changes in the resilience of SMEs can be attributed to fluctuations in the inflation rate, exchange rate, and GDP. As shown in Table 2, the F-statistics value is 23.7619, and its associated probability value is 0.000 which is highly significant. This result suggests that the inflation rate, exchange rate, and GDP collectively exert a significant influence on the performance of SMEs. Results in Table 2 showed that the Durbin-Watson Statistic is 1.749 which is close to 2. This indicates no autocorrelation issue in the model, suggesting that the model is suitable for reliable forecasting.

Practical Contribution and Policy Implications

This study contributes to the existing body of knowledge by providing insights into Nigerian SMEs' resilience in uncertainties. It identifies key strategies for enhancing business resilience, thus offering a roadmap to navigate uncertainties. SME owners can better equip their businesses to withstand economic shocks and market uncertainties by understanding these strategies.

Also, it provides valuable insights into the resilience-building strategies of SMEs in a volatile, uncertain, complex, and ambiguous business environment. The study would benefit SME owners and managers in Nigeria because it identifies the key strategies for enhancing business resilience by providing them with a roadmap to navigate uncertainties. Additionally, the study offers unique insights into the various resilience-building processes that have been successful in the Nigerian context. SME owners can better equip their businesses to withstand economic shocks and uncertainties by understanding these strategies.

Furthermore, this study can be a resource for policymakers and government agencies that aim to foster a more resilient SME sector. The findings could aid the design of targeted policy interventions to support SMEs' in managing unexpected occurrences. It provides insights for international organisations and donor agencies involved in SME development in Nigeria and other developing countries. By understanding the resilience mechanisms, these organisations can design more effective interventions and programmes tailored to SMEs' needs in low-income and middle-income countries.

Policymakers and stakeholders should strive to ease uncertainties by equipping SMEs with the tools and knowledge to transform challenges into growth opportunities. Also, to enhance the resilience of Nigerian SMEs, there is a need for supportive policies that will minimise the impacts of

uncertainties and provide an enabling environment for businesses to thrive. Similarly, the government and relevant institutions should facilitate an enabling business environment to enhance Nigeria's SMEs' resilience. Moreover, the appropriate authorities should formulate regulations promoting resilience in SMEs, especially during uncertainties. In addition, entrepreneurs and stakeholders should liaise with policymakers to establish a more robust institutional framework to encourage SMEs and offer support.

Conclusion and Recommendations

The adaptability of SMEs in Nigeria may be attributed to their inherent flexibility, a characteristic feature of smaller businesses, allowing them to respond more quickly to changing conditions. Nigeria's entrepreneurial culture contributes to resilience, as entrepreneurs often adopt innovative strategies to manage uncertainties and risks. Notwithstanding the challenges SMEs face in Nigeria, they have shown an ability to adapt to domestic and international economic changes. To effectively navigate uncertainties, the government should be more supportive of SMEs by providing infrastructures that would foster an environment for entrepreneurial innovation and resilience.

The Nigeria SMEs have demonstrated resilience in the face of global and domestic uncertainties. However, there is still a need for sustainable mechanisms structured to aid SMEs. To enhance managerial competence, SME owners and managers should understand how to adapt their businesses to changing economic conditions (such as increasing inflation rates) and exploit opportunities arising from such changes. Moreover, policymakers should put more extensive institutional frameworks and regulations in place to back entrepreneurs. Government institutions could significantly boost SME resilience during uncertainties by implementing favourable policies and providing support.

Further research is needed to develop and tailor strategies to support SMEs in navigating uncertainties effectively. Researchers could examine how SMEs can use digital technologies to manage uncertainties successfully. The contribution of prudent financial management during uncertainties to SMEs' resilience could be studied by Scholars.

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