GPH-International Journal of Business Management
(E-ISSN 3027-0537 || P-ISSN 3027-0375)
Volume 09 | Issue 10 | October 2026
Published by: Global Publication House
DOI: https://doi.org/10.5281/zenodo.23612386
Available online at: www.gphjournal.org
Journal homepage: https://gphjournal.org/index.php/bm/index

Global Financial Crisis and Export Performance in Nigeria: Evidence from Post-Crisis Dynamic Panel GMM Estimation, 1986–2025

Katherine Chinedu Andy-Onugbu[a]*, S. F. Udeorah[a], E. Nkoro[a]
[a] *Institute of International Trade and Development,*
Faculty of Social Sciences,
University of Port Harcourt,
Rivers State, Nigeria.
Corresponding Author: Katherine Chinedu Andy-Onugbu

Abstract

This study analysed the effect of the 2007–2009 global financial crisis (GFC) and the role of external financial factors in the Nigerian export trade. The secondary data used were annual time-series data from 1986 to 2025 from the Central Bank of Nigeria, National Bureau of Statistics, International Monetary Fund and the World Bank. Preliminary investigations revealed a mixture of I(0) and I(1) processes and that the variables are cointegrated in the long run according to the Johansen tests. The post-crisis export function was estimated using panel Generalized Method of Moments (GMM) with lagged regressors as instruments because of the likely endogeneity of the financial variables. The GFC dummy (0.370), cross-border capital flow (0.275) and the real effective exchange rate (−0.0015) were identified as significant predictors of exports at the 1% level, while the global financial conditions (contagion) index and the external vulnerability index were not. The Hansen J-test ($p = 0.233$) did not reject the null hypothesis of instrument validity and the Arellano–Bond AR(2) test ($p = 0.481$) revealed no second-order serial correlation. The results suggest that the crisis did not have a uniform depressing effect on aggregate exports since capital in-flow eased export performance whereas appreciation harmed competitiveness. The study recommends policies that promote exchange-rate competitiveness, steady long-term capital inflows, trade finance and diversification.

Keywords:

Global financial crisis; export trade; capital flows; real effective exchange rate; panel GMM; Nigeria.

JEL classification: F14; F32; F36; G01; C23.

Highlights

- The 2008 global financial crisis is associated with higher, not lower, aggregate Nigerian exports.
- Cross-border capital flow facilitates export trade in the post-crisis period.
- Currency appreciation decreases Nigeria's competitiveness in exporting goods.

© 2026 Author(s). Published by Global Publication House (GPH).
This is an Open Access article distributed under the terms of the CC BY 4.0 License.

- Global financial conditions and external vulnerability indices are found to be insignificant predictors.

1.0 Introduction

Since the mid-1980s, financial liberalization has intensified the integration of domestic financial systems with international capital markets and, consequently, the exposure of individual economies to cross-border financial shocks (Stiglitz, 2002; Reinhart & Rogoff, 2009). The 2007–2009 global financial crisis, which was triggered by the default of the United States sub-prime mortgages and accelerated by the bankruptcy of Lehman Brothers in September 2008, stands out as the most severe post-war financial shock. Its impact on international trade flows was unprecedented as the "great trade collapse" of 2008–2009 dwarfed the contemporaneous contraction in world output (Baldwin, 2009; Bems, Johnson, & Yi, 2013). The theoretical literature highlights two channels through which the crisis affected trade: the fall in aggregate demand in advanced economies (Eaton, Kortum, Neiman, & Romalis, 2016), with implications for import demand, and the credit- and trade finance-driven deterioration in trade flows (Amiti & Weinstein, 2011; Chor & Manova, 2012).

While most of the empirical literature uses data from advanced economies or pooled multinational datasets, limited work addresses the impact of the crisis on the export performance of a single developing country, particularly an oil-dependent economy. Nigeria is an interesting case as that country's exports are overwhelmingly dependent on a single source (oil), and the Nigerian economy has been vulnerable to capital flight, oil price fluctuations and exchange-rate volatility since the adoption of the Structural Adjustment Programme in 1986. At the same time, the Nigerian banking system was relatively insulated from the direct effects of the crisis, which differentiates Nigeria from emerging market economies more integrated with global capital markets (Allen & Giovannetti, 2011).

This study therefore examines the effect of the 2007–2009 global financial crisis and the role of financial channels in shaping the aggregate export trade of Nigeria between 1986 and 2025. The analysis makes three contributions to the literature. First, the paper provides long-run evidence for an oil-producing developing economy. Second, it considers several financial channels simultaneously (the direct impact of the crisis, cross-border capital flows, a global financial conditions or contagion index, external vulnerability and the real exchange rate) and not just one. Third, the study employs the GMM estimator with internal instruments to address potential endogeneity concerns and reports the standard Hansen and Arellano–Bond tests for model specification.

1.1 Statement of the Problem

Nigeria's export sector has been vulnerable to downfalls whenever global financial conditions deteriorated, despite the relative stability of the domestic financial system. The 2008 crisis is an illustration: according to the Central Bank of Nigeria (2010), non-performing loans peaked at 7.5% of the total loans in 2009, but the export earnings dropped by almost 35% (World Trade Organization, 2010). Similar patterns emerged in the 2014–2016 oil price crash and the COVID-19 pandemic of 2020. It appears that global financial conditions directly and adversely affect Nigeria's aggregate exports, which are dominated by oil.

The literature provides two theoretical viewpoints on the channels through which the financial crisis affects trade. The trade-finance view emphasizes the role of credit constraints in curtailing

export trade (Amiti & Weinstein, 2011; Chor & Manova, 2012), whereas the aggregate-demand view stresses the impact of a demand slowdown in advanced economies (Eaton et al., 2016). Both views have limited applicability to Nigeria because of the specific characteristics of Nigeria's export economy: the domination of commodity exports and the vulnerability of the Nigerian currency to external shocks. The discussion of Nigeria's experience is further complicated by the fact that most of the previous studies focus on a single factor (external debt, the exchange rate or oil prices) without attempting to isolate the relative contribution of crisis, capital flows, contagion, vulnerability and the exchange rate. The current study attempts to address this gap by providing evidence on the combined role of global financial conditions and financial flows in shaping Nigeria's export trade.

1.2 Objectives

(1) determine the impact of the global financial crisis on export trade in Nigeria;

The objective will be tested against the following null hypothesis: There is no statistically significant relationship between the global financial crisis and export trade in Nigeria at the 5% level.

2.0 Literature Review

2.1 Conceptual Framework

Global financial crisis: A global financial crisis is a system-wide disruption of financial intermediation that originates in one or several financial centers and affects the rest of the world through various channels. Often characterized by excessive speculation, Ponzi-type finance, and capital flight, a financial crisis undermines the ability of financial markets to perform their allocational functions (Kindleberger & Aliber, 2005; Reinhart & Rogoff, 2009). In this study, the crisis is captured by the binary variable that takes the value 1 from 2008 onwards and 0 before that.

Cross-border capital flow: Cross-border capital flows comprise foreign direct investments, portfolio investments and other investments and are an integral element of globalization. Surprises in capital flows, in particular their sudden stop or acceleration, are a major channel through which the global financial crisis reverberated in the Nigerian economy (Calvo, 1998; Forbes & Warnock, 2012). Net capital inflows are used as a proxy for cross-border capital flow in this study. They can have both positive and negative effects on the economy, facilitating imports and the expansion of enterprises or causing currency appreciation and trade deficits.

Global financial conditions (contagion) index: This proxy variable captures the cross-market correlations and volatility spillovers characteristic of a crisis period. It is a composite indicator that reflects the general extent to which financial markets and economies are integrated and how financial shocks are transmitted from one market to another (Rey, 2015; Forbes & Rigobon, 2002).

External vulnerability: This study uses an external vulnerability index to capture the tendency of Nigeria's economy to be exposed to and affected by external shocks. An external vulnerability index is a composite indicator that summarizes the state of a country's external position and its capacity to withstand financial stress (Frankel & Saravelos, 2012; Kaminsky & Reinhart, 1999).

Export trade: Export trade is the sale of goods or services produced in one country but purchased elsewhere. Real export trade, calculated at the market price and expressed in natural logs, is the dependent variable in this study. It is dominated by exports of crude oil and, to a lesser extent, by agricultural products, food and manufactured goods.

2.2 Theoretical Framework

The paper integrates three theoretical perspectives on financial crises and their impact on macroeconomic variables. First, the sudden stop theory (Calvo, 1998) states that financial crises often involve a sharp reduction in capital inflows to emerging markets economies as investors become risk-averse in response to a perceived deterioration in the fundamentals of the economies. A sudden stop leads to higher borrowing rates, a depreciation of the domestic currency and, consequently, to a deterioration in the balance sheet of businesses and households. In the Nigerian context, the crisis can be viewed as a sudden stop of capital inflows that reduced access to trade credit and portfolio equity. Second, Minsky's Financial Instability Hypothesis (Minsky, 1986). According to Minsky's Financial Instability Hypothesis, long periods of stability lead to excessive risk-taking by financial institutions and the creation of Ponzi finance schemes that eventually collapse and lead to a financial crisis. Nigeria's integration with the global financial markets, especially in the form of external debt, has made it vulnerable to the endogenous instability of the capitalist financial system. Third, the financial accelerator theory (Bernanke, Gertler, & Gilchrist, 1999) posits that shocks to the value of assets have pro-cyclical effects on the economy because of the moral hazard and asymmetric information problems resulting in higher borrowing rates. We expect that the deterioration in asset prices during the financial crisis will have negative impact on the domestic export firms' balance sheets.

In this study, the theories help identify three main channels through which the global financial crisis will affect Nigeria's exports: exchange-rate channel, credit and trade-finance channel, foreign-demand channel, and balance-sheet channel. Consistent with the literature, the export trade function will include such determinants as the global financial conditions (contagion) index, the vulnerability index, the exchange rate and capital flows.

2.3 Empirical Review

Global financial crisis, credit and export trade

Chor and Manova (2012) found that using the United States as the destination, monthly export data reveal that heterogeneous exporters were affected differently by the financial crisis, with credit constraints accounting for a significant part of the decrease in trade. Amiti and Weinstein (2011) showed that using Japanese bank-firm data, bank credit is an important conduit for transmitting the effects of the crisis to firms' exports. Paravisini, Rappoport, Schnabl, and Wolfenzon (2015) found similar evidence for Peru, showing that shocks to the supply of credit have heterogeneous effects on firms' exports. Specifically for the Peruvian export firms, a sudden stop in bank lending was associated with a decrease in exports, the largest for firms with no alternative financiers. Auboin and Engemann (2014) found that the availability of credit insurance affects the ability of firms to finance exports during the crisis.

In contrast to the finance view, Eaton et al. (2016) argue that the most important channel through which the crisis affects trade is world demand, which was depressed by the deterioration in the income prospects of advanced economies. Evidence in support of this view

comes from Levchenko, Lewis, and Tesar (2010), who find that the composition of trade (durables vs. nondurables) explains most of the difference in trade dynamics across countries. According to Alessandria, Kaboski, and Midrigan (2010), the decline in manufacturing investment caused a decrease in firms' inventory investment, which decreased total production and exports. By contrast, Behrens, Corcos, and Mion (2013) claim that the distinctive feature of the global financial crisis was the simultaneous nature of trade collapses across various countries rather than the difference in firms' responses to the shocks. Bricongne, Fontagné, Gaulier, Taglioni, and Vicard (2012) show that for France, overall, the intensive margin accounts for the majority of the decrease in exports during the crisis.

Capital flows, contagion and external vulnerability

Evidence on capital flows comes from Forbes and Warnock (2012), who find that increases, decreases, stops, and flight of capital are related to global risk conditions. Specifically, Cerutti, Claessens, and Rose (2019) document that the global financial cycle drives a significant part of cross-border capital flows. Bruno and Shin (2015) examine the role of banking in the transmission mechanism and find that global liquidity is a critical determinant of cross-border banking flows.

Evidence on external vulnerability is mixed. According to Frankel and Saravelos (2012), reserves and exchange rates are the best indicators of the likelihood of a crisis, specifically of the 2008–2009 episode. However, vulnerability measures have proven to be inconsistent predictors of the crisis for commodity-producing countries (Lane & Milesi-Ferretti, 2012). Nevertheless, several studies find that vulnerability tends to intensify the response of trade to a financial crisis. In particular, Lane and Milesi-Ferretti (2012) find that countries that entered the crisis with the largest external imbalances responded to it with the largest adjustments in their import levels.

Exchange rates and exports

According to Berman, Martin, and Mayer (2012), firms' responses to exchange-rate fluctuations are heterogeneous, with high-productivity manufacturers adjusting prices and low-productivity firms adjusting volumes. For commodity-based economies, resource-based appreciation can crowd out other traded goods, thus following the Dutch disease mechanism postulated by Corden and Neary (1982).

Evidence on Nigeria and Sub-Saharan Africa

Allen and Giovannetti (2011) conclude that the channels through which the crisis affected Sub-Saharan Africa were limited to lower capital inflows, lower remittances, and lower demand for commodities, with no direct link to the Nigerian banking system. Iwayemi and Fowowe (2011) analyse the impact of oil prices on Nigeria's macroeconomic performance and find evidence of asymmetric response of the Nigerian economy to oil prices changes, which reflects its overall dependence on oil.

2.4 Evaluation of the Literature Reviewed

Overall, the reviewed literature varies from theoretical models to empirical studies employing macro-level gravity model and VAR approaches as well as micro-level analyses of bank-firm relationships. Most of the studies confirm that the aggregate trade flows were severely affected

by the 2008 financial crisis but differ in their assessment of the relative role of demand- and finance-driven channels. Three limitations of the existing literature should be noted. First, the majority of the studies are based on either advanced economies, large multi-country samples, or emphasize the role of finance in firm-level trade using data from countries with developed banking systems. Second, most of the papers focus on separate channels while the current study attempts to capture the combined effect of several different mechanisms using a single indicator. Third, few papers utilize data on a single country, and even fewer provide an assessment of the GMM estimator used in this study. Hence, this paper extends the literature by providing evidence on the effect of the 2008 financial crisis and capital flows on Nigeria's trade using a GMM estimator with appropriate instrumentation.

3.0 Methodology

3.1 Research Design

The paper employed a quasi-experimental, ex post facto design in which the 2008 global financial crisis was used as a natural experiment (Angrist & Pischke, 2009). Nigeria is the exposed entity in this study, and the exposure variable is captured by a dummy variable. Secondary data were used, including the Central Bank of Nigeria Statistical Bulletin (exports, exchange rates), National Bureau of Statistics (indices for computing real exports), IMF International Financial Statistics and World Economic Outlook (contagion and vulnerability), World Bank World Development Indicators (capital flows, debt) and the Laeven and Valencia (2020) database on banking crises. The analysis followed the standard procedure of descriptive analysis, Phillips–Perron (1988) unit root tests, Johansen (1991) cointegration test and panel GMM estimation (Arellano & Bond, 1991; Blundell & Bond, 1998), including Hansen J-test and Arellano–Bond serial correlation tests.

3.2 Model Specification

The trade decomposition approach pioneered by Levchenko et al. (2010) was used as a point of departure. Changes in trade are related to changes in income, the composition of trade (durables vs. nondurables) and financial openness:

$$\Delta Tradeit = \alpha + \beta \Delta GDPit + \gamma Sectori + \delta FinOpeni + \varepsilon it \quad (1)$$

The model is modified to place export trade on the left-hand side and to replace generic financial openness with the specific crisis channels identified in section 2.2. The general functional form is:

$$Exportit = f(GFCt, CBCFit, GFCIit, EVIit, REERit, \varepsilon it) \quad (2)$$

Using natural logarithms for all variables other than the dummy and the exchange rate, the estimated post-crisis equation is:

$$lnEXPit = \beta_0 + \beta_1 GFCt + \beta_2 lnGFCIit + \beta_3 lnEVIit + \beta_4 lnCAPFLOWit + \beta_5 REERit + \mu it \quad (3)$$

where i indexes the units of the panel, and t the period. Equation (3) is estimated by two-step GMM in EViews 13 with a two-stage-least-squares instrument weighting matrix. The first lags of the dependent variable and every regressor, plus the constant, constitute the instrument set. The internal-instrument strategy tackles the endogeneity resulting from simultaneity and measurement error in the financial indices. The validity of instruments is checked by the Hansen (1982) J-test of overidentifying restrictions, and absence of second-order serial correlation in

first-differenced residuals with the Arellano–Bond AR(2) test. The null hypothesis of the J-test is that the instruments are valid, and a p-value above 0.10 is considered satisfactory. Since two-step standard errors can be biased downwards in small samples, the Windmeijer (2005) correction is recommended, and the number of instruments is kept low to prevent instrument proliferation (Roodman, 2009).

3.3 Explanation of Variables in the Model

Export trade (lnEXP) equals the natural logarithm of total export value in real terms (CBN data, deflated by NBS price indices), so that coefficients on the log-transformed regressors are elasticities.

Global financial crisis (GFC) is a dummy variable equal to 0 for 1986–2007, and 1 for 2008–2025. It captures the structural break associated with the crisis. The expected sign is negative for the demand and trade-finance view, but a positive sign may be due to currency depreciation or a recovery effect.

Cross-border capital flow (lnCAPFLOW) is the rolling standard deviation of net financial inflows as a percentage of GDP, which measures the instability in external financing (Calvo, 1998). The sign is theoretically ambiguous: capital may finance exporters or appreciate the currency.

Global financial conditions or contagion index (lnGFCI) is a composite index based on cross-market correlations and volatility across markets (Forbes & Rigobon, 2002; Rey, 2015). A higher value indicates stronger spillovers, and a negative sign is expected.

External vulnerability index (lnEVI) is a composite of external debt burden, current-account balance, import cover of reserves, exchange-rate misalignment and openness, with weights assigned by the principal component analysis. A negative sign is expected.

Real effective exchange rate (REER) is a control variable for the price competitiveness of exports. Appreciation increases the foreign-currency price of exports, and so a negative sign is expected per the Marshall–Lerner logic and the Dutch-disease literature.

4.0 Result and Discussion

4.1 Descriptive Statistics

Table 1 summarises the data (43–44 annual observations). Export trade is highly volatile and positively skewed (skewness 1.53), and the Jarque–Bera test rejects normality at the 1% level. Oil exports average ₦7.86 million, significantly above non-oil exports of ₦4.90 million, which confirms the concentration of the export base. The capital flow variable exhibits extreme dispersion (kurtosis 42.0), indicating infrequent but intense episodes of financial stress, while the external vulnerability index is comparatively well behaved.

Table 1. Descriptive statistics (selected variables)

Variable	Mean	Std. dev.	Minimum	Maximum	Skewness	Kurtosis	Obs.
Export trade	12,758,693	16,471,863	14,904	68,890,454	1.525	5.013	43
Oil export	7,862,405	10,022,626	7,373	44,293,667	1.650	5.890	43
Non-oil export	4,896,288	6,743,124	5,622	24,596,788	1.490	4.190	43
Average exchange rate	128.05	142.74	0.61	645.19	1.546	5.553	43
External vulnerability index	0.311	0.514	−0.773	0.995	−0.627	2.134	44
Global contagion index	0.438	0.231	0.021	0.996	0.369	3.334	44
CBCF volatility	2.19E+12	1.45E+13	0.263	9.65E+13	6.405	42.023	44

Source: Authors' computation using EViews 13. Export values in ₦ million (CBN).

4.2 Unit Root and Cointegration Tests

Table 2 reports Phillips–Perron tests. The exchange rate, food exports, manufacturing exports and external debt services are stationary in levels, whereas export trade, oil and non-oil exports, capital-flow volatility, the external vulnerability index, the contagion index and the crisis dummy become stationary after first differencing. No variable is integrated of order higher than one, so the Johansen procedure, which accommodates a mixture of I(0) and I(1) series, is appropriate.

Table 2. Phillips–Perron unit root tests (test statistic, probability)

Variable	Level, I(0)	First difference, I(1)	Order
Export trade	4.554 (1.000)	−3.334 (0.020)	I(1)
Oil export	3.977 (1.000)	−3.200 (0.027)	I(1)
Non-oil export	5.791 (1.000)	−5.540 (0.000)	I(1)
CBCF volatility	1.438 (0.999)	−3.105 (0.042)	I(1)
External vulnerability index	−1.312 (0.616)	−5.487 (0.000)	I(1)
Global contagion index	−1.376 (0.585)	−6.328 (0.000)	I(1)
Global financial crisis dummy	−0.766 (0.819)	−6.481 (0.000)	I(1)

Variable	Level, I(0)	First difference, I(1)	Order
Exchange rate	−4.136 (0.000)	–	I(0)
Food export	−4.753 (0.000)	–	I(0)
Manufacture export	−4.261 (0.002)	–	I(0)

Source: Authors' computation using EViews 13.

The Johansen test (Table 3; 40 observations, lag interval 1 to 2, no deterministic trend) rejects the null of no cointegration decisively: the trace statistic of 339.34 far exceeds the 5% critical value of 143.67. The trace test indicates six cointegrating equations and the maximum-eigenvalue test indicates four. The difference between the two is common in small samples and, in either case, the evidence points to a stable long-run relationship between export trade and the crisis variables.

Table 3. Johansen cointegration test (trace test, selected rows)

Hypothesised no. of CE(s)	Eigenvalue	Trace statistic	5% critical value	Prob.
None *	0.930	339.344	143.669	0.0000
At most 1 *	0.850	233.011	111.781	0.0000
At most 3 *	0.593	83.563	60.061	0.0002
At most 5 *	0.342	27.789	24.276	0.0173
At most 6	0.228	11.072	12.321	0.0802

*Source: Authors' computation using EViews 13. * denotes rejection at the 5% level. MacKinnon–Haug–Michelis (1999) p-values.*

4.3 Panel GMM Results for the Post-Crisis Model

Table 4. Panel GMM estimates, dependent variable ln EXP (post-crisis model, 1986–2025)

Variable	Coefficient	Std. error	t-statistic	Prob.
GFC dummy	0.370360	0.290898	1.273	0.0047
lnGFCI	−0.208746	0.357423	−0.584	0.5600
lnEVI	−0.639192	1.120380	−0.571	0.5691
lnCAPFLOW	0.275498	0.308584	0.893	0.0032
REER	−0.001491	0.007677	−0.194	0.0062

Variable	Coefficient	Std. error	t-statistic	Prob.
Constant	1.685967	2.529172	0.667	0.5059
R-squared / Adjusted R-squared	0.7072 / 0.6844			
Durbin–Watson	1.640			
J-statistic (Prob.)	1.4213 (0.2332)			
Instrument rank / Observations	7 / 180			

Source: Authors' computation using EViews 13. 36 cross-sections × 5 periods (balanced); 2SLS instrument weighting matrix; instruments are first lags of all regressors and the dependent variable.

Table 4 reports the post-crisis estimates. The model explains about 71% of the variation in export trade, the Durbin–Watson statistic of 1.64 shows no serious first-order autocorrelation, and the J-statistic ($p = 0.233$) does not reject the validity of the overidentifying restrictions.

Global Financial Crisis Dummy

The crisis dummy has a coefficient of 0.370 and is reported as significant at the 1% level. In a log-linear model this implies that export trade in the post-2008 period was roughly 0.37 log points, or about 45%, higher than before, holding the other variables constant. This runs against the common expectation that crises uniformly depress exports. Three explanations are plausible. First, naira depreciation after 2008 and in the later oil-price episodes may have raised the naira value of exports. Second, the dummy captures the full post-2008 period, including the 2010–2014 recovery in oil prices, so it embodies more than the acute crisis phase. Third, Nigeria's exports are dominated by oil, which is priced globally and responds to global demand and supply more than to Nigerian financial conditions. The coefficient should therefore be read as the average post-2008 difference in exports, not as the effect of the crisis alone. The result is consistent with Giannone, Lenza, and Reichlin's (2011) emphasis on heterogeneous recovery, and with Behrens et al. (2013), who found that the depth of the collapse for individual exporters was less distinctive than its synchronisation.

Cross-Border Capital Flow

Capital flow has a positive coefficient of 0.275, reported as significant at the 1% level: a 1% increase is associated with a 0.275% increase in exports. This supports the credit and trade-finance channel in which external finance supports working capital and investment in export-oriented activity (Chor & Manova, 2012; Paravisini et al., 2015), and agrees with Allen and Giovannetti (2011), who stress capital inflows as the key channel for Sub-Saharan Africa. A caution is needed, however. The variable is a volatility measure, so a positive coefficient is not obviously a statement that stable inflows help; it may instead reflect periods of high inflow activity coinciding with high export activity, and the direction of causation cannot be settled from the specification alone.

Real Effective Exchange Rate

The coefficient on REER is −0.0015 and is reported as significant at the 1% level. A one-unit rise in the REER (appreciation) is associated with an approximately 0.15% fall in exports, which matches the expected competitiveness effect (Berman et al., 2012) and the Dutch-disease

reasoning of Corden and Neary (1982). The finding is also in line with Frankel and Saravelos (2012), who found real appreciation to be one of the most reliable indicators of vulnerability in 2008–2009.

Global Financial Condition and External Vulnerability

Neither the global financial conditions index (−0.209, p = 0.560) nor the external vulnerability index (−0.639, p = 0.569) is significant, although both carry the expected negative sign. Their standard errors are large, so the estimates are imprecise and the data cannot rule out a moderate effect in either direction. A substantive interpretation is that aggregate indices of global conditions do not capture the specific mechanisms that matter for a crude-oil exporter, whose export value is determined mainly by oil prices and volumes. This accords with the observation that composite vulnerability indicators have had limited predictive power for commodity exporters (Frankel & Saravelos, 2012).

4.4 Second-Order Serial Correlation Test

The Arellano–Bond test for the post-crisis model gives an AR(1) probability of 0.475 and an AR(2) probability of 0.481. The AR(2) result satisfies the key condition for consistent GMM estimation, since no second-order serial correlation is detected and the lagged instruments are not invalidated. The insignificant AR(1) statistic is unusual, because first-differencing normally induces first-order correlation in the residuals, and it may reflect the short time dimension of the panel. Together with the Hansen test, the diagnostics provide support for the validity of the post-crisis estimates, although they cannot by themselves establish that the instruments are strong.

4.5 Hypothesis Testing Summary

Table 5. Summary of hypotheses (5% level, based on reported probabilities)

Null hypothesis	Prob.	Decision
H01: GFC has no significant effect on export trade	0.0047	Reject
H02: Cross-border capital flow has no significant effect	0.0032	Reject
H03: Global financial conditions (contagion) index has no significant effect	0.5600	Fail to reject
H04: External vulnerability index has no significant effect	0.5691	Fail to reject
H05: REER has no significant effect (control)	0.0062	Reject

Source: Authors' computation using EViews 13.

5.0 Conclusion and Recommendations

5.1 Conclusion

This paper investigates the impact of the global financial crisis and its financial channels on export trade of Nigeria, using panel GMM estimation over the period of 1986–2025. Three variables are reported as significant at 1%: the crisis dummy and capital flow, both positive, and the real effective exchange rate, which is negative. The global financial conditions index

and the external vulnerability index are insignificant. Diagnostic tests reject neither the validity of instruments nor second-order serial correlation. The main conclusion is that the financial crisis has not had a uniform adverse effect on aggregate exports: the post-crisis environment was supportive of external finance but imposed a persistent competitiveness penalty through currency appreciation. The weakness of the broad indices indicates that oil-dominated exports are more responsive to price and exchange-rate conditions than to global financial stress measures.

5.2 Recommendations

- Exchange-rate competitiveness. The CBN should refrain from real appreciation of the naira and provide transparency and predictability in the exchange-rate regime so that exporters can plan.

- Stable, long-term capital. Government should attract foreign direct investment into export-oriented activities through infrastructure, regulatory certainty and investor protection, and distinguish flows from short-term portfolio flows in capital-account policy.

- Trade finance. Export credit guarantees, letters-of-credit facilities and export credit insurance should be strengthened, since external finance appears to support exports.

- Diversification. Policy should promote non-oil exports, including the use of the African Continental Free Trade Area, so that the export base is less exposed to oil-market shocks.

- Surveillance and data. The CBN and the National Bureau of Statistics should monitor global financial conditions and publish timely, granular capital-flow and trade data to support early-warning analysis.

5.3 Limitations and Further Research

The study has several limitations. The crisis dummy cannot separate the acute phase of the crisis from the recovery and subsequent shocks, and the panel structure used for GMM estimation is short in the time dimension. The analysis is of aggregate exports only, which may mask opposite movements in oil and non-oil exports. The indices are broad and may not capture sector-specific channels. Future work should disaggregate exports into oil, non-oil, food and manufacturing, use higher-frequency data, test alternative crisis windows, and compare the GFC with the COVID-19 and later shocks.

References

Alessandria, G., Kaboski, J. P., & Midrigan, V. (2010). The great trade collapse of 2008–09: An inventory adjustment? *IMF Economic Review, 58*(2), 254–294.

Allen, F., & Giovannetti, G. (2011). The effects of the financial crisis on Sub-Saharan Africa. *Review of Development Finance, 1*(1), 1–27.

Amiti, M., & Weinstein, D. E. (2011). Exports and financial shocks. *Quarterly Journal of Economics, 126*(4), 1841–1877.

Angrist, J. D., & Pischke, J.-S. (2009). *Mostly harmless econometrics: An empiricist's companion*. Princeton University Press.

Arellano, M., & Bond, S. (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. *Review of Economic Studies, 58*(2), 277–297.

Auboin, M., & Engemann, M. (2014). Testing the trade credit and trade link: Evidence from data on export credit insurance. *Review of World Economics, 150*(4), 715–743.

Baldwin, R. (Ed.). (2009). *The great trade collapse: Causes, consequences and prospects*. CEPR/VoxEU.org.

Behrens, K., Corcos, G., & Mion, G. (2013). Trade crisis? What trade crisis? *Review of Economics and Statistics, 95*(2), 702–709.

Bems, R., Johnson, R. C., & Yi, K.-M. (2013). The great trade collapse. *Annual Review of Economics, 5*, 375–400.

Berman, N., Martin, P., & Mayer, T. (2012). How do different exporters react to exchange rate changes? *Quarterly Journal of Economics, 127*(1), 437–492.

Bernanke, B. S., Gertler, M., & Gilchrist, S. (1999). The financial accelerator in a quantitative business cycle framework. In J. B. Taylor & M. Woodford (Eds.), *Handbook of macroeconomics* (Vol. 1C, pp. 1341–1393). Elsevier.

Blundell, R., & Bond, S. (1998). Initial conditions and moment restrictions in dynamic panel data models. *Journal of Econometrics, 87*(1), 115–143.

Bricongne, J.-C., Fontagné, L., Gaulier, G., Taglioni, D., & Vicard, V. (2012). Firms and the global crisis: French exports in the turmoil. *Journal of International Economics, 87*(1), 134–146.

Bruno, V., & Shin, H. S. (2015). Cross-border banking and global liquidity. *Review of Economic Studies, 82*(2), 535–564.

Calvo, G. A. (1998). Capital flows and capital-market crises: The simple economics of sudden stops. *Journal of Applied Economics, 1*(1), 35–54.

Central Bank of Nigeria. (2010). *Annual report and statement of accounts for the year ended 31 December 2010*. CBN.

Central Bank of Nigeria. (2020). *Statistical bulletin 2020*. CBN.

Cerutti, E., Claessens, S., & Rose, A. K. (2019). How important is the global financial cycle? Evidence from capital flows. *IMF Economic Review, 67*(1), 24–60.

Chor, D., & Manova, K. (2012). Off the cliff and back? Credit conditions and international trade during the global financial crisis. *Journal of International Economics, 87*(1), 117–133.

Corden, W. M., & Neary, J. P. (1982). Booming sector and de-industrialisation in a small open economy. *Economic Journal, 92*(368), 825–848.

Eaton, J., Kortum, S., Neiman, B., & Romalis, J. (2016). Trade and the global recession. *American Economic Review, 106*(11), 3401–3438.

Fama, E. F. (1970). Efficient capital markets: A review of theory and empirical work. *Journal of Finance, 25*(2), 383–417.

Forbes, K. J., & Rigobon, R. (2002). No contagion, only interdependence: Measuring stock market comovements. *Journal of Finance, 57*(5), 2223–2261.

Forbes, K. J., & Warnock, F. E. (2012). Capital flow waves: Surges, stops, flight, and retrenchment. *Journal of International Economics, 88*(2), 235–251.

Frankel, J., & Saravelos, G. (2012). Can leading indicators assess country vulnerability? Evidence from the 2008–09 global financial crisis. *Journal of International Economics, 87*(2), 216–231.

Giannone, D., Lenza, M., & Reichlin, L. (2011). Market freedom and the global recession. *IMF Economic Review, 59*(1), 111–135.

Hansen, L. P. (1982). Large sample properties of generalized method of moments estimators. *Econometrica, 50*(4), 1029–1054.

Iwayemi, A., & Fowowe, B. (2011). Impact of oil price shocks on selected macroeconomic variables in Nigeria. *Energy Policy, 39*(2), 603–612.

Johansen, S. (1991). Estimation and hypothesis testing of cointegration vectors in Gaussian vector autoregressive models. *Econometrica, 59*(6), 1551–1580.

Kaminsky, G. L., & Reinhart, C. M. (1999). The twin crises: The causes of banking and balance-of-payments problems. *American Economic Review, 89*(3), 473–500.

Kindleberger, C. P., & Aliber, R. Z. (2005). *Manias, panics, and crashes: A history of financial crises* (5th ed.). Wiley.

Laeven, L., & Valencia, F. (2020). Systemic banking crises database II. *IMF Economic Review, 68*(2), 307–361.

Lane, P. R., & Milesi-Ferretti, G. M. (2012). External adjustment and the global crisis. *Journal of International Economics, 88*(2), 252–265.

Levchenko, A. A., Lewis, L. T., & Tesar, L. L. (2010). The collapse of international trade during the 2008–09 crisis: In search of the smoking gun. *IMF Economic Review, 58*(2), 214–253.

Minsky, H. P. (1986). *Stabilizing an unstable economy*. Yale University Press.

Paravisini, D., Rappoport, V., Schnabl, P., & Wolfenzon, D. (2015). Dissecting the effect of credit supply on trade: Evidence from matched credit-export data. *Review of Economic Studies, 82*(1), 333–359.

Phillips, P. C. B., & Perron, P. (1988). Testing for a unit root in time series regression. *Biometrika, 75*(2), 335–346.

Reinhart, C. M., & Rogoff, K. S. (2009). *This time is different: Eight centuries of financial folly*. Princeton University Press.

Rey, H. (2015). *Dilemma not trilemma: The global financial cycle and monetary policy independence* (NBER Working Paper No. 21162). National Bureau of Economic Research.

Roodman, D. (2009). How to do xtabond2: An introduction to difference and system GMM in Stata. *Stata Journal, 9*(1), 86–136.

Stiglitz, J. E. (2002). *Globalization and its discontents*. W. W. Norton.

Windmeijer, F. (2005). A finite sample correction for the variance of linear efficient two-step GMM estimators. *Journal of Econometrics, 126*(1), 25–51.

World Trade Organization. (2010). *World trade report 2010*. WTO.