International Financial Integration and The Nigerian Economic Performance: a Var Modeling Approach

Evans, Olaniyi

Department of Economics, University of Lagos, Nigeria

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Olaniyi Evans

Abstract

Since it is believed that having access to a broader base of capital is a key requirement for economic growth, then financial integration is necessary because it expedites flows of capital from developed economies with rich capital to developing economies like Nigeria with limited capital. The major objective of this paper is to empirically investigate the relationship between international financial integration and the Nigerian economic performance, using annual time series data from 1970 to 2012. In order to do this, the study employs KPSS unit root test, Johansen cointegration test, VAR modeling, impulse response function, variance decomposition and granger causality. Empirical results show that there is a short-run relationship between international financial integration and economic growth. All the variables including, the ratio of net capital inflows to GDP and the ratio of FDI to GDP appear with the expected positive signs (except trade openness) and are statistically significant in the Nigerian economy. The findings have a strong implication on financial and international policy in Nigeria. The major implication is that further integration into the global economy would require sustained policy reforms, improved governance, and public-private investments in social, human, and physical infrastructure. The study suggests that rigorous efforts should be made by policy makers to improve infrastructural investment for the attraction of foreign capital.

Olaniyi Evans (2013) | evans@analystman.com | Department Of Economics, University Of Lagos, Nigeria

1   Introduction

International financial integration has lots of advantages for a developing economy like Nigeria. Financial integration leads to efficient capital allocation, better governance, higher investment and growth, and risk-sharing. There are direct and indirect channels through which the impact of financial integration works and is transmitted to the real economy. Directly, it is argued that financial openness affects economic growth through enabling access to foreign financial markets, increasing financial service efficiency and helping in diversification of risks and consumption smoothing. Thus while inducing additional capital investment, it also fosters macroeconomic discipline. Indirectly, the process of international financial integration facilitates the transfer of technological know-how, promotes trade and enhances specialization (Ahmed, 2011).

According to Levine (2001), financial integration strengthens domestic financial sector making way for more efficient capital allocation and higher investment and growth opportunities. In the presence of financial integration, efficiency gains are generated among domestics firms because they have to compete directly with foreign rivals (Kose et al., 2006). Since it is believed that having access to a broader base of capital is a key requirement for economic growth, then financial integration is necessary because it expedites flows of capital from developed economies with rich capital to developing economies like Nigeria with limited capital. Such capital inflows can significantly reduce the cost of capital in capital-poor Nigeria leading to higher investment.

Obasanjo administration's reform programme and the regularization of relation with Paris Club Creditors marked an important step in Nigeria's rehabilitation with the International Financial Community. Nigeria requires foreign investment to develop its economy that is

deficient in financial and managerial capital. Internally available resources are grossly inadequate to meet the needs of economic development and poverty reduction, even in the unlikely absence of corruption and resource management. Through interaction with advanced wealth creating nations, Nigeria may pull itself out of its vicious circle of poverty.

A recent example of foreign portfolio investments in Nigeria includes Nigeria's Guaranty Trust Bank Plc (GTB) five-year Eurobond issued to raise $350m in January 2007. The demand for this bond was high and this was the first time any Nigerian institution, private or public, had approached the international capital markets since the early 1990s. In July 2007, GTB again listed Global Depositary Receipts (GDR) on the London Stock Exchange (LSE) in its global offering. The offering raised $750m and is the first Nigerian GDR listing on the LSE.

On August, 2012, three FGN bonds (10.50% FGN MAR 2014; 15.10% FGN APR 2017 and 16.39% FGN JAN 2022) were included in the JP Morgan Government Bond Index for Emerging markets (GBI-EM). The liquidity of the respective FGN bonds, coupled with an improvement in Nigeria's credit rating, attracted portfolio inflows into the bond market.

The U.K, United States, Netherlands, South Africa and Mauritius have, over the past few years, been the major investor countries in Nigeria. France and Italy have ceased being major FDI contributors, most likely following the crises experienced in the Euro zone. We thus note the importance of the state of the economies in major contributor countries to determining the volume of inflows in Nigeria.

In the past few years, Nigeria's financial sector has undergone major restructuring with the number of banks reduced from 89 to 22 and with minimum capital requirements increased

tenfold. The financial sector reform process has been widely and acknowledged as one of the most far-reaching in the world. As a result of the reforms, Nigeria now has the fastest growing banking sector in Africa, attracting over $1.5 billion of foreign investment since 2005. Before the reforms, there was no Nigerian bank among the top global 1000 banks. By 2006, 12 Nigerian banks were in the top global 1000 (Soludo, 2006b).

Over the past five years, Nigeria has been a marginal player in the global emerging bonds and equities markets and loan syndications. The country's external financing through these private sources (mainly loan syndication) had been, on average, less than half a billion dollar per annum. In contrast, South Africa and Brazil recorded an average of eight and fifteen times what Nigeria obtained from bonds and equities markets and loan syndications combined. Relative to the size of the economy, Nigeria received 0.5 per cent of GDP in external financing compared to 2.3 percent and two percent of GDP respectively for South Africa and Brazil. Nigeria's low access to these sources of external financing had been due in part to international credit ratings that rendered the country non-creditworthy.

According to Doing Business, (2013), Nigeria stands at 70 in the ranking of 185 economies on the strength of investor protection. Globally, Nigeria stands at 154 in the ranking of 185 economies on the ease of trading across borders. Not surprisingly, Nigeria's integration into the global economy has been below potential. While it has improved its global rankings on indicators of competitiveness, business climate, and productivity in the past few years, it still ranks below most of its peer group on these indicators. It is among the poorest countries in the world in terms of social indicators despite oil wealth.

Nigeria was the largest FDI recipient country in 2011 accounting for about one-fifth ($8.92bn) of Africa's total inflows. FDI constituted 16.8% of Nigeria's gross fixed capital

formation in 2011 compared with 31.9% in 2010. The proportion of FPI in total transactions on the Nigerian Stock Exchange was estimated at 66.8%in 2011; and 59.8% as at the end of Q3:2012. The relative stability in the exchange rate coupled with an improving country risk served as major catalysts to these funds flow.

In the 2013 budget the Nigerian government reiterated its commitment to the reform process, seeking to continue attracting increased foreign flows. Favorable interest rates, improved infrastructure investment & a growing economy lend support to a relatively stable exchange rate and reasonably strong direct and portfolio investment flows into Nigeria in 2013. We particularly see increased flows from developing and emerging markets.

As well, Nigeria, through the leadership of the Central Bank of Nigeria (CBN), has commenced the implementation of the Financial Systems Strategy (FSS) 2020. The Financial Systems Strategy (FSS) is a visionary and an ambitious developmental programme designed to create an international financial hub in Nigeria as well as evolve a financial infrastructure to finance the country's quest to join the top 20 economies in the world by the year 2020. The IFC would be an integrated functional and full-service arena with focus on banking, insurance and capital markets open to the best and biggest players in global finance. To accomplish this goal, the FSS 2020 is designed to concurrently strengthen the domestic financial markets, enhance integration with external financial markets and engineer Nigeria's evolution into an international financial centre.

Increase in financial integration has pulled global financial markets closer together. With rapid capital flows around the world, the currency and financial crises in 2007 and 2010 were inevitable. Consequently, developing countries like Nigeria that welcomed excessive

capital flows were vulnerable to the financial disturbances as well. Because of the recent financial crises, there has been a heated debate among both academics and practitioners concerning the costs and benefits of financial integration. Up to date, this on-going debate about the costs and benefits of financial integration has not yet been settled or moved toward an agreement (Kose et al., 2006).

Studying the relationship between international financial integration and economic growth is critical for Nigeria, considering that it is a country whose financial industry is getting more and more integrated into the global economy. As well, there is need to determine the impact of international financial integration on economic growth in Nigeria at the aftermath of the global financial crisis. Hence the study is an attempt to investigate whether financial integration has had any impact in stimulating economic growth in Nigeria. It therefore contributes to the literature on the nexus between financial integration and economic growth.

The rest of the paper is organized as follows: Section 2 summarizes the evidence on the role of international financial integration in economic growth. Section 3 discusses analytical framework and the model. Section 4 analyses the empirical results using VAR modeling. Section 5 concludes with a discussion of policy implications.

2   Review of Recent Literature

The connection between international financial integration and economic growth has been a matter of much debate. International financial flows have long been recognized to play an important role in economic growth and development.

Chen and Quang (2012) investigate the particular conditions under which international financial integration is growth-enhancing. Relying on non-linear panel techniques, they find that countries that are able to reap the benefits of IFI satisfy certain threshold conditions regarding the level of economic, institutional and financial development, and the inflation rate. Their results also reveal a differentiated behaviour of foreign direct investment and portfolio liabilities compared to debt liabilities.

Mougani (2012) examines the impacts of international financial integration on economic activity and macro-economic volatility in African countries. The results of the empirical analysis show that the impact of external capital flows on growth seems to depend mainly on the initial conditions and policies implemented to stabilize foreign investment, increase domestic investment, productivity and trade, develop the domestic financial system, expand trade openness and other actions aimed at stimulating growth and reducing poverty.

Schularick and Steger (2006), using a generalized methods of moment (GMM) dynamic panel estimation, investigated empirically the nexus between international financial integration and economic growth by looking at the evidence from the first era of financial globalization from 1880-1913. Their results suggest that international capital market integration fostered economic growth significantly in the historical period, but no longer does so today. Their explanation of these diverse experiences is very simple. They think

that the neoclassical model provides a valid description of the historical period, but appears unsuitable to explain the contemporary world economy. Their results reinforce the conclusion that those economies which open themselves to the world economy need at first abolish domestic distortions to reap the benefits of globalization. More specifically, it seems especially important to establish good property rights in all economies participating in the world economy.

Lane (2009) investigates the links between international financial integration and Japanese macroeconomic performance. He argued that the nature of financial globalisation in recent years should be more beneficial than in previous phases, especially with the greater openness and improved health of the domestic financial sector.

Zenasni and Benhabib (2013) examines empirically the links between international financial integration and economic growth for the case of three North African countries using the dynamic panel system GMM estimator proposed by Blundell and Bond (1998) over the period 1980-2010. The estimation shows that the effects of financial integration on economic growth is positive in the three studied countries, which means that financial integration can stimulate the evolution of financial systems and improve the economic situation in North Africa.

Coricelli, Masten and Masten (2007) find that financial integration may not have a positive effect on growth per se, as its effects depend on the development of national financial markets, macroeconomic stability and quality of institutions. Indeed, our estimates detect a significant positive effect of financial integration on growth only for countries with

sufficient absorptive capacity, measured by the level financial development. The absence of such effect for less developed economies can be attributed to lower level of financial development, institutional design and macroeconomic volatility.

Osada and Saito (2007) studies the effects of financial integration on economic growth using an international panel data of 83 countries from 1974-2007. They show that the effects of financial integration on economic growth differ considerably, depending on the type of external assets and liabilities as well as on the characteristics of countries. They break down external liabilities into FDI and equity liabilities and debt liabilities, the former has a positive impact on economic growth, while the latter, especially public debt, has a negative impact. They also find in general that countries with good institutions and developed financial markets benefit more from financial integration, and countries in Western Europe and North America as well as those in East Asia are more likely to meet these conditions. Moreso, they provide some evidence that financial integration has an additional, indirect effect on economic growth through its impact on other determinants of growth such as the volume of international trade and the development of domestic financial markets.

Ahmed (2011) examines the issues of international and regional financial integration and its impact taking a sample of 25 SSA countries. He uses various indicators of financial openness, including stock-size based measures of total foreign assets and liabilities as a share of GDP and more disaggregate flowsize measure such as foreign direct investment and portfolio flows to GDP. His findings suggests that financial capital market integration aids growth indirectly through promoting domestic financial markets. He does not observe

a robust link between financial openness and economic growth in SSA region. Further, the study reports evidence suggesting that good institutions, higher level of human capital, and stable macroeconomic environment play an important role in mitigating the negative impacts of international financial openness.

Pierre-Olivier and Olivier (2006) find that developing countries do not benefit greatly from international financial integration in a calibrated neoclassical growth model. They opine that if international financial integration has a large impact on the welfare of developing countries, this must be through channels that are not in the textbook model. This impact would occur, furthermore, mainly because of the indirect effects of integration, not because of the international reallocation of capital that the textbook model focuses on. Further, they suggest that countries have much more to gain from upgrading their domestic engines of growth and development (e.g. by relaxing domestic credit rationing) than from attracting larger quantities of foreign capital per se. Even if capital flows were below the efficient level because of international credit rationing, the potential gains from mitigating this inefficiency might be quite moderate.

Friedrich, Schnabel and Zettelmeyer (2010), using the methodology by Rajan and Zingales (1998) based on industry-level data from a sample of low and middle income countries, show that the effect of financial integration on growth is not only statistically significant, but also economically important. They opine that the experience of emerging Europe conforms to neoclassical growth theory, which predicts that openness to foreign capital should allow countries to grow faster towards their steady state income levels. They suggest that political integration can considerably increase the benefits of financial

integration. Furthermore, their results suggest that financial integration works best when accompanied by a process of political integration with more advanced countries. They propose that the European model might also be replicable elsewhere.

Various and many scholars have studied empirically the relationship between financial deepening and economic growth. The empirical evidence suggests vast heterogeneity across countries, regions, financial factors, and directions of causality. More than a few different econometric methodologies have been employed to uncover this international financial integration and economic growth nexus. These studies used cross-country regressions, mostly relying on panel GMM estimators to trace the effect of financial integration on economic growth.

None of these previous studies has made a conscious to explore the impact of international financial integration on economic growth in any West African country, especially Nigeria. Thus, this study fills the aforementioned gap by exploring the relationship between two proxies of international financial integration and Nigeria's economic growth, using VAR and Granger causality.

3 Model Specification and Methodology

Considering the foregoing discussion and previous studies by Mougani (2012), the following model is employed in an attempt to determine the impact of international financial integration on economic growth in Nigeria:

$$GDPC = \varkappa_0 + \varkappa_1 FI_1 + \varkappa_2 FI_2 + \varkappa_3 TD$$

FI_1 = Net capital inflow to GDP (proxy for financial integration)

FI_2 = Net FDI inflow to GDP (proxy for financial integration)

TD = Trade openness

Unfortunately, we could not analyze the impact of institutional development due to insufficient data.

GDP per capita is gross domestic product divided by midyear population. An approximation of the value of goods produced per person in the country, equal to the country's GDP divided by the total number of people in the country.

Net Capital Inflow is the net flow of funds being invested in a country during a certain period of time (usually a year). Private capital flows consist of net foreign direct investment and portfolio investment. Foreign direct investment is net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital; reinvestment of earnings; other long-term capital; and short-term capital as shown in the balance of payments. The FDI included here is total net; that is; net FDI in the reporting economy from foreign sources less net FDI by the reporting economy to the rest of the world.

The Trade Openness Index is an economic metric calculated as the ratio of country's total trade, the sum of exports plus imports, to the country's gross domestic product. The interpretation of the Openness Index is the higher the index the larger the influence of trade on domestic activities.

The a priori expectations are: $\varkappa_0$, $\varkappa_1$, $\varkappa_2$, $\varkappa_3$ > 0. This implies that the ratio of net capital flows to GDP and the ratio of FDI to GDP as proxies of financial integration and trade openness have positive relationship with economic growth.

As well, this study employs KPSS unit root test Johansen cointegration test, VAR modeling, impulse response function, variance decomposition and granger causality. No other study has gone to such extent to estimate the nexus between international financial integration and economic growth in Nigeria

The data for the empirical analysis are obtained from the World Bank database.

4 Empirical Results

4.1 Graphical Approach

Fig 1   Graphs of GDPC, FI1, FI2 and TD
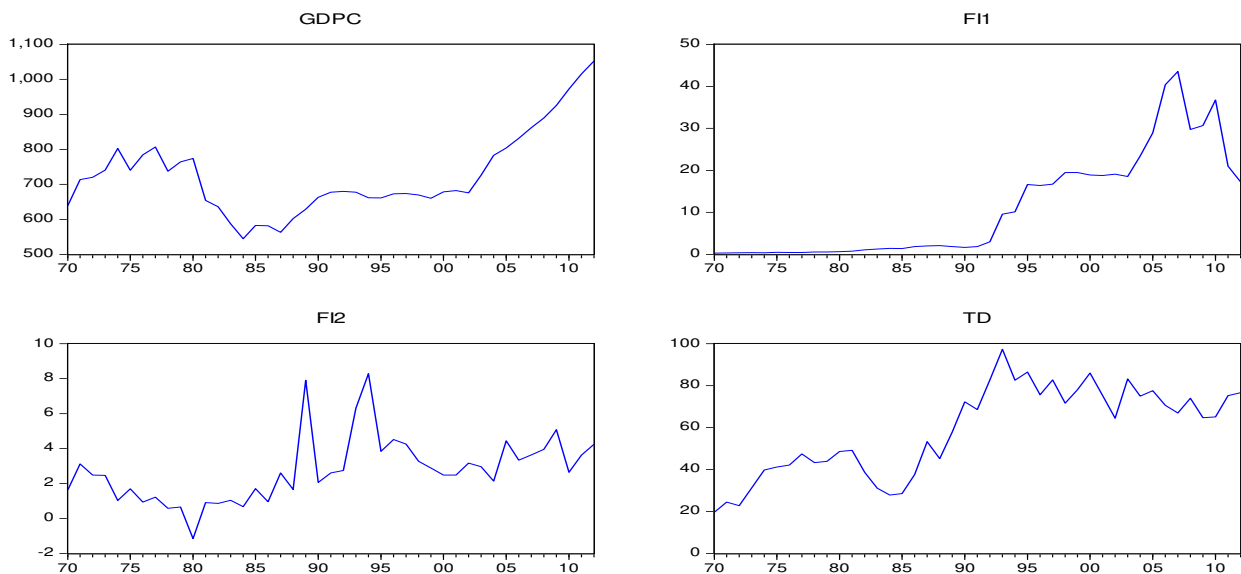
GDP per capital (GDPC) witnessed a zigzagging rise in the 1970's before taking a plunge in 1980. Falling oil output and prices contributed to the plunge in GDP per capital in the 1980s. Indeed, GDP per capita per year decreased 4.8 percent from 1980 to 1987, which led in 1989 to Nigeria's classification by the World Bank as a low-income country. This persisted until oil prices began to rise in 1990. From 1990, the rise of GDP per capital has been steady till date.

The ratio of the net capital flows to GDP (FI1) witnessed a dramatic increase from the 1970's until 2006. The downward trend in net capital flows from 2006 till date is as a result of the global financial crisis which has put a crunch on foreign investible funds. Global capital flows is no longer unaffected by the gloomy and uncertain environment, including the potentially longer growth slowdown in several emerging economies – especially if the anticipated unwinding of monetary policy stimulus in the U.S. leads to sustained capital flow reversals.

The trend of the ratio of FDI to GDP (FI2) has been zigzagging over the years, reflecting the flaky nature of the business environment in Nigeria. Usually, investors rely on global indicators to review FDI opportunities, focusing on business environment, corruption, and competitiveness.

Trade openness (TD) has had a steady increase in Nigeria over the years, even if a little chequered of late. There are greater market opportunities. As a result, the level at which Nigeria allows or has trade with other countries or economies has advanced tremendously.

4.2   Unit Root Tests

Prior to estimating the equation of the model, we investigate the unit root properties of the variables involved. Several tests of non-stationarity called unit root tests have been developed in the time series econometrics literature. In most of these tests the null hypothesis is that there is a unit root, and it is rejected only when there is strong evidence against it. Most tests of the Dickey-Fuller (DF) type have low power. Because of this Maddala and Kim (1998) argue that ADF (augmented Dickey-Fuller) and PP (Phillips and Perron) tests should be discarded. We, therefore, use the KPSS (Kwiatkowski, Phillips, Schmidt and Shin 1992) test which is considered relatively more powerful. The KPSS Lagrange Multiplier tests the null of stationarity (H 0: $\rho < 1$) against the alternative of a unit root (H : $\rho = 1$). The critical values for the LM test statistic are based on the asymptotic results given in KPSS.

Table 1: KPSS Test Results

Variable	KPSS at level	KPSS at First Difference	Order of Integration	Test Equation specification
GDPC	0.347798	0.283375*	I(1)	Intercept
FI1	0.689334	0.111621*	I(1)	Intercept
FI2	0.481737	0.175971*	I(1)	Intercept
FD	0.493172	0.153665*	I(1)	Intercept
TD	0.633768	0.117867*	I(1)	Intercept
Asymptotic critical values	1% 0.739000			

	2%	0.463000
	3%	0.347000

Notes: An * indicates rejection of the null hypothesis of non-stationarity at the 5 percent level of significance. Barlett-Kernel is used as the spectral estimation method. The bandwidth is selected using Newey-West method.

KPSS test indicates that none of the economic variables included in the model are stationary at levels but all are stationary at first difference. Hence, higher order of integration is needless.

4.3   Cointegration Test

Toda and Philips (1993) have shown that ignoring cointegration when it exists, can lead to serious model misspecification. Since the variables are non-stationary and integrated of order 1, we apply now the Johansen cointegration test to see whether the variables are cointegrated or not suggesting long-run relationship. We use the maximum likelihood procedure of Johansen (1991, 1995) because it is based on well-established maximum Likelihood procedure. Johansen's method uses two test statistics for the number of cointegrating vectors: the trace test (λ trace) and maximum eigenvalue (λ max) test. λ trace statistic tests the null hypothesis (H_0) that the number of distinct cointegrating vectors is less than or equal to r against the alternative hypothesis of more than r cointegrating vectors. The second statistic tests H_0 that the number of cointegrating vectors is r against the alternative of r +1 cointegrating vectors.

Table 2   Johansen cointegration test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None	0.482295	45.14422	47.85613	0.0879
At most 1	0.246138	18.15186	29.79707	0.5549
At most 2	0.121753	6.567495	15.49471	0.6284
At most 3	0.029899	1.244573	3.841466	0.2646

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None	0.482295	26.99236	27.58434	0.0594
At most 1	0.246138	11.58436	21.13162	0.5890
At most 2	0.121753	5.322921	14.26460	0.7006
At most 3	0.029899	1.244573	3.841466	0.2646

Max-eigenvalue test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Both trace test and maximal eigenvalue statistic indicate the existence of no cointegrating vectors at the 5% level. This forms the basis of the formulation of an unrestricted VAR model in order to investigate the direct effect of financial integration on GDP per capital. The non-existence of cointegration is indicative of a short-run relationship between GDP per capital and the financial integration variables.

4.4 VAR Lag Order Selection

Based on the LR, FPE, AIC, SC and HQ, it is found that one lag is optimal. All are used for model selection such as determining the lag length of a model, with smaller values of the information criterion being preferred.

Table 3   **VAR Lag Order Selection**

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-636.3381	NA	9.44e+08	32.01691	32.18580	32.07797
1	-517.2959	208.3240*	5490575.*	26.86479*	27.70923*	27.17012*
2	-507.9462	14.49194	7858735.	27.19731	28.71730	27.74689
3	-491.5810	22.09312	8247001.	27.17905	29.37459	27.97289

* indicates lag order selected by the criterion
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion
HQ: Hannan-Quinn information criterion

4.4 VAR Model

Vector autoregression (VAR) is a statistical model used to capture the linear interdependencies among multiple time series. VAR models generalize the univariate autoregression (AR) models by allowing for more than one evolving variable. All variables in a VAR are treated symmetrically in a structural sense ; each variable has an equation explaining its evolution based on its own lags and the lags of the other model variables.

Table 4   **VAR Regression results**

Dependent Variable: GDPC
GDPC = C(1)*GDPC(-1) + C(2)*FI1(-1) + C(3)*FI2(-1) + C(4)*TD(-1) + C(5)

	Coefficient	Std. Error	t-Statistic	Prob.

C(1)	0.971785	0.063450	15.31581	0.0000
C(2)	1.386888	0.657603	2.109004	0.0418
C(3)	7.995321	3.550462	2.251910	0.0304
C(4)	-0.783594	0.363798	-2.153929	0.0378
C(5)	38.84342	48.09265	0.807679	0.4244

R-squared	0.923249	Mean dependent var	727.6721
Adjusted R-squared	0.914952	S.D. dependent var	118.3139
S.E. of regression	34.50384	Akaike info criterion	10.03136
Sum squared resid	44049.06	Schwarz criterion	10.23823
Log likelihood	-205.6586	Hannan-Quinn criter.	10.10719
F-statistic	111.2704	Durbin-Watson stat	2.122747
Prob(F-statistic)	0.000000		

At the threshold of both 0.5, FI1 and FI2 are statistically significant and thus the null hypothesis will be rejected and the alternative hypothesis accepted. That is, both measures of financial integration are statistically significant in their impact on GDP per capital in Nigeria. The coefficient of determination (R^2) which gives 0.923249 indicates that the model explains 92 percent of the variations in GDPC. This shows a very good fit as only about 8% variation in GDP is left accounted for by the model. Durbin-Watson statistic of 2.122747 is between 1.8 and 2.2. This implies the absence of autocorrelation. The F-statistic is 111.2704. This value is significant at 1%, 5% and 10%. This is because the calculated Prob(F-statistic) = 0.000000. With this, we reject the null hypothesis that all the explanatory variables introduced in the model are not jointly significant in explaining the variations in GDP per capital and conclude that they are simultaneously significant.

4.5   Heteroscedasticity Test

The possible existence of heteroscedasticity is a major concern in the application of regression analysis, because the presence of heteroscedasticity can invalidate statistical

tests of significance that assume that the modelling errors are uncorrelated and normally distributed and that their variances do not vary with the effects being modelled.

Table 5   VAR Residual Heteroskedasticity Tests: No Cross Terms

Joint test:

Chi-sq	df	Prob.
114.0583	80	0.0074

Table 4 shows that we can reject the null hypothesis that the VAR model is heteroscedastic. Therefore, our results are good for policy analysis and predictions.

4.5   Granger-Causality

Granger causality is applied to check for direction of causation between GDP per capital and financial integration. From the VAR Granger Causality/Block Exogeneity Wald Tests, we see that financial integration is Granger-causing GDP per capital, establishing a uni-directional causality between them.

Table 5   VAR Granger Causality/Block Exogeneity Wald Tests

Dependent variable: GDPC

| Excluded	Chi-sq	df	Prob.
FI1	4.447899	1	0.0349
FI2	5.071100	1	0.0243
TD	4.639410	1	0.0312
All	11.06256	3	0.0114

The null hypothesis that the variables are not significant in Granger-causing GDP per capital is rejected. The alternative hypothesis is accepted that all the variables Granger-cause GDPC.

4.6   Impulse Response Function

An impulse response refers to the reaction of any dynamic system in response to some external change. In both cases, the impulse response describes the reaction of the system as a function of time (or possibly as a function of some other independent variable that parameterizes the dynamic behavior of the system).

Our finding of unidirectional causality between financial integration and GDP per capital can be strengthened by the plots of 'Impulse Responses' and 'Variance Decomposition' as shown below.

Fig 2   Impulse Response Function
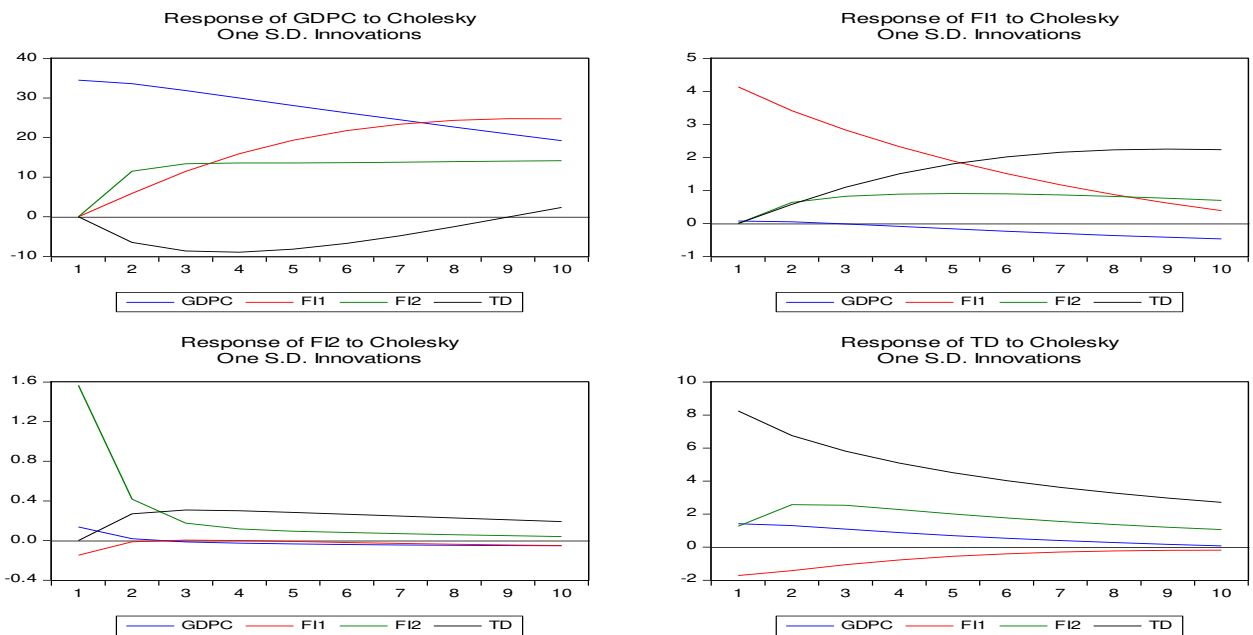
It can be seen that a positive shock to financial integration results in positive response of GDP per capital. In fact, the financial integration variables exhibit evidence of a positive feedback causal-effect (unidirectional) with GDP per capital. This is in accordance with earlier conclusion for a unidirectional relationship between international financial integration and the Nigerian economic performance.

4.7 Variance Decomposition

The variance decomposition indicates the amount of information each variable contributes to the other variables in the autoregression. It determines how much of the forecast error variance of each of the variables can be explained by exogenous shocks to the other variables.

We employ a ten year forecasting time horizon and observed the relevance of the variables over time horizon. However, only variance decomposition of GDPC is shown.

Table 6   Variance Decomposition of GDPC

Period	S.E.	GDPC	FI1	FI2	TD
1	34.50384	100.0000	0.000000	0.000000	0.000000
2	50.29984	91.72327	1.374342	5.250761	1.651626
3	62.69788	84.85663	4.236052	7.955706	2.951618
4	73.13617	79.16274	7.872141	9.302256	3.662861
5	82.24629	74.27359	11.75234	10.08747	3.886607
6	90.33035	70.02797	15.55060	10.64726	3.774173
7	97.55788	66.31952	19.08530	11.12168	3.473494

8	104.0452	63.05666	22.26313	11.56856	3.111649
9	109.8857	60.15875	25.04225	12.00927	2.789728
10	115.1601	57.55794	27.41094	12.44826	2.582854

Cholesky Ordering: GDPC FI1 FI2 TD

Table above gives the fraction of the forecast error variance for each variable that is attributed to its own innovation and to innovations in another variable. The own shocks of GDPC constitute a significant source of variation in its forecast error in the time horizon, ranging from 100% to 57.6%. Ten years after, variation in GDPC is accounted for by FI1 (27.4%), FI2 (12.4%) and TD (2.6%) shock. It is clear that the predominant sources of variation in GDPC are financial integration variables. Similar explanations hold for the variations in growth in the other forecast periods. This shows that the granger causality runs from financial integration to GDP per capital.

5   Summary, Conclusion and Recommendations

This paper has provided evidence on the causality and the nexus between international financial integration and the Nigerian economic performance using graphical, VAR and Granger Causality approach over the period 1970 - 2012. Firstly, the findings reveal that there is no long-run relationship between international financial integration and the Nigerian economic performance. However, there is a unidirectional causality and positive short-run relationship between international financial integration and the Nigerian economic performance. In the other words, international financial integration does not only

contribute positively to GDP per capital in Nigeria, but the impact is strong and statistically significant in the short run.

The fact that financial integration does not have long-run relationship with economic growth reinforces the conclusion by earlier literature that those economies which open themselves to the world economy need at first abolish domestic distortions to reap the benefits of globalization. Good institutions, higher level of human capital, and stable macroeconomic environment play an important role in mitigating the negative impacts of international financial integration.

Further integration into the global economy would require sustained policy reforms, improved governance, and public-private investments in social, human, and physical infrastructure. In the 2013 budget, the Nigerian government reiterated its commitment to its reform process, seeking to continue attracting increased foreign flows. However, investment in infrastructure like road and rail transportation sectors provides multi-year opportunity for the attraction of foreign capital given government's effort at improving the infrastructural deficit. The accompanying multiplier effects of reduced business production costs, given improved infrastructure, will facilitate additional inflows into all sectors; ultimately boosting GDP per capital growth in Nigeria.

REFERENCES

A. D. Ahmed (2011) International Financial Integration, Investment and Economic Performance in Sub-Saharan African Countries Global Economy Journal, Vol. 11, Iss. 4, Art. 5

C. Friedrich, I. Schnabel and J. Zettelmeyer (2010) Financial integration and growth Is emerging Europe different? Working Paper No. 123

Doing Business, (2013) Nigeria 2013 The International Bank for Reconstruction and Development / The World Bank Nigeria's global competitiveness has also been undermined by a weak financial sector.

F. Coricelli, A. Masten, I. Masten (2007) Non-linear growth effects of financial development: Does financial integration matter?

Gabriel Mougani (2012) An Analysis of the Impact of Financial Integration on Economic Activity and Macroeconomic Volatility in Africa within the Financial Globalization Contexts, African Development Bank Group, Working Paper No. 144

J. Chen and T. Quang (2012) International Financial Integration and Economic Growth: New Evidence on Threshold Effects, Paris School of Economics

Kose, M. Ayhan; Eswar Prasad, Kenneth Rogoff, Shang-Jin Wei (August 2006). "Financial Globalization: A Reappraisal". IMF Working Paper.

Levine, Ross (1997). "Financial Development and Economic Growth: Views and Agenda". Journal of Economic Literature 35 (2): 688–725.

Lothian, James (2000). Capital Market Integration and Exchange Rate Regimes in Historical Perspective. New York: Elsevier Science, Inc.

M. Osada and M. Saito (2007) Financial Integration and Economic Growth: An Empirical Analysis Using International Panel Data April 27, 2010 BIS Asian Research Networks held on March 26, 2010

M. Schularick and M. Steger (2006) Does Financial Integration Spur Economic Growth? New Evidence from the First Era of Financial Globalization, Institute of Economic Research Economics Working Paper Series

Neal, Larry (1990). The rise of financial capitalism. Cambridge University Press.
P. Lane (2009) International Financial Integration and Japanese Economic Performance Philip R. Columbia University in the City Of New York, Working Paper Series February 2009, No. 274

Pierre-Olivier G. and Olivier J. (2006) The Elusive Gains from International Financial Integration University of California, Berkeley, NBER, and CEPR and International Monetary Fund and CEPR

R. G. Rajan and L. Zingales (1998), "Financial dependence and growth", American Economic Review, 88(3), 559–86.

S. Zenasni and A. Benhabib (2013) Foreign Direct Investment, Financial Integration, and Growth: Panel Data Analysis for North African Countries, The 12th Annual GEP Postgraduate Conference 2013, University of Nottingham, United Kingdom

APPENDIX

Year	FI2	TD	GDPC	FI1
1970	1.63401	19.6206	639.405	0.27951
1971	3.11487	24.4636	713.635	0.32263
1972	2.48484	22.7637	720.395	0.37071
1973	2.45996	31.2678	740.905	0.39487
1974	1.03435	39.747	802.671	0.36497
1975	1.69236	41.1703	740.262	0.48613
1976	0.93366	42.1381	784.235	0.45586
1977	1.22245	47.3953	806.833	0.46532
1978	0.57746	43.3148	737.501	0.55851
1979	0.6551	43.8784	764.188	0.57611
1980	-1.1509	48.5713	773.858	0.63475
1981	0.90511	49.1108	654.233	0.75849
1982	0.86532	38.6536	635.902	1.08901
1983	1.04272	31.1405	587.131	1.27095
1984	0.67121	27.8037	544.86	1.4405
1985	1.70932	28.5379	582.588	1.39198
1986	0.956	37.5927	581.861	1.85868
1987	2.6046	53.281	562.788	2.00845
1988	1.65735	45.1485	602.416	2.07361
1989	7.90257	57.8502	629.116	1.85934
1990	2.06474	72.2405	663.326	1.64541
1991	2.60815	68.5525	677.387	1.84274
1992	2.74115	82.7397	679.781	2.99978
1993	6.30068	97.3212	677.54	9.55674
1994	8.27954	82.5175	661.491	10.1086
1995	3.83962	86.4722	661.319	16.6508
1996	4.51416	75.5898	672.747	16.3934
1997	4.24917	82.7023	673.857	16.7086
1998	3.2707	71.592	669.558	19.4776
1999	2.88968	78.0302	660.179	19.4905
2000	2.47945	86.0048	678.586	18.8899
2001	2.4805	75.2829	682.253	18.7794
2002	3.17006	64.4209	675.559	19.0875
2003	2.96411	83.1427	726.447	18.5354
2004	2.13333	75.0088	783.074	23.4016

2005	4.43885	77.5841	804.152	28.9231
2006	3.33802	70.5971	831.789	40.3698
2007	3.63726	66.9594	862.142	43.5393
2008	3.9575	73.9586	889.433	29.7303
2009	5.07443	64.6597	925.786	30.6759
2010	2.64548	65.099	972.546	36.7781
2011	3.62396	75.2382	1015.56	21.0039
2012	4.24004	76.5914	1052.34	17.2549

Olaniyi Evans (2013) International Financial Integration and The Nigerian Economic Performance: a Var Modeling Approach (1970–2012)

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