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Financial Openness and Economic Growth in Nigeria: A Vector Error Correction Approach

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Abstract

This paper tests the hypothesis that financial openness promotes economic growth. Theoretically and empirically, the results are mixed. The study used vector error correction modelling and to capture impact of financial openness, financial depth measured as ratio of broad money supply to gross domestic product was used as proxy for financial openness, with government policy and ratio of trade openness as other explanatory variables. Our data set that are

annual in nature covering the period 1970–2010 were subjected to unit root and co-integration tests. Empirical results showed that all variables are I(I) and are significant at 1,5, and 10 percent. Co-integration results revealed that a stable long run equilibrium relationship exists between the variables. The estimated result revealed that the null hypothesis is rejected for all explanatory variables even though only financial openness satisfied apriori expectation. The study recommends legal and accounting reforms required to strengthen operations in the financial sector, in addition to more efficient supervision from the apex bank. This, we believe can boost financial development and accelerate economic growth. To achieve this, government policies should be consistent.

Introduction

In the quest for economic growth, many factors are identified as very crucial to growth generation. Among these factors is financial openness, drawing from economic theory built on models of competitive and efficient market that opined that financial openness foster economic growth and development (Fratzscher and Bussiere 2004). Though, its role in history of economic thought is a subject of controversy. The classical school of thought posits its neutrality in real output determination while the Keynesian and Monetarist schools of thoughts believe that financial indicators will affect the real sector. Their argument centres on the link between developments in the financial market and credit flow. Increased/decreased credit flows resulting from lending rate will increase/decrease the real sector with an increase/decrease in domestic investment, domestic consumption and government expenditure. Happenings in the world economy have lent credence to the Monetary/Keynesian postulates. Financing is needed to fulfil the potential for growth. If there is a shortage, the potential is said to be underutilized. It is suggested that financial openness prevents the congestion when the real side of the economy is in need of finance. Therefore, the relief in accessing finance can contribute to economic growth.

There is surfeit of literature on financial openness and its impact on macroeconomic variables such as employment, economic growth etc. The financial crises of the 1990s rekindled the debate on the benefits of financial liberalisation. Models based on the paradigm of competitive and efficient markets tell us that financial openness should foster economic growth by improving the allocation of capital. By contrast, others have stressed that the presence of market distortions may lead to welfare reducing effects of financial liberalisation. Such market distortions can take various forms, such as asymmetric information and hidden action (Stiglitz 2000), or be related to political economy factors (Bhagwati 1998). Despite significant research efforts in recent years, the literature is still very much divided on whether financial liberalisation benefits economies, and if so what are the necessary prerequisites and conditions for the inflow of benefits.

While some countries have benefited from financial liberalisation, others have not enjoyed higher economic growth or have even experienced severe crises and recessions in the years following liberalisation. The hypothesis of the paper is that there is evidence of a relationship between financial openness and economic growth in Nigeria following capital account liberalisation contained in the Structural Adjustment Programme of 1986. The objective of this paper is to test empirically for the financial openness-economic growth nexus using economic growth model. The rest of the paper is organised thus: the next section is review of related theoretical and empirical literature while three is on the methodology of the study. This is followed by presentation and discussion of the results and section five summarise and concludes the study.

Literature review

Some recent theoretical work has argued that the main benefits from liberalisation may not come from having access to external capital, but primarily from the fact that the process of opening up leads to a reduction of domestic distortions and locks in reforms (Gourinchas

and Jeanne 2002). The recent empirical literature on the issue has investigated a broad set of potential factors and distortions, such as the role of financial depth and development, the quality of domestic institutions, the sequencing of reforms, and the composition of capital inflows, and the role of crisis and its management in the financial openness-growth nexus (Eichengreen and Leblang 2003). Despite this effort, however, remarkably little consensus has so far been reached about the underlying forces that make financial liberalisation generate economic growth.

In the standard "neo-classical" model, capital market liberalization lowers the cost of capital, thereby inducing additional investment and a growth response. However, (Bekaert and Harvey 2000) see the decrease in the cost of capital as modest, and the associated increase in investment as small. Henry, (2003) opine that financial openness may also directly affect factor productivity, by promoting better corporate governance, or signalling higher quality governments (Rajan and Zingales, 2003) investing in projects and policies that are growth generating. In other words, more .financial openness and closer .financial integration can strengthen the domestic .financial system leading to more investment, to a more efficient allocation of capital and therefore to higher economic growth (Levine, 2001). However, this theoretical arguments supporting .financial openness revolve around two transmission mechanism:

- ✓ the benefits of international risk sharing for consumption smoothing; and
- ✓ the beneficial impact of capital flows on investment and growth.

Though, Markusen and Venables (1999) are of the view that foreign direct investment may reduce the profits of local firms due to increased competition in the product and factor markets and crowd-out local firms thereby hurting growth and is corroborated by (Bhagwati, 1998; Rodrik and Subramanian, 2008; Stiglitz, 2000) when they argued that financial openness is not necessarily welfare

enhancing in the presence of distortions such as trade barriers, weak institutions, and/or macroeconomic imbalances; or if information asymmetries affect the proper working of the international financial markets.

Empirical literature still lacks convincing power with regard to the financial openness-growth nexus. Prasad, Rogoff, Wei and Kose (2003) observed that theoretical models have identified a number of channels through which international financial integration can promote economic growth. However, there is, as yet, no clear and robust empirical proof that the effect is quantitatively significant. .Empirical work by Kraay (1998), Edison, Levine, Ricci and Slok (2002), and Fratzscher and Bussiere (2004) have not confirmed a robust long-term impact of financial openness on growth. Their results support Rodrik (1998) who concluded that .capital controls are essentially uncorrelated with long-term economic performance.

On the other hand, there are studies that have found a significant positive relationship between financial openness and economic growth such as that by Quinn (1997) and Edwards (2001). More recent researches have aimed to shed more light on the question of whether the positive growth impact of financial openness depends on thresholds such as a sound institutional framework and macroeconomic stability, but the results remained mixed at best (Arteta, Eichengreen, & Wyplosz, 2001; Edison et al., 2002; Klein, 2005).

This lack of evidence in favour of a robust openness-growth nexus is puzzling in several regards. In particular, an important caveat is that today's most developed economies all have open capital accounts and liberalised domestic financial sectors. Moreover, those emerging markets and transition countries that have opened up, did so relatively recently, mostly between the late 1980s and the mid-1990s. The key question therefore does not seem to be whether countries benefit from liberalisation in the (very) long-run, but the timing and the circumstances under which they benefit.

A key hypothesis that has received little attention in the empirical literature according to Fratzscher and Bussiere (2004)is that there may be a trade-off over time between openness and growth. The theoretical work by Gourinchas and Jeanne (2002) implies that financial liberalisation yields only a one-off benefit for economies in the short-term, which subsequently return to their long-term growth path. McKinnon and Pill (1999) argue that, in the short-run, improved access to foreign capital may lead to "over borrowing", i.e. an investment boom, and thus temporarily higher growth. However, this initial bubble may be followed by a severe bust, financial crisis and economic contraction as the boom becomes unsustainable. Hence countries opening up their financial markets may experience a boom and higher growth in the short-run, followed by a recession and a temporary "bust" in the medium-term, and may reap the full gain from liberalisation only in the very long-run. The theoretical arguments by McKinnon and Pill (1997, 1999) therefore imply a short-run gain and either no gain or a medium- to long-run pain from financial liberalisation.

Bekaert, Harvey and Lundblad (2006) analyse a different type of openness by looking at the effects of stock market liberalisation on growth in a panel framework. They find that equity market liberalisation leads to a 1% increase in annual GDP growth during the five years after liberalisation. This study is geared towards examining financial openness-economic growth nexus in Nigeria.

Methodology

This paper adopts a vector error correction (VEC) methodology in analyzing the effect of financial openness on economic growth in Nigeria. The paper uses the Johansen's cointegration analysis to identify the long run relationships among the variables. Before estimating the cointegrated VAR, the stochastic properties of the data was checked using the Augmented Dickey-Fuller (ADF) unit root tests. In the ADF test, the hypothesis □ □= *0 or* ρ = *1* of

nonstationarity or unit root is tested against the alternative which states that a series is stationary if $-1 < \rho < 1$.

The study follows the modelling strategy of the great majority of studies in the literature and uses augmented version used by Sanusi, Mo'osin, Kusairi and Ekonomi (2012) growth model The dependent variable is the growth rate of real GDP. The control variables are financial depth given as ratio of M2 to GDP (m2/gdp), government policy represented by the ratio of government expenditure to GDP (GOVT/GDP) and investment to GDP ratio, and the population growth rate.. The objective is to evaluate the effect of financial liberalization on economic growth. The estimated model is:

$$GR_t = \lambda_0 + \lambda_1 FD_t + \lambda_2 GPO_t + \lambda_3 IVG_t + u_t \text{ ---------- (1)}$$

$$\lambda_1 > 0;\ \lambda_2 > 0; \lambda_3 > 0;$$

Where:

GR is growth rate of GDP

FD is financial dept (M_2/GDP)

GPO is government policy represented as ratio of openness (total trade) to GDP

IVG is investment – GDP ratio

The above sign $\lambda > 0$, implies a positive relationship between dependent variable and the explanatory variables, and all the explanatory variables are expected to be positively related to the dependent variable. Annual data from 1970 to 2010 extracted from the Central Bank of Nigeria statistical bulletin were used to compute the variables. The analysis converts all variables into logarithmic. We tested for stationarity of the series using Augmented Dickey Fuller (ADF) tests.

$$\Delta yt = \alpha 0 + \alpha 1\, yt\text{-}1 + \alpha 1\, trend + \sum_{j=1}^{p} \beta j\, \Delta\, yt\text{-}j + \mu t \text{ ----------(2)}$$

where Δy indicates the first difference of yt and p is the lag length of the augmented terms for yt. Equation (2) allows us to test whether the variable yt is a stationary series. The null hypothesis in the ADF tests is that yt is non-stationary or has a unit root. This was followed by co-integration test

Analysis of result

Prior to the estimation of the error correction model, time series stationary is tested through Augmented Dickey-Fuller test and order of integration defined. The unit root test results are presented below. The result showed that all variables are found to be I(I),except GRGDP that is I(0) and are significant at 1,5, and 10 percent.

Table 1: Summary of Results of Unit Root Tests

Variables	Intercept		
	I(0)	I(I)	Lag
FD	2.8823	-4.3797	1
GPO	1.7372	-3.9294	1
GR	-4.5386	-6.9718	1
IVG	0.9896	-11.3915	1
Test critical values			
1%	-3.6067	-3.6117	
5%	-2.9378	-2.9399	
10%	-2.6069	-2.6080	

Computed by author using E-View 3.0

To establish the existence of long run relationship among the variables, Johansen method was used. The result showed long run relationship as the test indicated four co-integrating equation (see appendix)

Analysis of vector error correction result

A vector error correction (VEC) model is a restricted VAR designed for use with non-stationary series that are known to be co integrated. The VEC has co-integration relations built into the specification so that it restricts the long-run behaviour of the endogenous variables to

converge to their cointegrating relationships while allowing for short-run adjustment dynamics. The co-integration term for a single model is known as the "**error correction term"** since the deviation from long-run equilibrium is corrected gradually through a series of partial short-run adjustments.

Since the variables are non-stationary at levels but co integrated, then their dynamic relationships must be specified by vector error correction model (VECM) in order to capture both the short-run and long-run relationships. The results from the vector error correction estimates for the model are shown in Appendix 2 VEC includes both the long run and short run dynamic relationships. The vector Error Correction model equation for the long run growth rate in GDP is presented below:

Vector Error Correction Model Equation

D(LOGGR) = 1.402*(LOGGR(-1) – 0.869*IVG(-1) – 1.1006 *LOGGPO(-1) + 2.0595*LOGFD(-1) ----------(3)

(0.2340) (0.3062) (0.4442)

[-3.7137] [-3.5941] [4.6359]

The result above did not conform to our apriori expectation except financial depth, the proxy for financial openness. The adjustment coefficient or the speed of adjustment of GR if deviated from its long run equilibrium is -1.402 (see appendix). Also the error correction estimate equation shows that the long run behaviour of IVG and GPO have negative relationship in adjusting to long-run disequilibrium given the ECM value and are statistically significant. Thus, in the long run, the null hypothesis is rejected for all explanatory variables.

The R^2 which is the common measure of the goodness of fit, stood at 0.6145. That is 61.45 percent variation in growth rate in GDP is explained by the independent variables. Financial depth variable is positive and significant in influencing economic growth rate. The result implies that a unit increase in financial dept will result to 2.1

increases in growth rate of the economy. Government policy investment/GDP ratio carried a negative sign in influencing the growth rate of the economy, but fails to reject the null hypothesis of no relationship with economic growth. This partially corroborates Sanusi, Mo'osin, Kusairi and Ekonomi (2012), and Fratzscher and Bussiere (2004). The divergence is on the impact of government expenditure. While Sanusi et al and Fratzscher and Bussiere (2004) found government expenditure to be positively related to growth rate in gross domestic product and significant at 5 percent, our study recorded negative relationship that is significant. This can be attributed to inconsistency that characterizes government policies in Nigeria.

Conclusion

In this paper, we investigated the effect of financial openness on economic growth. We found that financial depth is positively related to growth rate in gross domestic product and statistically significant. This we believe stemmed from deregulation of the financial sector and relaxing of excessive control and regulation of financial transaction as it relate to sourcing and spending of foreign currency. This, coupled with liberalization of the issuance of banking license, impacted on the dependent variable.

The policy implication of the result is that in addition to financial liberalization, both legal and accounting reforms are required to strengthen operations in the financial sector, in addition to more efficient supervision from the apex bank. This, we believe can boost financial development and accelerate economic growth while at the same time avoiding the crisis that resulted in government takeover of some banks and forced mergers of others.

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Appendix

Date: 07/27/13 Time: 14:53
Sample(adjusted): 1974 2010
Included observations: 37 after adjusting endpoints
Standard errors & t-statistics in parentheses

Cointegrating Eq:	CointEq1
GR(-1)	1.000000
FD(-1)	-11.58531 (38.0387) (-0.30457)
GPO(-1)	44.54490 (146.055) (0.30499)
IVG(-1)	-65.87822 (216.417) (-0.30440)
C	43.23433

Error Correction:	D(GR)	D(FD)	D(GPO)	D(IVG)
CointEq1	0.004532 (0.00591) (0.76660)	0.004399 (0.00794) (0.55427)	-0.003414 (0.00139) (-2.45697)	-0.016897 (0.00111) (-15.2915)
D(GR(-1))	-0.612625 (0.18168) (-3.37200)	-0.070710 (0.24391) (-0.28990)	-0.031505 (0.04270) (-0.73781)	0.009256 (0.03396) (0.27259)
D(GR(-2))	-0.291879 (0.17993) (-1.62217)	0.011659 (0.24157) (0.04826)	-0.008313 (0.04229) (-0.19657)	0.006495 (0.03363) (0.19313)
D(FD(-1))	0.054663 (0.16513) (0.33102)	-0.130450 (0.22170) (-0.58841)	-0.031512 (0.03881) (-0.81193)	-0.035685 (0.03086) (-1.15618)
D(FD(-2))	0.069481 (0.16132)	0.014815 (0.21657)	0.024419 (0.03791)	-0.016688 (0.03015)

	(0.43071)	(0.06841)	(0.64404)	(-0.55349)
D(GPO(-1))	0.710735	0.412506	-0.440448	0.312060
	(0.69672)	(0.93538)	(0.16375)	(0.13022)
	(1.02012)	(0.44100)	(-2.68972)	(2.39640)
D(GPO(-2))	0.470827	1.394955	0.167522	0.037059
	(0.73999)	(0.99347)	(0.17392)	(0.13831)
	(0.63626)	(1.40412)	(0.96320)	(0.26794)
D(IVG(-1))	0.299418	1.137407	-0.339950	-1.953457
	(0.47168)	(0.63326)	(0.11086)	(0.08816)
	(0.63479)	(1.79612)	(-3.06644)	(-22.1580)
D(IVG(-2))	0.382790	2.818671	0.105639	-3.506576
	(0.62498)	(0.83906)	(0.14689)	(0.11681)
	(0.61249)	(3.35931)	(0.71917)	(-30.0191)
C	-0.305406	0.188977	0.229284	0.748212
	(0.38001)	(0.51018)	(0.08931)	(0.07103)
	(-0.80368)	(0.37041)	(2.56714)	(10.5344)
R-squared	0.336863	0.614097	0.559752	0.987275
Adj. R-squared	0.115817	0.485463	0.413002	0.983034
Sum sq. resids	43.89691	79.12177	2.424907	1.533481
S.E. equation	1.275073	1.711852	0.299685	0.238318
F-statistic	1.523953	4.773973	3.814338	232.7642
Log likelihood	-55.66286	-66.56202	-2.085918	6.391766
Akaike AIC	3.549344	4.138488	0.653293	0.195040
Schwarz SC	3.984727	4.573871	1.088676	0.630423
Mean dependent	-0.003906	0.745180	0.108107	0.117223
S.D. dependent	1.356014	2.386479	0.391154	1.829642
Determinant Residual Covariance		0.004609		
Log Likelihood		-110.4794		
Akaike Information Criteria		8.350238		
Schwarz Criteria		10.26592		