

Interrogating the External Debt Service Payments and financial Deepening link in an African Emerging Market

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Abstract: Predicated on the ex-post factor model, this research addresses the link between external debt service payments (EDSP) and financial deepening (FD), relying on data from Nigeria as an emerging market. The contradictory continuous external fund sourcing propelled the study by emerging markets, against the empirical evidence of the impact of debt overhang. Relying on data of 36 years, operationalized via the e-views statistical model, the study observed that EDSP weighs negatively on FD. Specifically, EDSP has been revealed to have a negative influence on the depth of the Nigeria financial system, because debt service payments take away government revenues meant for developmental purposes and thus squeezes the volume of funds in the economy. The paper recommends borrowing, only to the extent that the expected return on spending would exceed the marginal cost of borrowing, also on the assumption that the debt ticks to the negotiated time lines. Furthermore, efforts must be deployed through various macro-economic policies towards developing domestic capacity for productive activities. Also, a borrowing limit threshold should be established and clear exit plan via a scenario analysis of the maximum amount of debt servicing the economy can borne at any time, which should be backed by legislative provisions, with rights of citizens to enforce compliance via the judicial system.

Keywords: external debt service, financial deepening, external debt, money supply, emerging market.

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I. Introduction

The existing literature traces the developmental path of credit management from its rudimentary forms to the Babylonians, Assyrians, Elamites and the Syrians at about 3000BC. The act started long before the first written language and before money was invented. The exchange of goods and services between individual and nations (the barter system), led to the creation of debt and subsequently followed by the introduction of interest rate by king Hammurabi of the Babylonian first Dynasty, due to the problem of the debt crisis and the difficulty faced by borrowers. However, the phrase or term credit management was first introduced by Graeber (2011).

The need to borrow sprang up from the insatiable nature of human wants, as the means or resources available for the satisfaction of these wants are limited in their supply (Ude, 2016). The concept of scarcity and scale of preference as espoused in the developmental stages of modern economics, was predicated on the irrevocable fact that human wants are insatiable, contextualized within a world of resource constraints. Incidentally, the irreversible reality of resource constraints is prevalent and occupies a central place at both individuals, corporate and national levels. However, the modern business environment has created instances where, some have exploited environmental and market opportunities that have earned them so much income, beyond the means required to satisfy their underlying economic and social needs, thus gravitating some of them towards undertaking humanitarian needs via the setting of philanthropic foundations. This notwithstanding, has not invalidated or controverted the truism of the theory of resource constraints, which underlies the borrowing paradigm. Changing societal needs and human nature has continued to amplify the need for credit, underscored by the resource constrain theory's relevance at the individual, corporate and national levels. No, wonder, to meet national wants with limited resources, nations resort to borrowing. Borrowing is now officially recommended as an acceptable financial strategy. Also, the shortfall in domestic savings to finance productive activities compel nations to borrow (Ezeabasili, 2006 & Momodu, 2012). Thus, borrowing has become an acceptable route for both individuals, corporate and national financing strategists.

For Nigeria, following the boom in the market for crude, resulting in a massive rise in revenue from oil production, Nigeria's attractiveness to predatory external creditors, led to significant borrowing by successive governments, with the resultant substantial foreign debt burden on the country, with its attendant servicing implications. The history of Nigeria's huge debts can hardly be separated from its decades of external credit mismanagement (Soludo, 2003; Ikeje, 2009). However, following the oil boom of 1970's, a notion of economic

buoyancy was felt which increased the utility pattern, favouring imported properties and relaxation of measures formerly put in place as a result of oil price decline, leading to indiscriminate importation, overvalued exchange rate regime, over-invoicing of imports and under-invoicing of exports, which has compounded the nation's debt position, (Udeh, 2016). Currently, Nigeria's external debt stock that as at the end of 2019 stood at USD 27.1 billion, representing about 32.38% of the aggregate national debt stock. Currently, the nation is under recession and experiencing slow economic growth coupled with; high cost of living, poverty, unemployment, interest rate and security challenges and also experiencing the decay of infrastructures; in the health, education, social and other sectors of the economy. The Federal government is currently requesting for recent external credit of about 30 billion Dollar to worsen the situation further as previous loans acquired have not been justified. Instead of financing domestic investment in the key sectors to achieve economic self-sustainability in the long run, a substantial fraction of the borrowed funds were captured by political elites and channelled abroad in the form of stolen public funds.

Although, efforts by the first democratically elected government of the 4th republic led to a huge debt relief, which reduced the nation's external debt stock to less than three (3) billion USD. However, the current status from the report from the debt office indicates that the debt burden has continued to increase, due to renewed borrowing and this is indicative of an increase in the debt profile of the country (with a concomitant increase in the service burden) with arguments for and against the resurgence in the borrowing level. The entire country wide debt stood at 25.7 trillion naira (\$83.8), of which the alien component is \$27.1 billion as at the end of 2019. Thus, returning the country to the debt trap.

However, the benefits of borrowing lie in the optimal deployment of the funds, towards ensuring that returns outweigh the cost of the loan. Thus, financial managers, especially at the national level, and experts in development economics, decry borrowing for consumption as opposed to productive activities. The inevitability of borrowing arising from resource endowment and constraints, against the backdrop of productive activities underscores the place of proper credit management. The incidence of borrowing at national levels and its attendant implications for national economies have continued to attract scholarly work. Scholars have canvassed arguments for and against borrowing. However, there is a consensus as to the centrality of the place of proper management of credit facilities towards tilting the scale in favour of optimizing the cost-benefit relationship of borrowing.

Within the framework of the preceding, narrative, a nation's total borrowing represents its aggregate debt stock (credit stock). Lending creates debt, which must be serviced. Public debt is the aggregate of all claims against the government-held by the private sector of the economy or by foreigners, whether interest-bearing or not, (Oyejide, Soyede & Kayode, 1985). Often, the cost of servicing debt becomes overwhelming as experienced in the economic crises facing most emerging nations, which tends to support the anti-borrowing school of thought. Yet, given the inevitability of borrowing, contingent upon the theory of resource constraints, the study appraised the effect of foreign debt service payments on financial deepening. In other words, to what extent does the servicing of external debt affect the ability of a national economy to increase its monetary base?

II. Related Literature and Hypothesis Development.

2.1 External Debt

The conceptual construct of debt employed in this effort, is that debt represents an outstanding payment obligation to a third party, arising from a credit facility, contingent on a credit purchase, exceptional services rendered and or a loan facility, either at the individual, corporate or national levels. The foregoing operationalization the construct is hinged on gleanings from the existing literature. For instance, as noted by (Oyejide, Soyede, & Kayode, 1985; Adepoju, Salau & Obayelu, 2007) debt is created by the act of borrowing, and can be seen as resources or money in use in a corporation, which is not contributed by its owners and does not in any way belong to them. Adepoju et al. (2007) noted further that, it is a liability represented by a financial instrument or another formal equivalent, and that in modern law, debt has no precisely fixed meaning and may be regarded necessarily as that which one person legally owe to another or an obligation that is enforceable by legal action to make payment of money. At the national level basically, the legal and geographical definitions of nations provide a clear line of divide and therefore distinguishes areas of jurisdiction for various countries (except in the disputed boundaries). Even, under such disputed regions, administrative authority exists, which controls overall operations within the territory. Hence, external debt represents the amount of foreign debt or credit of a country. From the existing literature, there is no ambiguity in the concept. In essence, whatever form of interpretation is given, there is the explicit connotation of outstanding liability in money terms.

Historically, debt used to be mostly at the individual and late corporate organizational levels; however, in recent times, post the second world war, national debts have been on the rise. It is now most predominant at the global standards. Christina and Philipp (2010) noted that government debt rose considerably over the prior periods and this trend was in general accompanied by an expansion in the size of governments and that for the

industrialized economies, the growth in general government expenditure (leading to the debt accumulation) was enormous in the 20th century. Hence, before the 20th century, the collection of government debt was in general slow and occurred mainly concerning wars, however, it is evident that today government is the leading debtor (Christina & Philipp, 2010). On their part, Reinhart and Rogoff (2010) opined that debts occasioned by war might be less problematic for future growth, as result of the fact that the excellent wartime expenditure comes to a halt in peace times, meanwhile peacetime debt explosions may become persistent for a much longer time. Against the background of observed implications of debt burden on nations, (Christina & Philipp, 2010) cautioned that how public debt builds up is significant, inclusive of the subsequent debt exit strategy. What this implies is that, without a clear and definite debt exit strategy, with clear timelines, government debt accumulation should be avoided. The implications of debt overhang are well documented in the empirical literature. See (Adesola, 2009; Adpoju, Salau&Obayelu, 2007&Cristina & Philipp, 2010) on impacts of high and growing public debt on national economies.

2.2 The Financial Deepening Construct

Financial Deepening (FD) since McKinnon & Shaw (1973) has attracted a whole lot of scholarly effort. Following McKinnon & Shaw (1973), financial liberalisation hypothesis, various scholars have interrogated the concept predicated on the original construct. Thus, financial deepening from the existing literature is seen as a multi-faceted process that involves the interaction of several markets, instruments, and stakeholders, which facilitate the intermediation process that allows the flow of investment funds to where needed. King and Levine, (1993); Levine, (2002); Beck & Levine (2004); Levine, (2005) opined that FD is a process through which institutions and financial markets facilitate goods and services exchange, mobilise and pool reserves of a considerable amount of investors, acquire and process information about companies and their potential investment projects, allocating public savings to the most productive uses, follow-through up investments and exert corporate governance, expand and shrink liquidity risk and inter-temporal risk. In specific terms, (Levine, 1997) asserted that a financial system (which measures the financial depth of an economy) facilitates the trading, hedging, diversifying, pooling of risk, aids optimal allocation of resources, monitors corporate managers, exerts control, assembles savings, facilitates exchange of goods and services, thereby bring about economic growth. This robust deposition of the financial system is indicative of the fact that no economy can make progress without a proper system of resource allocation. This holds true for both planned economies and private sector-led ones. In contributing to the discourse on financial deepening, Nguena and Abimbola (2013) espoused that financial deepening can be perceived as a process by which the range of products and players broadens, deadlines spread out, and services play a role in risk coverage and diversification. Also, the World Bank in 1989, opined that financial deepening could be described as an increase in asset stock. Financial deepening (Shaw, 1973) is a process entailing specialization in commercial functions and institutions via which organised domestic institutions and markets relate to foreign markets to facilitate the flow of financial resources to needed areas, that will propel growth in the economy. Therefore, financial deepening is a measure of the extent of development of a nation's financial system, that aids it to channel scarce and limited resources to the most viable projects- it is, therefore, a system for optimal resource allocation defined by the extent of development of the enabling institutional mechanisms.

Furthermore, following the avalanche of interest ignited by the McKinnon and Shaw's financial liberalisation hypothesis, various studies have been undertaken, and conclusive evidence abounds around the subject of FD. Studies by (Beck, Levine, Loayza, 2000; Levine, 2004; Ndebbio, 2004; Arestis, Chortareas, & Desli, 2006; Dehesa, 2007; Ang, 2008; Karahan & Metehan, 2011; Gries, Kraft, Meierrieks, 2011; etc.) did identify various measures or proxies of FD to include; ratio of private sector credit to GDP, ratio of broad money supply to GDP, total value of financial assets, ratio of Commercial banks assets relative to Central bank assets, liquidity relative to GDP, ration of private credit with the currency of bank deposits relative to GDP, bank deposits relative to GDP, and the level of per capita nominal or real cash growth rate in the economy. In a broader sense, (Cezar, 2012) espoused a composite indicator of financial deepening based on the framing of a commercial development composite indicator, that is sensitive to economic system's development status. He deployed the principal component analysis tool to condense the information of seven critical indicators of the efficiency of resource allocation. Accordingly, he zeroed down on private credit, liquid liabilities, bank assets, bank sizes, information and the rule of law index as constituting critical yardstick for measuring the financial depth of an economy. In this regard, Nebbio 2004 had deposed that, considering that financial deepening means an increase in financial assets and providing the level of financial services to an economy, it is imperative to develop some measures of these financial assets, including currency, by identifying these assets, evaluating them and defining a clear measurement template. From the preceding, it is clear that various typologies have been used to proxy financial deepening. The commonality, however, lies in the consensus that it is an indicator of optimal allocation of an economy's financial resources towards the pursuit of economic growth.

Hence from the broad pioneering perspective of McKinnon and Shaw 1973's deposition, it would be difficult to provide operational measurement indices for the whole gamut of dimensionalized components of FD. Therefore, drawing inspiration from prior works which have used various proxies for the purpose of conducting empirical analyses, this current study deploys the ratio of broad money supply as indicated of FD. This inevitably allows for econometric measurement.

2.3 Theoretical Premise

2.3.1 Rebecca's Debt cycle and deleveraging theory

This theory believes that Credit obtained can further lead to the creation of debt cycles, which are broken down into four primary phases: (1) early (2) mid (3) late (4) and finally the recession phase and again that expansion of credit and debt leads to a development in GDP (gross domestic product), thereby foremost to an expansionary cycle and contraction of credit leads to recession. The early phase is characterized by positive economic growth to declining unemployment and rising inflation which usually follows a recession. Dalio (2015) suggested that at the recession phase, deleveraging becomes the way out. Deleveraging is the process of reducing the obligation level in an economy, usually following a financial crisis. It is generally measured as a decline of the total debt-to-GDP ratio. Furthermore, he suggested the uses of these three tools: (1) austerity, (2) debt restructuring and (3) printing money in combating recession. Deleveraging forces banks to tighten their borrowing level and restructure their balance sheets, to protect the economy from crisis. In line with deleveraging policy, a new ratio was introduced by the Basel III norms to regulate the economy in the United States. This ratio presumes banks to maintain a leverage ratio in excess of 3%, and these conventions have impacted, foremost banks like Wells Fargo (WFC), JPMorgan Chase (JPM), Bank of America (BAC), and Citigroup (C) directly, as it affects their ability to lend money to borrowers in the United States, (Rebecca, 2015).

2.3.2 Ricardo Theory of Public Debt

Ricardo's theory of municipal debt was based on an emphasis of the fact that, the primary burden to the community was derived from wild nature of public spending itself, rather than from the methods adopted to finance such expenditure. Regarding the question of funding in federal expenditures, his view was that the requisite funds would ultimately have to be drawn from the liquefied resources of the public and that at point in economy, it would make no significant difference whether such funds were raised by taxes or by loans. However, where the coffers were raised through the later, it would be referred to as public debt. Exterior debt involves debt servicing, which in most cases require payments in foreign currency. Whereas, they continue to increase or decrease in demand for foreign currency tends to influence the exchange rate.

2.3.3 Threshold School of Thought (Debt-Later Curve Thesis)

The burden of external debt was the concern of the Brink school of thought, which emphasises the non-linear link between debt and growth (Calvo, 1998). It links debt and growth to the problem of capital flight, where at high debt levels, growth falls. Agreeing to the threshold model, the fall in growth is due to the higher distortionary tax burden on capital required to service the debt. It leads to a lower rate of return on equity, lower investment and hence more moderate development. It upholds that low debt regimes have higher growth rate and smaller strand of thought in the debt-growth connection sees external debt as capital inflow with optimistic influence on internal savings and venture and thus on development, which leads to poverty reduction via appropriate targeting of national savings and investment (Calvo, 1998) Certain economists do not view external debt as indispensable for the economic development. To them, public debt both foreign and domestic, (mainly external) does not help in overcoming balance of payments complications and also does not avoid inflationary pressures. In their opinion, public debt encourages governments to embark on ambitious and vague plans involving huge expenditures sponsored by inflationary monetary and fiscal policies and also run down their external reserve.

The foregoing theoretical treatise forms the basis for the current work. As there is commonality in all theorists about the divided (positive and negative) impact of debt. The common basis is that too much national debt, with its correlating commitments is very likely to weigh out the benefits of borrowing.

2.4 Prior Related Empirical Studies

Following McKinnon and Shaw 1973, the research effort has been enormous on empirically proving the relevance of their theoretical espousal. Also, various studies have particularly been conducted on the link between FD and Economic growth. Quite interestingly, all studies conducted in their multiple economic domains, have come up with conclusive evidence on the benefits of FD, except for a few that cautioned against excessive and unbridled liberalisation of the financial sector. Majority of the studies (Darrat, 1999; Edison, Levine, Ricci, & Slok, 2002; Ndebbio, 2004; Beck and Levine, 2004; Rousseau and Vuthipadorn,

2005; Bekaert, Harvey, & Lundblad, 2005; Levine, 2005, 2002; Mavrotas & Son, 2006; Danchen and Juan, 2007; Guryay, Safakli & Tuzel, 2007; ; Kose, Prasad, Rogoff, & Wei, 2008; Perera & Paudal, 2009; Nieh, Chang, Russel, Hung, 2009; Nzotta & Okereke, 2009; Darrat and Al-Sowadei, 2010; Odhiambo, 2010; Ang, 2010 & 2008; Anwar and Nguyen, 2011; Islam & Oslam, 2011; Hamori and Hashiguchi, 2012; Ohwofasa, & Aiyedongbon, 2013; Bumann, Hermes, & Lensick, 2013) that interrogated the link between FD and growth, concluded that financial deepening is a catalyst for economic growth. Whereas, the studies by (Stiglitz & Weiss, 1981; Diamond & Dybvig, 1983; Demirgüç-Kunt & Detragiache, 1998; Boot 2000; Stiglitz, 2000; Hellmann, Murdock and Stiglitz, 2000; Klingebiel, Kroszner, & Laeven, 2007) cautioned against the danger of excessive liberalisation.

Also, from the external debt impact prism, the Tanzania study by (Kasidi & Said, 2013) concluded external debt and debt service payments forecloses GDP growth. Furthermore, a Pakistani based similarly survey from the Asian emerging markets domain by (Atique & Malik, 2012), found inverse relationship in both, between domestic debt and economic growth, and external debt and economic growth. Contributing also from a Nigerian perspective, Muoghalu (2007) indicated that it is an inappropriate policy for a developing economy to accumulate massive foreign investment (with its associated remittances) and increased external debt (and attendant burden). Premised on this conclusion, the study recommends the striking of an optimal balance between the two and determination of the optimal levels and timing of both activities. Similar findings were reached in other Nigerian based studies by (Adpoju, Salau & Obayelu, 2007; Adesola, 2009; Ogege & Ekpudu, 2010; Ezenwa, 2012; Sulaiman & Azeez, 2012; Abazi & Arbenita, 2015). Be that as it may Iya, Gabdo and Aminu (2013) posited to the contrary, that external debt had contributed positively to Nigeria economy. When measured in the immediate and proximate term to the facility collection, there deposition may apply, however in the ultimate analyses, excessive debt has always created repayment obligation defaults.

From the avalanche of the empirical literature, the nexus between external debt servicing payments and financial development in emerging economies (mainly from an African perspective) needs further interrogation. The existing works discriminated economic growth as the prime object of the study links, leaving an untapped field. It is upon this gap that we interrogate and hypothesize the link between EDSP and FD based on country data obtained from Nigeria:

Ho. External debt service payments does not significantly affect financial deepening in an African emerging economic domain

III. Methodology

This work was tailored after the ex-post factor design. Country level secondary data were obtained from publications of statutory institutions empowered to do so. The Central Bank of Nigeria (CBN) Statistical bulletins and the Debt Management Office (DMO) covering a period of 36 years (1980-2015) became the data base. The period was extended to capture better coverage of the behavioural pattern of the variables. Accordingly, the ratios of the broad money supply to GDP (M2/GDP) as earlier espoused was used as the proxy of financial deepening, and values External Debt Service Payments were obtained for the said study period. The e-views platform was used to operationalize both the descriptive and inferential statistical analyses, anchored on the ordinary least square (OLS) model.

IV. Empirical Model and Results

The model was formulated using the ratios of the broad money supply to GDP (M2/GDP) as the proxy for financial deepening and External Debt Service Payment as the independent measure.

The model was formulated as follows:

Mathematically; $GDP = f(EDSP) \dots \dots \dots (1)$

To make the Mathematical expression estimable, it was transformed as equation (2) below:

$GDP_1 = b_0 + b_1EDSP + et. \dots \dots \dots (2)$

Where;

b_0 = a constant

b_1 = coefficient of the independent variable

GDP_1 = ratios of broad money supply to GDP (M2/GDP),

EDSP = External Debt Service Payment

et = the disturbance term or error term

Table 1. Summary of Descriptive Statistics

Parameters	FD	EDSP\$
Mean	15.44118	73331.30
Median	17.00000	1826.140
Maximum	38.00000	460728.4
Minimum	1.200000	1.29.5200

Std. Dev.	8.155722	143861.3
Skewness	0.323575	1.565551
Kurtosis	3.696455	3.666645
Jarque-Bera	1.280458	14.51830
Probability	0.527172	0.000704
Sum	525.0000	2493264.0
Sum Sq. Dev.	2195.021	6.83E+11
Observations	36	36

Source: Authors' Computation
Key: FD: Financial Deepening
 EDSP: External debt service payment

As indicated in table 1 above the mean values for FD (ratios of the broad money supply to GDP (M2/GDP)), and EDSP (External Debt Service Payments) were 15.44118 and 73331.30 from the e-views computation, with median values of 17.00000 for FD and 1826.140 for EDSP respectively. Further consideration of the descriptive statistics indicates both their maximum and minimum values within the period under review. The standard deviation, skewness, and other descriptive statistics are as captured in the table.

Result of data analysis using unit root test, is shown in table 2 below

Table 2. Augmented Dickey-Fuller Unit Root Test Result

Variable	AT LEVEL				AT 1 ST DIFFERENCE				Order of integration
	ADF Test statistic	Critical Value at 5%	Lag	Remarks	ADF Test Statistic	Critical Value at 5%	Lag	Remarks	
FD	-2.463458	-3.544284	0	NS	-7.378229	-3.548490	0	S	I(1)
EDSP	-0.803191	3.552973	2	NS	-8.595193	-3.552973	1	S	I(1)

Source: Authors' Computation

The a priori expectation when using the ADF test is that a variable is stationary when the value of the ADF test statistic is higher than the critical value at 5%. Thus, FD and EDSP integrated of order one to become fixed. The result of the unit root test presented in table 2 above indicates that the variables used in the model are unit-root delinquent, when considered at their level form, but turned stationary after their first difference. We ascertained this when we compared the ADF statistic of the variables with their corresponding critical values. For instance, for the external debt service payment, the absolute value of the ADF statistic is 0.80, which is less than the total amount of the corresponding critical value of 3.55. On the other hand, when ADF statistics of the variables at their first difference were compared with that of the essential benefits, they were found to be higher at 5 percent. For instance, the absolute value of the ADF statistics of external debt services payment is 8.59, which are more significant than the critical value of 3.55 at 5 percent level of significance. Furthermore, foreign debt services payment was significant at 5 percent.

Table 3: Johansen Co-Integrated Test

Unrestricted Cointegration Rank Test (Trace)

Hypothesized	Trace	0.05		
None	0.200817	13.32392	18.39771	0.2217
At most 1 *	0.154405	5.702302	3.841466	0.0169

* denotes rejection of the hypothesis at the 0.05 level
 **MacKinnon-Haug-Michelis (1999) p-values

Hypothesized	Max-Eigen	0.05		
None	0.200817	7.621618	17.14769	0.6447
At most 1 *	0.154405	5.702302	3.841466	0.0169

Source: Authors' Computation

Table 3 above, shows a long-run nexus between EDSP and FD. Both the Trace and the Maximal-Eigen values test identified co-integration at 5% level of significance. This infers a long run relationship. The presence of at least co-integrating equation necessitates the analysis of the VECM. The output of both aspects of the VECM model are presented in table 4 and 5 accordingly:

Table 4. Long-run Co-integrating Coefficients

FD	EDSP
1.000000	1.26E-07
	(1.8E-08)
	[6.92541]

Source: Authors' Computation

The test output above unveils along run relationship between FD and EDSP as espoused in the model. The existence of a long-term relationship is quite informative for policy implications.

Table 5. Short-run Co-integrating Coefficients

Error Correction:	D(FD)	D(EDSP)
CointEq1	-0.754424	93.78206
	(0.27366)	(419.393)
	[-2.75681]	[0.22361]

Source: Authors' Computation

In the same vein, the short run VECM output also captures the presence of a link. The result shows there is positive short-run relationship between FD and EDSP. This shows that EDSP has a positive effect on FD in the short-run. This is attributable to the incidence of payment timeline, as payments for credit does not commence immediately at borrowing. It is contingent on passage of time.

Table 6. Correlation Analysis

	FD	EDSP
FD	1.000000	0.424944
EDSP	0.424944	1.000000

Source: Authors' Computation

As reflected in the correlation analyses indicated in table 6 above, there is a nexus between both criterion and predictor variables. The test output documents the existing of a link between both FD and EDSP. It shows that an increase in the volume of funds attributable to external borrowing, thus leadsto an increased financial debt, with a corresponding increase in EDSP.

Table 7. Result of Pairwise Granger-Causality Test (1980-2015) with 2-period Lag length

Null Hypothesis:	Obs	F-Statistic	Prob.
EDSP does not Granger Cause FD	34	3.52031	0.0428
FD does not Granger Cause ESP		2.62537	0.0895

Source: Authors' Computation

The decision rule of a causality test states that if the probability value of the estimate is higher than the 5% level of significance, we accept the null hypothesis, and vice versa. To determine the direction of causality between the variables, the Engle and Granger (1987) causality test was performed as reflected table 6. The output of the Granger causality test indicates that FD (M2/GDP) has causality with EDSP (External Debt

Service Payments). This analytical output signposts the need for critical scenario analyses as a prelude to borrowing.

Table 8: Result of t-Test of Hypothesis

Variables	Student t-cal (Table value)	Student t-stat. for Financial deepening (Regression output)
H ₀ EDSP	1.697	2.804075

Source: Authors' Computation

The same output correlates the earlier test outcome as reflected in the t test conducted and showcased in table 8. Accordingly, going by the decision rule for deploying this tool, the null hypothesis is rejected, implying that External Debt Service Payments (ESP) has significant impact on financial deepening in Nigeria.

V. Conclusion, Implications and Recommendations

The focus of this study was to examine the interface between EDSPs and FD, relying on official country data from Nigeria. The import was to contribute to the unending debate for and against external borrowing. From the evidence of the interrogated data, it is concluded that external debt service payment has been revealed to have a negative impact on the depth of the Nigeria financial system, because debt service payments take away government revenues meant for developmental purposes. A unit change in EDSP will bring about a less than proportionate change in FD. From the result of the tests, it is evident that EDSP affects the volume of funds available in the system, thus significantly affecting the depth of the financial system. This means that an increase in external credits ignites a corresponding rise in EDSPs, leading to a reduction in the nation's ratios of the broad money supply to gross domestic product (M2/GDP).

The negative weight of high external debt is herald by the reality that a debtor nation has to service its debt, with attendant depletion of resources which may result in debt overhang and uncertainty. Uncertainty occasioned by excessive external debts makes the macro environment (interest rate, exchange rate and inflation) unstable, with disastrous economic consequences; such as scarce investment, reduced access to the international financial market and capital flight. An increase in external credit, initially increases the volume of money in the system in the short run, but it begins to take its toll on the system when repayments commence, by depleting the amount of broad money supply via the remittances for the debt obligations. Every form of debt must be serviced using either earnings from domestic or foreign operations of the debtor nation, which places a massive burden on the financial system of the debtor nation. Debt overhang occurs when the accumulated debt crosses the threshold level of a country's reimbursement capacity. The expected default may cause domestic and foreign investors to withdraw their monies, with negative effect on the nation's money stock. The debt servicing crowds out public investments and depletes government budget resources, thus taking away funds available for productive investments (Elabdawi, Ndulu & Ndng'u, 1996). Thus, external credits servicing, negates financial deepening through a reduction in the amount of capital available for productive investment. No wonder, the rate of default is massive and many nations are in a severe debt trap, which was not envisaged at the time of borrowing.

The study, therefore, recommends that countries should borrow, only to the extent that the expected return on spending would exceed the marginal cost of borrowing on the assumption that the debt repayment timeline and sources are clearly defined. Furthermore, efforts must be deployed through various macro-economic policies towards developing domestic capacity for productive activities. Moreover, a borrowing limit threshold should be established and a clear exit plan via a scenario analysis of the maximum amount of debt servicing the economy can be borne at any time, which should be backed by legislative provisions, with rights of citizens to enforce compliance via the judicial system.

This study contributes to expanding the frontiers of knowledge via deploying a very realistic and measurable index of FD, and looking at the extended external credit research by discriminating external debt service payments specific link to FD. Also, relying on current specific country data would aid policy makers in looking beyond the immediate attractiveness of the huge inflow, without adequate consideration of its payment impact on future generations. However, the basic limitation of this study, which epitomizes its strength, is also its weakness. The discrimination against the broad-based definition of the FD construct by its pioneering proponents.

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