

Public Private Partnership, Infrastructure Guarantee and Sovereign Debt Default

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Abstract

Sovereign Default has been a feature of the international financial landscape. With the pattern of revenue volatility, public debt accumulation, severe funding pressures and underlying macroeconomic variables can evolve in a manner that produces unsustainable debt paths leading to possible default. This paper discusses and develops a conceptual framework to examine the impact of default on sovereign debt arising from an event trigger resulting in the crystallization of contingent liability arising from guarantee for private participation in infrastructure provision. Findings support previous studies, which inferred the threat of contingent liabilities created by guarantee because they are not always recorded in the national account but shown as memorandum item thus producing a hidden and adverse effect on the fiscal status

Keywords: Public Debt, Infrastructure, Government Guarantee, Contingent Liability And Fiscal Risks.

JEL: H54, H6

I. INTRODUCTION

Default according to Paoli, et al. (2006) has been a feature of the international financial landscape; therefore the management of the public debt must be implemented in a way that eliminates the default risk because fiscal credibility is a key factor in economic management. It enables government stabilize expectations in a manner that avoids a rise in long-term interest rates and thus mitigates the risk of insolvency (Drudi and Giordano 2000; Rose 2002; Dooley and Verma 2003; Tomz and Wright, 2005; Shapiro and Pham 2006; IMF 2011; Ezeabasili 2011 and Nicu and Georgeta 2011).

Experience in the last quarter of the 20th century show that the pattern of revenue volatility, public debt accumulation, severe funding pressures and underlying macroeconomic variables can evolve in a manner that produces unsustainable debt paths. These lead to possible default even for countries that have not defaulted in their recent history making it an issue of debate (Alvarado,

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et al 2004, Garcia and Rigobon 2004, Considine and Gallagher 2008, Schabert 2011), Kharas and Mishra (2001), however argue that the growth of debt has more to do with off-budget than with in-budget transaction, especially be so in the face of the infrastructure challenge and huge financial requirements, which could necessitate a public private arrangement resulting in contingent liabilities.

Past experiences also show that exclusive public sector ownership and provision of infrastructure can lead to inefficient investment decisions, necessitating increasingly use of a model that would permit more private sector involvement. Such involvement can be undertaken through an arrangement in which the private sector is required to bring in some form of financing and expertise that the government may not possess or may possess but may not be able to offer immediately but is required for enhanced service delivery and improved welfare (Geert, et al., 2009, Wall and Connolly 2009). However the global financial crisis, fiscal difficulties and longer-term structural budget pressures present governments with enormous challenges in the delivery of infrastructure, which accordingly requires a global investment of around \$71 trillion by 2030 to keep up with population growth and demands (Sachs et al., 2004; Webb, 2004; UNECA 2005; Barker et al., 2009; Barandiaran, 2011; Zuo, et al., 2011).

A recent McKinsey study suggest an increase of around 3.8% to 5.6% by 2020 in total infrastructure financing to GDP, with developing countries requiring additional investment of over \$1.0 trillion to close the infrastructure gap and keep pace with demand of urban expansion (Hammami et al., 2006; Hoppe et al., 2011; Agenor, 2010; McKinsey Global Institute, 2012; G20, 2013; Ehlers, 2014). Unfortunately fiscal and longer-term structural budget pressures have made it imperative for government to seek private partnership in the provision of infrastructure (Webb, 2004; Wall & Connolly, 2009; Alitheia Capital, 2010; Qiu & Wang, 2011; Foster & Pushak, 2011; Barandiaran, 2011; Kateja, 2012). Momoh, et al (2017) argued that the attraction of the private sector must however be attractive enough to encourage private financiers and experts to commit their financial resources. This has, in most cases necessitated the government providing some form of incentives like guarantees that have financial implication for the government and its fiscal regime. The use of guarantee as tool for incentivisation as attractive as it seems might cause problem especially in the event of default for a country that has and or is faced with debt sustainability challenges.

Ter-Minassian (2006) and Tičar and Zajc (2010) describe this arrangement where the private sector supplies infrastructure assets and services that are traditionally provided by the government as Public Private Partnership (PPP). The basic objective of PPP is to achieve some appreciable level of value for money. To this end, the government purchases services not assets, and specifics the output required. The private sector partner on the other hand in consultation with the government provides the design (depending on the structure of the deal), builds,

operates and possibly finances the project.

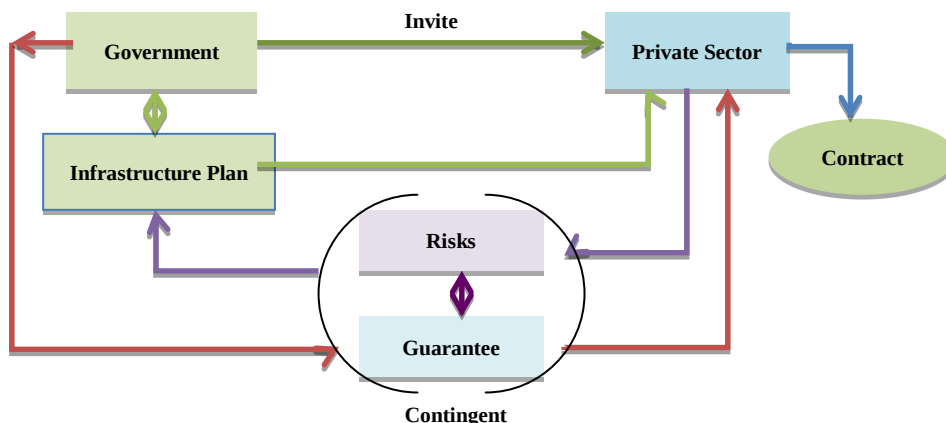
According to Takashima, et al. (2010), private sector participation in the infrastructure project under PPP is based on the strength of a contract with the government. There is however some level of risk associated with this defined relationship, which ultimately influences the nature of the contract between the private sector and government. Unlike in the traditional approach to procurement of infrastructure, PPP arrangement according to Eduardo et al (2009, 1) “bundles investment and service provision in a single long-term contract. For the duration of the contract, which typically lasts several decades, the PPP operator manages and controls the assets, usually in exchange for user fees, which are its compensation for the investment and other costs. At the end of the franchise, the assets revert to government ownership”.

This, notwithstanding, the transaction must be attractive enough to encourage the private financiers and experts to commit their resources. In most cases, this has necessitated the government providing some form of incentive like guarantees that have financial implication for the government and its fiscal regime. Das, et al (2002), observed that government guarantees, have been used to promote both foreign and local investment in projects. However, the East Asian experience confirmed the need for better assessment of the potential risks that could emerge from contingent liabilities under various scenarios, and the need to develop more effective systems to monitor and manage them (Llanto, 2007).

Against this backdrop, this paper discusses and develops a conceptual framework for sovereign debt through the identification of a possible event that could trigger a default of contingent liability arising from guarantee for private participation in infrastructure provision. This will involve discussing guarantees and implications for sovereign debt in the next section and subsequently examine the contingent liability-debt framework, which will reflect the effect of event trigger on contingent liability.

II. Government/ Private Sector Relationship for PPP

Figure 1 depicts the flow to the eventual closure of a PPP transaction between the government and the private participants. The government invites the private sector after due feasibility and appropriate justification that the provision of the particular infrastructure is better provided by them through a procurement process. The private sector upon assessment identifies all the costs, benefits and risk associated with the project, which are discussed with government and both agree on the best party that is suited to assume the identified risk. The government provides the guarantee, which subsequently leads to signing of transaction and financial closure by the private participant prior to start of execution

Figure 1: Government/ Private Sector Relationship for PPP

Source: Authors' Configuration

Christopher, et al (1998) observed that a government's exposure to loss can arise from a wide variety of events, and attempting to account for every source of exposure is not feasible. They therefore suggested that, a better approach to identifying risk is to first examine general categories of risk under the public private partnership and then focus on the areas of highest risk. The risks are allocated to the party that can most efficiently manage them at the lowest cost. Indeed, the risk sharing arrangement should provide an incentive for the private sector to perform as efficiently as possible, such incentives encompass providing revenue subsidies that include tax breaks or guarantees in whichever form (Bracey and Moldovan 2006; Takashima, et al. 2010).

Llanto (2007) argued that government guarantees serve as second-best instruments in the absence of a stable political environment, effective regulatory bodies, independent judicial systems, and an overall competitive climate. Thus, a crucial condition of an effective public-private partnership in infrastructure projects is the provision of state guarantees especially where the transition from government infrastructure monopoly to multiple private infrastructure providers would require significant investments (Mody 2000). The "guarantee" is the connecting line within Public Private Partnership matrix in the procurement process within the framework that make possible or incentivizes the private sector to partake in investing in infrastructure.

III. The Contingent Liability-Debt Framework

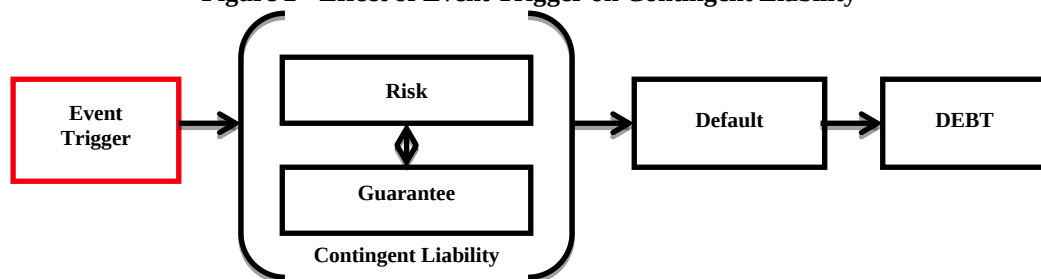
A guarantee is contingent liability obligations that "do not arise unless a particular, discrete event(s) occur in the future" (International Monetary Fund, 2011: 4). The provision of comprehensive guarantees to infrastructure projects has

generated huge contingent liabilities that must be managed well; otherwise the government will be exposed to substantial payment burdens once a guarantee call is triggered (Llanto et al., 1999; Bernardo et al., 2004; Llanto, 2007). Although Guimaraes (2011) argued that Incentives for defaulting on debt depend not on how much a shock affects the country.

There have been several studies to examine the impact of contingent liability on debt sustainability (Krugman, 1999; Jeanne & Zettlemeyer, 2000; Demirgu-Kunt & Detragiache, 2000; Aghion et al., 2001; Burnside, 2004; Aghion et al., 2004; Burnside et al., 2003a, b; Chamon, 2007). Burnside (2004) explain that contingent liabilities take different forms and for different purposes including social security, loan guarantees, commitments to provide commodities to the public at fixed prices, deposit insurance and guarantees to the creditors of public sector enterprises, etc. Mody (2000) in his studies of countries in East Asia identified contingent liability on infrastructure project as adding to the fiscal stress.

Building on the Government/ Private Sector Relationship for PPP in Figure 1, which result into PPP contract, the framework in Figure 2 examines the effect of this event, which could result in a default automatically crystalizing into sovereign debt.

Figure 2 - Effect of Event Trigger on Contingent Liability



Source: Authors' Configuration

Event Triggers within the framework can be classified into two- those which have arisen as a result of events adequately captured and built into the PPP contract otherwise known as the Explicit (Contractual) Contingent Liabilities. The government has a commitment to accepting all or any liability arising from any future event. However, under the second scenario which can be classified under the non contractual contingent liabilities are events which are not directly foreseen at the time of the PPP contract so have not been adequately capture under the Explicit Contingent Liabilities but the government has an obligation to take responsibilities for them to avoid a market distortion or potential system failure.

The second scenario is illustrated in figure 2, in which an event unforeseen, which Christopher, et al (1998) described as a source of exposure, which cannot

be feasibly accounted for at the time of the contract is triggered. At this point, the country's sovereign immunity is unveiled, exposing the government to substantial payment because the cost of infrastructure is huge and in most cases the government might not have the resource to make immediate payment thus defaulting on terms of contract with the private operator. This automatically results in an increase in the debt stock of the country which if not properly monitored becomes unsustainable and could have serious consequences for the nation's economy.

The build-up of the unsustainable debt in most of the emerging economies according to Bjerkholt (2004) has taken place over decades due not only to the official creditors' willingness to lend, but also to a number of exogenous and endogenous factors coupled with declining revenues and resistance to painful fiscal adjustments. This has led to extensive borrowing to meet the deficit, which some of them are apparently finding increasingly difficult to repay (Nishimura & Ohyamab, 1995; Daseking & Powell, 1999). Therefore, the effect of the guarantee on public private partnership arrangement if not well thought out could worsen a nations debt profile. Indeed, contingent liabilities can be a major factor in the build-up of public debt and studies have shown that the unmitigated provision of guarantees give rise to large amounts of contingent liabilities, creating a serious fiscal risk for the government (Llanto, 2007).

IV. CONCLUSION

The study examines the impact of occurrence of an event, which could trigger a liability contingent on a private participation agreement for the provision of infrastructure. In doing this, the study examine the flow from infrastructure gap identification, the financial challenge to finance the gap and the option of attracting private participation through incentivisation to fill and provide these infrastructure need to enhance economic development.

The nature of contingent liability, which Cebotari (2008) described as "budgetary surprises", come due if an unforeseen event occurred which was never anticipated and can be large enough to put the public debt on an unsustainable path. This supports previous studies which inferred the threat of contingent liabilities created by guarantee because they are not always recorded in the national account but shown as memorandum item thus producing a hidden and adverse effect on the fiscal status (Llanto 2007; Commonwealth Secretariat, et al 2009 and Bajo and Primorac 2011).

The concern therefore is informed by the attractiveness of contingent liability related transaction to politicians who, in the face of hard-bitten budget constraints, find them to be an easy instrument for achieving their goals because according to Mody (1998) they involve no immediate cost to the government and rarely appear in the government accounts or have funds budgeted to cover them.

In the light of this, it will be interesting to determine what the magnitude and impact of this contingent liability will be in the event of crystallization on the level of debt to make sovereign debt unsustainable thus making it easy for government to set up some form of sinking fund or policy framework to cushion the effect thus making fiscal management easier.

REFERENCES

- Adesola, W.A., (2009), Debt Servicing and Economic Growth in Nigeria: An Empirical Investigation, *Global Journal of Social Sciences*, Vol. 8, No. 2, 1-11.
- Alfaro, L and Kanczuk, F., (2005), 'Sovereign debt as a contingent claim: a quantitative approach', *Journal of International Economics*, 65, No. 2.
- Alison, J., (2001), *Key Issues for Analyzing Domestic Debt Sustainability*. Debt Relief International: In Emmanuel, O.O (2012). An Empirical Analysis of the Impact of Public Debt on Economic Growth: Evidence from Nigeria 1975-2005. Canadian Social Science, Vol. 8, No. 4, pp. 154-161.
- Alitheia Capital, (2010), *Public private partnerships – the answer to Nigeria's infrastructure problems? How We Made it in Africa – Insight into business in Africa*.
- Auriola, E and Picard, P.M., (2011), A theory of BOT concession contracts. *Journal of Economic Behavior & Organization*, Vol. 89, 2013, p. 187-209.
- Apa, (2013), *Nigeria's debt profile mounts despite gov't's 'no cause for alarm' assurance*. StartAfrica <http://en.starafrica.com/news/nigerias-debt-profile-mounts-despite-govts-no-cause-for-alarm-assurance.html>.
- Auriola, E and Picard, P.M., (2011), A theory of BOT concession contracts. *Journal of Economic Behavior & Organization*, Vol. 89, 2013, p. 187-209.
- Ayadi, F.S and Ayadi, F.O, (2008), The Impact of External Debt on Economic Growth: A Comparative Study of Nigeria and South Africa, *Journal of Sustainable Development in Africa*, Vol. 10, No.3, 234-264.
- Bakare, A. S (2010) Debt Forgiveness and its Impact on the Growth of Nigerian Economy: An Empirical Study, *Pakistan Journal of Social Sciences*, Volume: 7 | Issue: 2 | Page No.: 34-39.
- Barro, R., (1979), On the Determination of the Public Debt. *Journal of Political Economy*, 87(5), pp 940-971.
- Budina, N., (2007), *Nigeria's Growth Record: Dutch Disease or Debt Overhang?* World Bank Policy Research Working Paper 4256.
- Burke, M. and Prasad, K., (2002), An evolutionary model of debt. *Journal of Monetary Economics*, 49 1407–1438.
- BusinessNews, (2014), AMCON's Debt Could Cause Economic Instability <http://businessnews.com.ng/2014/05/06/amcons-debt-cause-economic-instability-report/>
- Calitz, E. and Fourie, J., (2007), *Infrastructure in South Africa: Who is to finance and who is to pay?* Stellenbosch Economic Working Papers: 15/07.
- Cebotari, A., (2008), *Contingent Liabilities: Issues and Practice*. IMF Working Paper. WP/08/245.
- CEIID, (2010), *Infrastructure Procurement Options Guide*. Centre for Excellence and Innovation in Infrastructure Delivery, Government of Western Australia.
- Central Bank of Nigeria, (2012), *External Sector Development Report. Economic Policy Directorate Quarter 3*, Volume 3 Issue 3.
- Chandrasekhar C.P., (2000), *Debt and Development in Asia. The Transfer of Wealth Debt and the making of a Global South*. Focus on the Global South.

- Das, S.U, et all, (2010), *Managing Public Debt and its Financial Stability Implications*. Monetary and Capital Markets Department IMF Working Paper /10/280.
- Debt Management Office, (2006), *Nigeria Paris Club Debt Deal*. DMO NEWS, Vol 3. No. 1.
- Debt Management Office, (2014), *Understanding Nigeria's Debt Situation*. Available online.
- Detragiache, E. and Spilimbergo, A., (2001), *Crises and liquidity: evidence and interpretation*. IMF Working Paper 01/2. International Monetary Fund, Washington.
- Debt Management Office, (2005), *Nigeria's Debt Relief Deal With The Paris Club*. Debt Management Office, Abuja.
- Debt Management Office, (2009), *The Origin of Nigeria's Debt*. Available online at <http://www.dmo.gov.ng/ardroriginofnigeriadebt.php>.
- Debt Management Office, (2014), *Nigeria's Public Debt Stock* as at March 31, 2014
- D'Erasmus, P. and Mendoza, E., (2011), *Domestic Debt and Distributional Effects of Sovereign Default*.
- Dooley, M., (2000), 'Can output losses following international financial crises be avoided?', NBER Working Paper No.7531.
- Dooley, M.P. and Verma, S., (2003), *Rescue packages and output losses following crises: managing currency crises in emerging markets*. NBER Conference Report series. University of Chicago Press, Chicago and London, pp. 125–141.
- Drudi, F. and Giordano, R., (2000), Default risk and optimal debt management. *Journal of Banking and Finance* 24, 861–891.
- Dunn Loren Merrifield, (2012), *Nigeria risks falling back to pre-2006 external debt position*, Vanguard Media Limited. Available online at <http://www.vanguardngr.com/2012/08/nigeria-risks-falling-back-to-pre-2006-external-debt-position/>
- Ehlers, T., (2014), Understanding the challenges for infrastructure finance. *BIS Working Papers* No 454.
- Emmanuel, O.O., (2012), An Empirical Analysis of the Impact of Public Debt on Economic Growth: Evidence from Nigeria 1975-2005. *Canadian Social Science*. Vol. 8, No. 4. Pp 154-161.
- Ezeabasili E.I., (2011), Nigeria Foreign Policy and the Politics of Debt Relief, *Canadian Social Science*. Vol. 7, No. 2, pp. 153-165.
- Federal Ministry of Finance, (2014), *Clarifying Nigeria's Debt Position*. Available online at <http://www.fmf.gov.ng/the-media/speeches/127-clarifying-nigerias-debt-position.html>
- Foster V. and Briceño-Garmendia, C., (2010), *Africa's Infrastructure: A Time for Transformation*. Published by *The International Bank for Reconstruction and Development / The World Bank*. Washington DC.
- Furceri, D. and Zdzienicka, A., (2012), How costly are debt crises? *Journal of International Money and Finance*, 31. 726 – 742.
- G20, (2013), "Demand for Long-Term Financing of Infrastructure", Issues Note (No 7) for Consideration by G20.
- Gana, J.M., (2002), *Nigeria's External Debt: Causes and Implications*. Paper presented at *National Center for Economic Management and Administration*, Ibadan.
- Gonzalez. J. et all, (2007), *Latin America: High Logistics Costs and Poor Infrastructure for Merchandise Transportation*, World Bank, mimeo.
- Helleiner, G.K., (1993), *The IMF, The World Bank and Africa's Adjustment and External Debt Problems: An Unofficial View*. *World Development*. Vol. 20, No. 6, pp. 779 - 792, 1992.
- Ibi Ajayi, S., (1991), *Macroeconomic approach to external debt: the Case of Nigeria*. *African Economic Research Consortium*. Research Paper 8. Initiatives Publishers, Nairobi.

- International Monetary Fund, (2011), *Contingent Liabilities. Prepared by the Statistics Department*. Meeting of Inter-Agency Task Force on Finance Statistics. The Commonwealth Secretariat, London, United Kingdom.
- International Monetary Fund, (2011), *Public Sector Debt Statistics: Guide for Compilers and Users*. Available at <http://www.tffs.org/pdf/method/2013/psds2013.pdf>.
- International Monetary Fund, (2013), *Nigeria Staff Report For The 2012 Article Iv Consultation-Debt Sustainability Analysis*. Available online at <https://www.imf.org/external/pubs/ft/dsa/pdf/2013/dsacr13116.pdf>
- Kateja, A., (2012), Building infrastructure: Private participation in emerging economies. *Procedia Social and Behavioral Sciences* 37 (2012) 368 – 378.
- Khalid, A.M. and Kawai, M., (2003), *Was financial market contagion the source of economic crisis in Asia?* Evidence using a multivariate VAR model *Journal of Asian Economics* 14, 131–156.
- Lewis, M.C. and Mody, A., (1998), *Contingent Liabilities for Infrastructure Projects*. Public Policy for the Private Sector. Note No. 148.
- Llanto, G., (2007), Dealing with Contingent Liabilities: The Philippines. *Fiscal Policy and Management in East Asia*, NBER-EASE, Volume 16. Available at <http://www.nber.org/chapters/c0894>.
- Lucas, R. and Stokey, N., (1983), Optimal fiscal and monetary policy in an economy without capital. *Journal of Monetary Economics*, 12(1), pp. 55-93.
- Manasse P. and Roubini, N., (2009), “Rules of thumb” for sovereign debt crises. *Journal of International Economics* 78, 192–205.
- Martin, F.M. and Waller, C.J., (2012), *Sovereign Debt: A Modern Greek Tragedy*. Federal Reserve Bank of St. Louis Review, September/October 2012, 94 (5), pp. 321-3.
- McKinsey Global Institute, (2012), “*The future of long-term finance: Backup material*”, Report for Group of Thirty, November.
- Mendoza, R.U., (2010), Was the Asian crisis a wake-up call? Foreign reserves as self-protection. *Journal of Asian Economics* 21, 1–19.
- Nicu, M. and Georgeta M.M., (2011), The Need For Public Debt Management In The Context Of Sustainable Development Within The European Union," *Annals of Faculty of Economics, University of Oradea, Faculty of Economics*, vol. 1(special), pages 365-371, July.
- Nigerian Economic Summit Group, (2012), *Infrastructure Policy Commission* available online at <http://www.nesgroup.org/index.php/commissions/infrastructure-policy-commission>
- Obadan, M.I., (2004), *Foreign Capital Flows and External Debt: Perspective on Nigeria and the LDCs Group* (pp. 281-320). Lagos: Broadway Press Limited.
- Ogunmuyiwa, M.S., (2011), Does External Debt Promote Economic Growth?, *Current Research Journal of Economic Theory* 3(1), 29 – 35.
- Omoruyi, S.E., (1996), *Efficient Debt Management: A Pre-requisite for Economic and Monetary Stability*. Central Bank of Nigeria, Debt Trends. Vol. 2. No. 1.
- Omotoye, O.R., et al, (2006), *Sub-Saharan Africa's Debt Crisis: Analysis and Forecast Based on Nigeria*, Managerial Finance, Vol. 32, No.7, 606-602.
- Onuba, I., (2013), *Nigeria to service debts with N2.08tn in three years*. *Punch Nigeria Limited* December 3. Available online at <http://www.punchng.com/business/business-economy/nigeria-to-service-debts-with-n2-08tn-in-three-years/>
- Onyeiwu C., (2012), Domestic Debt and the Growth of Nigerian Economy Research. *Journal of Finance and Accounting* Vol. 3, No 5, 20.
- Paoli, B. et al, (2006), Costs of sovereign default. *Bank of England Financial Stability Paper*, No. 1.
- Reinhart C. and Rogoff, S., (2008), *The Forgotten History of Domestic Debt*. NBER Working

Papers 13946.

- Ros, P.M et al, (2011), *The Elliott Acropolis? An Analysis of Individual Creditor Sovereign Debt Enforcement Mechanisms*. Harvard Law School. <http://www.law.harvard.edu/programs/about/pifs/education/llm/2010---2011/ros.pdf>
- Schabert, A., (2011), *Exchange rate policy under sovereign default risk*. Economics Letters 112. 179 – 181.
- Shapiro, R.J. and Pham, N.D., (2006), *Discredited – The Impact of Argentina’s Sovereign Debt Default and Debt Restructuring on U.S. Taxpayers and Investors*. Available online at http://www.sonecon.com/docs/studies/argentina_1006.pdf.
- Soyeju, O., (2013), *Legal framework for public private partnership in Nigeria*. De Jure, 46 Volume 3, 2013 pp. 814.
- Stewart, F., (1985), *The International Debt Situation and North-South Relations world Development*. Vol. 13. No. 2. pp. 191 – 204.
- Sulaiman, L.A. and Azeez, B.A., (2012), Effect of External Debt on Economic Growth of Nigeria. *Journal of Economics and Sustainable Development*. Vol. 3, No. 8.
- Sylvester, J.H., (2013), *Sovereign Debt In Sub-Saharan Africa*. GP SOLO, publication of the American Bar Association. Available online at http://www.americanbar.org/content/dam/aba/publications/gp_solo_magazine/march_april_2013/full_issue_2_013_march_april_30_2.authcheckdam.pdf.
- Tomz, M. and Wright, M.L., (2005), *Sovereign debt, defaults and bailouts*. Paper presented at the NBER IFM SI 2005.
- Udah, E.B. and Obguagu, R., (2011), Constraints to Economic Development and Growth in Nigeria. *European Journal of Scientific Research*. Vol. 65 No. 4 pp. 581-593.
- United Nations Conference on Trade and Development (UNCTAD), (2012), *Managing public debt*. Issues in Brief. Linking Economies.
- World Bank, (2005), *Infrastructure and the World Bank: A Progress Report*. World Bank.
- World Bank, 2006. *Infrastructure: Lessons From the Last Two Decades of World Bank Engagement*. World Bank.
- Wright, M.L., (2006), *The Theory of Sovereign Debt and Default*. National Bureau of Economic Research.
- Zhang, X.Q., (2011), *Web-based concession period analysis system*, Expert Systems with Applications 38 (11) 13532–13542.