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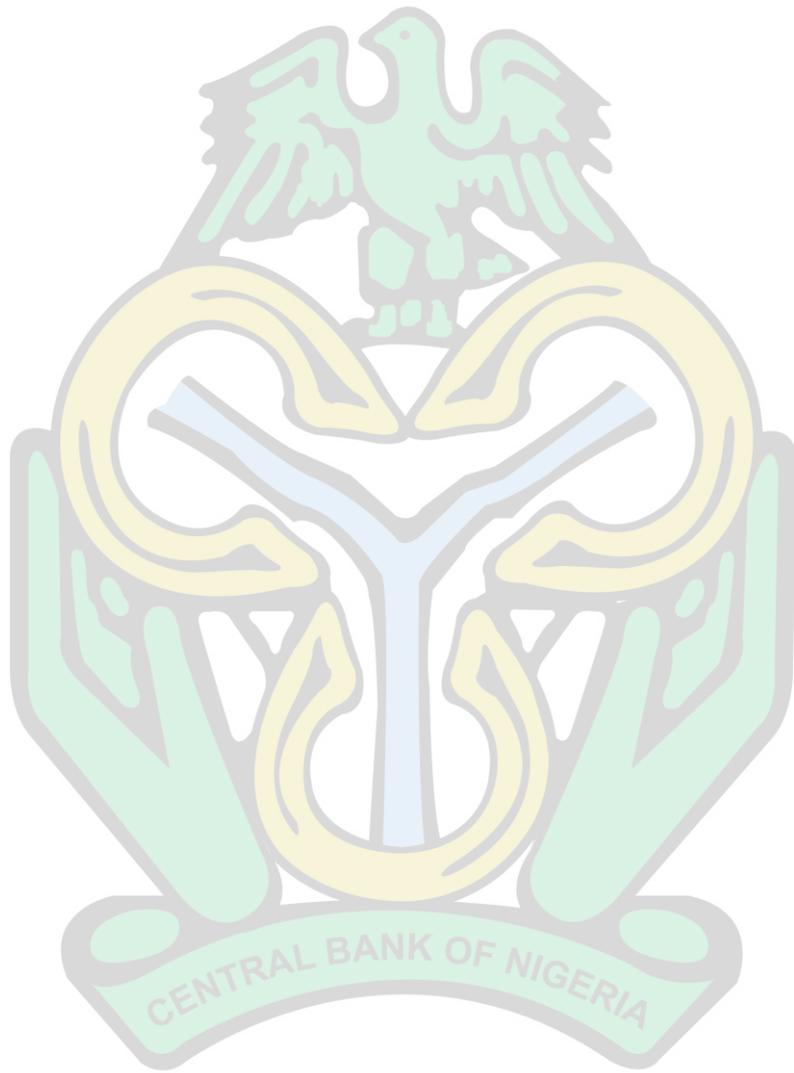
Leveraging Import Substitution for Economic Expansion: the case of Nigeria

Paul I. Oluike (Ph.D)
Associate Head, Financial Inclusion Secretariat
Development Finance Department
Central Bank of Nigeria

Abstract

Objective

The objective of this paper is to describe the import substitution policies of Nigeria with a historical and analytical outlook with a view to amplifying its dimensions of impact, and recommending potential options for optimizing policy and implementation.

Method

The methodology adopted for this paper is descriptive and historical analysis. Comparisons were drawn from various countries policies such as Chile, Brazil, Argentina, Mexico, India, South Korea, and the Philippines and outcomes are highlighted, and then extrapolated to the Nigerian context with a view to understanding the local context in the light of peer country implementation.

Findings

The results from the implementation of Nigeria's import substitution policies have been varied and undulated. Specifically, in recent times, the 41 items policy, may be mixed in the short term, but strongly indicates a good outcome in the long run for the country. Domestic production, especially of commodities is on the uptick since the inception of the 41 items policy, and various other sectors, like manufacturing are witnessing significant gains in capacity expansion due to increased local demand.

Major Recommendation

The Central Bank of Nigeria should harmonize its 41 items policy with other foreign exchange, currency management, and financial markets policies to ensure a coordinated focus and to forestall counteractions in outcomes on several simultaneous policy tracks. It should also measure the impact of the 41 items policy to examine and ensure that while preserving forex on one hand, the impact is not blunted on other fronts by hemorrhaging foreign exchange through leakages, roundtripping and transfer pricing.

Keywords: Import substitution; Economic Policy; Monetary policy; Fiscal Policy; Economic Expansion

1.0 Introduction

Import substitution as an economic concept involves the conceptualization and application of macroeconomic policies within the national space of a country to spur the domestic production of goods and services in place of importing the same from abroad (Bruton, 1998). The ideological grounding for import substitution could be traced to the scholastic opponents of the classical political economy theory and the neoclassical theory. These economic schools of thought spawned the free trade ideology which provided the impetus for globalization and free movement of capital and labour currently witnessed in this milieu (Casaburi, 1998). However, the opponents of free trade argue that collapsing or blurring boundaries, subordinating national regulation and policy to a global system of rules would imperil nascent industries in poor and developing countries who do not have the internal capacity to compete on an even keel with developed and industrialized nations who on their part, have had a headstart in industrialization even before the colonial era.

These imbalances and disparity in capabilities, resources, technology and access to global markets ensure that countries do not come to the table as equal partners. In the global market for goods and services, the least developed countries (LDCs) come cap in hand with very little choice, as their products are mostly low-value primary products often poorly priced. On the other hand, the developed nations come to the market with an advantage, the financial capabilities, and leverage to dictate the prices of goods and services, and forcing the hand of vulnerable countries to accept handouts, and below-par valuations of their products. In return, the LDCs import secondary products generated from their primary exports, exactly from these same countries, at premium rates considering the value added principle. In the process, foreign exchange is dissipated, the reserves are depleted, and the local currency is pressured and devalued, leading to inflation, falling standards of living, and system fragility. Time after time, the story of economic recessions in most developing nations often follow the torturous trajectory of import dependency, exportation of raw materials, with very little manufacturing base to earn foreign exchange. Hence, recessions are attracted to such one-sided trade ecosystems, like the bee to honey, given the inevitable fragility of all other critical fundamentals in such economies.

This state of affairs, since after decolonization, has forced the hand of developing countries like Argentina, India, Chile, South Korea, Brazil, Philippines and Nigeria amongst numerous others, to adopt import substitution policies to stimulate local industrialization, in a bid to throw off the yoke of dependency from industrialized nations. As veritable and noble as this enterprise sounds, the results have been mixed and undulated. Against this backdrop, this paper therefore examines the import substitution strategies of Nigeria, with the intent of stimulating economic expansion. Section 2 of the paper would explore the literature of import substitution, while section 3 would specifically focus, highlight and expatiate on the import substitution policies conceptualized and implemented by Nigeria. Section 4 would provide treatment for the current 41 items foreign exchange policy of Nigeria and the outcomes so far in terms of stimulating domestic production. Finally, section 5 would discuss and recommend additional policies for deepening and expanding local manufacturing in Nigeria.

2.0 Literature Review

The literature of economic development is replete with cases of import substitution, stemming mainly from the dependency theories of development (Corporaso, 1980; Palma, 1978). Import substitution (IS) is defined as a trade policy that seeks to substitute imports with locally produced goods with the intention of stimulating domestic economic growth, conserving foreign exchange, developing local expertise and capability, encouraging local technology and also increasing foreign exchange earnings through exports of excess capacity (Bruton, 1989).

Import substitution is an inward oriented and self-contained trade disposition that seeks to redirect attention to internal mechanisms for generating growth as opposed to a liberal, outward and exports-oriented approach for generating economic growth.

Both paradigms in the current global trade context are not mutually exclusive. But to understand the mindset of the early proponents of the IS theory and practice, we need to take a brief retrospective glance at the 1940s era.

2.1 Historical Overview

The story of import substitution has been staggered but began in the 1940s when the debate around the role of international activities in explaining growth or its absence in the least developed countries (LDCs) came to the fore (Bruton, 1998).

The First and Second World Wars played key roles in sensitizing colonies to assert themselves and fend off continued colonialist domination and encroachments. Europe was tottering on the brink of collapse but for the intervention of the USA, after two massively resource intensive fratricidal wars (World War 1 and 2). The wars exposed the fault lines in colonialist domination and the unsustainable hegemony over colonies. Most of the European powers were broke and looking for new growth areas and synergies. Unfortunately, the colonies were also evolving politically and socially, and coupled with the massive resources required to run large and complex bureaucracies in the colonies, especially by Britain, events soon conspired to lend much voice to the louder agitations for independence. The colonial system quickly unraveled thereafter and soon, in Africa for example, nascent and independent countries began to emerge often with radical ideologists as leaders such as Patrice Lumumba in the Congo, Julius Nyerere in Tanzania, Kwameh Nkrumah in Ghana, Jomo Kenyatta in Kenya, Nnamdi Azikiwe in Nigeria and many others (Ogujiuba,Nwogwugwu, U and Dike, 2011; Adewale, 2017). The stage was set for a complete repudiation of the colonialists and their imperialist economic intentions, or so they thought.

2.2 IS Policy Background

The economic debates of the era increasingly began to focus on the reasons for underdevelopment in Africa and other countries where the colonialists held sway. Reasons were adduced as to why Africa for example, despite European incursions and interruptions in their internal governance, had remained underdeveloped and impoverished. The prosperity and development of the foreign homelands had not translated to equivalent economic prosperity for their colonial outposts. A lot of moral outrage accompanied these debates in intellectual and policy circles. Theorists and academics of the 1950s and 1960s in developing countries saw very little relevance from neoclassical economics in terms of development and economic growth. This distrust rested on several major planks:

(a)   It was said that neoclassical economics was very static and was only concerned with the efficient allocation of resources, whereas the problems of developing countries were more acute than simple allocation of resources, and reached deeper into how to generate and increase the resources themselves (Bruton, 1998). The division of labour between the North and South countries had seemed to doom the later to abject poverty, hence, Ricardo's (1772-1823) comparative advantage theory, while underpinning the ideology behind international trade , wasn't necessarily translating into beneficial and sustainable outcomes for poor countries (Ruffin, 2002).

(b)   It was argued that developing countries were afflicted with several structural rigidities that stifled and constrained economic growth, thus the neoclassical idealistic model and assumption of perfectly flexible and adjustable economy did not apply to developing countries. Also, theorists began to challenge the notions of the outward-oriented approach, surmising that the supposed benefits from the export-oriented approach are not a straight-cut as is being presupposed. They point to the basic characteristics of economies such as entrepreneurship, technology, knowledge, absorptive capacity, and institutions. These determine how much progress an economy makes and how much of the benefits from international trade are retained within the country. The low-income countries are acutely disadvantaged across all of these fronts and metrics, and therefore were in no position to dictate or shape the direction or form of trade involving them.

(c)   Prebisch (2016) opined that the gains from productivity growth in the North resulted in rising wages, not falling prices, due to the monopoly power of both labor and

firms in the North while in the South which is dependent mainly on agricultural and mineral exports, there was lower productivity growth, and wages were held down by surplus labor, weak unions, and competition among exporters. To industrialize, given the already sophisticated industrialization in the North, the low-income countries in the South have to pursue protectionist policies to keep their nascent industries protected from stiff competition from products manufactured in the North.

(d)   By the mid-1940s it was crystal clear to development economists that the "structure" of the economies of the developing countries had to be changed in fundamental ways if they were to compete on equal terms in the world markets, and a market mechanism could not bring about this sort of structural change (Grabowski, 1994)

The result of these criticisms and agonizing over the state of affairs, was a set of ambitious IS policies to delink these countries from colonial dependency. However, the countries in a number of years down the line would soon learn that political independence does   not automatically translate to economic independence. Key factors responsible for the attachment to the apron-strings of the colonial masters are as follows:

(a)   Inherited social and economic structures left by the colonialists posed difficulties for self-directed development. These structures were mostly extractive in nature. Some academics have argued that the colonial outposts were mostly extractive economic configurations aimed at wringing the most from the resources of the countries for the benefit of the mainland (Memmi, 2013).   In essence, there was very little incentive to build sustainable structures that would be amenable, flexible and adaptable to the locals for continued development (Onyeonoru, 2003).

(b)   Highly skewed income distribution, linked to the inherited social and economic structures deliberately left behind by the colonials constrained the march towards development.   The social, economic and educational strata left behind by the colonialists bred a local elite and concentrated income and commerce in the hands of few people ostensibly to perpetuate post-colonial hegemony. There was very little appetite to liberalize education, enable political socialization of the people, and reorient the citizenship. As a result, consumerist patterns dependent on products and services from foreign countries continued unabated. In essence, along with colonialism, came the creation of large captive markets for goods made in the colonialists homelands. Geroski (2003) had studied in-depth the creation of new markets and the concept of inchoate demand. The colonialists had succeeded in creating large demands for European goods, where it never existed, heretofore.

 (c) The structures that were necessarily supportive of colonial purposes are not necessarily supportive of self-directed development, without distorting and misdirecting priorities. Infrastructure were extractive in nature and production infrastructure and processes were deliberately installed and left at the primary stages to cater for the colonial capital's secondary and tertiary industries/factories, a level which provided superior returns in form of value and volume for the homeland.

The nascent countries soon realized that the process of development cannot simply be willed by nationalism. Given the preceding point, the nationalists had a lot to contend with. To upstage the apple cart, they had to conceptualize and implement grounds-up production and manufacturing infrastructure.

2.3 Import Substitution Implementation in Developing Countries

This subsection examines the cases of import substitution implemented in some countries with the intent of drawing out salient

issues such as comparisons, commonalities and differences in application, given the unique context of each case.

Table 1: Import Substitution comparatives across countries

BRAZIL	INDIA	SOUTH KOREA	CHILE	ARGENTINA	PHILIPPINES
Changes in exchange control	Stimulating basic industries for growth	South Korea's IS Strategy was based on foreign trade, exchange and credit policies	Closed economy High government expenditure	Stage 1: Labour intensive industries	Quantitative import restrictions
Tariffs to protect manufacturing	Infant industries protected through tariffs		High tariffs Extensive regulations	Stage 2: Capital Intensive industries	Tariffs
Gradual decline of the primary sector	Between 1950 and 1966 IS accounted for 23% of growth		Quotas	Tariffs	Focus on the manufacturing sector
Expansion of the secondary and tertiary sectors			Exchange controls		

The Indian model of IS focused on investing in heavy industry because of the assumptions about economy-wide effects of productivity growth created by domestic capital goods sector (Mahalanobis, 1955). About one-third of total investment was allocated to "basic investment goods," about 18 percent to industrial consumer goods, and 17 percent to agriculture. Critics of the model assumed that the plan could have been implemented with less capital than actually utilized, but what they often missed was the positive externalities that were spawned from the plan and also the important objective of economic independence. Brazil, Chile and Argentina pursued a structuralist approach to import substitution. Theorists in these countries argued that wage rates could be high in order to attack the poverty problem with no costs in terms of employment. Similarly, wage rates did not matter much in terms of exporting as its value could be set to achieve objectives such as capital formation or controlling inflation. While applications of import substitution across countries varied in some ways, there were a lot of commonalities bordering their conceptualization.

Lewis (1955) opined that backward societies can grow by modeling themselves after the

dynamic features of the advanced societies. Hence, many countries in the developing world like India, latched on to the planning concept, and these often existed side by side with the market. Most countries aimed at restructuring the economy, achieving rapid industrialization and becoming more independent of other countries. The following IS tools were mostly utilized by these countries:

(1) Tariffs were imposed, and effective rates of protection (ERP) were used in a differentiated manner to prioritize products, sectors, and activities. Tariffs were complemented by various foreign exchange rate controls which were often used as a quick fix to correct balance of payments problems by developing countries. The foreign exchange controls were not part of the policy toolkit or roadmap for import substitution, rather they were used as contingent measures.

(2) Exchange Rates: Most countries pursued the strategy of overvaluing the exchange rate as a subsidy to induce capital importation. Most often this discouraged exports.

(3) Import Licences: These were used as instruments to ensure products deemed essential for consumption or vital for stimulating investment were available.

The physical and human capital of the Sub-Saharan countries at independence were lesser than that available in other developing countries. Literacy rates were much lower, and the labour force was much less experienced and sophisticated. Also, savings and investment rates were much lower in comparison, and public infrastructure-roads, power networks, and institutions were much less robust and the markets were incomplete. Moreover, the new states were often ill-defined as to geographic boundaries and depth of governance. Ethnic, tribal, religious and linguistic diversity while presenting opportunities, also posed a lightning rod for

conflicts.

2.4 Import Substitution Policies in Nigeria

In the past, Nigeria has pursued a number of import substitution policies to stimulate local production. The results of these policies are mixed. Some of the pre-independence macroeconomic policies to support import substitution include:

(1)Aid to pioneer industries ordinance of 1952

(2)Income Tax Amendment Ordinance of 1952

(3)Industrial Development (Import Duty Relief) Ordinance of 1957

(4)The Industrial Development (Income Tax Relief) Ordinance of 1958

(5)The Customs Duties (Dumped and Subsidies goods) Ordinance of 1958

These policies were enacted by the colonial governments at various instances to stimulate some level of production in the Nigerian colony. Using a variety of policy tools such as income tax relief, dumped and subsidies goods ordinance, import duty relief, tax amendment and the pioneer industries ordinance, the government sought to encourage local development. However, these tools were limited in impact due to the dominance of foreign enterpreneurs and foreign owned companies in the Nigerian market space. Whatever gains would have been garnered from the tax reliefs, subsidies and import duty relief, also stand to dissipate through repatriation of earnings and dividends, aside from the fact that much of the capital goods were import-based as well. Any meaningful import substitution in this era would have sought to concentrate local production infrastructure, ownership and control in the hands of indigenous people in Nigeria.

1972 INDIGENIZATION DECREE
Cement, petrochemical plants, steel, iron, textiles, breweries, agriculture and cottage industries….only cement fully realized the objectives of the decree

01

2015-2020

- 41 Items list aimed at conserving forex and stimulating local production
- The Developmental interventions in the agricultural sector to boost production and reduce importation of food and raw materials

03   02

2012-NIRP

The Nigerian industrial revolution plan aimed at enhancing the production of local goods and materials to achieve a solid manufacturing base.

Figure2: *Post-Independence Import Substitution Policies in Nigeria*

2.4.1 The 1972 Indigenization Decree

Figure 2 above highlights the major import substitution supporting policies after independence. The government in 1972 undertook an ambitious plan to provide leverage for heavy industries such as steel, iron, petrochemical plants, cement, textiles, breweries, agriculture, cottage industries and a number of others using a combination of tariffs, indigenization policies, and subsidies. In the late 1970s and early 1980s, the result of this policy was an array of budding textile companies across Nigeria, which led to the popularization of the Nigerian Ankara material. Kano and Kaduna States particularly, had very strong textile industries' presence. The local production of beverages by breweries was also very prominent in the late 70's and 80's. However, during the economic recession which kicked in after oil prices collapsed in 1981 and the subsequent foreign currency crisis of 1986 and the Structural Adjustment Programmes, most of these industries spurred by the 1972 policy stagnated and disappeared from the landscape. Only cement production achieved the full objective of this policy (Nyong and Ekpenyong, 2007).

2.4.2 The Nigerian Industrial Revolution Plan (2012)

The Nigerian Industrial Revolution Plan (NIRP) of 2012, adopted four cardinal objectives of enabling focus on labour-intensive low and medium technology manufacturing, building up core base industries that are essential for developing advanced industries, using the Nigerian large market demand to deepen industrial capacity of local firms, and using key manufacturing sectors as a fulcrum for technology drivers of the economy. The NIRP was specifically targeted and isolated from the broad development plans which Nigeria has pursued in the past. This is to enable focus on industrialization and not dilute it within the broad spectrum of development priorities which are inclusive of the hard and soft elements. The plan focuses on agro-allied industries, metals and solid minerals, construction, light manufacturing and services. It sought to deepen critical infrastructure for industrialization, develop skills, provide a conducive investment climate and leverage innovation, enable standards across industries, stimulate local patronage of Nigerian goods, and deepen financing for

infrastructure and industrialization. The intentions of this plan were noble, however, the implementation efforts have been mixed since the most recent economic recession of 2015 and 2016 in Nigeria (Ijirshar, 2015).

2.4.3 The 41 Items Foreign Exchange Policy

The Nigerian economy, in 2015, witnessed a distressing downturn that saw the local currency lose over 200% of its value relative to the US Dollar and other international convertible currencies. The recession had its immediate roots in Nigeria's singular dependence on oil for much of government revenues and source of funding a big portion of its budget. The impact of the recession was exacerbated by worsening fundamentals such as capital reversals due to geopolitical uncertainties, negative investor outlook and domestic instability driven by insurgencies at various fronts both in the north, middle-belt and southern parts of the country. These macroeconomic conditions fueled and reinforced the conditions for a recession to make landfall. Hence, Nigeria witnessed one of the worst economic recessions in recent memory. Due to its consumerist economic base relying mostly on importation to meet local demands, the country hemorrhaged foreign exchange and given the disparities in its balance of payments relative to other countries, Nigeria was in an unfavorable position as per foreign exchange. Something drastic had to happen. The Central Bank of Nigeria, the sole foreign exchange authority in the country instituted foreign exchange controls to stem the tide of forex dissipation. A slew of items, forty one (41) in number were targeted for exclusion from the foreign exchange window, ostensibly to preserve foreign exchange and allocate these to other import priority areas. There was a sense that much of these 41 items imported from abroad are producible, locally. The intent therefore was two-pronged; to stimulate local production of targeted items, and to preserve foreign exchange and arrest the continued slide of

the naira. This, coupled with a cocktail of other complementary policies, both from the fiscal and monetary sides, were used to shape policy and respond to worsening economic fundamentals. A retrospective analysis therefore, would pit the 41 items policy more as a crisis -response action than a deliberate import substitution approach. However, the policy has translated to substantial outcomes in terms of foreign exchange savings, stimulation of local production base, generating employment and developing infrastructure in Nigeria. It would be recalled, that a lot of criticisms trailed the introduction of the 41 items policy, notably, a mainstream global publication's dubbing of the policy as "toothpick alert", parodying the inclusion of toothpick in the 41 items list. Ironically however, toothpick factories have sprung up across Nigeria since the policy, and are even struggling to meet local demand due to the vast market opportunities. This underscores the opportunities that stare the country in the face, though against the skepticism of foreign capitalist interests.

2.4.4 Commodity production interventions

The Central Bank of Nigeria, between 2016 and 2020 pursued an aggressive support for the agricultural sector, targeting the production of commodities such as palm oil, cocoa, maize, sugar, tomato, cotton, rice, and a number of other commodities using multiple facilities that guaranteed credit lines to farmers, input processors and other actors in the value chains involved. The objective was to achieve significant reduction in the import bill related to these commodities, provide a source of local raw materials for manufacturing, optimize the value chain for the production and processing of these commodities, and also reduce the dissipation of foreign exchange on importation.

3.0 RESULTS OF NIGERIA'S IMPORT SUBSTITUTION POLICIES

There are arguments that Nigeria's import substitution policies have exacerbated its dependency given that it has to depend on imported raw materials, skills and technology, and that these could have been generated locally. The import-dependency for production infrastructure leads to transfer pricing and the repatriation of substantial earnings. Historically, high tariff walls have tended to disarticulate the economy internally and articulate it externally. However,the Stolper-Samuelson theorem justifies import substitution by highlighting foreign exchange savings, and that although the costs of installing infrastructure, importation of raw materials, technology and skills could be high in the short term, but in the long run the aggregate of foreign exchange savings justify embarking on ISI (Leamer, 1996; Magee and Oppenheimer, 1980; Deardorff, Stern and Baru, 1994). From this perspective therefore, one can surmise that the results of import substitution in Nigeria, especially the 41 items policy, may be mixed in the short term, but strongly indicates a good outcome in the long run for the country.

3. 1 Key challenges with Nigeria's import substitution policies

Some of the key issues that have been raised as confronting Nigeria's import substitution polices are as follows:

(1) Analysts argue that Nigeria overvalues its exchange rates, leading to problems with current account balances. This view is nested in the implication that an overvalued exchange rate drives up the cost of exports, thus making imports cheaper and depressing demand for local products. While the 41 items policy is aimed at curtailing this rabid import dependency and the dissipation of foreign exchange, other counterpart policies such as liquidity management focused on defending the naira and providing buffers for its parity with other currencies, tend to counteract and undermine the 41 items policy. In essence, analysts argue that the liquidity management policies artificially inflate the value of the naira as opposed to its real market value.

(2) Import substitution focused on domestic production through industrialization requires high import content. The machinery, technology, skills and processes requisite for installing high-value production assets are often not developed and produced within the shores of Nigeria. Most of the industries targeted by Nigeria's import substitution policies are heavy duty industries with resource-intensive outlay necessitating large volumes of foreign exchange, consequent transfer pricing and negative value-added (Warren, 1973; Edozien, 1968). Eguahare (1978) found that manufacturing activities in Nigeria were net users rather than net savers of foreign exchange.

(3) Industrial policies promote inefficiency and low factor productivity. Studies have shown that an increase in foreign investment, which conversely will dwindle in the face of import substitution, increases the skills and technologies of a country leading to high factor productivity. Growth in employment in Nigeria has lagged behind growth in output. Between 1963 and 1972, mean annual output was at 16% while total employment in the manufacturing sector grew at a mean annual rate of 11% (reference)

(4) There is a missing internal logic in macroeconomic policies and insufficient discriminatory and selective approach to targeting. For example, the VAT introduced in 1994 is levied on both inputs and outputs (double taxation). This discourages industrial production.

(5) The devaluation of the naira in 1986 and 2015 led to increased prices/cost of capital goods and hence inhibited the expansion of the manufacturing sector, as

manufacturers found it difficult to replace old technology. Besides, direct government involvement in ISI fostered corruption and inefficiencies during the military regimes. The military are credited with promulgating the NEPD (1972, 1977) decree. The experience of Nigeria buttresses the oft-held notion that state ownership does not necessarily translate to national control of the processes of selecting and transferring technology. Hence, government control does not guarantee that citizens get the appropriate technology on the least expensive terms.

4. 0 Recommendations

The following recommendations are put forward towards improving the quality of IS policies in Nigeria and their consequent outcomes:

(1)   IS policies should be evidence-based and should therefore be underlined by strong data, qualitative assumptions, and focused on key issues in the economy. There should be a strong coordination between fiscal and monetary authorities, especially between the Central Bank of Nigeria, the Ministry of Finance, the National Bureau of Statistics and the Ministry of National Planning. The aim is to enhance the quality of data and analysis of scenarios to give impetus to a systematic and structured approach to policy crafting and implementation.

(2)   IS policies should focus on small scale manufacturing industries as government focus in installation of large scale manufacturing industries has not benefitted the country. These are capital intensive and lead to a lot of importation of capital equipment, cost outlays, technology and skills importation and massive repatriation of earnings. Focusing on small scale industries provides a better value proposition for IS, as the economies of scale, competitive advantage, strategic capabilities and flexibility favour the industrialized countries more in terms of

high-value, large scale manufacturing installations.

(3)   The Central Bank of Nigeria should harmonize its 41 items policy with other foreign exchange, currency management, and financial markets policies to ensure a coordinated focus and to forestall counteractions in outcomes on several simultaneous policy tracks. It should also measure the impact of the 41 items policy to examine and ensure that while preserving forex on one hand, the impact is not blunted on other fronts by hemorrhaging foreign exchange through leakages, roundtripping and transfer pricing.

5. 0 Conclusion

This paper explored the use of import substitution to achieve economic expansion, with the specific case of Nigeria. It explored the wider global context and applications of import substitution from both monetary and fiscal dimensions, but with relevant focus on Least Developed Countries (LDCs) such as Brazil, India, South Korea, Chile, Argentina and the Philippines. The paper specifically detailed Nigeria's historical foray into import substitution and provided insight relevant to understanding its strategic direction from the multiple policies dating from pre-to post independence periods. Of specific interest to the paper, is the current 41 items policy enunciated in 2015 and 2016 to curb rising foreign exchange imbalances. Since the policy commenced, more items have been added to the list, albeit, making it "the 43 items policy". The latest addition was diary products, and expectedly, this is also eliciting much reaction from operators, associations and some stakeholders. Already, the Central Bank of Nigeria has an abundance of evidence to prove the beneficial results of the policy, and it is only a matter of time, before the skeptical segment of stakeholders would suspend disbelief and rally round the quest for a sustainable economic development path driven by overriding domestic imperatives.

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Ademola A. Adebisi (Ph.D)
**Lecturer, Department of Economics
University of Lagos, Nigeria.**

Abstract

This study seeks to examine the relevance of micro financing credit loans to Agri-business in Lagos State, Nigeria - the development of Agricultural sub-sector centering the attention to the contribution of the institutions involved in the provision of these credits.It makes a critical review of the performance of microfinance institutions in Nigeria, based on a survey of the Agricultural Credit Guarantee Scheme Fund (a microfinance scheme established to boost the agricultural sub-sector of Nigeria). The study examines the scheme – the institutions involved and analyses the performance using the outreach paradigm viathe mixed approach research techniques – qualitative and quantitative research methods. In analyzing the outreach performance, the study evaluates the extent to which the scheme is fulfilling its objectives. Questionnaires were distributed to farmers inLagos state. The data collected were analyzed using simple percentage presented in tables and further analyzed using the chi-square method. Findings of the secondary data established from the Central Bank of Nigeria, indicates that the operation of the ACGSF though not stable has grown over the years, driven largely by expanding agricultural sector activities. The study reveals that the process of obtaining funds from the scheme is stressful and needs to be simplified. It also reveals that there is the urgent need to approve and implement a policy framework that would regulate and standardize micro finance operations, accessing medium to long term sustainable commercial sources of funds and increase mobilization of savings and shifting a good proportion of credit portfolio to the promotion of the real sector activities, especially agriculture.It is significant that Nigerian microfinance credit must be efficiently employed.

1.0   Introduction

Micro agribusiness operator can be classified as community farmers involved in supply of farm inputs, services to agricultural farming, trading farm produce in its original or partly transformed state, storing and transportation of agricultural produce in its originally, partly or fully transformed state, processing into immediate and finished products and retailing of farm produce for consumption (Agar, 2014).

However, robust economic growth cannot be achieved without putting in place well focused programs to reduce poverty through empowering the people by increasing their access to means of production, especially services, such as credit, deposits, loans, payment services money transfers and insurance to low income, poor self-employed members of the economy for basic economic sustenance. Capacity of the poor for entrepreneurship would be significantly enhanced through the provision of microfinance services to enable them engage in economic activities and be more self-reliant, help increase employment opportunities, enhance household income and create wealth.

Microfinance institutions (MFIs) are institutions whose major business is the provision of microfinance services. Since its

inception in 1970's, it has incorporated into its practice, social and economic development concepts, as well as principles that underlie financial and commercial markets.

In Nigeria, the government has been a major player in microfinance services. Government intervention has been due to a lack of modern technology in agriculture, limited savings capacity and the predominance of informal service providers as the sole source of capital. The Nigerian Agricultural and Cooperative Bank (NACB) and other credit enhancing schemes such as the Nigerian Agricultural Credit Guarantee Scheme (NACGS), Nigerian Agricultural Insurance Scheme (NAIS) and the Family Economic Advancement Program (FEAP) are important instruments designed to provide rural and poor economic agents with access to credit (Gabriel 2003). United Nations Capital Development Fund (UNCDF) view that poor population possess the capacity to implement income generating activities but that the main limitation to their initiative is the lack of access to capital.

This limitation arises for reasons; that microfinance institutions are still in their infancy and given their poor track record and lack of collateral, the existing financial institutions are reluctant to extend credit facilities to the poor and their micro enterprises. Another factor is that often, mutual associations and thrift societies that have dealt with financial institutions have been huge failures. These limitations not total the role of microfinance in the agricultural sector in Nigeria would involve reaching poor farmers and providing them with material capital to buy farming inputs, building financial institutions and schemes for farmers and incorporating these institutions into the financial system of the economy. These expectations are based on the premise that the poor will be empowered, encouraged to participate and equipped to self-manage their economic activities.
The major questions however are, are these

schemes/institutions sustainable? Do these schemes meet the need of intended targets/clientele in terms of outreach performance? The two paradigms of sustainability and outreach are the major questions that arise when discussing microfinance in the development of the Agricultural Sub- Sector of the Nigerian economy. The central objective of this study is to analyze the contribution of microfinance schemes/institutions and the Nigerian Agricultural Credit Guarantee Scheme Fund (NACGSF) using the outreach paradigm in Nigerian micro entrepreneurial development vis-à-vis the agricultural sub-sector of the Nigerian economy. The paper is organized as follows; Section 2 Theoretical and Literature review, Section 3, Analysis of Data and Conclusion in Section 4.

Problem Statement:

The study revealed that the available MFIs in Nigeria have several services that could be accessed by small-scale agribusiness entrepreneurs. Despite its challenging services, accessing loans proved to be difficult as a result of conditions attach, vis-à-vis a high interest rate, repayment back period, collateral requirements and other detailed services and loan conditions to meet up with MFIs demands. Poor people lack physical collateral security, which is an integral traditional requirement needed by lenders.

2.0   Theoretical and Literature review

The term "microcredit was getting replaced by "microfinance" in the early 1990s (Helms 2006), The success of microcredit programs led to the 1997 microcredit summit that attracted 2900 delegates from 137 countries representing 1500 organizations the world over. The term microfinance then emerged and took center stage in the late 1990s (Elahi and Rahman, 2006; Edward & Olsen, 2006). Elahi and Rahman explain the functional and conceptual differences between "microcredit" and "microfinance".

Microcredit involves the provision of small loans to the poor (credit as the missing piece). On the other hand microfinance encompasses a range of financial and non-financial services that include savings, insurance, money transfers, training and social engagement over and above credit. Today, the provision of microfinance ranges from traditional informal suppliers to banks. Banks are starting to enter the microfinance sector so as to provide financial services to the poor. Traditional banks are slow to take up the challenge of providing credit to the poor people because they rate them as risky borrowers, However, the current focus is now on researching to find out ways of building an inclusive finance system that works for the poor (Rhyne,1998, 2013; and Helms, 2006).

Premchander (2003) argues that microfinance generally refers to the provision of financial services (e.g. savings, credit, insurance) to the poor, those who normally do not have access to formal financial institutions. Microfinance services are not only provided by specialized microfinance institutions (MFIs) that belong to the "new world" of micro enterprise finance (Otero & Rhyne, 1996 cited in Copestake 2007) but also by a diverse group of state sponsored and cooperative institutions, particularly postal banks, who serve many poor clients (CGAP, 2004b cited in Copestake 2007) along with a growing number of "downscaling" commercial financial institutions (Marulanda and Otero, 2005, The Economist, 2005, Valenzuela, 2002 cited in Copestake 2007). "Microfinance institutions consist of organizations and agents that engage in relatively small financial transactions using specialized, character-based methodologies to serve low income households, small farmers and others who lack access to the banking system. They may be informal, semi-formal (that is, legally registered but not under the central bank regulation), or formal financial intermediaries" (Steel 1998 cited in Aryeetey, 2008, p.13).

Microfinance program is one of the poverty reduction strategies that have been adopted by developing economies. Microfinance or Microcredit is defined by the Microcredit Summit (February, 1997) as programs that extend small loans and other financial services to the very poor people for self-employment projects that generate income, allowing them to care for themselves and their families.The microfinance movement is usually attributed to Mohmmed Yunus Grameen Bank founded in the 1970's in Bangladesh (Jolis, 1996). Microfinance programmes have now spread to South and South East Asia, Sub-Saharan Africa, Latin America and even America and other Western countries. Microfinance aims to reach the poor with loans, savings and other financial services tailored to meet the needs of the poor and the unbanked especially in the rural poverty stricken areas. It targets those in the poor bracket who have minimum of assets and are operating at the fringes of the formal finance systems to help them expand their business frontiers (Von Pischke, Adams & Donald 1983).

The development of micro finance over the years, sustainability and outreach of micro finance institutions, flaws and how to improve on banking the agricultural subsector of Nigerian economy have been serious issues. According to Theodore W. Schultz in his work "Transforming Traditional Agriculture", one of the reasons for the increased attention to micro finance and banking the poor is that low income earners are rational, no longer are they ignorant, misinformed and lazy (Deepak, Powelson, Dorn and Walter, 1998). Their rationality provided a basis for constructive interaction with modernity and technology. The micro credit target groups were small entrepreneurs, which was attractive to many policy makers at that time. (Yunus, 1999), in his book, "Banker to the poor" micro financing was a solution that was seen as a more direct approach to economic equality.

As it became clear that the agricultural sector was experiencing difficulty, poverty

remained widespread and disgusting (World Development Report, 2000). Greater efforts to do something about it produced a tug of war between two approaches (Meyer, 2002). The first approach consist charitable efforts to provide immediate relief (the informal microfinance). The second approach consists of efforts to create institutions that will bring very large numbers out of poverty in the long run. However, greater freedom of entry of microfinance institutions offered an alternative to banks by permitting the development of different types of financial institutions such as microfinance NGOs and a range of institutions with different levels of banking powers based on their required capital (Rhyne, 2001).

In their broadest sense, microfinance makes the provision of a broad range of financial services such as deposits, loans, payments services, money transfers, and insurance to the poor and low income households and their farm or non-farm micro-enterprises (Charitonenko& Campion, 2003) cited in Mwenda &Muuka, 2004). Services offered include credit extension (for production, consumption and emergency), access to savings facilities, and the provision of basic insurance, such as life, health, and among others.

Conceptually, microfinance addresses a constraint faced by the poor; their shortage of material capital. The theoretical issue of microfinance and micro-entrepreneurial development paradigm in the agricultural sub-sector is a broad one and links two different paradigms – the human development paradigm and the importance of agriculture to the development of the poor. Human development is a direct challenge to ''economic development''. Economic development, aims at maximizing economic growth, the objective of human development is to expand human freedom and to enable people to flourish. Human well being, freedom and flourishing thus become the end of economic activities. Therefore, the relevance of human development – aiding the poor and developing human potentials –

together with the relevance of agriculture to economic development have been emphasized via the various postulations and theories spanning the history of economic thought.

According to Verheya (2000), although increased agricultural production in Nigeria is constrained by a number of factors, such as non-availability of complementary inputs in the right quantity and quality, poor conditions of feeder roads and other transport facilities, inadequate technologies, youth apathy to agriculture and so on, credit is the most limiting factor among them. Consequently, this results in inability of the farmers to optimize potentials, food insecurity, and poverty at individual and national levels. Credit is an invaluable ingredient to agricultural sector development of any country. Berger (2002) argued that microfinance is an effective and efficient mechanism in poverty reduction all over the world. Micro-credit is also an effective means of improving quantity and quality of agricultural production (Abe, 1981; Osugiri et al, 2011). Availability of credit is also a major determinant of scale of agricultural production, adoption of modern technology, ability to purchase modern inputs and induce farmers to take risks (Adegeye and Ditto, 1982; Madaki, 1986).Olawuyi et al. (2010), microfinance banks believe in people and not collaterals solely, it recognizes the credibility of the people and trusts them. Haruna (2007) also noted that these banks use the approaches of collective appraisal to loan application, loan utilization, monitoring, peer pressure and cross guarantee to enforce repayment.

Micro-finance is a powerful tool for reducing poverty. It enables people to increase their incomes, to save and to manage risk. It reduces vulnerability and it allows poor households to move from everyday survival to planning for the future (Paul Wolfowitz, World Bank President, November, 2005 cited in Dison et.al. 2007). Thus it's important to agriculture and the potentials of lending to farmers can be traced to the roles of

agriculture in the economy. These roles can be briefly summarized as follows:

- Providing adequate food for an increasing population

- Constituting major source of employment and income to farmers

- Availability of cheap raw materials Therefore, if income and well being of farmers improves through microfinance, they will be in a better financial position to repay the loan granted by such institutions.

3. Method of Analysis

The two mainly relevant indices for the assessment of the performance of the Nigerian Agricultural Credit Guarantee Scheme Fund (NACGSF) are the sustainability measures using the subsidy index and the outreach measures. However, due to limited data, this study would limit the analysis to outreach measures. Outreach would be assessed using the type of clientele served by the scheme, value and number of loans extended and the participation of farming clients. The method of analysis of this study would also make use of an analysis of perceptions of farmers. The perception analysis would require primary

data. Questionnaire would be drawn up and administered to farmers in rural areas of Lagos state using the simple random sample method. This involved both quantitative and qualitative data assessment. The primary data collected would be analyzed in tables using simple percentage and Chi-square statistics. The use of chi-square statistics is necessitated by the need to ascertain if there are differences in the respondents' perception of the impact of the scheme on their production and to further test the validity of the responses. The secondary data would be gotten from the Central Bank of Nigeria (CBN).

4.0 Data, Estimation and Discussion of Results

This section provides the data analysis and interpretation aspect of the study. The primary data are presented in tabular form using percentages. The use of chi-square statistics is necessitated by the need to ascertain if there are differences in the respondents' perception of the impact of the scheme on their production and to make validation of their responses. In addition, analyses of secondary data of some outreach indices of the Agricultural Credit Guarantee Scheme Fund from 1986-2016 are incorporated.

4.1.PERCEPTION ANALYSIS AND INTERPRETATION

1.1.1 Personal data
1. Sex Classification

SCALE/OPTIONS	MALE	FEMALE	TOTAL
No. of respondents	105	95	200
Percentage	52.5	47.5	100

Age Classifications

SCALE/OPTIONS	18 -25 YRS	26 – 35 YRS	36 – 45 YRS	46 - ABOVE	TOTAL
No. of respondents	49	54	56	41	200
Percentage	24.5	27.0	28.0	20.5	100
Cumulative	24.7	52.0	80.3	100	-

Qualification

SCALE/OPTIONS	J.S.C.E	S.S.C.E	OND	OTHERS	TOTAL
No. of respondents	78	71	29	22	200
Percentage	39	35.5	14.5	11	100
Cumulative	39.0	74.5	97.5	100	-

Length of years in business

SCALE/OPTIONS	1 -10 YRS	11 – 20 YRS	21 – ABOVE	MISSING	TOTAL
No. of respondents	119	74	6	1	200
Percentage	59.5	37.0	3.0	5.0	100
Cumulative	59.8	97.0	100	-	-

4.1.2

Presentation and interpretation of answers

Is your farming business financed by your own fund?

SCALE/OPTIONS	YES	NO	UNCERTAIN	TOTAL
No. of respondents	143	57	-	200
Percentage	71.5	28.5	-	100
Cumulative	71.5	100	-	-

From the opinions of the respondents, it shows that 71.5 percent of farmers finance their own businesses, while 28.5 percent get fund aides externally. Therefore, more than half of the farmers interviewed don't get fund aids to finance their businesses but rather use their personal funds to finance their businesses.

Is access to long term capital funds from banks a problem?

SCALE/OPTIONS	YES	NO	UNCERTAIN	TOTAL
No. of respondents	166	68	16	200
Percentage	58.0	34.0	8.0	100
Cumulative	58.0	92.0	100	-

From the response gotten from this question, 58 percent of farmers are of the opinion that accessing capital funds from banks is a problem, while 34 percent don't think getting long term capital funds from banks is a problem, 8 percent are uncertain. These results show that funds from banks are actually a problem to get. This would be a likely explanation of why 71.5 percent of these farmers finance their own businesses themselves.

Have you ever received any financial support from any government scheme?

SCALE/OPTIONS	YES	NO	UNCERTAIN	TOTAL
No. of respondents	76	122	2	200
Percentage	58.0	34.0	8.0	100
Cumulative	38.0	99.0	100	-

The results derived from this question shows that 58 percent of the farmers studied have received financial support from a government scheme one time or the other in their business. 34 percent however have not received any form of financial support from a government scheme. More than half of the farmers interviewed have received financial support from a government scheme.

Have you ever received any financial support from any non-governmental organization?

SCALE/OPTIONS	YES	NO	UNCERTAIN	TOTAL
No. of respondents	67	23	110	200
Percentage	33.5	11.5	55.5	100
Cumulative	33.5	45.0	100	-

The results shows that 52 percent of the farmers studied have received financial support from non-governmental organizations, 46 percent however have not received any financial support from non-governmental organizations. The few organizations mentioned by the respondents were; the lions club, rotary club and the faith foundation, 38 percent of the farmers have received funds from a government scheme; on the other hand 52 percent of farmers have received from a non-governmental organization. It shows that more farmers actually obtain funds from non-governmental organizations than from government scheme.

Do you agree that finance is the only problem micro-farmers face?

SCALE/OPTIONS	YES	NO	UNCERTAIN	TOTAL
No. of respondents	95	102	3	200
Percentage	47.5	51.0	1.5	100
Cumulative	47.5	98.5	100	-

From the response, 51 percent of farmers are of the opinion that finance is not the only problem they face while 47.5 percent of the respondents feel that finance is the only problem they face. 1.5 percent of the farmers studied are uncertain. More farmers agreed that finance is not the only problem they face. This shows that finance is not the only problem that impedes micro farmers from progressing in their businesses?

Aside finance, do you seek non-financial support services like technology, skill development, and better farmer implements?

SCALE/OPTIONS	YES	NO	UNCERTAIN	TOTAL
No. of respondents	122	76	2	200
Percentage	61.0	38.0	1.0	100
Cumulative	61.0	99.0	100	-

61 percent of farmers seek non-financial support services other than financial services while 38 percent of these farmers are satisfied with just financial services.

Do you think the government should provide these services?

SCALE/OPTIONS	YES	NO	UNCERTAIN	MISSING	TOTAL
No. of respondents	186	5	8	1	200
Percentage	93.0	2.5	4.0	5	100
Cumulative	93.5	96.0	100	-	-

93 percent of the respondents are of the opinion that non-financial services such as technological services, skill development and better farming implements should be provided by the government, while 2.5 percent don't think the government should

provide these services. This buttresses the fact that 93 percent of farmers are looking up to the government for the provision of such services.

Are you aware of the Agricultural Credit Guarantee Scheme Fund?

SCALE/OPTIONS	YES	NO	UNCERTAIN	TOTAL
No. of respondents	153	35	12	200
Percentage	76.5	17.5	6	100
Cumulative	76.5	94.0	100	-

This question is very crucial in this study. The results show that 76.5 percent of farmers are aware of the Agricultural Credit Guarantee Scheme Fund while 17.5 percent don't know

what the scheme is about. 6 percent of these farmers are uncertain.

Have you tried accessing credit from the scheme?

SCALE/OPTIONS	YES	NO	UNCERTAIN	TOTAL
No. Of respondents	74	122	4	200
Percentage	37.0	61.0	2.0	100
Cumulative	37.0	98.0	100	-

The percentage of farmers that are aware of the agricultural credit guarantee scheme fund and have accessed this scheme is 37 percent. The percentage of farmers that have not accessed this scheme is 61 percent. Although 76.5 percent of farmers

are aware of the scheme, only 37 percent of these farmers have tried accessing the scheme.

Was the process of accessing the fund stressful?

SCALE/OPTIONS	YES	NO	UNCERTAIN	TOTAL
No. of respondents	67	23	110	200
Percentage	33.5	11.5	55.5	100
Cumulative	33.5	45.0	100	-

33.5 percent of the farmers that accessed the scheme claim that the process of getting financial help from this scheme is very stressful while 11.5 percent are of the opinion that obtaining funds from the scheme was not stressful, 55.5 percent are uncertain. The percentage of farmers that think that the process of accessing funds is stressful is more than the percentage than the percentage that think the process is not

stressful. This result shows that accessing funds from the Agricultural Credit Guarantee Scheme Fund is not at straightforward and uncomplicated as it should be and this hinders easy access to funds that are meant to be readily available to farmers.

If you have accessed the scheme, has the loan contribution helped develop your farm?

SCALE/OPTIONS	YES	NO	UNCERTAIN	MISSING	TOTAL
No. of respondents	56	25	118	1	200
Percentage	28.0	12.5	59.0	5	100
Cumulative	28.1	40.7	100	-	-

28 percent of the farmers that have obtained funds from the scheme claim that the funds have helped develop their farms while 12.5 percent of farmers claim that the fund has made no difference to the development of their farms. 59 percent of farmers (which is a significant amount) remain uncertain. This result shows that the ACGSF has made an impact to the development of farmers and their well being in terms of development of their farming business since the percentage that responded positively is more than the percentage that responded negatively. Although accessing the ACGSF is cumbersome most of the farmers agree that the funds gotten from the scheme has helped improve their businesses. Making loan delivery procedures simpler, however, could help to increase access to credit with positive effects on farm output.

Do you think it will help farmers if a special bank or separate ministry for micro entrepreneurs were set up?

SCALE/OPTIONS	YES	NO	UNCERTAIN	TOTAL
No. of respondents	171	5	24	200
Percentage	85.5	2.5	12.0	100
Cumulative	85.5	88.0	100	-

85.5 percent of farmers are of the opinion that a special ministry for micro entrepreneurs would help develop micro businesses while 2.5 percent of farmers don't think a special bank or ministry would make a difference. 12.0 percent of these farmers are uncertain. A special ministry for micro entrepreneurs would go a long way in ensuring that services to help small farmers establish themselves, not only financially but technically are delivered to the people who need it the most.

4.1.3 Chi – Square test

The use of chi-square statistics is to test and ensure that the answers gotten from the main research questions above are valid or otherwise.

Is access to long-term capital funds from banks a problem?

	Observed N (X)	Expected N (x)	Residual (X-x)
Yes	116	66.7	49.3
No	68	66.7	1.3
Uncertain	16	66.7	-50.7

Chi-Square: 75.04   df: 2   Asymp. Sig (P≤0.05, valid): .000

Have you ever received any financial support from any non-government scheme?

	Observed N(X)	Expected N (x)	Residual (X-x)
Yes	104	66.7	37.3
No	92	66.7	25.3
Uncertain	4	66.7	-62.7

Chi-Square: 89.44 df: 2   Asymp. Sig (P≤0.05, valid): .000

Are you aware of the Agricultural Credit Guarantee Scheme Fund?

	Observed N(X)	Expected N (x)	Residual (X-x)
Yes	153	66.7	86.3
No	35	66.7	-31.7
Uncertain	12	66.7	-54.7

Chi-Square: 171.67 df:2 Asymp. Sig (P≤0.05, valid): .000

Have you tried accessing credit from the ACGSF?

	Observed N(X)	Expected N (x)	Residual (X-x)
Yes	74	66.7	7.3
No	122	66.7	55.3
Uncertain	4	66.7	-62.7

Chi-Square: 105.64 df: 2 Asymp. Sig (P≤0.05, valid): .000

Was the process of accessing the fund stressful?

	Observed N(X)	Expected N (x)	Residual (X-x)
Yes	67	66.7	0.3
No	23	66.7	-43.7
Uncertain	110	66.7	43.3

Chi-Square: 56.77 df:2 Asymp. Sig (P≤0.05, valid): .000

If you have accessed the scheme, has the loan contribution helped developed your farm?

	Observed N(X)	Expected N (x)	Residual (X-x)
Yes	56	66.3	-10.3
No	25	66.3	-41.3
Uncertain	118	66.3	51.7

Chi-Square: 67.61   df: 2   Asymp. Sig (P≤0.05, valid): .000

0 cells (.0%) have expected frequencies less than 5. The maximum expected cell frequency is 66.7

0 cells (.0%) have expected frequencies less than 5. The minimum expected cell frequency is 66.3

Equally the laws establishing the ACGSF specify their respective target clientele-farmers. This section shows some of the outreach measurement indices recommended by Yaron (1994). These measures are: Loans guaranteed by the ACGSF by state, fully repaid loans by state, total repayment percentage and the numbers of clients served. The Bank guaranteed 69,436 loans, valued at 11.4 billion under the Agricultural CreditGuarantee Scheme (ACGS) in 2015, bringing the total number of loans guaranteed sincethe inception of the Scheme in 1978 to 1,001,299, valued at 95.9 billion. A total of 28,801interest draw-back programme (IDP) claims, valued at 363.3 million, was settled at end-December 2015, resulting in a cumulative IDP claims of 285,113, valued at 2.6 billionsettled since its inception in 2004. Under the TrustFund Model (TFM), the number of placements was fifty-eight (58), valued at N5.65 billion at end-December 2015.

Under the Commercial Agriculture Credit Scheme (CACS), the sum of73.4 billion was released to seventeen (17)Six (6) projects valued at N0.43 billionwere guaranteed under the SMECGS in2015, bringing the cumulative fundsguaranteed under the Scheme to N4.2billion.banks for on-lending in respect of seventy-five (75) projects in 2015. Cumulatively, the sumof 336.4 billion had been disbursed under the Scheme by end-December 2015. Six (6)new projects, valued at 432.0 million, were guaranteed in 2015 under the Small andMedium Enterprises Credit Guarantee Scheme (SMECGS), bringing the cumulativenumber of projects guaranteed under the Scheme since its inception in April 2010 to eighty-seven (87), valued at 4.2 billion.

The SME Restructuring/Refinancing Fund (SME-RRF) was discontinued and replaced withthe Real Sector Support Facility (RSSF). However, five (5) projects, valued at 39.5 billion,which were approved prior to the dis-continuation were funded. In addition, one project,valued at 3.5 billion, was funded under the RSSF. The sum of 54.3 billion was accessedby 124 participating financial institutions (PFIs)/States for 347 beneficiaries under the Micro,Small and Medium Enterprises Development Fund (MSMEDF) in 2015.

The sum of 13.2billion was released under the Power and Airline Intervention Fund (PAIF) to the Bank ofIndustry (BOI) to finance one power project (9.9 billion) and an airline project (3.3billion). At end-December 2015, the cumulative amount released to BOI from its inceptionstood at 249.6 billion. Under the Nigeria Incentive-based Risk Sharing System forAgricultural Lending (NIRSAL), 195 Credit Risk Guarantees (CRGs), valued at 1.06 billionwere approved in 2015, bringing the total number and value of CRGs from its inception to255 and 21.7 billion, respectively, at end-December 2015. In line with one of the objectives of this study, it is important to understand the process of obtaining a loan under this scheme.

According to the Central Bank of Nigeria, the minimum loan that can be granted is twenty thousand Naira (N20,000) without collateral. Collateral must be provided if the loan amount is above N20,000. Collateral must be in the form of savings. To obtain a loan, a farmer must first choose and open an account with a bank operating the Agricultural Credit Guarantee Scheme. The bank arranges an insurance cover for the farmer with the Nigerian Agricultural Insurance Corporation (NAIC). In case of disease or pests, NAIC will compensate for the loss to plough the farmer back into business. Micro farmers benefit from this scheme especially with the Trust fund model. Under this model, all companies, State or local government and non-government organization (NGOs) place funds in trust with the leading banks to augment the savings of the farmers in their states or areas of interest that may not have the required collateral (Central Bank of Nigeria, 2006). Under the scheme, the Interest Drawback Program (IDP) entitles farmers to a special IDP rate that is lower than the market-lend rate. It allows small farmers who liquidate their loans within the stipulated time to drawback the difference between the market rate and IDP rate.

Challenges of Micro Finance Delivery

The microfinance industry in Nigeria faces enormous challenges. The first challenge is for the microfinance institutions to reach a greater number of the poor. The CBN survey of 2012 indicated that their client base was about 600,000 in 2011 and there were indicators that they may not be above 1.5 million in 2013. This is too small for a country that has over 70million people that require microfinance services. Seventy percent of MFBs reported poor savings habit of the farmers and constraints loans accessibility. Sixty percent of the banks identified less willingness of the commercial banks to lend to MFBs and shortage of experienced human resources. Other problems identified as challenges of MFBs contribution to agricultural sub-sector development in the study area were lack of effective management information system, inadequate capital to operate the banks, inability of the farmers to provide collateral security, short repayment period, High interest rates and Illiteracy.

Challenges of Micro Finance Delivery in Small Scale Agricultural Sub-Sector Development.

Challenges	Frequencies	Percentages (%)
Not able to meet requirement (poor)	14	12.28
Poor saving habit	10	8.77
Less willingness of the commercial banks to lend to MFBs	10	8.77
	14	12.28
Shortage of experienced human resources	12	10.53
Lack of effective management information system	4	3.51
	2	1.75
Inadequate capital to operate	4	3.51
Inability to provide collateral security	26	22.81
Short repayment period	18	15.79
High interest rates		
Illiteracy		

Source: Field Survey

No Response: 18
Understanding the market in which a microfinance institution operates is crucial. A country's economic and legal environment is also likely to influence greatly microfinance institutional likelihood for achieving its goal of improving the lives of the poor, even if there is effective demand for such services, creating either an enabling context for microfinance or imposing a series of obstacles. In the same, way that environment can set limits to the kinds of products/services microfinance schemes offer.

The issues of financial sustainability and outreach are crucial challenges facing the continuous operation of microfinance schemes and institutions. Full financial sustainability is reached when administrative costs, loan loss, inflation and financial costs are covered entirely by revenues. Although indicators have not been computed, there are indicators that the levels of financial self-sufficiency of micro finance projects are too low (CBN 2001).

5.0   Conclusion

Having reviewed that formal micro finance institutions in Nigeria are already in place, the question is whether they perform effectively in achieving the objectives for which they are established. Is the proposition that "availability of credit would create/generate development" supported by empirical evidence?

This study examined the economic activities of microfinance and micro entrepreneurial development in the Nigerian Agricultural sub sector using the outreach performance of ACGSF and the perception analysis of farmers in Lagos state, Nigeria.

The need to initiate and implement appropriate policies to improve on Nigeria's microfinance sector is very important to the development of the poor and the people who need finance the most in the development of

Agricultural businesses. This indirectly is a poverty reduction method. This is because most of the poor population who are the targets of microfinance, live in rural areas where agriculture is the dominant economic activity. However, the issue of sustainability is crucial to the continuous operation of micro credit. There is the need to emphasize savings mobilization, source long term funding and reduce the dependence on grants. Funding agencies should promote linkages between banks and microfinance. NGOs should equally increased access to more commercial sources of funds.

Recommendations

The government has a strong role to play in creating a welcoming environment for microfinance development, even if they are not provided directly by adjusting the regulatory framework to allow all types of institutions to provide the poor with several financial services. The government should license more financial institutions and supervise them properly.

There is the need to emphasize savings mobilization, source long term funding and reduce the dependence on grants. The loan delivery procedure should be simplified as bottlenecks discourage farmers from accessing funds from the ACGF.

The implantation of efficient management information systems and the compensation of the network, to which the microfinance institution belongs, are hence essential conditions to both the survival and growth.

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An Adjusted Classical Models For Interest-free Financing In Nigeria.

Abdul Ibrahim

Department of Economics
Nasarawa State University, Keffi- Nigeria

Habibu M-G Salihu (Ph.D)

Department of Economics
Nasarawa State University, Keffi- Nigeria

Abstract

This paper examines an interest-free macroeconomic models by adjusting the classical model into an interest-free macroeconomic model as a basis for developing a comparative analysis. The study adopted a descriptive approach by describing the mechanics for obtaining an interest-free macroeconomic model from a prototype western model. It was observed that most Muslims in Nigeria are interested in adopting interest free financing under the western system. This is a reason for converting a western model into an interest-free model.This conversion allows policy-makers to gain useful insight in the process in transition from the western system to the Islamic system. The Islamic principle of prohibition of interest is incorporated into the selected model to develop a general macroeconomic system applicable for those economies in which an interest-free financial system is prevalent, such as Nigeria. It was concluded that application of western scientific tools of analysis is accepted in Islam as long as they are free of anti-Islamic elements and this has also conform with the Central Bank of Nigeria draft guidelines for regulations of interest free banking in Nigeria.

Key words: Models, Interest, Financing
JEL: E100, E490 and D920

1.0 Introduction

Literature and macroeconomic theory contains a large variety of plausible models. Each model exhibits quite different responses to the same policy experiments. Sergeant (1979), states that the "economics profession has not yet attached itself to a unified treatment of a single, widely received macroeconomic theory". Lack of a universal model means that a prototype model representative of the western economic system must be selected and adjusted into a model that suits the economics peculiarity of Nigeria characterized by the institution of interest-free financing.

I.I Background to the Study

Classical economists believe that the interest rate is the major determinant of saving and investment. The classical position is intolerable to some Muslims in Nigeria, although the Keynesian assumption, incorporated by sergeant into the classical models, is acceptable.In economics literatures, the major difference between the western system and the interest-free system is that funds form savers to investors are transferred on basis of the interest in the western economies and

a profit-sharing ratio in an interest-free economy. This financial arrangements negotiated on the basis of profit-sharing are generally named 'Mudaraba' in contrast to the western system of bonds. There are several macroeconomic models that provide very different answers to the same policy questions. Most of the models are grouped under classical models or Keynesian models.

Given the rising number of investors, banks and other financial institutions desiring to offer Non-interest products and services in Nigeria, the Central Bank of Nigeria has developed the following guidelines on non interest banking. A non-interest bank means a bank which transacts banking business, engages in trading, investments and commercial activities, as well as the provision of financial products and services in accordance with the principles and rules of Islamic commercial jurisprudence. Transactions and contracts under this type of banking are non-permissible if they involve:

- Interest; uncertainty or ambiguity relating to the subject matter, terms or conditions;
- Gambling;
- Speculation;
- Unjust enrichment; or
- Exploitation/unfair trade practices.

Hence this "Classical" model enjoys wide respect in the profession. Linkage between the micro and the macro behavioral for investment demand, for money and labor supply, however, are not treated well. The objectives of this study is to obtain interest-free macroeconomic models by adjusting the classical model into an interest-free macroeconomic model. The model obtained after modifying the classical model is named an interest-free macroeconomic model. As such, this model is applicable in the economies that have opted for the interest-free financial system such as Nigeria, Malaysia, Iran, Pakistan, and Sudan.

2.0 Literature Review And Theoretical Framework

A review by Owoyemi (2003) asserts that in a profit-sharing banking a unique because it makes the lender to have higher interest and a greater stake in the success, progress profitability and advancement of the purpose for which the money is borrowed.

Mutallab (2004) states that interest free banking is now a growing phenomenon all over the world. It is emerging as a rapidly growing financial services industry worldwide, obviously as an answer to the crippling effects of the predominantly interest based financial industry of today (Oluyombo, 2005).

Riddick and White (2008), Explores a discrete-time model with decreasing returns to scale, an AR(1) process in logs for earnings and quadratic investment policy when the firms faces external costs of financing.

2.1 Models Of Non-interest Banking/ Financing System In Nigeria

The Central Bank of Nigeria, (CBN) New Banking Model authorizes the establishment of the following banking structures as defined under the Banks and Other Financial Institutions Act (BOFIA) 1991 as amended:

(I)   Commercial Banks;

(ii) Merchant Banks; and

(iii) Specialised Banks.

Specialised Banks include non-interest banks, microfinance banks, development banks, mortgage banks and such other banks as may be designated by the CBN from time to time.

NIFI means a bank or Other Financial Institution (OFI) under the purview of the Central Bank of Nigeria (CBN), which transacts banking business, engages intrading, investment and commercial activities as well as the provision of financial products and services in accordance with any established non-

interest banking principles.

Non-interest banking and finance models are broadly categorized into two:

1.　Non-interest banking and finance based on Islamic commercial jurisprudence;

2.　Non-interest banking and finance based on any other established non-interest principle.
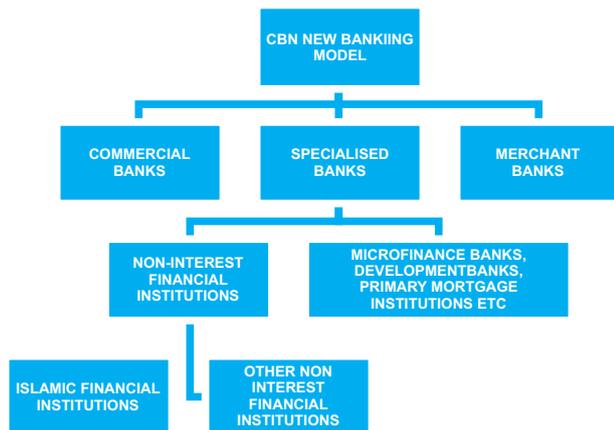
Source: CBN, 2011

Islamic banking as one of the models of non-interest banking, serves the same purpose of providing financial services as do conventional financial institutions save that it operates in accordance with principles and rules of Islamic commercial jurisprudence that generally recognizes profit and loss sharing and the prohibition of interest, as a model.

All licensed banks or promoters wishing to offer non-interest banking products and services may operate using any of the following models:

All non-interest financial institutions under this model are required to comply with these and any other guidelines that may be issued by the CBN from time to time. The reference for the purpose of these guidelines means:

i.　Full-fledged Islamic bank or full-fledged Islamic banking subsidiary of a conventional bank;

ii.　Full-fledged Islamic merchant or full-fledged Islamic banking subsidiary of a conventional merchant bank;

iii.　Full-fledged Islamic microfinance bank;

iv.　Islamic branch or window of a conventional bank;

v.　Islamic subsidiary, branch or window of a non-bankfinancialinstitution;

vi.　A development bank regulated by the CBN offering Islamic financial services;

vii.　A primary mortgage institution licensed by the CBN to offer Islamic financial service the full-fledge dorasa subsidiary; and

viii.　A finance company licensed by the CBN to provide financial services, either full- fledged or as a subsidiary.

Non-interest Financial Instruments

Non-interest banks may transact business using any of the following instruments or financing modes:

a. ISTISNA' A purchase order contract of assets whereby a buyer places an order to purchase an asset to be delivered in the future, according to the specifications given in the sale and purchase contract.

b.　IJARAH Sale and lease-back of asset, generally for long term financing. This requires Sharia compliant tangible and leasable assets e.g property, machinery, etc.

c. MUDHARABAH A profit sharing contract where one party contributes his entrepreneurial efforts while the other provides capital. The Entrepreneur and the

financier will share profit according to an agreed ratio in the contract. Any loss is exclusively borne by the financier.

d.   MUSHARAKAH A partnership contract between two or more parties, each contributing capital. The profit is shared among the parties based on the profit sharing ratio agreed in the contract and any loss is shared among the parties based on the contribution ratio agreed.

e. MURABAHA Sale of an asset by the bank to a customer at cost plus a profit margin, repayment of which can be instant or spread over a period. It is used mainly for working capital financing.

f. SALAAM AND PARALLEL SALAAM Deferred Delivery

g. SUKUK ISLAMIC BOND

i. WINDOW OPERATIONS For the purpose of this framework, a non-interest banking window operation is defined as part of a conventional financial institution (which may be a branch or dedicated unit) that provides fund management (investment accounts), financing and investment that are Sharia compliant or any other financing mode or structure that is Shariah compliant and approved by the CBN.

2.1.1 Firms, Households and Government

The classical model is composed of the three sectors: firms, households and the government. The firms are endowed with a fixed amount of capital stock. All firms share a common production function to produce a single good. Output can be varied by varying employment of labor which is dictated by the motive of maximizing economic profits. Households supply labor, choose a saving rate, and decide how to hold their wealth among money, bonds, and equities. The government issues money, trade bonds in the open market. The classical model is outlined below:
Output is assumed to be distributed among

consumption, net investment, capital depreciation, and government spending. Assuming a fixed technology, firms are allowed to produced output using capital and labor. The capital stock is fixed for each firm so that firms can vary output by varying employment of labor. The labor demand curved faced by a typical profit maximizing firm is derived. The labor demand function and the production function faced the typical firms are translated into market labor demand function and economy-wide production function by exploiting the Euler theorem and the linear homogeneity of the production function faced by the individual firms. The behavior of firm is completed with the description of the investment demand as a function of the gap between the marginal product of capital and the user cost of capital, relative to the anticipated real rate of interest.

It is demonstrated that demand for money depends on the nominal rate of interest and real income, provided equities and bonds are perfect substitutes, and all changes in households' wealth are held in the form of equities and bonds. Households' consumption is understood to depend on the disposal income and the anticipated real rate of interest. Although the definition of disposal income is more realistic, the micro considerations behind the consumption decision regarding maximization of utility are ignored. Labor supply is assumed to be directly related to the real wage rate. Again utility maximization consideration behind the labor supply decision of the household are ignored, furthermore, no mention is made for the fact that a positive relationship between labor supply and the real wage rate holds-because the substitution effect is assumed to dominate the income effect in response to variation in the real wage rate.

Government spending is composed of tax revenues, and rates of growth in real balances and real values of outstanding bonds. The economies have not represented universally accepted macroeconomic theory.

2.1.2 Aggregate Output

In the classical model gross output, Y is divided among consumption = C, net investment = I, government expenditure = G, and capital depreciation δK. That is:

$$Y = C + I + \delta K + G \dots\dots\dots\dots\dots\dots(2.1.2.1)$$

In the interest free model the same definition of income is used. Firms in the interest-free closed economy produce a single, homogeneous, output at rate of Y per unit of time. The rate of output is divided into unit of real rate of consumption, a real rate of net investment, a real rate of capital depreciation, and a real rate of government expenditures. The commodity market equilibrium is identical to equation (2.1.2.1):

$$Y = C + I + \delta K + G \dots\dots\dots\dots\dots\dots(2.1.2.2)$$

Firms: Production and Investment Behavior

In the classical model the economy consists of large number firms. Given technology, the instantaneous production function of a typical firms is described by:

$$Y_i = F(K_i, N_i) \dots\dots\dots\dots\dots\dots\dots(2.1.2.3)$$

Where Y_i = gross output produced by the ith firm per unit time,
K_i = capital stock own by the ith firm
N_i = labors including the entrepreneur's labor, employed by the ith firm per unit time

The production function is subject to positive but diminishing marginal products of labor and capital. Marginal product of labor increases in response in increases in capital. Marginal product of capital also increases in response to increases in labor.

Assuming that the production function is linearly homogenous, it may be demonstrated that the marginal product of capital and marginal product of labor depend on the capital-labor ratio only (Sargent, 1979).

Firms, starting with a fixed amount of capital, obtained the desired capital labor by instantaneous variations in the employment of labour. Firms operating in perfectly competitive labor market and a perfectly competitive product market, employed the desired amount of labor at the market-determined wage rate and sell their output at the market-determined price level. Firms' decisions are motivated by an over-riding consideration to maximize their economic profits. The economic profits, II_i, of a typical firm are given by:

$$II_i = pF(K_i, N_i) - {}_wN_i - (r + \delta - \pi)pK_i \dots\dots(2.1.2.4)$$

Where r = instantaneous rate of interest on bonds,

             δ = instantaneous rate of capital depreciation,

             π = anticiapated rate of inflation

In order to maximize economic profits, firms must employ the amount of labor that equates the marginal product of labor with the real wage rate. Therefore the labor demand function faced by a typical firm is represented by:

$$F_{ni}(K_i, N_i) = w/p \dots\dots\dots\dots\dots\dots\dots(2.1.2.5)$$

Where F_{Ni} = marginal product of labor employed by the ith firm.

Equation (2.1.2.5.) is used to compute the amount of labor that yields a profit-maximizing capital-labor ratio and marginal product of labor of the firm. The capital-labor ratio and marginal product of labor must be identical for all firms because every firm is facing the same real wage.

Sergeant (1979) demonstrates applying the Euler theorem and the linear homogeneity of the production function, that the individual rates of outputs represented by the equation (2.1.2.5) can be translated into the following aggregate production function:

$$Y = F(K, N) \dots\dots\dots\dots\dots\dots\dots(2.1.2.6)$$

Where K = aggregate capital stock
        N = aggregate employment
Which, in turn, implies the following economy-wide, labor demand function:

$$F_N(K, N) = w/p$$

Where F_N = marginal product of labor in the economy.

2.1.3 The investment demand of firms in the classical models

This depend on the gap between the marginal productivity of the capital and the user cost of the capital. The user cost of the capital is composed of the anticipated real rates of interest plus the rate of capital depreciation. Although sergeant states that investment demand directly depends on the gap between the marginal product of capital and the user cost capital, the investment demand is assumed to actually depend on the gap relative to the anticipated real rate of interest. That is:

$dK/dt = I = I\{F_K - (r + \delta - \pi)\}/(r - \pi)]$...........(2.1.3.1)

Where F_K = marginal product of capital.
Equation (2.1.2.1) is re-written as:

$$I = I(q-1), I' = dI/dq > 0$$

        Where

$q = [\{F_K - (r + \delta - \pi)/(r - \pi)\} + 1]$.......(2.1.3.2)

In other words:

$q = q(K, N, r\pi, \delta$

The behavior of firms in the interest-free world is different from the classical models in the following respects:

The production relations employed in the classical model including the technical assumptions regarding marginal productivity of labor and capital, being value-free, are accepted. But the concept employed regarding the factors of production and their income shares need modification to be consisted with the principles of interest-free financing.

a.   In the classical model, employment of labor stands for the labor hired by the entrepreneurs form the market plus the entrepreneurs' personal labor. Consequently the wage bill, $_wN_i$, represent the sum of the explicit and implicit wages. In interest-free models, the profit share of the firm rather than the implicit wage, is the reward of the entrepreneur personal labor. Therefore, only labor hired from the market and the associated explicit wage bill are the corresponding relevant concepts for an interest-free economy.

b.   In the classical model, firms deduct the user cost of capital $= (r + \delta - \pi)pK$, as expense, form the total revenue to compute their profits. The user cost contains three components: depreciation cost $= \delta pK$, change in value of the capital due to anticipated inflation $= \pi pK$ and the finance cost of the capital $= pK$ determined on the basis of the fixed rate of interest, r.
The concept of a fixed interest rate is not applicable in the interest-free system because it rewards capital before it produces wealth. In an interest-free economy, capital is rewarded only if the enterprise actually turns out to be profitable. The financiers receives k% of the 'Islamic profits' as a reward for the use of the capital instead of interest income. 'Islamic profits' are equal to the total revenue less the total costs do not include returns to the capital and entrepreneurial labor.

c.   In the classical model, firms evaluate profitability of the prospective investments projects by comparing marginal productivity of investment with the user cost of capital. Firms undertake those projects for which marginal productivity of investment is greater than or equal to the user cost of the capital. Capital finance cost, a component in the user cost of the capital, is calculated on the basis of market interest rate.

Since there is no interest in the interest-free economy, it is proposed here that firms view the expected profit-share of the financier as the capital finance cost. It is assumed that the firms and financier know

the 'normal' rate of Islamic profit in the economy, $\theta = (pY - wL)/pK$. The 'normal' rate of Islamic profit is used to negotiate the profit-sharing ratios, $(1 - k):k$, in which entrepreneurs and capital financiers share the expected Islamic profits respectively. Therefore the profit-share of the capital financier $= k\theta pK$ is the expected finance cost to the entrepreneur.

The foregoing discussion suggests that the term $(r + \delta - \pi)$ representing user cost of capital in the classical model be replaced by the term $(k\theta + \delta - \pi)$ to represent the user cost of the capital in an interest-free economy.

d. In the classical model, the goal of the firm is to maximize economic profits. It is assumed that the firm in the interest-free economy is interested in maximization of its profit-share, Ω_i.

e. The contrast between the maximization of economic profit in the classical model and maximization of the profit-share of the firm necessarily leads to a corresponding increase in the profit-share of the financier in the interest-free economy. Therefore the spirit of co-operation is part and parcel of interest-free contracts. Therefore whenever the tide is high both entrepreneur(s) and financier(s) thrive because the interest of the firms and the financiers are to interest-based contracts where firms benefit at the expense of the capitalist and vice versa.

The foregoing distinction regarding the treatment of labor, capital, wage, bill, and return to capital suggest that the equations (2.1.2.3) and (2.1.2.4) be replaced by the following equations respectively:

$Y_i = F (K_i, L_i)$......................................(2.1.2.3)

Where K_i = fixed capital contributed by the participating financier to the ith on the basis of mudaraba contract.

L_i = labor hired by the ith firm

And

$= pF (K_i, L_i) - wL_i -$....................................(2.1.2.4)

Where k = instantaneous profit-sharing ratio associated with the financier

Ω_i. = 'normal' profit rate in the economy. The necessary condition for maximization of the firm's profit-share

are:

$F_{Li} (k_i, L_i) = w/p$...............................(2.1.2.5)

Where F_{Li} = marginal product of labor in the ith firm.

Because equation (2.1.2.4) and equation (2.1.2.5) are mathematically similar, although they differ conceptually, application of Euler's theorem and linear homogeneity leads to the following aggregate production for the interest-free economy:

$Y = F (K,L)$.......................................(2.12.6)

Where L = labor hired in the economy

And the following market labor demand function:

$F_L(K, L) = w/p$.................................(2.1.2.7)

Where $F_L(K, L)$ = economy-wide marginal product of hired labor.

f. In equilibrium aggregate investment must equal aggregates savings in an economy. Conard (1959), interest rate is a mechanism ensuring the financial borrowing by investors equal the financial lending by savers in the classical economy. Equality between investment and saving in an interest-free economy is ensured by the profit-sharing ratio for capital, k, rather than by the interest rate.

In the classical models, firms compare the marginal product of capital with the anticipated real user cost of capital, and investment demand is increased to the point where the marginal product of capital is equated to the anticipated real user cost of capital. In the interest-free economy, the anticipated user cost of capital equals the marginal product of capital.

The foregoing discussion suggests that the relations (2.1.2.7) through (2.1.2.8) be replaced to represent investment demand in an interest-free economy.

$dK/dt = I = I\,[\,\{F_K - (k\theta + \delta - \pi)\,\}\,/\,(k\theta - \pi)\,]$...........................(2.1.2.8)

And

$I = I\,I' = dI/d\mu > 0$...(2.1.2.9)

And

$\mu = [\{\,F_K - (k\theta + \delta - \pi)\,\}\,/\,(k\theta - \pi)\,] + 1$..............(2.1.2.10)

Or

$\mu = \mu(K, L, k, \theta, \delta, \pi)$......................................(2.1.2.11)

III. Households: Portfolio Decisions

In the classical model households allocate their wealth between money bonds and equities. The nominal rate of return on money is zero and the real rate of return on money is –p/p. the nominal yields on bonds is r and the anticipated real yield on bonds is (r- π). Firms issues equities to finance all their investment. Assuming bonds and equities are perfectly substitutes, real yield on bonds and quantities must be equal because household will refuse to hold a less attractive asset (Sargent, 1979). Since the real yield on both these assets are the same, bonds and equities are combined together into a composite financial asset, bonds-plus-equities.

Total real wealth, W, of the households in the classical model is given by:

$W = (V + B + M)/p$...............(2.1.2.12)

Where M = nominal value of money,

B = nominal value of outstanding bonds,

V = nominal value of equities.

It is assumed that households allocate heir wealth between the two groups of financial assets: bonds-plus-equities and money. Demand function for bonds-plus-equities and money are described by the equations (2.1.2.12.) and (2.1.2.13.) respectively:

$M^D/p = m(r, Y, W)$...........................(2.1.2.12.)

And

$(B^D + V^D)/p = b\,(r, Y,$......................(2.1.2.13.)

Assumes that the demand function for money and bonds-plus –equities, (2.1.2.12.) and (2.1.2.13.), are such that

$(B^D + V^D + M^D)/p = w$

Sergeant (1979), holds for all values of r, Y, and W at each moment. This requires that the following condition be met at each moment:

$(m_r + b_r) = 0$, $(m_Y + b_Y) = 0$ and $(m_W + b_W) = 1$

Where $m_r =$ change in demand for real balance in response to a unit in nominal rate of interest.

b_r = change in demand for bonds-plus-equities in response to a unit change in the nominal rate of interest.

m_Y = change in demand for real balance for unit change in output

b_Y = change in demand for bonds-plus-equities in response to a unit change in real output

m_W = change in demand for real balance in response to a unit change in real wealth

b_W = change in demand for bonds-plus-equities in response to a unit change in real wealth

Moreover, it is assumed that $m_r < 0$, $m_Y > 0$ and $m_W = 0$. That means $b_r > 0$, $b_Y < 0$, and $b_W = 1$. These condition imply that all increase in household wealth are held only in the form of equities-plus-bonds in the classical model, and therefore demand for real balances is not affected by change in wealth.

Portfolio equilibrium is obtained when the demand for bonds-plus-equities equals their supply and, at the same time, demand for real money balances equal the amount of real money supply. But, according to the walras law if there are two markets, equilibrium in one market necessarily implies the equilibrium in the other. Hence portfolio equilibrium may be obtained by equality between the demand for and the supply of either bonds-plus-equities or real balances. Traditionally the portfolio equilibrium is described by equilibrium in the money market:

$M/p = m\,(r,)$.................................(2.1.2.14.)

Where $m_r < 0$ and $m_Y > 0$

Although Sargent's model does not acknowledge it, the classical model is based on Friedman's theory of demand for money. According to this theory, money is held only as a temporary abode of generalized purchasing power. The market value of the money is independent of the interest rate, the conversion cost of money is zero, money earns no interest, and money serves as a

means of payment. The economic function of money is to separate a sale from a purchase and to permit exchange without barter. Again, since money is used only as a medium of exchange and not for speculation, this characteristic of money are accepted in Islam.

2.2 Theoretical Review
The Q- Theory of Investment

The Q- theory of investment states that all fluctuations in investment are related to marginal Q, that is, the ratio of the shadow value to the market price of a unit of capital. one of the advantages of the Q- theory of investment is that it explicitly considers expected future profitability and hence should account for the effect of uncertainty embedded in the future variables that are relevant to investment decisions. As cited in Hennessy and White (2005, 2007) they looked at the dynamic models of investment for financially constraint firms and explore model with decreasing returns to sales. The neoclassical theory corporate investment is based on the assumption that the management seeks to maximize the present net worth of the company, the market value of the outstanding common shares.

3.0 Methodology

This study is a descriptive research. A descriptive research is a type of research that describes a population, situation, or phenomenon that is being studied. It focuses on answering the *how, what, when, and where* questions If a research problem, rather than the *why.* Descriptive research can be used to investigate the background of a research problem and get the required information needed to carry out further research. It is used in multiple ways by different organizations, and especially when getting the required information about their target audience.

Sargent's classical model (1979) is adopted from the literature to represent the western system. Sergent incorporate important Keynesian view into a classical model. The

model is summed up in seven equations which determine seven endogenous variables: labor employment, real wage rate, rate of real output, real consumption demand, real investment demand, nominal rate of interest and price level. The values of endogenous variable may undergo changes in response to changes in the exogenous variable: tax revenue, government spending rate of capital depreciation, stock of money, anticipated rate inflation, and additional parameters that determine the shapes of the underlying functions. These steps involved the modification of the consumption function, investment function, goods market equilibrium, and money market equilibrium. The modified model is linearized and responses to various monetary and fiscal shocks in an interest-free economy, including changes in the money supply, taxation, government expenditures and anticipated inflation, are ascertained under two alternative scenarios regarding the role of money in determining values of the real variable in the model.

4.0 Discussion Of Findings

Most of the Muslims in Nigeria are interested in adopting interest free financing under the western system. This is another reason for converting a western model into an interest-free model. This conversion allows policy-makers to gain useful insight in the process in transition from the western system to the Islamic system.

In the interest-free economy the function of transferring resources from the savers to investors is performed by Mudaraba rather than bonds. Hence Mudaraba serve the same purpose in an interest-free economy that is served by bonds in the classical economy. Therefore the market for bonds-plus-equities is replaced by the market for Mudaraba plus-equities in an interest-free economy, and wealth in the interest-free economy is defined as;

$$W = (\Phi + V + M)/p \quad ....(4.1)$$

Where Φ = nominal value of outstanding mudarabas. Assuming, like sergeant, that mudarabas

and equities are perfect substitutes, the expected yield on mudarabas, $k\theta$, must equal the yield on equities in the interest-free economy. Therefore mudarabas-plus-equities in the interest-free economy is the equivalent of bonds-plus-equities in the classical economy. Consequently demand for real balances and the demand for mudarabas-plus-equities in an interest-free economy are described by the relation (4.1) and (4.2.) respectively:

$M^D/p = m\ (k\theta, Y, W)$....................................(4.2)

And

$(\Phi^D + V^D) / p = \Phi\ (k\theta, Y, W)$

It is assumed that total real wealth always equals the sum of the demand for equities, mudarabas and real balances:

$(\Phi^D + V^D = M^D) / p = w$.........................(4.3)

Moreover, as the 'normal' profit rate in the interest-free economy is generally known, demand for real balances varies in response to variations in the profit-sharing ratio and the real income. Therefore the portfolio equilibrium for the interest-free economy is described by the following condition:

$M/p = m\ (k,Y)$..............................(4.4)

Where $m_k < 0$ and $m_Y > 0$.

It is assumed, following sergeant, that the above asset-demand-functions obey the constraints imposed by sergeant on the classical model so that all increment in a household's wealth are held in the form of mudarabas-plus-equities and none of the increased wealth is held in the form of real balances.

The money-demand-function (4.4) assumes that people desired to hold more real balances in response to increase in their incomes. Moreover as the profit-sharing ratio, k, rises the expected rate of return on mudarabas,$k\theta$ increases, which, in turn, increases the incentive to economize on real balances held for transactions, and hence a given level of economic activity is financed by a smaller amount of real balances. The opposite happens in response to a fall in the profit-sharing ratio.

Role of the Government

In the classical model the government is allowed to levy taxes, make transfer payments, and purchase goods. The government budget is subject to the following constraint:

$G = T + (B /p) + (M/p)$...............................(4.5)

Where G = real rate of government expenditures

T = real tax revenue net of transfers

B = dB/dt = change in outstanding bonds over time

M = dm/dt = change in stock of money over time

The government buys and sells bonds in the open market subject to the constraint:

$dM = -dB$...(4.6)

Notice that a balanced government budget is assumed here. This is another condition that must be followed in an Islamic economy.

In the interest-free system the government is permitted to use all possible means of controlling the money supply that do not involve interest. Hence, it is assumed that, when necessary, the government will finance its budget deficit by issuing mudarabas, rather than bonds, in the interest-free economy. The government may also sell its own mudarabas to obtain funds for financing its budget deficits rather than investing directly in profitable industrial or commercial activities.

The government uses its funds to provide social services to the public at large. Economic analysts frequently estimate the social rates of return on these services. The social rate of return should be multiplied by the agreed profit-sharing ratio to arrive at the profit-share of the mudarabas holders. This scheme allows the government to finance its current budget deficit although payments to the mudarabas holder represent an increase in government outlays in subsequent years. Therefore, the government budget constraint is expressed by:

$G = T + (\Phi /p) + (M /p)$

Subject to the conditions:

$dM = - d\Phi$

Where $\Phi = d\Phi/dt$ = change in outstanding

mudarabas over time.

Households: Consumption Decisions

Household's decision to allocate their wealth among various financial assets was described in section three. This section is devoted to allocation of the household's disposable income, Y_D, between consumption and savings.

In the classical model, consumption demand, C, is described by the consumption function:

$$C = C (Y_D, r - \pi) \dots\dots\dots\dots\dots\dots\dots(4.7)$$
$$\text{Where} 0 < C_1 = \eth C/\eth Y_D < 1$$
$$C_2 = \eth C/\eth(r - \pi) < 0.$$

Consumption demand varies directly with disposable income and inversely with the anticipated real rate of interest. The marginal propensity to consume is positive and less than unity.

The fact that the consumption function is based on the utility maximization behavior of households with respect to choice between present and future consumption subject to given present and future incomes is ignored by sergeant. Nevertheless, it is pointed out that the consumption function is subjected to the following constraint:

$$C + S = Y_D$$

Where S stands for savings

Sargent's definition of real disposable income is more realistic than the tradition definitions. Real disposable income is assumed to consist of gross national output, Y, plus appreciation in the value of existing real equities qK, minus capital depreciation, $\eth K$, tax payments net of transfer, T, rate of capital depreciation on financial assets due to inflation, $[(M + B)/p]\pi$, and the real rate at which new equities are issued, K. hence disposable income can be written as:

$$Y_D = Y - \eth K - T [(M + B)/p]\pi + qK - K \dots\dots(4.8)$$

Where $K = dK/dt = I$

It is demonstrated by sergeant [1979, 12] that q turns out to be the "ratio of the nominal value of the capital stock evaluated at the price of newly produced capital"

In the interest-free economy, an evaluated consumption function may ba described by:

Since the variable q in the classical model has its counterpart µ in the interest-free

model, the definition of disposal income for the interest-free economy equivalent to (4.8) would be:

Household: Labor Supply Decision

In the classical model, the labor supply function is given by:

$$N^S = N (w/p), \quad N' = dN/d(w/p) > 0 \dots\dots\dots(4.9)$$

Where N^S is the instantaneous labor supply. Sergeant assumes, the following classical economists, that all those people who are willing to work find employment, so the labor market equilibrium is represented by:

$$N = N(w/p).$$

Again the households make a labor-leisure choice in order to maximize their utility under given time constraints. The fact that the labor supply is based on the labor-leisure choice to maximize households' utility is not mentioned in sargent's study.

In the interest-free model, it is assumed that L^S represent the labor available for hire and L stands for the amount of labor actually hired from the labor market. This modification is necessary to be consisted with the labor demand function developed in section two. Accepting the format and logic employed in (4.8) and (4.9), the following equivalent relations hold for an interest-free economy **Complete Macroeconomic Models**

Sergeant (1979) combines equations (4.1), (4.5), (4.6), (4.7), (4.14.), (4.17.C) and (4.20) to formulate the complete classical model shown in the following seven equations:

$$w/p = F_N(K, N)$$
$$N = N (w/p)$$
$$Y = F(K, N)$$

$$C = C [Y - T - \eth K - \{(M + B)/p\}\pi + \{q (K, N, r - \pi, \eth) - 1\} l; (r - \pi)$$
$$I = I [q (K, N, r - \pi, \eth) - 1]$$
$$Y = C + I + \eth K + \quad M/p = m (r, Y)$$

The model contains seven endogenous variable w/p, N, Y, C, I, r and p. all other variables such as T, G,   and M are exogenous in the model. The model is complete because the number of endogenous variable are equal to the

number of equations in the model.

The corresponding complete interest-free model is obtained by combining equations   (4.1), (4.5), (4.6), (4.7), (4.14.), (4.17.C) and (4.20) as presented below

$$w/p = F_L(K, L)$$

$$L = L\,(w/p)$$
$$Y = F\,(K, L)$$
$$C = C\,[Y - T - \partial K - \{(M + \Phi)/p\}\pi + \{(K, L, k\,\Theta, \partial, \pi) - 1\}\,I;\,(k\Phi - \pi)]$$
$$I = I\,[\,\mu\,(K, L, k, \Theta, \partial, \pi) - 1\,]$$
$$Y = C + I + \partial K + G$$

$$M / p = m\,(k, Y)$$

The interest-free model is complete because it contains seven equations with seven endogenous variables w/p, N, Y, C, I, p and k. All other variables are exogenous.

5.0 Concluding Remarks

Modification of a western macroeconomics model into an interest-free financing system or model is carried out in this paper. The study described the mechanics for obtaining an interest-free macroeconomic model from a prototype western model in Nigeria. The transition from a western system to an Islamic system changes the treatment given to various factors of production including labor and capital. A firm's demand for labor is based on the profit expected by the firm under each system. Firms are interested in maximization of economic profit in the western economies and maximization of their share out of accrued Islamic profit in an interest-free economy. It is well known that the entrepreneur and the financiers have opposing interest in the western system. If the interest cost rises, rewards to capital go up leading to a corresponding reduction in profit for the entrepreneurs. It was discovered, however during the course of the study that rewards for entrepreneurship and finance capital go hand in hand in the interest-free system. Cooperation is inherent in the Islamic system.

Total wealth is held in the form of money, equities and interest-bearing bonds in the western system. Bonds do not exist in interest-free societies. People, however, in interest-free Islamic economies may carry Mudarabas, an interest-free equivalent to bonds is captured in the adjusted model

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The Role of the Central Bank Of Nigeria Analytical Balance Sheet In Monetary Policy Implementation

Salihu Audu
Statistics Department
Central Bank of Nigeria

Abstract

This paper examines the role of the Central Bank of Nigeria (CBN) analytical balance sheet in the implementation of monetary policy. The Bank currently uses a mix of both quantity-based (monetary base) and price-based (short-term interest rate) nominal anchors. However, irrespective of the targeting regime adopted, both depends on the central bank's ability to manage its balance sheet given the huge fiscal influence on banking system liquidity in Nigeria. Therefore, the paper analyses the various liquidity management operations of the CBN and their implications for the size and structure of the analytical balance sheet.

Key words: Monetary policy, monetary base, balance sheet, currency in circulation, open market operations.
JEL Classification: E52, E58.

1.0 Introduction

The analytical balance sheet (ABS) conveys vital information on monetary and credit developments in an economy. This was aptly noted by Bindseil (2004), "whenever a central bank transacts with the rest of the world – that is when it issues currency, conducts foreign exchange operations, invests its own funds, engages in emergency liquidity assistance, and, last but not least conduct monetary policy operations – all of these operations affect its balance sheet". The CBN monetary policy objective focuses on maintaining monetary and price stability. The recent quest for increased private capital inflows has also made attention to be focused on building external reserves and ensuring exchange rate stability. Therefore, monetary policy in Nigeria tries to maintain a cautious balance between price and financial system stability conducive to sustainable and inclusive economic growth. Although the expansion or contraction in the size of the balance sheet is not necessarily a signal of the stance of monetary policy,the balance sheet is key in the successful implementation of monetary policy by central banks.

The CBN currently uses a mix of both quantity-based (monetary base) and price-based (short-term interest rate) nominal anchors. The fact remains that irrespective of the targeting regime adopted, both regimes depend on the central bank's ability to manage its balance sheet. However, the Monetary Policy Rate (MPR) is viewed as the anchor instrument for monetary policy management in Nigeria. This is achieved using "standing facilities" with an asymmetric corridor of +200/-500 basis points around the MPR. The CBN provides overnight lending facility to other depository corporations (ODCs)in need by applying 200 basis points above the MPR while it pays interest on overnight deposits with it at 500 basis points below the MPR. The rates on the standing facilities is to gauge the deviation of overnight rates in the financial market from the MPR. In practice, overnight rates have deviated due to the erratic liquidity conditions in the market driven largely by fiscal operations.

The magnitude and structure of the CBN-ABS can change significantly without necessarily impacting interest rates in the market. This is true as banks reserve the discretion to access the standing lending facility (SLF). Though the CBN balance

sheet expands when banks use these facilities, it does not in any way compromise the CBN's ability to implement monetary policy. Due to the relatively small size of these facilities, they are not major drivers of the CBN-ABS. Clearly, the key influence on the size and composition of the ABS is liquidity management operations of the CBN. Gray (2006) opines that the presence or otherwise of a liquidity surfeit or squeeze has implication for the central bank and has the potential to influence the following: (a) the transmission mechanism of monetary policy; (b) the conduct of central bank intervention in the money market; and (c) the central bank's income. Open Market Operations (OMO) is the primary instrument of liquidity management, lending to, and borrowing from the market using CBN bills of not more than 364 days. These operations are aimed at smoothening the day-to-day fluctuations in the cash balances of banks.

In recent years, liquidity management operations have led to huge changes in the size and composition of the CBN balance sheet. The effect of the operations on the balance sheet differs from instrument to instrument.
The objective of this paper is to highlight the interactions between liquidity management operations and the analytical balance sheet of the Central Bank of Nigeria.

The rest of the paper is structured thus, section 2 highlights the structure of a typical central bank balance sheet discussing the composition of assets and liabilities. Section 3 looks at the Central Bank of Nigeria analytical balance sheet. The impact of various transactions on the Central Bank of Nigeria balance sheet highlighting how different operations can change the size and composition of the balance sheet is discussed in section 4. Section 5 gives the general perspective of the paper and finally, section 6 summarises and concludes the paper.

2. The Composition of a Typical Central Bank Balance Sheet

Central bank balance sheets are typically the same with minor differences reflecting the history and the operational structure of the macroeconomy. A stylised form of the balance sheet is depicted in Table 1, thus:

Table 1: Stylised central bank balance sheet

ASSETS	LIABILITIES
Foreign assets (including gold)	Foreign liabilities
Claims on government - government securities	Currency in circulation (notes and coins)
Claims on government – overdraft/ways & means advances	Government deposit
Claims on other depository corporations - ODCs	ODCs' deposits
Claims on other resident sectors	Central bank bills – OMO
Other	Equity
	Other

Source: Author's construct

The composition of the stylised balance sheet in table 1 comprising asset and liability items can be individually described below.

2.1 Foreign assets and liabilities

Central banks hold assets in foreign currency to enable them to defend the value of their national currencies. This is achieved through intervention in the foreign exchange market by purchasing local currency. In Nigeria, foreign assets do not match foreign liabilities one for one because substantial part of the assets have been monetised by the CBN. Furthermore, third party holding of foreign assets by the CBN are matched by local currency cover.

2.2 Currency in circulation

One of the major functions of central banks is the issuance of notes and coins of fixed nominal value. In some jurisdictions, central government also issue currency. TheCBN is the sole issuer of naira and kobo in Nigeria. The quantum of currency in circulation (CIC) is exogenously determined, the CBN has no control but to comply with the demand of the economy. Assuming Nigerians have preference for holding more or less of the share of their wealth in the form of cash, the CBN responds by increasing or reducing the supply accordingly. Consequently, the amount of the currency liability on the CBN balance sheet adjusts in the same direction.

Often, question is asked, 'why is CIC a liability to the CBN?'. CIC is a liability to the CBN because a mutilated note or coin is usually returned to the CBN at any time and replaced with a new note or coin accordingly. The CIC is 'fiat money' as is issued without the right of exchange for a different physical asset. Although ODCs acquire currency directly from the CBN, it remains a liability to the CBN because they can return it in exchange for the ODCs' account at the CBN to be credited with the same value. The act simply switches one CBN liability for the other. Remember that CIC and deposits are channels of making payment.

2.3 Claims on government/government deposits

Central banks provide banking services to their respective governments as their bankers. Presently, the CBN offer this service only to the Federal Government, although, treasury single account (TSA) services is also provided to few state governments. A positive (debit) balance in the deposit account (Consolidated Revenue Fund (CRF)) of the government is a liability to the CBN, while an overdrawn government position (credit) creates a loan which is an asset of the CBN. Government cash balance at the central bank can fluctuate by the CBN Act of 2007 and the CBN uses its instrument to manage the effect of the fluctuations. Currently, the CBN pays no interest on Government deposits but charges the government MPR plus three (3) per cent on overdrawn position.

Allowing the CRF to be overdrawn is only a temporary banking facility to cushion the volatility of Government cashflows during the financial year. This is referred to as "monetary financing". Full-funding regime - a situation whereby government finances all its anticipated borrowings through the issuance of long tenored debt instruments to non-bank private sector – is advocated to promote sound government finances and safeguard the economy from the influence of high-powered money. Although there is a declining emphasis on the quantity of high-powered money being a leading indicator of future inflation, it may impact short-term interest rates. It is becoming increasingly clear in Nigeria that prices rather than quantities are at the core of transmission mechanism. This understanding is responsible for the asymmetric corridor of the standing facilities around the MPR to ensure that short-term interest rates do not fluctuate significantly in response to variations in banks' excess reserves.

2.4 Claims on Other Depository Corporations

The function of "Lender of last Resort" performed by the CBN implies that in times of illiquidity, other depository corporations run to the CBN for either temporary 'overnight' accommodation or long-term loans for a more serious liquidity problem. Overnight repos are conducted in the discount window – a lending outlet by the CBN to ODCs experiencing temporary liquidity needs not met at the money market. The central bank decides the maturity of the repos in line with its desire to control interest rates in the market. However, the CBN presently uses standing facilities 200 and 500 basis points above and below the MPR to control the overnight interest rates.

In situations of banking system distress, the loans can be a large percentage of the central bank's assets as was the case in the aftermath of the 2007/08 Global Financial Crisis. If the CBN plans to inject liquidity into the banking system for a longer period, it simply buys financial instruments or some other assets outrightly from the ODCs.

2.5 Claims on Other Resident Sectors

The CBN also have claims on the other resident sectors of the economy, such as other financial corporations (OFCs), public nonfinancial corporations (PNFCs) and state & local governments (S&LGs). The claims on OFCs are not loans per se but CBN's equity holdings in the institutions. This includes the central bank's holding of AMCON bonds, as it is presently classified as OFC.

The PNFCs are Federal Government parastatals such as Nigeria National Petroleum Corporation (NNPC), Nigerian Ports Authority (NPA), Federal Inland Revenue Service (FIRS), among others. The claims on PNFCs are unintended overdrafts due mainly to reconciliation issues.

On the other hand, the claims on S&LGs are the bailout funds provided to them by the Federal Government as budget support facility when the country was hit by fiscal crisis due to the volatility of oil prices in the global market. The over-reliance of S&LGs on statutory allocations slackened their efforts at raising internally generated revenue (IGR). The low IGR coupled with reduced federal allocations, forced them to rely on short-term borrowing from financial institutions. As the situation persisted, their indebtedness lowered their credit worthiness and chances of further borrowing from the financial institutions hence, their inability to honour statutory and discretionary obligations.   In view of this, they sought for financial bailout from the Federal Government to avert eminent crisis and collapse of the economy.

2.6 Other Depository Corporations Deposits

The CBN is also a banker to ODCs and as such maintains accounts for them. These accounts range from their current accounts for inter-bank settlement, required reserves to meet statutory reserve requirements and other special deposits as may be demanded by the CBN. Given that the quantity of money is also a focus of monetary policy implementation in Nigeria, the aggregate holding of ODCs' settlement cash balances is particularly relevant. The settlement cash balances matter for the day-to-day liquidity management operations of the central bank via OMO. These accounts in addition to currency in circulation, constitute monetary base or reserve money.

These operations are meant to ensure that the settlement account balances of ODCs remains within the set limit for each day. ODCs lend and borrow overnight from the CBN using the standing facilities to square up their positions thereby avoiding overdrafts.

The CBN also provides interest free intra-day demand driven lending to ODCs to

smoothen operations at the real-time gross settlement system which expands the balance sheet during the day and reverses at the end of the business day. The intra-day expansion of the monetary base has no monetary policy implication of impacting interest rates.

2.7 Central Bank of Nigeria Bills/Securities

In recent years, the CBN have been faced with incessant liquidity surfeit in the banking system mainly due to fiscal operations resulting in continuous liquidity management operations to stabilize the system. The withdrawal of liquidity from the market is achieved by selling CBN bills through open market operations (OMO). The bills are typically of a short maturity, not exceeding 364 days. OMO is a market-based technique that involves the buying and selling of CBN bills to influence the ability of ODCs to create credit. Furthermore, with OMO, the CBN can influence ODCs' excess reserves and indirectly impact interest rates as well as the availability of credit and consequently, broad money supply in the economy.

2.8 Equity

The capital of any central bank is normally wholly subscribed by the Government and is usually not a significant item on the balance sheet. The CBN equity is N100 billion but fully paid-up is N5 billion and held entirely by the Federal Government. The equity is not like the usual share capital as the central bank is not an incorporated entity.

3. The Central Bank of Nigeria Analytical Balance Sheet

The analytical balance sheet is indispensable in the effective implementation of monetary policy by central banks. Although, the changes in the size of the balance sheet may not necessarily signal the stance of monetary policy. Table 2 is a stylized presentation of the analytical balance sheet of the CBN.

Table 2: A Stylized Central Bank of Nigeria Analytical Balance Sheet

Asset	Liability
1. Foreign Assets	9. Foreign Liabilities
1.1 Gold and SDR Holdings	9.1 Short term
1.2 Foreign Currency	9.2 Long term
1.3 Denmand Deposits at Foreign Banks	
1.4 Securities of Foreign Govt	10. Currency in Circulation
1.5 Foreign Equity	
1.6 FX Swaps/Forward/Futures	11. CBN Securities
2. Claims on Federal Government	12. Federal Government Deposits
2.1 Treasury Bills & TB Rediscount	13. Private Sector Deposits
2.2 Nigerian Converted Bonds	
2.3 Overdraft to Federal Government	14. Liabilities to Other Depository Corporations
2.4 Other Claims on Federal Government	14.1 Demand Deposits (Excess Reserves)
2.5 Claims on Federation and Mirror Acct	14.2 Special Deposits
3. Claims on State and Local Government	14.3 Required Reserves
4. Claims on Public Nofinancial Corp	15. Capital Account
5. Claims on Private Non-financial Corp	15.1 Capital
6. Claims on Other Depository Corporations	15.2 Reserves
7. Claims on Other Financial Corp	15.3 Provisions
8. Unclassified Assets	15.4 Revaluation Accounts
	16. Unclassified Liabilities

Source: CBN Monthly Monetary Survey Report

Table 2 is not significantly different from the general format in Table 1, except for some sub-items to accommodate our idiosyncrasies, such as claims on federation and mirror accounts, meant to warehouse funds for allocation to the three tiers of Government.

Table 3: Stylized Central Bank of Nigeria Monetary Survey

Asset (Monetary Base Determinants)	Liability (Monetary Base Components)
Net Foreign Assets (NFA = 1.-9.)	
NDA ┌ Net Claims on Federal Government (NCG = 2. -12.) ⎱ Claims on Other Resident Sectors (CORS = 3.+4.+5.+7.) └ Other Assets Net (OAN = 6.+8.-11.13.-15.-16)	Currency in Circulation (CIC = 10.) Other Depository Corporations' Deposits (R = 14.)
= Monetary Base	**= Monetary Base**

A summarised version of Table 2 is referred to as monetary survey and presented in Table 3. The CBN survey is simplified by netting the central bank's transactions with the rest of the world (net foreign assets) and the Federal Government (net claims on Federal Government) to aid economic analysis as well as all other assets and liabilities. The presentation is such that the sum of all items on the asset side (monetary base determinants) and those on the liability side (monetary base components) each equals monetary base.

Table 4: Stylized CBN Analytical Balance Sheet as at End-September 2019

Asset	N'Billion	Liability	N'Billion
1. Foreign Assets	**16,150.5**	9. Foreign Liabilities	1,572.3
2. Claims on Federal Government	11,628.0	10. Currency in Circulation	2,005.60
3. Claims on State and Local Government	719.5	**11. CBN Securities**	**17,741.13**
4. Claims on Public Non-financial Corp	154.7	12. Private Sector Deposits	2,899.29
5. Claims on Private Non-financial Corp	52.9	13. Liabilities to Other Depository Corp	4,994.65
6. Claims on Other Depository Corp	1,565.7	14. Federal Government Deposits	5,953.13
7. Claims on Other Financial Corp	7,212.4	15. Capital Account	1,307.54
8. Unclassified Assets	5,827.6	16. Unclassified Liabilities	6,837.53
Total Assets	**43,311.17**	**Total Liabilities**	**43,311.17**

The analysis of the CBN analytical balance sheet at end-September 2019 in Table 4, shows that CBN Securities (OMO bills) outstanding is the largest single item on the Bank's balance sheet. This signals the presence of structural liquidity surfeit in the banking system.
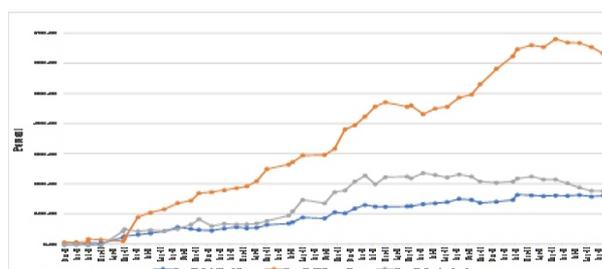
Figure 1: Growth rates of balance sheet size, CBN securities and foreign assets

From figure 1, it is clear, that the issuance of OMO bills started growing rapidly from June 2016. It grew by over 1,000.0 per cent at end-August 2019 compared to foreign assets and balance sheet size which grew by 177.0 and 157.0 per cent, respectively.

The CBN balance sheet has been predominantly liabilities driven resulting in accretion to liquidity surpluses with the banks.

4. Effect of Liquidity Management Operations on the Analytical Balance Sheet

The various functions performed by the CBN impact on the size and composition of the CBN-ABS. This section examines the influence of liquidity management operations on the ABS using the various policy instruments available to the central bank to counter the consequences of changes to the currency in circulation – due to swings in cash preferences of economic agents and Government fiscal operations.

4.1 Currency Issuance/Management

It is the function of the CBN as earlier stated to ensure that at any point in time the right amount of currency notes and coins are in circulation. The injection and withdrawal of currency have implication for the size and composition of the CBN balance sheet. The quantity of currency required by Nigerians is not static throughout the year. There are seasonal factors that determines the amount of cash required by the economy, for instance, Christmas and Eid celebrations as well as general elections (see Figure 1).

Figure 2: Trend in Currency in Circulation

Source: Author's construct

4.1.1 Increase in currency due to festivities and general elections: Injecting through standing lending facility.

The demand to hold cash by bank customers in Nigeria are usually high during festivities and general elections. The preference for cash is usually very conspicuous during Christmas in every December as shown in figure 1. If we consider the increase in CIC over the Christmas period and a Nigerian ODC called 'Alpha Bank'. The account holders of Alpha bank require more cash for Christmas celebration; the bank acquires these currencies by buying them from the CBN. The payment for this transaction is done by the CBN debiting Alpha bank's own transferable (current account) deposits at the CBN.

This transaction reduces Alpha bank's balance and by implication the aggregate ODCs' deposit at the CBN. However, if Alpha bank's position at the CBN would be overdrawn by the transaction, the CBN then lend to the bank through discount window operation via repurchase agreement(repo) to raise ODCs' deposits to the target level. This lending by the CBN is asset creation which raises the assets side of the CBN balance sheet by the same amount and a corresponding increase in currency in circulation on the liabilities side.

First transaction: Currency in circulation rises while ODCs' deposits at the CBN falls both on the liabilities side of the balance sheet.
Second transaction: Claims on ODCs increases on the assets side and ODCs' deposits rises on the liabilities side of the balance sheet.
Overall effect: The CBN analytical balance sheet expands.

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[5] *Figures in parentheses refer to items in Table 2.*
[7] *The window is a lending outlet by the CBN to ODCs experiencing temporary liquidity needs that could not be met on reasonable terms from the interbank money market to realign their liquidity position.*
[8] *Repurchase agreement is the sale of securities, mostly short term, for immediate payment and the promise by the seller to buy back at later date on agreed conditions.*

Chart 1: Impact of increase in currency in circulation due to festivities: Injecting via repo

Assets	Liabilities
Claims on ODCs ⬆	Currency in Circulation ⇧
	ODCs Deposits ⇩ ⬇

Impact: CBN-ABS expands

◯ First level transaction: original transaction
⚫ Second level transaction: CBN liquidity management
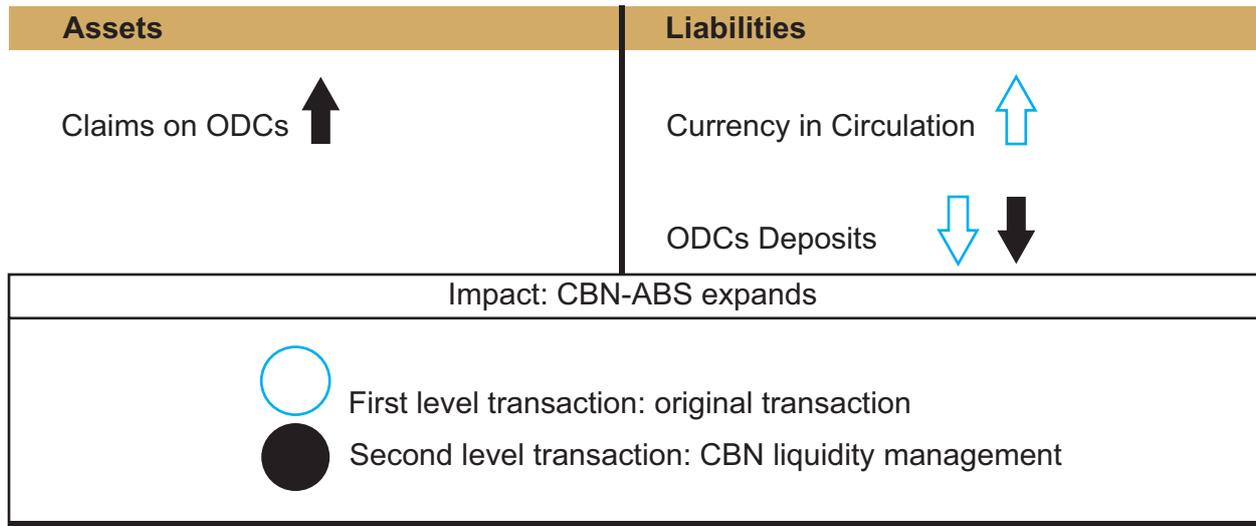
Source: Author's construct

The above is also the case for increase in CIC due to Eid celebrations and general elections in Nigeria.

4.1.2 Increase in currency in circulation due to foreign exchange monetization.

The major source of revenue to the Nigerian Government is the sales of crude oil in the international market. The proceeds from these sales are received by the CBN in foreign currencies on behalf of the Federation and recorded as foreign assets on the assets side of the CBN balance sheet. Since it is a third-party transaction, naira liability is created on the liabilities side as Federal Government deposits. This transaction expands the CBN-ABS.

The naira liquidity impact of monetization is like injection via festivities. When funds are allocated to the tiers of Government, the portion that belongs to the FG is kept at the CBN while the sub-national share is moved to their various ODCs' accounts with the CBN. This is simply moving balances from one liability account to the other with no implication on the size of the balance sheet. Therefore, the first level transaction under liquidity injection through monetization is the sub-nationals accessing their balances via

their respective ODCs who then purchase currency from the CBN by making payment with their settlement balances at the CBN. The CBN will reduce ODCs settlement balances by the required amount and raise currency in circulation by the exact equivalent.

If ODCs' position at the CBN would be overdrawn by the transaction, the CBN then lends to the ODCs via repo to raise ODCs' deposits back to the target level. This raises the assets side of the CBN balance sheet by the same amount and a corresponding increase in currency in circulation on the liabilities side. This second transaction which is liquidity management operation expands the CBN balance sheet further.

First transaction: Currency in circulation rises while ODCs' deposits at the CBN falls both on the liability side of the balance sheet.
Second transaction: Claims on ODCs rises on the assets side and ODCs' deposits increases by the same amount on the liabilities side of the balance sheet.
Overall effect: The CBN analytical balance sheet expands.

Chart 2: Impact of increase in currency in circulation due to monetization: Injection via repo

Chart 2: Impact of increase in currency in circulation due to monetization: Injecting via repo

Assets	Liabilities
Claims on ODCs ⬆	Currency in Circulation ⬆
	ODCs Deposits ⬇ ⬇

Impact: CBN-ABS expands

○ First level transaction: original transaction

● Second level transaction: CBN liquidity management
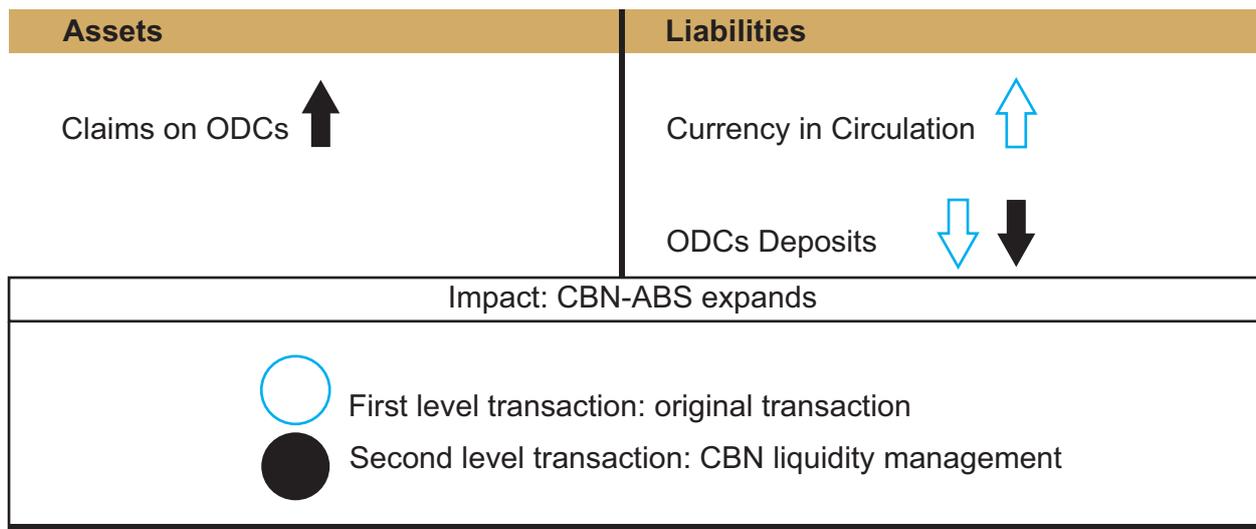
4.1.3 Increase in currency in circulation: Intervention via foreign exchange swap

The CBN also use foreign exchange swap as an instrument of liquidity management. To inject liquidity through foreign exchange swap, the CBN buys foreign currencies, usually the US dollars from ODCs and pays naira to the counterparty. This arrangement commits the CBN to resell the US dollars for naira on the maturity date at an earlier agreed price. This deal removes any foreign exchange movement risk as the exchange rate has already been locked at the initial stage of the transaction.

The first level transaction injects liquidity into the system and then withdrawn at the end of the deal. Although the swaps are off-balance sheet transactions, the foreign currency component appears as foreign assets on the CBN-ABS until the swap matures.

First transaction: Currency in circulation increases and ODCs' deposits at the CBN falls.

Second transaction: ODCs' deposits rises, and foreign assets also increases by the amount of foreign currency swapped.

Overall effect: The CBN analytical balance sheet expands.

Chart 3: Impact of increase in currency in circulation via foreign exchange swap: Injecting via repo

Assets	Liabilities
Claims on ODCs ⬆	Currency in Circulation ⬆
	ODCs Deposits ⬇ ⬇

Impact: CBN-ABS expands

○ First level transaction: original transaction

● Second level transaction: CBN liquidity management
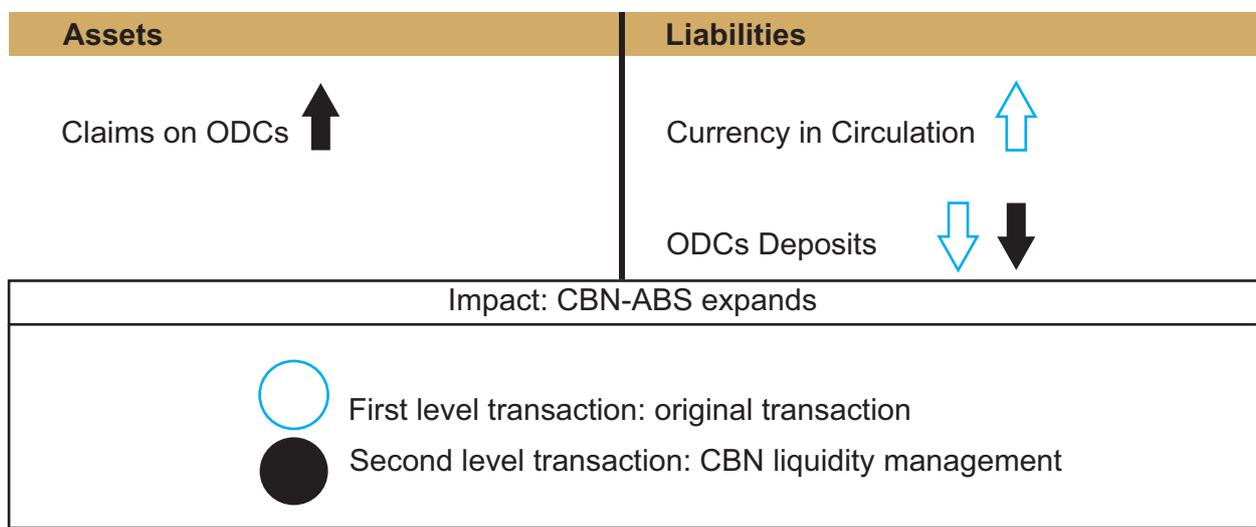
Source: Author's construct

4.2 Government Fiscal Operations

Fiscal operations of Government in Nigeria exerts major influence on the CBN-ABS and liquidity management on a daily basis. These operations range from earnings from oil sales, tax collections and incurrence of expenditures as well as debt management.

4.2.1 Tax revenue collection: Injecting liquidity via standing lending facility
Government tax payments are made into Government accounts with ODCs and then they remit into government deposits accounts at the CBN periodically. When ODCs remit the collections, it reduces their balance with the CBN and will therefore, need to conduct repot to bring it back to the required target level.

First transaction: Government deposits at the CBN rises and ODCs' deposits falls.
Second transaction: CBN claims on ODCs rises and ODCs' deposits increases.
Overall effect: The CBN-ABS expands.

Chart 4: Impact of liquidity injection via repo to offset tax payments
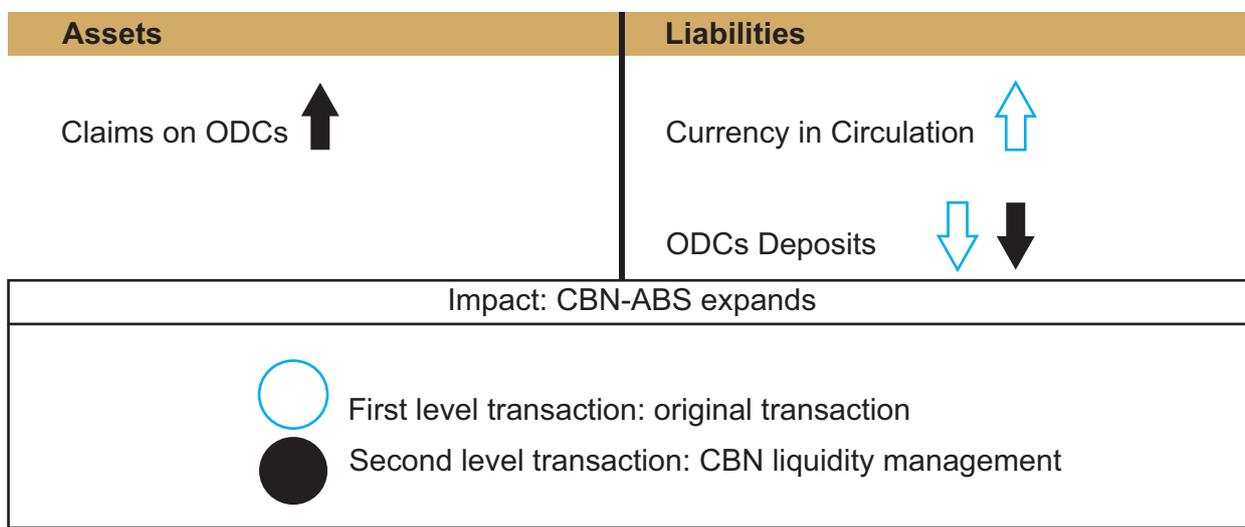
Source: Author's construct

4.2.2 Tax revenue collection: Injecting liquidity through foreign currency swap
Liquidity injection through foreign currency swap to offset tax payments is like preference for cash during festivities and elections.
First transaction: Tax payments by ODCs increases Government deposits at the CBN while ODCs' deposits falls.

Second transaction: The naira purchased by ODCs raises ODCs' deposits back to threshold and CBN foreign assets increases by the amount of foreign currency swapped.
Overall effect: The CBN-ABS expands.

Chart 5: Offsetting tax payments by injecting liquidity via foreign exchange swap
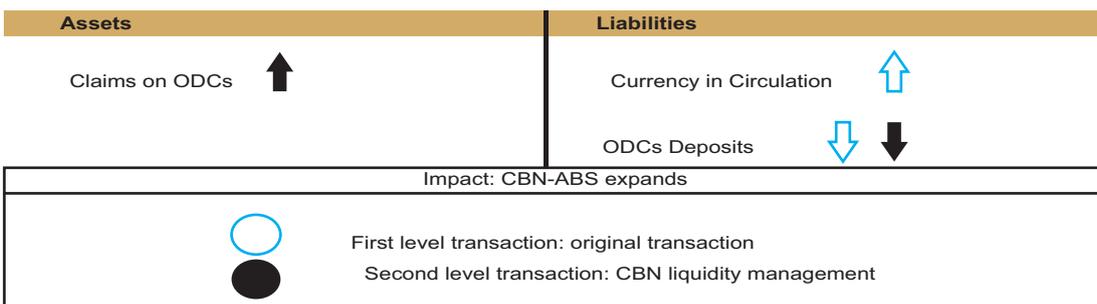
Source: Author's construct

4.2.3 Federation Accounts Allocation Committee payments to sub-national governments: Liquidity withdrawal through issuance of CBN bills

Federation Accounts Allocations Committee payments to sub-nationals are made to ODCs that maintain their accounts. This is done by crediting the ODCs' deposits accounts at the CBN and debiting Federal Government deposits. If this payment raises ODCs' deposits above the target level – the CBN goes to the market to withdrawal the excess.

The CBN sell OMO bills to the ODCs to mop the excess in their settlement balances. The OMO bills issuance appears on the CBN-ABS since it owns the instrument.

First transaction: Government deposits at the CBN falls while ODCs' deposits rises.

Second transaction: The issuance of OMO bills increases while ODCs' deposits falls back to target level.

Overall effect: The CBN-ABS remains unchanged.

Chart 6: Liquidity withdrawal via CBN bills to offset FAAC payments to sub-nationals

Assets	Liabilities
Claims on ODCs ⬆	Currency in Circulation ⬆
	ODCs Deposits ⬇⬇

Impact: CBN-ABS expands

○ First level transaction: original transaction
● Second level transaction: CBN liquidity management
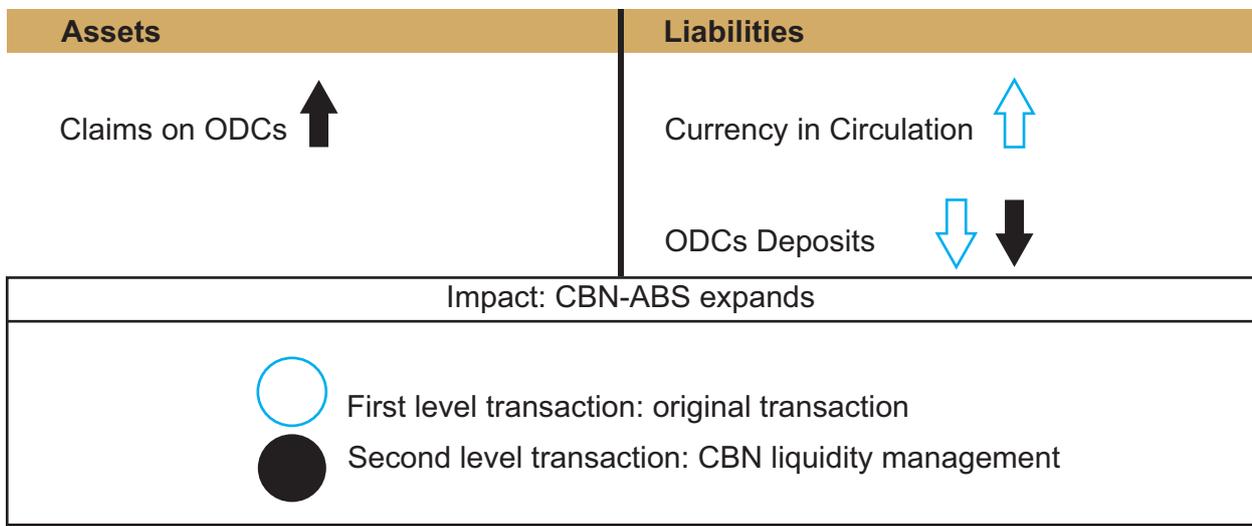
Source: Author's construct

4.2.4 Liquidity withdrawal via foreign exchange swap to offset FAAC allocation to sub-nationals

The CBN runs down its foreign reserves by exchanging foreign currencies via swap with ODCs for naira. The naira received by the CBN is a withdrawal of excess liquidity in the banking system. The CBN repurchases the foreign currency at maturity at the agreed price. As earlier discussed, the price is locked and therefore, no foreign exchange price movement risk in the deal.

First transaction: Government deposits at the CBN falls while ODCs' deposits rises.

Second transaction: ODCs' deposits falls back to target level by the amount withdrawn. Also, foreign assets of the CBN falls by the same equivalent.

Overall effect: The CBN-ABS contracts.

[9]Nigeria runs a federal system with three tiers of government: Federal, State and Local governments. The three are referred to as "Federation".
[10]Although the proceeds belong to the three tiers of government for monthly allocation, it is recorded as Federal Government deposits pending when it is shared. The basis is that the Federal Government controls the funds until it is allocated.

Chart 7: Liquidity withdrawal via foreign currency swap to offset FAAC payments to sub-nationals

Assets	Liabilities
Claims on ODCs ⬆	Currency in Circulation ⇧
	ODCs Deposits ⇩ ⬇

Impact: CBN-ABS expands

○ First level transaction: original transaction

● Second level transaction: CBN liquidity management
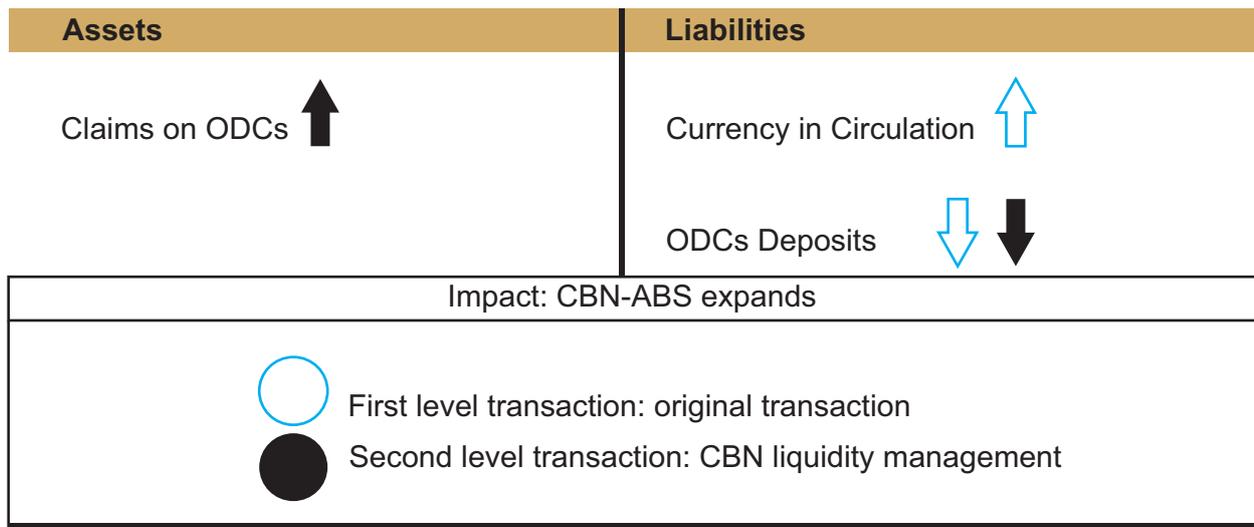
Source: Author's construct

Recently, the CBN have not used foreign exchange swaps for monetary operations. Most central banks have significantly reduced the use of foreign exchange swaps because the portion used for the swap is tied-up until maturity, except those central banks that have huge official reserve assets.
4.2.5 Liquidity withdrawal via repo of CBN holdings of Federal Government securities
The CBN holds a portfolio of Federal Government securities (treasury bills and bonds). These instruments, particularly, the treasury bills are used to withdraw liquidity in the banking system. Although, since the introduction of CBN bills, Government treasury bills are rarely used for liquidity management.
First transaction: Government deposits at the CBN falls while ODCs' deposits rises.
Second transaction: Claims on Government falls. Payment for the treasury bills in the repo reduces ODCs' deposits at the CBN to target level.
Overall effect: The CBN-ABS contracts.

Chart 8: Withdrawal of liquidity via repo of FG securities to offset FAAC payments to sub-nationals

Assets	Liabilities
Claims on ODCs ⬆	Currency in Circulation ⇧
	ODCs Deposits ⇩ ⬇

Impact: CBN-ABS expands

○ First level transaction: original transaction

● Second level transaction: CBN liquidity management
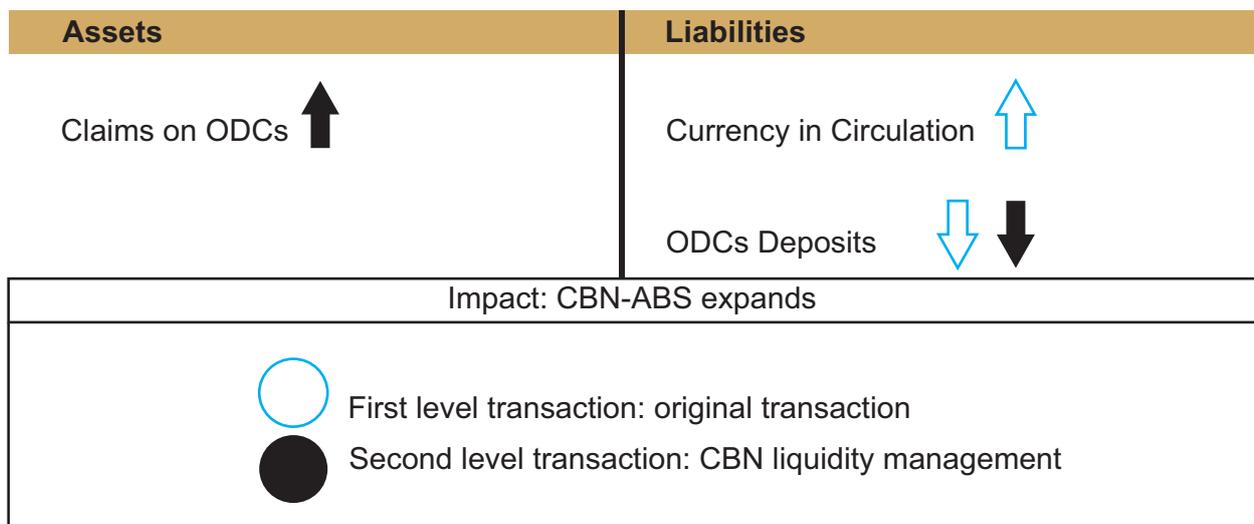
Source: Author's construct

5.0 The General Perspective

The discussions in the previous section assumes that individual actions are undertaken by the CBN to offset different impacts on liquidity in the banking system. In reality, these different impacts occur simultaneously. The operations by the CBN are targeted at the net effect of changes in the preference for cash, fiscal operations and maturing obligations. This net position influences the level of ODCs' deposits and ultimately, the CBN-ABS.

The periodic OMOs reflect forecasts of the various flows across the CBN accounts. The CBN determines the net effect of changes in CIC, fiscal flows, and maturing obligations. If the net forecast is a net withdrawal of liquidity from the system, actions are taken to inject the exact quantity through repo/or swaps. This is to ensure that the settlement account balances of ODCs do not fall below the set threshold.

CBN forecast of liquidity may not be exact as Government cash flows cannot be predicted precisely due to last minute changes in decisions. Consequently, the outcome may be several billions of naira above or below the forecast.

In a situation that the CBN overestimate the demand for liquidity, the end-of-day settlement balance will exceed the set limit, the ODCs in excess will have SDF, getting an interest rate of 500 basis points below the MPR. If the forecast is an underestimation of currency demanded, the settlement balance will be below the set limit. This will result in SLF being used to bridge the gap since no ODC can be overdrawn. The SLF is at an interest rate of 200 basis points above the MPR. Also, the intra-day facility is available interest free but when converted to overnight facility, SLF, due to inability to pay back the intra-day attracts SLF plus penal rates.

The deployment of these facilities expands the CBN-ABS same way as using foreign currency swaps to inject liquidity. The facilities are at the disposal of ODCs even without forecast errors. Given that the rates on these facilities are anchored on the MPR, the CBN-ABS fluctuations due to the use of these facilities have no consequences for monetary policy.

6. Summary and Conclusion

The essence of the paper is to highlight the interactions between the Central Bank of Nigeria analytical balance sheet and the implementation of monetary policy. This relationship has revealed the critical role played by the analytical balance sheet in the successful implementation of monetary policy. The CBN-ABS is important to the functioning of the Nigerian economy as its key liabilities, currency in circulation and ODCs reserves, provide the ultimate avenues for the settlement of transactions.

Despite the differences in the accounting practices and domestic peculiarities resulting to varying form and presentation of central bank analytical balance sheets, all central bank analytical balance sheets can be summarised to a common form. This abridged form contains a few broad items, each of which plays critical role in the attainment of the mandates of the central bank.

Fiscal operations in Nigeria exerts major influence on the CBN-ABS and liquidity management daily. The resultant surplus liquidity has been a major challenge in the implementation of monetary policy leading to the deployment of series of conventional liquidity management instruments. This is to ensure that short-term interest rates are anchored around the MPR to achieve the wider monetary policy objective of price stability.

Therefore, to guarantee an effective and successful monetary policy regime – the quality of the analytical balance sheet must be of paramount importance to the Management of the Central Bank of Nigeria.

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Firm Survival of Listed Nigerian Financial Institutions: A Consolidated Methods Approach

Sunusi Garba (Ph.D)
Department of Accounting
Faculty of Management Sciences
Federal University Dutse

Adamu M. Abubakar, (Ph.D)
Department of Accounting
Faculty of Management Sciences
Federal University Dutse

Ahmad I. Mohammed (Ph.D)
Department of Banking and Finance
Faculty of Management Sciences
Federal University Dutse

Mohammed S. Damamisau (Ph.D)
Department of Taxation
Faculty of Management Sciences
Federal University Dutse

Abstract

The firm's survival is regarded as an essential element usually used by the capital market participants in making vital decisions. This study examines the combined roles of bankruptcy, earnings management, and profitability in explaining a firm's survival in the listed Nigerian financial institutions. To achieve this, a descriptive research design is adopted and data were generated from databases of the listed companies in the Nigerian Stock Exchange for the period 2006 to 2015. Panel data analysis was employed in analysing collected data of the sampled 29 financial institutions in the Nigerian financial sector. The study found that most of the Nigerian financial firms have a sound firm's survival indicators, with very few having severe survival threats. Specifically, the Bankruptcy model of the firm under study proves to be within the safe zone. Whereas, the discretionary losses provisions of a firm under study are below 5.0 per cent with proving adequate monitoring and compliance with relevant policies. However, the profitability of the majority of firms' understudy is below 5.0 per cent, which indicates that most of the Nigerian listed financial companies had experienced underutilisation of their assets.

Keywords: Firm Survival, Bankruptcy, Discretionary Loss Provision, Profitability, Financial Institutions.

Introduction:

Financial analysts are at the heart of investments while Auditors serve to protect the interests of stakeholders in going concerns. A going-concern threat is a problem resulting from financial and non-financial issues (Iskandar, Rahmat, Noor, Saleh, Ali, 2011; Parker, Peters, and Turetsky, 2005). The financial issues can lead to the delisting of a company from the market or even complete liquidation. Although delisting (specifically involuntary) is not completely a bankruptcy, it has a weighty damaging effect on both the firm and the shareholders (Malik, Xinping, and Shabbir, 2014). Usually, involuntary delisting is an indication of a firm's poor financial strength.

The reasons for involuntary delisting consist of violating guidelines and failing to meet minimum financial standards, which are signals of firm survival threats.

Besides, in Nigeria, the data on distressed firms filing for restructuring and bankruptcy has significantly increased (Enofe, Mgbame, Otuya, Ovie, 2013). As a sign of the firms' survival problem, about 85 quoted firms had been delisted from the Nigerian Stock Exchange between 2002 and 2016 (excluding relisted firms) as shown in Figure 1.1 below. Only 13 out of 85 had been delisted voluntarily, whereas the remaining 72 firms were compelled to do so by the relevant authorities.
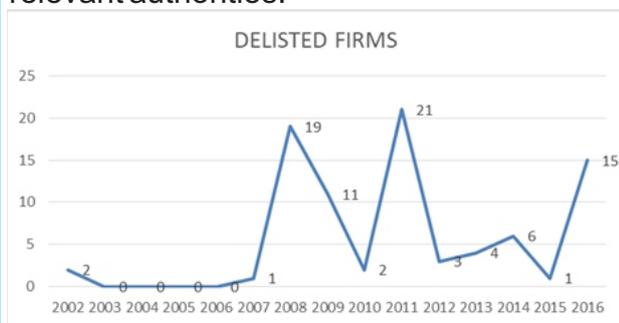
Figure 1.1 Delisted Firms on the Nigerian Stock Exchange from 2002-2016

Source: Nigerian Stock Exchange (2017).

Like other global firms, Nigerian financial institutions have undergone financial crises. Poor corporate governance has been found as the main issue that led to the crises (Marshall, 2015). Furthermore, the Nigerian financial sector, specifically, has witnessed a series of liquidations of firms. At end-2016, 56 Deposit Money Banks (DMBs), 187 Microfinance Banks (MFBs), and 46 Primary Mortgage Banks (PMBs) have been closed. Thirty-five (35) DMBs were closed before the banking sector consolidation in 2005, as well as the thirteen (13) DMBs that failed to meet the regulatory recapitalisation deadline as they could not recapitalise or merge before the expiration of the deadline. Eleven (11) of the thirteen (13) DMBs were closed using the Purchase and Assumption (P&A) Resolution Option, while all 187 MFBs and

46 PMBs was closed after the 2005 banking sector consolidation.

Moreover, the extent of the problem was underscored by the former Governor of the Central Bank of Nigeria (CBN), who stated that Nigerian financial institutions had undergone series of difficulties, which adversely affected the level of economic growth and development, and was largely attributed to weak corporate governance (Soludo, 2009). Similarly, in 2011, the CBN had revoked licenses of 4 banks in connection with corporate governance issues, particularly, on insider abuses and shareholders' influences, which were noticeable as dangers for the survival of the banks. Furthermore, in 2015, the CBN conducted stress assessments, which found that no less than 9 banks had some degrees of distress. These levels of distress showed the need for further recapitalisation to prevent the banks' possibility of sinking into further distress, which manifested the evidence of the corporate governance and firm's survival problems in Nigerian banks.

Furthermore, most of the previous studies on the firm's survival focused on earnings management as the determinant of the firm's survival status. However, this paper aim to examine a combination of all three determinants of the firm's survival problem (bankruptcy, earnings management and profitability). Therefore, the study will update existing knowledge on a firm's survival threat from the perspectives of three different variables employed in this work. This is the major contribution of this study to the frontiers of knowledge. Also, previous studies that assessed the bankruptcy variable concerning the ownership structure mostly used modified auditors' reports as the measurement with only few using the Altman 1968 Bankruptcy Model, which is only applicable to manufacturing firms (Zureigat, *et al.*, 2014a, and b). This study employed the Altman 2017 Z-model as a proxy for bankruptcy, which is meant for financial firms (emerging economy model), to investigate the moderating effect of the relationship

between the ownership structure and the firm's survival of the Nigerian financial sector. The use of Altman 2017 Z-model is also of significance importance as it is designed specifically for the financial institutions. Thus, it is likely to give better results than the modified auditors' report model.

2.0   Literature Review

A going-concern is an entity that has no plan for liquidation, and there is no necessity to liquidate or decrease its production significantly (Achim, Pop, and Achim, 2008; Peixinho, 2009; Rouhi, Keighobadi, and Touski, 2012; as well as Seyam and Brickman, 2016). Hence, the going-concern principle can be viewed as the assumption that the business entity in question is expected not to liquidate but to continue operation for the near future without any threat, financially, legally, or otherwise.

Loftus and Miller (2000) documented the connection between a firm's survival and its possible bankruptcy. While Kuruppu, Laswad and Oyelere (2003) submitted that auditors are expected, by users of financial statements, to make use of statistical bankruptcy models to make better conclusions on firms' survival. Indeed, previous studies showed that objective statistical models can surpass auditors' position in estimating business failures (Kuruppu, *et al.*, 2003). Several bankruptcy studies have been undertaken, only a limited number of them studied the importance of bankruptcy failure prediction models for evaluating the firm's survival status (Holiawati and Setiawan, 2016; Kuruppu, *et al.*, 2003; Zureigat, Fadzil, and Ismail, 2014a, b). These included Beaver (1966), Altman (1968), Ohlson (1980), Altman (1983), Zmijewski (1984), Shumway Hazard (2001), and Altman (2017) models.

Beaver (1966) used the univariate analysis to establish a failure prediction model that contained 7 dimensions which were cash flow to the total debt ratio, current ratio, net income to total assets ratio, no-credit interval, total debt to total assets, along with working capital to total assets. Even though Beaver (1966) established that the cash flow to debt ratio remained the paramount forecaster, Altman (1968) argued that there was an inconsistent presentation of the depreciation data. Moreover, the results of Altman (1968) were better than the results Beaver achieved with his paramount ratio. Likewise, Beaver, McNichols, and Rhie (2005) observed the shortcoming of Beaver's (1966) model by adding the ROA variable to the net income, before interest, taxes, depreciation, depletion, and amortisation were divided by the opening total liabilities, and the "cash flow" to the total liabilities ratios.

Altman (1968) introduced a new analytical method of business bankruptcy prediction. A series of ratios, both financial and economic, were examined using the multiple discriminant statistical approach. The statistics utilised in his work were restricted to manufacturing firms only. Altman (1968) advanced failure prediction model comprised 5 measurements, which were the earnings before interest and tax to total assets, market value of equity to book value of total debt, retained earnings to total assets, sales to total assets, as well as working capital to total assets. Thus, the model was developed as:
"Z-score = X1 + X2 + X3 + X4 + X5"
Where:
X1= Working capital/Total asset;
X2= Retained earnings/Total asset;
X3= Earnings before interest and tax/Total asset;
X4= Market value of equity/Total liabilities; and
X5= Total sales/Total asset
Z-Score = Financial condition of the firm (Strong >2.99; Moderate >1.98; and Weak <1.98);
Furthermore, Altman (1968) acknowledged that the main weakness of his work was that the methodology was restricted to quoted manufacturing companies with available financial data, ignoring financial firms despite their significance in an economy.

Moreover, Grice and Ingram (2001), using records of US companies, reassessed the accuracy of the Altman Model 1968 and confirmed that its accuracy had significantly declined over time. The model was sensitive to industry classification as it was more capable for use with manufacturing firms than for non-manufacturing.

Ohlson (1980) utilised a 1970-1976 dataset of 105 bankrupt and 2,058 non-bankrupt firms; applying the logit analysis, he developed his model using 9 measurements as follows: "firm survival index = log (total assets/GNP price-level index)) + total liabilities/total assets – working capital/ total assets + current liabilities/current assets – one, if total liabilities exceed total assets, zero, if not – net income over total assets + funds provided by operations over total liabilities – one, if net income was negative for the last 2 years, zero, if not - measure of change in net income". However, Grice and Dugan (2003) claimed that the Ohlson bankruptcy prediction model should re-evaluate the models' coefficients to increase its predictive accuracy.

Altman's (1968) model considered only manufacturing firms, and it was built based on the companies' market values. Moreover, in Altman (1983) it was asserted that the 1968 model was an openly quoted manufacturing business model and impromptu modifications were not methodically effective. Altman (1983) simulated a comprehensive re-estimation of the Altman (1968) model by substituting the equity market value in X4 with the equity book value. Utilising similar data, Altman (1983) produced a new Z-Score model as follows:
"Z = Working Capital/Total Assets + Retained Earnings/Total Assets + Earnings before interest and taxes/total assets + Book value of equity/Book value of total liabilities + Sales/Total assets"

However, Altman (1983) evaluated the model using only 4 variables in the model, ignoring the last variable, which was the Sales/Total assets ratio, because of the potential industrial influence. The industrial influence was possible to occur once the asset turnover ratio was incorporated into the model. Hence, to minimise the possible industrial influence, the 4-variable Altman (1983) model was developed as:
"Z = Working Capital/Total Assets + Retained Earnings/Total Assets + Earnings before interest and taxes/total assets + Book value of equity/Book value of total liabilities"
Altman (1983) also admitted that the 1968 model ignored companies that were very large or small, as well as those that have relatively lengthy period of observation; in addition to the already noted consideration of manufacturing firms only. Therefore, Altman (1983) recommended that the concerned forecasters should be careful in the utilisation of the Altman 1983 model. The recommendation also concerned the version of the original 1968 Z-Score model. Altman's 1983 model version had an extensive range, as it was projected for both private and public companies as well as manufacturing and non-manufacturing companies (Altman, Iwanicz-Drozdowska, Laitinen, and Suvas, 2017).

Zmijewski (1984) established his model via the probit technique sampling of 40 bankrupt and 800 non-bankrupt industrial companies, eliminating finance, services, and public administration for 1972-1978. Zmijewski (1984) utilised a probit technique on financial ratios that determined the firm's leverage, liquidity, and performance to introduce the model.
"Zm = net income/total assets + total debt/total assets – current assets/current liabilities"
However, Grice and Dugan (2003) reassessed the Zmijewski model and suggested that researchers who used the Zmijewski models using recent data should re-evaluate the model's measurements to recover the analytical accuracy of the models. While Chava and Jarrow (2004) found that the accuracy of Zmijewski's model of the bankruptcies was only 43.2per cent.

Wu, Gaunt, and Gray (2010) also evaluated the performance of Zmijewski's 1984 model and claimed that the performance of the Zmijewski model weakened over time.

Shumway's Hazard Model (2001) argued that static models are inappropriate for predicting bankruptcy failure as bankruptcies do not happen regularly. As a result, Shumway (2001) established a simple hazard model, which combines comprehensive model evidence to evaluate each business's failure risk in a certain circumstance. However, Wu, Gaunt, and Gray (2010), using non-financial companies in the USA validated that Shumway's hazard model outperformed Altman's 1968 Model.

Altman's International Z-Score Model (2017) evaluated the performance appraisal of the model in predicting bankruptcy and other types of business distress, with the intent of ascertaining its efficiency for all entities, but primarily financial institutions that require assessing the bankruptcy risk of the businesses. Furthermore, Altman, *et al*. (2017) employed huge international companies' representatives to appraise the performance evaluation of the model in the bankruptcy and distressed businesses' forecasts. Hence, Altman, *et al*. (2017) used the Altman (1983) model established for private manufacturing as well as non-manufacturing businesses in the analysis. Altman, *et al.*, (2017) used the main data from over 50 million European firms from diverse businesses.

This research adapts Altman's (2017) model as one of the measures of a firm's survival evaluation of businesses since it has been ascertained that the model is more potent for non-manufacturing firms than the original Altman 1968 Model for publicly traded manufacturing companies. Besides, the usage of the model has been accomplished in different countries using a vast international database for 31 countries, and the results have been authenticated (Altman, *et al.*, 2017). Similarly, the Altman 2017, model could be applied by all

concerned entities, particularly global financial institutions, for more decision-making processes other than just failure or distress estimation (Altman, *et al*., 2017). Likewise, as suggested by Altman, *et al*. (2017), future studies should put more attention on additional modifications than the one offered; for instance, applying different modelling methods like panel data analysis, and evaluating its effectiveness with information from emerging markets like Nigeria.

3.0　　Research Methodology

The positivist research strives for discovering the study data using propositions that can be verified or recognised in other settings (Lin, 1998). The epistemological postulation of positivists is that for knowledge to be regarded as a significant material (external), the reality is observational only (Easterby-Smith, Thorpe, and Lowe, 2002). This research is intended to be positivist research. Hence, some procedures utilised in this research reflects the epistemology as well as the ontology of the positivist paradigm. Therefore, this research attempts to discover the knowledge that occurs in the corporate environment, categorically to predict a firm's survival.

The descriptive research design was used in this paper. The data were collected, measured, and analysed from the annual reports and accounts of the listed Nigerian financial institutions under investigation. The population of the study is the whole of the listed financial institutions that operated in Nigeria. This work covered the period from 2006 to 2015, as this was the era in which the Nigerian financial sector had witnessed various changes; besides that, some of the possible effects were quite visible. Thus, the study covered the quoted financial institutions operating in the Nigerian Stock Exchange at end-2015. As stated by Asika (1991) and Turner (2003), the best sample is the whole population itself, since all the components of the population are

represented in it. However, firms that had been listed in the NSE later than 31st December 2006 and companies below the listing standards, companies under the restructuring process, and companies without available data have been excluded as presented in Table1.

Table 1: Study Sample

S/N		Company Name	Sub-Sector	Listed In
1	1	Access Bank Plc	Bank	1989
2	2	Diamond Bank Plc	Bank	2005
3	3	EcoBank Transnational Incorporated	Bank	2006
4	4	FBN Holding Plc	Bank	1971
5	5	Fidelity Bank Holding Plc	Bank	2005
6	6	First City Monument Bank Plc	Bank	2004
7	7	Guaranty Trust Bank Plc	Bank	1996
8	8	Skye Bank Plc	Bank	2005
9	9	Stanbic IBTC Holdings Plc	Bank	2005
10	10	Sterling Bank Plc	Bank	1993
11	11	Union Bank of Nigeria Plc	Bank	1970
12	12	United Bank for Africa Plc	Bank	1970
13	13	Unity Bank Plc	Bank	2005
14	14	Wema Bank Plc	Bank	1991
15	15	Zenith Bank Plc	Bank	2004
16	1	Aiico Insurance Plc	Insurance	1990
17	2	AxaMansard Insurance Plc	Insurance	1989
18	3	Cornerstone Insurance Plc	Insurance	1997
19	4	Guinea Insurance Plc	Insurance	1991
20	5	Lasaco Assurance Plc	Insurance	1991
21	6	Law Union and Rock Insurance Plc	Insurance	1990
22	7	Linkage Assurance Plc	Insurance	2003
23	8	Mutual Benefit Assurance Plc	Insurance	2002
24	9	N.E.M. Insurance Co. Nig. Plc	Insurance	1990
25	10	Niger Insurance Co. Plc	Insurance	1993
26	11	Prestige Assurance Co. Plc	Insurance	1990
27	12	Royal Exchange Plc	Insurance	1990
28	13	Standard Alliance Insurance Plc	Insurance	2003
29	14	Wapic Insurance Plc	Insurance	1991

Source: Authors findings.

Table 2 presents the acronyms, descriptions, measurements, and data sources of the study variables.

Acronym	Description	Formula	Data Source
Z-Score	Altman 2017 bankruptcy	$Z = 3.25 + 6.56X1 + 3.26X2 + 6.72X3 + 1.05X4$	Annual Report and Data Stream
DLP	Discretionary loan loss provisions	The absolute value of accruals loan loss provisions to total liabilities	Annual Report and Data Stream
ROA	Return on Net Assets	The ratio of Net Income to Total Asset	Annual Report and Data Stream
FS	Firm's survival	FS = Z-Score + ROA – DLP	

Source: Authors findings.

Bankruptcy estimation model: This refers to the likelihood that a firm will not be capable of servicing its debt anymore and would, therefore, wind-up its business; as it is assumed that most of the quoted firms, which were not excluded, had a huge volume of their funds as loans. Consistent with Sajjan (2016) the likelihood of bankruptcy is measured by the Altman 2017 bankruptcy model score, which integrates various financial indicators (Altman, *et al.*, 2017). Altman estimated the following four-variable Z-Score model as:

$$Z = 3.25 + 6.56X_1 + 3.26X_2 + 6.72X_3 + 1.05X_4 \quad \text{Model 1}$$

Where: Z = Overall Index; X_1 = Working Capital/Total Assets; X_2 = Retained Earnings/Total Assets; X_3 = Earnings before interest and taxes/total assets; X_4 = Book value of equity/Book value of total liabilities

Zones of discrimination: Z > 2.6 = "Safe" Zone; 1.1 < Z < 2.6 = "Grey" Zone; and Z < 1.1 = "Distress" Zone. Hence, the greater the Z-score, the better the firm survival status of the business.

Earnings Management: In the same way as non-financial firms, banks can use accruals to manage their income (Liu and Ryan, 2006). Conversely, the primary accruals of banks are the loan loss provisions (LLPs) which play a more complex role than the accruals of the non-financial companies for 2 reasons (Norden, and Stoian, 2013). LLPs, concurrently, affect the profitability and risk of the banks, which results in a trade-off (Beatty and Liao, 2011; Bushman and Williams, 2012; and Norden and Stoian, 2013). Also, according to Healy and Wahlen (1999), they suggested that the bank loan loss allowance was discretionary. Whereas, Non-performing loans are non-discretionary, and the loan charge-offs are considered relatively non-discretionary. Healy and Wahlen (1999) also mentioned that loan loss reserves were extremely reliant on management's decisions, openly connected to the bank's most vital assets and liabilities and were usually very huge proportionate to the net income as well as equity book values. Consequently, as a result of the significance and the judgment of the bank loan loss provisions/allowance by

banks, this is a good measurement to measure earnings management (Altamuro and Beatty, 2010; Cohen, Cornett, Marcus, and Tehranian, 2014).

Since discretionary loan loss provisions (DLP) are fundamentally the banking equivalent of discretionary accrual models, and discretionary accrual models have been verified widely, therefore, in line with Beatty and Liao, 2011; Bushman and Williams, 2012; Norden and Stoian, 2013; and Kazemian and Sanusi, 2015), this research adopted the absolute value of loan loss provisions to total liabilities. However, for the insurance companies, in line with Beaver, McNichols, and Nelson (2003) and Gaver and Paterson (2004), the insurance loss reserve accrual (also known as unexpired risks or unearned premium) is used as the DLP proxy. The loss reserves signify the major charge on insurers' accounts, whereas under-reserving decreases the stated liabilities and raises the insurance companies' assets, as a result, it empowers insurance companies to appear safer than they are and vice versa (Veprauskaite and Adams, 2014). Beaver, *et al.*, (2003) and Gaver and Paterson (2004) explained that insurance companies' managers can understate loss reserves to reduce the stated loss liabilities and evade financial distress as well as insolvency.

The Profitability: This is a sign of how profitable a company is before it is leveraged, and is related to other firms in a similar industry. It is measured as the ratio of net income to the total asset. This is in line with Mohammad (2012); Patel (2018); Pillai and Al-Malkawi (2018).

A consolidated matrix was applied to combine the 3 firm's survival indicators into one model. The technique of integrating multiple measures to come up with a fresh one is well documented in the extant accounting literature (Cohen and Zarowin, 2010; and Zang, 2012).

The relationship between the Z-score and a firm's survival is that, the higher the Z-score,

the lower the bankruptcy possibility, thus the better the firm's survival (Altman et al., 2017; Zureigat, *et al*., 2014a,b). Similarly, the relationship between the ROA and a firm's survival is direct; that is, the higher the ROA, the better the profitability (Mohammad, 2012; Patel, 2018; Pillai and Al-Malkawi, 2018), hence, the better the firm survival status of the firm. Whereas, for discretionary accruals and the firm's survival relationship, the higher the discretionary accruals, the higher the earnings management (Beatty and Liao, 2011; Norden and Stoian, 2013; Kazemian and Sanusi, 2015), thus, the greater the firm's survival problem.

To measure a firm's survival, this study consolidated these three (3) known measures of a firm's survival, which were the Altman 2017 Bankruptcy Z-score Model (Altman *et al*., 2017; Sajjan, 2016), discretionary loan loss provisions (Cohen *et al*., 2014; Norden Stoian, 2013), and the return on assets (Mohammad, 2012; Patel, 2018) to arrive at a more robust measure of the variable. The study, first, multiplied the discretionary accruals by minus one (so that

the higher the amount, the better the firm's survival) and added it to the Z-Score and the ROA (which had a direct relationship with better firm survival of the firm). The higher the amount of this aggregate measure, the more likely that the firm survival of the firm would be healthier. Thus:

FS = Z-Score + ROA – DLP Model 1

Where: FS denotes Firm's survival; Z-Score denotes Altman 2017 bankruptcy Model; DLP denotes Discretionary Loan Loss Provisions, and ROA denotes Return on Net Assets.

4.0   Analysis and Discussion

Firm's Survival Attributes' Frequencies, and Percentages

The firm's survival variables, which were the bankruptcy prediction Z-scores, discretionary loan loss provisions, and return on asset frequencies and percentages, are presented in Table 5.1, Table 5.2, and Table 5.3, respectively.

Table 3: Frequencies and Percentages of the Bankruptcy Z-scores of the Sampled Firms

Discriminations Zone	Z-Scores	
	Freq.	**%**
Z < 1.1 -"Distress" Zone	3	1%
1.1 < Z < 2.6 -"Grey" Zone	8	3%
Z > 2.6 -"Safe" Zone	279	96%
	290	**100%**

Source: Authors computations.

Table 3 revealed that only three companies were within the "Distress" zone during the study period, which accounted for only 1.0 per cent. Whereas, only 3.0 per cent were in

the "Grey" zone. Whilst, about 96.0 per cent were found to be in the "Safe" zone; this indicates that most of the Nigerian listed financial firms were financially stable.

Table 4: Frequencies and Percentages of the Discretionary Loan Loss Provisions of the Sample Firms

Discretionary Range	DLP	
	Freq.	**Per cent**
< 1%	103	36%
1%<4.99%	99	34%
5%<9.99%	35	12%
10%<19.99%	38	13%
20%<49.99%	15	5%
50%<74.99%	0	0%
75%<99.99%	0	0%
100%	0	0%
Total	**290**	**100%**

Source: Authors computations

From Table 4 , it can be seen that more than 36.0 per cent of the sampled firms accounted for less than a 1.0 per cent level of discretionary loan loss provisions during the study period. While, about 34.0 per cent accounted for the discretionary range from 1.0 per cent to 4.99 per cent. However, 12.0 per cent accounted for the discretionary range between 5.0 per cent and 9.99 per cent. Also, 13.0 per cent constituted the discretionary range between 10.0 per cent and 19.99 per cent and only 5.0 per cent for the range from 20.0 per cent to 49.99 per cent . This indicates that most of the Nigerian listed financial companies practiced less than 5.0 per cent accrual earnings management concerning the loan loss provisions.

Table 5: **Frequencies and Percentages of the Return on Assets of the Sample Firms**

Range	ROA	
	Freq.	**Per cent**
< 1%	80	28%
1%<4.99%	167	58%
5%<9.99%	33	11%
10%<19.99%	10	3%
20%<49.99%	0	0%
50%<74.99%	0	0%
75%<99.99%	0	0%
100%	0	0%
Total	**290**	**100%**

Source: Authors computations
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From Table 5, more than 28.0 per cent of the sampled firms reported less than 1.0 per cent of the ROA during the study period. Similarly, 58.0 revealed between 1.0 per cent and 4.99 per cent of the ROA. However, 11.0 per cent revealed ROA ranging from 5.0 per cent to 9.99 per cent. In addition, only 3.0 per cent reported between 10.0 per cent and 19.99 per cent. This indicates that most of the Nigerian listed financial companies had experienced very poor performance regarding profitability indicators with less than 5.0 per cent of the ROA.

To examine the influence of a firm's survival variables by listed financial firms in Nigeria, table 6 presents the year by year and overall firm's survival variables level. From the outcome, table 6 reveals that the overall firm's survival Mean is 6.1677, which is above the safe zone, with a standard deviation of 3.0004 among the companies under consideration. Also, the firm's minimum firm's survival indicator of -1.3924 specified that some firms under study were experiencing a severe firm's survival problem. Conversely, the firm's maximum firm's survival indicator of 16.1672 specified that certain firms had sound going-concern positions in the Nigerian financial sector. Specifically, the overall Z-SCORE mean is 6.2062 which is within the safe zone, with the standard deviation of 3.0221, as well as the minimum and a maximum of -1.2345 and 16.3276 respectively. These indicates that most of the Nigerian listed financial firms are financially stable. Furthermore, the overall mean for DLP is 5.13 per cent with a standard deviation of 7.02 per cent, as well as the minimum and a maximum of 0.01 per cent and 42.7 per cent respectively. This shows that most of the Nigerian listed financial companies practiced less than 5.0 per cent accrual earnings management concerning the loan loss provisions. Furthermore, the overall mean for ROA is 1.28 per cent, with a standard deviation of 7.31 per cent, as well as the minimum and a maximum of -80.05 per cent and 16.14 per cent respectively. This indicates that most of the Nigerian listed financial companies had experienced very poor performance regarding profitability indicators, particularly concerning its assets.

Table 6: Descriptive Statistics of the Firm's Survival Variables

	VARIABLE	OBS	MEAN	STD. DEV.	MIN	MAX
2006	FS	29	6.3668	2.8334	3.5302	15.6719
	ZSCORE	29	6.3951	2.8695	3.5271	15.8810
	DLP	29	0.0627	0.0821	0.0003	0.2567
	ROA	29	0.0344	0.0342	-0.0550	0.1360
2007	FS	29	7.7910	4.1094	3.7406	16.1672
	ZSCORE	29	7.8211	4.1609	3.7309	16.3276
	DLP	29	0.0687	0.0840	0.0017	0.2962
	ROA	29	0.0385	0.0281	0.0036	0.1030
2008	FS	29	7.0158	3.6357	-1.3924	15.1582
	ZSCORE	29	7.0627	3.6579	-1.2345	15.1979
	DLP	29	0.0523	0.0778	0.0001	0.3589
	ROA	29	0.0054	0.0708	-0.2081	0.1197
2009	FS	29	6.2816	3.4983	0.2824	15.5278
	ZSCORE	29	6.3638	3.5045	0.3352	15.3917
	DLP	29	0.0681	0.0783	0.0003	0.3110
	ROA	29	-0.0141	0.0873	-0.3126	0.1542
2010	FS	29	6.2743	3.0779	1.1880	13.7203
	ZSCORE	29	6.3390	3.0869	2.0221	13.8852
	DLP	29	0.0626	0.0921	0.0011	0.4276
	ROA	29	-0.0020	0.1551	-0.8005	0.1186
2011	FS	29	6.3065	3.1752	2.1832	15.7924
	ZSCORE	29	6.3504	3.1931	2.2581	15.9151
	DLP	29	0.0528	0.0597	0.0029	0.2296
	ROA	29	0.0089	0.0514	-0.1724	0.1614
2012	FS	29	5.1760	1.7164	2.2355	9.1949
	ZSCORE	29	5.1939	1.7145	2.2599	9.1958
	DLP	29	0.0238	0.0349	0.0005	0.1732
	ROA	29	0.0059	0.0640	-0.2266	0.0631
2013	FS	29	5.3496	1.8147	2.4960	9.1803
	ZSCORE	29	5.3833	1.8345	2.5706	9.2185
	DLP	29	0.0482	0.0579	0.0016	0.1883
	ROA	29	0.0145	0.0339	-0.1031	0.0736
2014	FS	29	5.3493	1.6202	2.2950	9.4533
	ZSCORE	29	5.3673	1.6234	2.5657	9.4808
	DLP	29	0.0354	0.0443	0.0003	0.1438
	ROA	29	0.0174	0.0614	-0.2695	0.1362
2015	FS	29	5.7664	2.2366	3.3806	13.9500
	ZSCORE	29	5.7855	2.2624	3.4375	14.1579
	DLP	29	0.0382	0.0499	0.0002	0.2342

	ROA	29	0.0191	0.0271	-0.0490	0.0778
ALL	FS	290	6.1677	3.0004	-1.3924	16.1672
	ZSCORE	290	6.2062	3.0221	-1.2345	16.3276
	DLP	290	0.0513	0.0702	0.0001	0.4276
	ROA	290	0.0128	0.0731	-0.8005	0.1614

Source: Authors computations

The year-by-year analyses also reveal the balanced level of firm survival for the study period. The mean of the firm survival level was 6.3668, 7.7910, 7.0158, 6.2816, 6.2743, 6.3065, 5.1760, 5.3496, 5.3493 and 5.7664 for 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014 and 2015 years respectively. This indicates that the CBN and other relevant authorities' policies help in maintaining healthy firm survival indicators in Nigeria during the period of study. Although, in 2018 there is a minimum FS of -1.3924 that was clearly due to the global economic meltdown that year. Further analyses on the ZSCORE reveal the stable level of the mean values as 6.3951, 7.8211, 6.3638, 6.3390, 6.3504, 5.1939, 5.3833, 5.3673 and 5.7855 for 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014 and 2015 years respectively. This indicates that the financial firms are in a safe zone of the ZSCORE discrimination level. However, the minimum of -1.2345 of ZSCORE in 2008 is due to the response to the pronounced 2008 global financial crisis. Whereas, year-by-year mean of DLP were 0.0627, 0.0687, 0.0523, 0.0681, 0.0626, 0.0528, 0.0238, 0.0482, 0.0354 and 0.0382 for 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014 and 2015 years, respectively. This indicates that the discretionary loan loss provision in Nigerian financial is at minimal level due to adequate setting of rules and guidelines on the reserve for loan and unexpired risk. While, the annual mean of ROA were 0.0344, 0.0385, 0.0054, -0.0141, -0.0020, 0.0089, 0.0059, 0.0145, 0.0174, and 0.0191 for 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014 and 2015 years, respectively. This indicates that the return on assets of average financial firms in Nigeria is very low particularly from 2008 and 2009 upward the ROA was declining; however, it started improving slowly from 2010 to 2015 as a sign of recovery.

Table 7 reveals the results of the correlation matrix for the research variables. The top correlation amongst the variables under study was between ZSCORE and FS which revealed a value of 99.95 per cent at 1.0 per cent significant level. This pointed out the strong correlation between the ZSCORE and firm's survival in the Nigerian financial sector; this is in line with claim of previous scholars such as Holiawati and Setiawan, (2016); Kuruppu et al. (2003); Zureigat et al. (2014a,b) that bankruptcy models are key instruments that could assist in establishing the correct firm survival conclusion.

Table 7: Pearson Correlation Matrix of the Research Variables

	FS	ZSCORE	DLP	ROA
FS	1.0000			
ZSCORE	0.9995***	1.0000		
DLP	0.6148***	0.6308***	1.0000	
ROA	0.3131***	0.2893***	0.1153**	1.0000

***, **, * indicate that the estimates levels are statistical significance at the 1%, 5%, and 10% respectively

Source: Authors computations

Moreover, table 7 showed that the correlation between DLP and FS is 61.48 per cent at 1.0 per cent significant level. Likewise, the firm's profitability correlates with the firm's survival with 31.31 per cent at 1.0 per cent significant level.

5.0   Conclusion

From the above discussion, it can be deduced that the firm survival indicators of a majority of Nigerian listed financial institutions are found to be sound, with very few firms with severe firm survival threats. Moreover, the Bankruptcy model of most of the firm under study proves to be within the safe zone. Furthermore, the discretionary losses provisions of the firm under study are below 5.0 per cent with proving adequate monitoring and compliance with relevant policies. However, the profitability of most of the firms studied is below 5.0 per cent, which indicates that most of the Nigerian listed financial companies had experienced underutilisation of their assets.

The results of this study may support business management in creating more awareness of the significance of the firm's survival. As discussed earlier, the firm's survival is regarded as an essential element usually used by the capital market participants in making vital decisions. Therefore, the results of this study will be relevant to the Management of capital market institutions as well as financial analysts in Nigeria. The outcome can also expose the issues that may affect the firm's survival and assist in evaluating financial information efficiently.

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Analysis of the Determinants of Money Demand in South Africa: 1990-2019

Ali Kole
Mai Idris Alooma
Polytechnic,Geidam, Yobe State.

Hassan N. Wali
Sule Lamido University,
Kafin-Hausa, Jigawa State.

Alhassan M. Idris
Department of Economics
Kaduna State University. Kaduna State.

Ismail H. Sanusi
Department of Economics,
Ahmadu Bello University, Zaria.

Abstract

This study estimates real intermediate money demand (RM2) and real broad money demand (RM3) for South Africa from 1990Q1 to 2019Q4. The main objective of the study was to explore the relationship between money demand and its determinants in South Africa with specific emphasis on the long-run relationship and stability between RM2, RM3,and their determinants. Autoregressive Distributed Lag (ARDL) bound test for cointegration model developed by Pesaran (2001) was employed. The results found that both RM2 and RM3 are cointegrated with inflation rate, interest rate, exchange rate,real GDP, and credit to the private sector in South Africa. Credit to the private sector (PSC) showed significant and positive effects on the long-run RM2 and RM3 which implied the increased integration of South Africa to the global economy. Also, findings revealed that, both RM2 and RM3 are stable with their explanatory variables as shown by the results of the CUSUM test.Generally, the study lends support to the significance of RM3 as a monetary anchor for inflation targeting in South Africa. Although, the model for RM2 was found to be more significant and healthier than RM3. Thus, the study suggested fora reassessment of the monetary aggregates probably by incorporating foreign interest rates and stock prices in orderto ascertain whether or not these results will still hold.

Keywords: *Money demand; ARDL model; Cointegration; Stability; South Africa.*
JEL: *E4, E41, E44.*

1.0 Introduction

Even though, the theoretical and empirical links between money demand and its components have been in the literature for a very long time, recently, there has been a lot of empirical studies on the relationship between money demand and its determinants (Moll, 1999; Handa, 2000;Kevin, 2000; Sriram, 2001; Ziramba, 2007; Dritsakis, 2011; Kumar, 2011; Niyimbanira, 2013; Simawu, 2014, Sanusi & Meyer, 2018; Don, 2018). The motivation for the increasing interest in recent times was

not far- fetched from the fact that the proper understanding of the relationship between money demand and its determinants will guide monetary policymakers in making a policy decisions that will affect the economic fundamentals of a country. Fundamentally, the achievement of a money demand function that is stable over a long run period is of great interest to policymakers (Kevin, 2000). This is because stable money demand function has important policy implication on monetary transmission mechanism concerning to changes in the policy rate in domestic currency with far-reaching consequences on market rate and its impact on aggregate demand and inflation. Also, such stability of money demand function would enable policy makers to formulate and implement monetary policy that have a direct link between the relevant monetary aggregate and income level in achieving government macroeconomic objectives.

The empirical studies of the relationship between money demand and its determinants had been gaining considerable attention in recent times. However, the choice of the appropriate money definitions, as well as the scale and opportunity cost variables, is important in achieving a stable long-run equilibrium relationship. In South Africa, the reserve bank announced its target for broad money demand (M3) in 1986 as part of its liberalization policy for ensuring monetary control for combating inflation. Having realized that M3 has not been falling within the official range posing a big challenge for monetary policy decisions, in 1990, the monetary target was revised by including expected inflation among other indicators that guide monetary policy stand (Moll, 1999). However, in 2000, South Africa moved to inflation targeting framework by using M3 as a monetary anchor. During 2005-06, an inflation target rates of 3%-6%and M3 growth rates of 15%-20% was set. However, this inflation target rate posed a lot of scepticism concerningthe M3 growth rate. This is because M3 has not been

moving within its target and thus it might lose its usefulness as a monetary anchor as reported by Moll(2000). The focus of this study is to ascertain whether M2 or M3 is more appropriate to be used as a monetary anchor in the money demand function for South Africa. This study is motivated by the fact that South Africa is a leading economy and a stronger and influential member in most of the regional trade and monetary integration thus, the understanding of its money demand function would have important policy implication on macroeconomic analysis involving planning and implementation of monetary policy in South Africa and its far-reaching consequences on the African continent at large.

Therefore, the outcome of this study is expected to shed light on the appropriateness of money demand function to be applied by monetary policymakers to achieve price stability and sustain economic growth in South Africa. It is hoped that the study will contribute to the ongoing debate on the money demand function. The main objective of this study is to explore the relationship between money demand and its determinants in South Africa. The specific objectives are (i) to examine the long-run relationship between real money demand (RM2 and RM3) and its determinants in South Africa and (ii) to investigate the stability of the links between real money demand (RM2 and RM3) and its determinants in South Africa. The rest of the paper was organised as follows. Section two centered on the literature review and theoretical framework, section three focused on methodology, section four presented the result and discussions, and section five captured theconclusion and recommendations.

2.0 Literaturereview andTheoreticalFramework

2.1. Empirical Review

A sizable number of empirical literature investigated the relationship between

money demand and its determinants. Baharumshah et al. (2009) found the stability of broad money demand function on real income, real foreign interest rate, inflation rate and stock prices in China. The study used quarterly seasonally adjusted data from 1990Q4 to 2007Q2. The finding revealed a stable long-run relationship between money demand function and its determinants. An additional finding from the study shows that the inclusion of stock prices has strengthened the stability of the model hence, its exclusion may lead to gross misspecification of the model. Don (2018) explored the determinants of money demand in China using linear econometric and Structural Vector Autoregressive (SVAR) model. The study found that the cointegration of money demand function in China was mainly due to income, interest rate, and expected inflation rate. However, other explanatory variables such as financial innovation, government debt, capital mobility, and currency substitution played a relatively small role in influencing money demand in China.

However, Azim, Ahmed, Ullah, Zaman, and Zakaria(2010) assessed the demand for money in Pakistan using an ARDL approach to cointegration on annual time series data span from 1973-2007. The result from M2 monetary aggregate on income, inflation, and exchange rate shows the existence of long-run stable relationships during the period under study. Both income and inflation are positively related to M2 but the exchange rate was found to be negatively related to M2 possibly due to currency substitution effect. This is because the depreciation of the exchange rate might trigger expectation for further depreciation, thus, instilling fear on the public to hold on to domestic currency as this could lead to a reduction in real income. Similarly, to ascertain the real determinants of money demand function in Pakistan, Faridi and Akhtar (2013) used a bound testing approach to cointegration on annual time series data from 1972-2011. The results revealed that cointegration exists between

money demand and its determinants. Specifically, the findings showed that, while real GDP and financial innovation relate positively with money demand function, interest rates (deposit rate) and exchange rate relate inversely to money demand. However, the study did not capture inflation and stock prices in the model and the stability test was not carried out. Nevertheless, the policy implication of the study was for Pakistan to employ a liberal monetary policy stand by developing its financial market and reducing the interest rate in order to spur economic activities.

Using annual data from 1966 to 2015, Epaphra (2017) examined the demand for money and its stability in Tanzania using Johansen Cointegration and Vector Autoregressive-Vector Error Correction (VAR-VEC) model. The result revealed a long-run relationship between money demand and its explanatory variables (real GDP, deposit interest rate, real exchange rate, and inflation rate). Also, the study found a significant positive relationship between the demand for real money and real GDP. While money demand was found to be negatively related to the deposit interest rate and inflation rate, real money balances were positively related to the exchange rate within the study period.In another strand of literature, Opoku (2017) investigated the determinants of the money demand in Ghana by using ARDL bound testing approach to cointegration on annual time series data from 1970 to 2012. The study found thatthe money demand function is cointegrated with real GDP, real domestic interest rates, financial innovation, real exchange rates, and real expected inflation rate. However, expected inflation and the real exchange rate are the major determinants both in the long-run and short-run periods. Other findings show that the real exchange rates assumed a wealth effect, thus, the recommendation tailored toward maintenance of stable exchange rate and steady inflation by the monetary authority in Ghana.

In another study Doguwa et al. (2014) examined the demand for money in Nigeria before and after the 2007 global financial crisis to see whether its stability had changed using time series data from 1991Q1 to 2013Q4. The study, employed the Gregory-Hansen Residual Base test for Cointegration which has the power to detect ashift in the regime. The main result indicated that real money supply has a stable relationship with real income, real monetary policy rate, exchange rate spread, and exchange rate movement in Nigeria. The parameter instability test shows the stability of the parameters over time. This result has strong policy implications in the conduct of monetary policy decisions in Nigeria. Similarly, Tule et al. (2018) reassessed broad money (M2) demand and its stability in Nigeria using quarterly time-series data from 1985Q1 to 2016Q4. The result from Autoregressive Distributed Lag (ARDL) bound testing technique found a stable long-run relationship between M2 and its determinants (GDP, stock prices, foreign interest rate, and real exchange rate). Also, stock prices were found to be significant and positively related to M2 which was an indication that Nigeria's involvement inthe financial sector with the rest of the world has been improved.

In South Africa,Wesso (2002) estimated the demand for broad money demand (M3) for South Africa using quarterly data from 1971Q1 to 2000Q4. The study found that the demand for M3 is structurally stable in South Africa. Ziramba (2007) investigated the demand for money and expenditure components in South Africa using the ARDL bound test for cointegration on annual data from 1970 to 2005. The results confirmed that the different monetary aggregates (M1, M2 & M3) are cointegrated and that the different components of real income have different impacts on the demand for money in South Africa. M1 is influenced by the interest rate, exports, and investment expenditure. M2 & M3 are influenced by the interest rate, government bond yield rate, exchange rate, final consumption

expenditure and investment expenditure. Niyimbaniva (2013) investigated the long-run stability of real money demand (RM2) relationship with the set of independent variables (income, interest rate, exchange rate, and inflation rate) using time series quarterly data from 1990Q1 to 2007Q4 and cointegration error correction model (ECM) techniques. The main findings showed the existence of a long-run equilibrium relationship between real money demand (RM2) and its determinant in South Africa. However, despite the efficacy of this stable relationship, the use of M3 to counter any emergency policy response is not effective in the short-run period since it takes about a year for such a policy to be effective.

Dube(2013) assessed the stability of broad money demand (M3) and its determinants such as income, domestic, and foreign interest rate (opportunity cost variables), inflation and real stock market prices in South Africa. The study employed Shopping-Time Technology and an Autoregressive Distributed Lag (ARDL) Model on quarterly time series data from 1980Q1 to 2010Q3. The major findings revealed the existence of cointegration between money demand (M3) and its determinant. Results from Error Correction Model (ECM) showed that short-run disequilibrium is converted into the long-run equilibrium. Real stock market prices are significant in achieving cointegration result but the simultaneous combination of real stock market prices and exchange rate render the result insignificant and unstable. Simawu et al. (2014) investigated the demand for the real broad money (RM3) and its determinants including real income, real effective exchange rate, interest rate, inflation rate, and foreign interest rate in South Africa using quarterly data from 1990Q1 to 2009Q4. The results from Vector Autoregression (VAR) with impulse response and variance decomposition showed the existence of a long-run relationship between RM3 and its determinants within the study period. Simawu(2014) examined the demand for

broad money in South Africa using quarterly data 1990Q1 – 2009Q4.The study utilized Johansen co-integration and error correction model estimation and findings revealed that real broad money demand (RM3) and its explanatory variables are cointegrated.Sanusi and Meyer (2018) investigated structural breaks in money demand and its determinants in South Africa using quarterly data from 2003Q1 to 2017Q4. The results from the Bai-Perron Multiple Breakpoint Test did not find any evidence of regime shifts in the money demand function in South Africa. Also, ARDL bound test result revealed thatthe money demand was cointegrated with the interest rate, inflation rate, GDP, the exchange rate, and credit to the private sector as a measure of financial development. Also, the study found that while interest rate and inflation rate are significant and negatively related to money demand, GDP was found to be significant and positively related to money demand in South Africa within the study period.

2.2. Theoretical Framework

Theoretically, the money demand in an economy can be traced to the pioneering work of classical economists. According to classical school of thought, money is held simply to facilitate transaction as shown in the Fisher (1911) equation of exchange MV = PT. This means that the quantity of money, M to any volume of transaction, V must be proportional to the price level at a given period. This idea has been popularized by Pigou (1917) and Marshall(1923) and culminated into the quantity theory of money. The cash balance approach was advanced by the Cambridge University economists which gave rise to the formalization of the money demand relations between real money and real income. Advancing from the Cambridge approach, Keynes (1936) built three motives behind holding money balances; transaction, speculative and precautionary. Keynes included rate of interest as a key determinant of real money balances in an economy.

Thus, Md = f(y,i). Where; y = real income, i = interest rate.

Several models for money demand function had been postulated during the era of post-Keynesian economists by explicitly relating real money balances with real income and interest rate. The inventory theoretical approach saw the formulation of transaction cost model which explicitly relates to the transaction by (Baumol, 1952 & Tobin, 1956) under certainty scenario and relating to precautionary circumstances by (Lucas, 1982) in uncertainty condition. The cash-in-advance model also explicitly clarified the medium of exchange function of money (MCcallum & Goodfriend, 1987). The asset or portfolio approach which was popularized by Tobin (1958) regards money as a portfolio of many assets which varied considerably in their returns and risk associated with holding it. The consumer demand theory approach (Friedman, 1956 & Barnett, 1980) considers the role of money as an asset in the cluster of other consumer goods analyzed under the utility maximization framework.

In a nutshell, these models of money demand can be summarized into three distinct approaches; transaction framework, asset or portfolio framework and consumer demand framework. All of which rallied around similar implication by assuming the stock of the real money balances as inversely related to the interest rates (rate of return on asset) and positively related to real income. However, the models differed in their usage of the appropriate scale variable and the opportunity cost for holding money balances.

3.0. METHODOLOGY

The model for real broad money demand (RM3) for South Africa was adopted from Sanusi and Meyer (2018). However, this study also investigated the model of real intermediate money demand (RM2). Even though, RM2 is not used as a monetary anchor in targeting inflation in South Africa, it inclusion was to investigate its relevancy in

targeting inflation in South Africa. The ARDL model approach for cointegration was used. The study employed quarterly data from 1990Q1 to 2019Q4. The choice of quarterly data was motivated by its high precision in identifying the variables of interest than using annual data (Ferrari et al., 2016). The data were sourced from South AfricaReserveBank (SARB) and International Financial Statistics (IFS) database. The functional form of the money demand function is specified as follows.

$$MD_t = f(CPI_t, ER_t, R_t, GDPR_t, PSC_t) \quad \text{.................3.1}$$

Where, *MD* = Money demand, *CPI* = Consumer Price Index (Proxy for inflation), *ER* = Exchange rate, *R* = Interest rate, *GDPR* = Real Gross Domestic Product, and PSC = Credit to the private sector. The PSC was included in the models in order to measure the level of financial sector development in South Africa. The semi-loggingof monetary aggregates and real GDP was to ensure consistency of the values for estimation purposes. The short-run and long-run models for real intermediate (RM2) and real broad money (RM3) demand are specified as follows.

$$LRM2_t = \alpha_0 + \sum_{i=1}^n \alpha_1 DLRM2_{t-i} + \sum_{i=0}^n \alpha_2 DCPI_{t-i} + \sum_{i=0}^n \alpha_3 DER_{t-i} + \sum_{i=0}^n \alpha_4 DR_{t-i} + \sum_{i=1}^n \alpha_5 DLGDPR_{t-i} + \sum_{i=1}^n \alpha_6 DLPSC_{t-i} + \Theta_1 LNRM2_{t-i} + \Theta_2 LGDPR_{t-1} + \Theta_3 R_{t-1} + \Theta_4 CPI_{t-1} + \Theta_5 ER_{t-1} + \Theta_6 LPSC_{t-1} + U_t \text{...3.2}$$

$$LRM3_t = B_0 + \sum_{i=1}^n B_1 DLRM3_{t-i} + \sum_{i=0}^n B_2 DCPI_{t-i} + \sum_{i=0}^n B_3 ER_{t-i} + \sum_{i=0}^n B_4 DR_{t-i} + \sum_{i=0}^n B_5 DLGDPR_{t-i} + \sum_{i=0}^n B_6 DLPSC_{t-i} + \phi_1 LRM3_{t-i} + \phi_2 CPI_{t-1} + \phi_3 ER_{t-1} + \phi_4 R_{t-1} + \phi_5 LGDPR_{t-1} + \phi_6 LPSC_{t-1} + U_t \text{...3.3}$$

$RM2$ = Real intermediate Money demand; $RM3$ = Real broad Money demand

α_0 and B_0 =constant or drift parameters.

$\alpha_1 \alpha_2 \alpha_3 \alpha_4 \alpha_5$ & $B_1 B_2 B_3 B_4 B_5 B_6$ = Short run coefficients.

$\Theta_1 \Theta_2 \Theta_3 \Theta_4 \Theta_5$ & $\phi_1 \phi_2 \phi_3 \phi_4 \phi_5 \phi_6$ = Long run coefficients

U = disturbance term,   D = First difference operator.

3.1. Autoregressive Distributed Lag (ARDL) Bound Test for Cointegration

The empirical analysis of the long-run relationship, as well as short-run dynamic relations between the money demand and its explanatory variables was conducted with the use of Vector Autoregression (VAR) and specifically,the ARDL bound test for cointegration was used in determining the long-run relationship of the money demand function. Thus, the general form of VAR is given as follows

$$\Delta y_t = \beta Z_{t-1} + \sum \delta_i \Delta Z_{t-i} + Bx_t + c_0 + \varepsilon_t \text{.................3.4}$$

Where   is first difference operator,   is a

vector of both x_t and y_t y_t is k x 1 vector of dependent variables, x_t is k x k matrix representing a set of explanatory variables, t is time trend, β is long-run multiplier matrix δ_i is short-run coefficient matrix,   is constant and   is k x 1 vector of innovation. Also, the long run multiplier matrix can be re-written as follows

$$\beta = \begin{pmatrix} \beta_{yy} & \beta_{yx} \\ \beta_{xy} & \beta_{xx} \end{pmatrix} \text{...3.5}$$

Therefore, the selected series can be either I(0) or I(1) such that if β_{yy} = 0, then y_t is I(1). However, if β_{yy} 0, then y_t is I(0). This is because the diagonal elements of the matrix are unrestricted (Pesaran, Shin & Smith. 2001). Note that the ARDL bound test for cointegration was used because of its advantages over other test of cointegration. Notably, the ARDL approach can be used irrespective of the order of integration of the variables. Thus, it can be applied whether the variables are integrated of I(0), I(1) or fractionally integrated. Secondly, it gives unbiased estimates of the long run model. Thirdly, it can be used efficiently and conveniently under a small and finite sample data size. Lastly, the ARDL bound approach yield a consistent estimates of the long-run coefficients that are asymptotically normal whether or not the regressors are I(0) or I(1) (Pesaran & Shin, 1997).

3.2. Error Correction Model (ECM)

Having ascertained the existence of cointegration between the variables, the ARDL approach was used to estimate the coefficient of short-run unrestricted (conditional) error correction model and the corresponding Error Correction Term (ECT) specified as follows.

$$LRM2_t = \alpha_1 D(CPI)_{t-p} + \alpha_2 D(ER)_{t-p} + \alpha_3 D(R)_{t-p} + \alpha_4 D(LGDPR)_{t-p} + \alpha_5 logD(LPSC)_{t-1} + c_1 + \Theta_1(ECT_{t-1}) + \varepsilon_{1t} \text{...3.6}$$

$$LRM3_t = \beta_1 D(CPI)_{t-p} + \beta_2 D(ER)_{t-p} + \beta_3 D(R)_{t-p} + \beta_4 D(LGDPR)_{t-p} + \beta_5 logD(LPSC)_{t-p} + c_2 \Theta_2(ECT_{t-1}) + \varepsilon_{2t} \text{...3.7}$$

Θ_1 and Θ_2 the magnitude of error corrected at each period. To achieve long-run equilibrium, these values must be negative and statistically significant.

ECT_{t-1} is error correction term and defined as the speed of adjustment at which short-run disequilibrium will converge into equilibrium in the long-run.

4.0 DISCUSSION OF RESULTS

4.1 Unit Root Test

The first step in the ARDL model estimates begins with the examination of the stationarity properties of the model. There is a similitude in the stationarity results found by Augmented Dickey-Fuller (ADF) and Phillip Perron (PP) tests. This is because, both ADF and PP tests show that the variables are stationary at first difference with the exception of log of the credit to private sector (LPSC)that is stationary at level under the ADF test as shown in table 4.1.

Table 4.1. Unit Root Test Results

Variables	Augmented Dickey Probability values	Fuller Test	Phillips Probability values	Perron Test
LRM2	0.9844	0.0000***	0.9844	0.0000***
LRM	0.8623	0.0000***	0.4891	0.0253**
CPI	0.9999	0.0000***	1.0000	0.0000***
ER	0.1228	0.0145**	0.1310	0.0145**
R	0.2705	0.0439**	0.4275	0.0000***
LGDPR	0.9930	0.0000***	0.9942	0.0000***
LPSC	0.0248**	-	0.1533	0.0000***

0.0000***
Note:***,**,* denotes rejection of the null hypothesis at 1%, 5% and 10% respectively..

4.2. Statistical Properties and Correlation

The result of the descriptive statistics and correlation are provided in table 4.2. It shows that the log of real intermediate money demand (LRM2) has a mean and a standard deviation of 5.9 and 0.2 respectively and it varies between a minimum of 5.6 and a maximum of 6.5. The log of real broad money demand (LRM3) has a mean and a standard deviation of 5.7 and 0.3 respectively and it varies between a minimum of 5.7 and a maximum of 7.1. Also, the consumer price index (CPI) has an average of 83 anda standard deviation of 38.8 and it varies between a minimum of 25 and a maximum of 161. The exchange rate (ER) has an average of 92.4 and a standard deviation of 11.1 and it varies between a minimum of 63.1 and a maximum of 112. Furthermore, the interest rate (R) has a mean and a standard deviation of 4.1 and 0.50 respectively and it varies between a minimum of 3.2 and a maximum of 4.7. The log of real Gross Domestic Product (LGDPR) has a mean and a standard deviation of 6.2 and 0.2 respectively and varies between the minimum of 6.02 and the maximum of 6.72. The log of credit extended to the private sector (LPSC) has a mean and a standard deviation of 5.98 and 0.44 respectively and varies between the minimum of 5.17 and maximum of 6.59. The results of the correlation analysis of the variables employed (LRM2, LRM3, CPI, ER, R, LGDPR, LPSC) was reported in table 4.2. The result showed that the correlation between LRM2 and CPI is 95%while LRM3 and CPI is 89%. The correlation between LRM2 and ER is 56% while LRM3 and ER is 54%. Also, the correlation between LRM2 and R is 72% while the correlation between LRM3 and R is 65%. Furthermore, the correlation between LRM2 and LGDPR is 98% while the correlation between LRM3 and LGDPR is 94%. The correlation between LRM2 and LPSC is 91% while the correlation between LRM3 and LPSC is 85%.

Table 4.2. Descriptive Statistics and Correlation Matrix

Variables LPSC	LRM2	LRM3	CPI	ER	R	LGDPR
Mean 5.9771	5.9483	6.0490	83.057	92.402	4.113623	6.2294
Maximum 6.5878	6.4814	7.1486	160.83	111.62	4.724279	6.7150
Minimum 5.1739	5.6248	5.6923	24.966	63.110	3.155212	6.0164
Std. dev. 0.4357	0.2411	0.3113	38.846	11.096	0.498042	0.1986
Observations	120	120	120	120	120	120
LRM2	1.0000					
LRM3	0.9526	1.0000				
CPI	0.9543	0.8941	1.0000			
ER	0.5641	0.5398	0.6273	1.0000		
R	0.7229	0.6480	0.8075	0.4512		1.0000
LGDPR	0.9807	0.9417	0.9334	0.5181	0.6719	1.0000
LPSC	0.9147	0.8490	0.9585	0.6	460 0.8499	0.8483
1.0000						

4.3. ARDL Bound Test for Cointegration

The ARDL bound test approach to cointegration developed by Pesaran et al. (2001) were used to determine whether or not the variables co-move in the long-run. The results for the bound tests are presented in table 4.3.The results of the ARDL bound test for cointegration shown in table 4.3 indicated that the RM2 money demand function has the bound F-statistics value of 4.5978which exceeds the critical upper bound value of 4.15 at K=3 and at a 1% level of significance. This implies that, we reject the null hypothesis of no long-run relationship and conclude that the RM2 and its determinants co-move in the long-run. In the RM3 money demand function, the bound F-statistics value of 19.878 exceeds the critical upper bound value of 4.15 at K=3 and at a 1% level of significance. This implies that the RM3 and its explanatory variables are cointegrated.

Table 4.3. Bound test cointegration results

Estimated models	F-statistics	critical value	
		I (0)	I (1)
F (LRM2/CPI, ER, R, LGD PR, LPSC)	4.5978***	3.06	4.15
F (LRM3/CPI, ER, R, LGDPR, LPSC)	19.878 ***	3.06	4.15

*** implies 1% significance levels.

4.4. Long Run Analysis.

Having established the existence of a long-run relationship in the real money demand functions in South Africa from 1990Q1 to 2015Q4, the analysis of the long run relationship between the variables included in the models are presented in table 4.4. The models show that a 1% increase in CPI (inflation rate) caused decrease in the real intermediate money demand (LRM2) by 0.3% at a 1% significant level. Similarly, a 1% increase in CPI leads to a decrease in the real broad money demand (LRM3) by 0.6%. These are in accordance with the a priori expectation of the long-run relationships between monetary aggregates and CPI as reported by Sanusi and Meyer (2018).

Table 4.4. Long Run Estimates

Variables	LRM2 Model	LRM3 Model
Constant	3.3943*** (-4.6759)	-6.9663*** (-5.0537)
CPI	-0.0028*** (-2.9134)	-0.0060*** (-2.9360)
ER	-0.0014* (-1.7708)	-0.0003 (-0.2757)
R	0.0080** (2.4918)	0.0061 (1.6077)
LGDPR (11.564)	1.1942*** (12.478)	1.6852***
LPSC	0.3620*** (6.6725	0.4816*** (3.6615)

The t -statistics are reported in parenthesis.   ***, **, * implies 1%, 5% and 10% significance levels.

The empirical result of the long run relationship between real monetary aggregate (LRM2) and interest rate (R) is not in tandem with the theoretical expectation. This is becausea 1% increase in R induced increase in the real monetary aggregate (LRM2) by 0.8% at the 5% significant level. The non-negativity of the interest rate in South Africa is also reported by Niyimbanira (2013) and Fair (1987). However, the links between RM3 and R were insignificant in the long-run. The result of the long-run relationships between the exchange rate (ER) and the monetary aggregate (LRM2) was negative and significance. This is becausea 1% increase in ER caused LRM2 to decrease by 0.1% at a 10% significant level. This might be due to currency substitution effect. The currency substitution reduced the demand for LRM2 in South Africa because investors perceived that a depreciating domestic exchange rate will further deep down hence substituting with the foreign currency as reported by Parvez et al. (2010) and Azim et al. (2010). However, there was no evidence to support the existence of significant relationship between

ER and LRM3 in the long-run. The long-run relationships between real monetary aggregates and real GDP was positive and significant and conformed to the theoretical expectation. A 1% increase in LGDPR caused LRM2 and LRM3 to increase by 119% and 169% respectively at a 1% significant level. This long run relationship was reported by Niyimbanira (2013) and Sanusi and Meyer (2018). Similarly, the long-run relationship between the LPSC and the real monetary aggregate is positive and significance. This is because a 1% increase in LPSC induced an increase in LRM2 and LRM3 by 36% and 48% respectively.This result justified the increased integration of South Africa to the global economic system as reported by Sanusi and Meyer (2018).

4.5. Short-Run Analysis

The short-run result of the relationship between the real money demands (RM2& RM3) with inflation rate, exchange rate, interest rate, real GDP, and credit to the private sector is displayed in table 4.5.

Table 4.5. Short Run Estimates

Variables	Model 1	Model 2
△CPI -0.0032**	0.0415***	
	(-2.4066)	(3.5384)
△ER0.0003*	-0.0068***	
	(1.7958)	(-3.7324)
△R	-0.0068***	
	(-1.9862)	--0.0190**
		(2.4918)
△LPSC0.3527***		-
(4.2683)		
-0.1696***		-0.9439***
△ECT(-5.8376)		(-12.138)

*The t-statistics are reported in parenthesis. ***, **, * implies 1%, 5% and 10% significance levels.*

The short-run results shows that a 1% increase in CPIinduced a decrease in LRM2 by 0.3% in the previous quarter and at a 5% significant level. This is also in tandem with the theoretical relationship between money demand and inflation rate. However, a 1% increase in CPI caused a 4.2% significant increase in LRM3 in the current quarter. The short run relationship between ER and real monetary aggregate show that, a 1% increase in ER caused a 0.03% increase in LRM2 in the current quarter and at a 10% significant level. This is in conformity with the explanation of wealth effect since depreciation of domestic exchange rate will raised the value of foreign assets thereby increases the investor's wealth. To maintain fixed value of their domestic investment in the short run, investors will demand for more domestic currency as reported by Sharifi and Hosein (2007) and Azali et al. (2001). However, a 1% increase in ER significantly led to decrease in real money demand (RM3) by 0.7% in the current quarter. This result might be due to currency substitution effects.Also, a 1% increase in interest rate significantly decrease LRM3 by 1.9% at a 5% significance level during the current quarter. In the short-run, LGDPR was positively and significantly related to LRM2. Evidently, a 1% increase in LGDPR leads to a 105% increase in LRM2 during the current

quarter. Also, the short-run relationship between LPSC and RM2 was positive and significance. This is because a 1% increase in LPSC caused a 35.3% increase in LRM2 and at a 1% significance level during the current quarter. ECT shows the speed of adjustment from short run disequilibrium to long-run equilibrium. In both the two models, ECT wasnegative and significant which further strengthened the long-run relationship between real monetary aggregates and its determinants in South Africa within the study periods as reported by the bound test result. The values of ECT in LRM2 and LRM3 implied that the disequilibrium in the short-run will converge to its long-run equilibrium at the speed of 17% and 94% respectively. This results indicated that the LRM3 has the tendency to speedily return to its equilibrium point whenever there is disequilibrium in the money demand function.

4.6. Diagnostic checks

The diagnostic checks were conducted to ensure the healthiness of the models for analysis and policy implications. The results of the diagnostic checks are reported in table 4.6.

Table 4.6. Diagnostic test results

Variables	Model 1	Model 2
Serial correlation (LM test)	0.0391 (0.9616)	1.4557 (0.2381)
Hetroskedasticity (BPG test)	1.1036 (0.3638)	2.5395 (0.0046)
Normality test (Jarque -Bera)	0.8672 (0.6482)	16589 (0.0000)
Ramsey Reset test	2.7148 (0.1025)	14.342 (0.0003)

The F-statistics are reported and the P-values are in parenthesis.

The long run and short runmodel for real intermediate money demand (RM2) estimated has been found to be healthy because it has no serial correlation since we fail to reject the null hypothesis of no serial correlation at 5% level of significant. Also, the model has not been suffering from heteroscedasticity as the null hypothesis of no hetroskedasticity has not been rejected at 5% level of significant. Likewise, the model has been specified correctly since the null hypothesis that the model is not correctly specified has not been rejected at 5% significant level and lastly the model was normally distributed as the null hypothesisthat the variance are not normally distributed has not been rejected at 5% significant level. Generally, the model for LRM2 was healthy and deem fit for analysis and policy recommendation. However, the long run and short run model for the real broad money demand (RM3) was relatively unhealthy. This is because, RM3 money demand function only passed the test for serial correlation since the model fail to reject the null hypothesis of no autocorrelation at 5% level of significance.

4.7. Stability of Money Demand Function for South Africa (Trend Analysis)

In the ARDL model, the stability of the long run relationship between real monetary aggregates LRM2 and LRM3 and their determinants (CPI, ER, R, LGDPR, and LPSC) was carried out using CUSUM test. The CUSUM test is based on the cumulative sum of recursive residuals on the number of a given observation.The results of the CUSUM test for stability show that, both LRM2 and LRM3 models are stable as shown in figure 4.1 and figure 4.2 respectively.
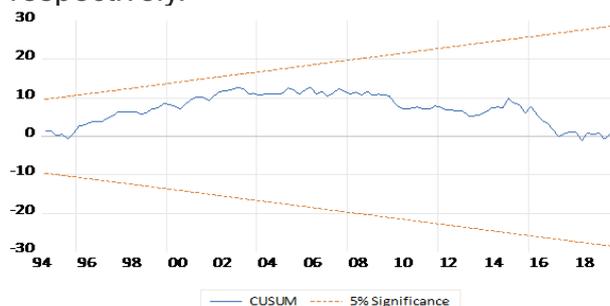
Figure 4.1.LRM2 plot of cumulative sum of recursive at 5% critical bands
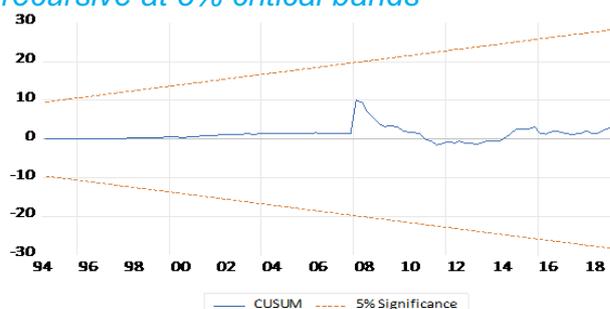
Figure 4.2.LRM3 plot of cumulative sum of re cursive at 5% critical bands.

Figure 4.1 shows the plot of the residuals lies within a 5% critical band, implying the existence of a stable money demand function (LRM2) for South Africa during the period 1990Q1-2019Q4. Likewise, the stability of real broad money demand (LRM3) as displayed by the plot of the cumulative sum of square of the recursive at 5% critical band in figure 4.2indicated that LRM3 was stable during the period 1990Q1 to 2019Q4 in South Africa.

5.0 Conclusion and Recommendations
5.1 Conclusion

This study estimates the real money demand (RM2 and RM3) for South Africa during the period 1990Q1 to 2019Q4. To run the empirical estimate, the ARDL model developed by Pesaran (2001) was employed. The results from the ARDL bound test for cointegration show that, both RM2 and RM3 are cointegrated implying that there exist a long-run relationship between real money demand (RM2 and RM3) and their determinants (CPI, ER, R, GDPR and PSC) within the period under study. The estimates for real money demand (RM2) and the inflation (CPI) shows that CPI were negatively and statistically related to RM2 both in the long-run and short-run periods. This conforms to the theoretical expectation. However, the exchange rate (ER) was negative and significantly related to the RM2 in the long run only. This might be due to currency substitution effects as reported byParvez et al. (2010), and Azimet al. (2010). But in the short-run, the relationship between ER and RM2 was positive and significant. This positive links may be as a result of wealth effect as reported by Azali et al. (2001) and Sharifi and Hosein (2007). The relationship between the interest rate (R) and RM2 was positive and significantin the long-run only. This positive relationship is in tandem with Moll (1999). Also, the links between RGDP and RM2 was positive and significant in the long-run. The signs are consistent with the theoretical postulation. Furthermore, the estimates for credit to the private sector (LPSC) and RM2 shows that LPSC was positively and significantly related to RM2 in both the long-run and short-run periods. This vindicated the increased inclusion of South Africa's financial sector with the rest of the world. Generally, the model for the real money demand (RM2) was healthy since it passed all the diagnostic tests. Also, the model were found to be stable as indicated by the CUSUM stability test.

On the other hand, the estimates for real broad money demand (RM3) and inflation (CPI) shows a negative and significant relation in the long-run. This relationship is in tandem with the theoretical postulation. However, the relationship between CPI and RM3 were positive and significant in the short-run. Also, both ER and R were not significantly related to RM3 in the long-run but negative and significant in the short-run period. The short-run result for the ER might be due to currency substitution effect as reported by Mohsen (2002).The estimates for RM3 and RGDP showed a positive and significant relationship in the long-run only. The long-run sign is consistent with the theoretical postulation. Also, the LPSC were positively and significantly related to the RM3 in the long-run only. This vindicated the increased integration of South Africa's financial sector with the rest of the globe. It is noteworthy that, the model for RM3 was unhealthy because itpassed only serial correlation test. However, the model underwent a correction test by using Hetroskedasticity-Autocorrelation (HAC) to be fit for the analysis. Also, the model werefound to be stable as indicated by the CUSUM stability test.

Therefore, based on the analysis and summary of the findings, the model for real money demand (RM3) is still significant as a monetary anchor for targeting the inflation because of its long-run positive effects on the South African economy but RM2 is more significant and healthier than RM3.

5.2 Recommendations

This study recommends that monetary the policymakers should still maintain RM3 as a monetary anchor because of its long-run impact on the South African economy. However, the model for RM2 was more significant and healthier. Therefore, this study suggests for a reassessment of the money demand function in South Africa by incorporating other determinants of money demand such as foreign interest rates, stock prices or stock returnsto ascertain whether or not these results would still hold.

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APPENDIX 1.
DATA USED FOR THE STUDY

PERIOD	LRM2	LRM3	ER	LPSC	LGDPR	R	CPI
1990Q1	5.680755	5.767881	104.08	5.173906	6.036541	21	24.96614
1990Q2	5.664986	5.757227	103.55	5.19598	6.036182	21	25.76506
1990Q3	5.658154	5.75613	102.14	5.200111	6.035817	21	26.78368
1990Q4	5.67268	5.762244	106.16	5.22619	6.03622	21	27.70243
1991Q1	5.681716	5.761924	107.58	5.248322	6.032752	21	28.74102
1991Q2	5.681944	5.760648	107.89	5.258149	6.03177	20	29.77962
1991Q3	5.677828	5.749567	108.3	5.273666	6.031602	20	31.09783
1991Q4	5.67848	5.748002	108.69	5.284819	6.030854	20.25	32.09648
1992Q1	5.667124	5.739624	109.14	5.289395	6.0278	20.25	33.05517
1992Q2	5.677323	5.738605	110.19	5.29804	6.025128	19.25	33.9939
1992Q3	5.67251	5.729075	109.37	5.309524	6.020071	18.3	34.45328
1992Q4	5.668473	5.727107	111.62	5.321157	6.016365	17.82333	35.11238
1993Q1	5.647592	5.714845	110.09	5.326028	6.020195	16.55	36.57041
1993Q2	5.629061	5.696302	107.87	5.327488	6.024933	16.25	37.18957
1993Q3	5.624817	5.692296	104.14	5.345291	6.03114	16.25	37.70886
1993Q4	5.626833	5.697323	109.63	5.361358	6.034346	15.58333	38.50778
1994Q1	5.638767	5.706231	108.75	5.412504	6.033726	15.25	39.18686
1994Q2	5.652335	5.711331	103.96	5.419235	6.038412	15.25	40.58496
1994Q3	5.668506	5.721914	105.89	5.441565	6.04327	15.58333	41.40385
1994Q4	5.675465	5.727781	106.84	5.453949	6.050459	16.25	42.34258
1995Q1	5.659426	5.719294	101.9	5.467422	6.052025	17.08333	43.3612
1995Q2	5.674971	5.734705	101.17	5.484355	6.053949	17.5	43.72071
1995Q3	5.667447	5.736353	107.05	5.496156	6.05582	18.5	44.12017
1995Q4	5.677976	5.74154	108.14	5.506417	6.05753	18.5	45.09884
1996Q1	5.700173	5.756013	102.89	5.53638	6.063582	18.5	45.99763
1996Q2	5.715865	5.7687	96.91	5.558533	6.071641	20.16667	47.05619
1996Q3	5.72921	5.781986	95.09	5.577323	6.076542	19.5	48.1547
1996Q4	5.73505	5.786196	94.42	5.589283	6.080641	19.91667	49.43297
1997Q1	5.7446	5.794205	107.24	5.614406	6.081887	20.25	50.31177
1997Q2	5.7487	5.799788	106.18	5.625367	6.084536	20.25	51.11069
1997Q3	5.760176	5.81122	104.97	5.645414	6.085442	20.25	51.4702
1997Q4	5.775456	5.820321	103.56	5.656544	6.086097	19.25	52.14928
1998Q1	5.784076	5.830431	103.23	5.673215	6.086646	18.91667	52.88828
1998Q2	5.783599	5.830707	97.81	5.69695	6.087259	19.58333	55.06533
1998Q3	5.797128	5.839047	85.75	5.709127	6.086307	25	56.14387
1998Q4	5.792715	5.840768	88.21	5.726049	6.086726	23.66667	56.56329
1999Q1	5.785932	5.836271	86.84	5.698829	6.090701	21	56.74306
1999Q2	5.793752	5.838589	90.27	5.710111	6.094144	18.66667	56.90283
1999Q3	5.800387	5.838131	89.56	5.71772	6.098861	16.83333	57.24238

1999Q4	5.816507	5.852749	90.58	5.726336	6.103611	15.5	58.14115
2000Q1	5.810754	5.84864	89.48	5.731928	6.108469	14.5	59.53926
2000Q2	5.799188	5.839692	86.1	5.738827	6.112447	14.5	60.65774
2000Q3	5.787476	5.831136	88.28	5.759186	6.116727	14.5	61.25693
2000Q4	5.799942	5.841487	84.18	5.770898	6.120406	14.5	62.45531
2001Q1	5.809796	5.851996	83.39	5.771848	6.123217	14.5	63.35409
2001Q2	5.814733	5.861865	86.32	5.779666	6.125383	14.25	63.55382
2001Q3	5.82285	5.876279	79.26	5.800189	6.126535	13.33333	63.89336
2001Q4	5.824717	5.876058	63.11	5.82869	6.129861	13	66.05812
2002Q1	5.847068	5.895331	68.21	5.825172	6.13546	14.33333	68.31611
2002Q2	5.846312	5.901242	74.16	5.828633	6.140688	15.33333	70.36503
2002Q3	5.840685	5.902359	70.74	5.839645	6.144236	16.33333	72.56328
2002Q4	5.851428	5.90805	82.35	5.847314	6.147127	17	73.59072
2003Q1	5.870528	5.924067	86.97	5.891016	6.151128	17	73.97602
2003Q2	5.890985	5.940827	85.88	5.898174	6.153243	16.5	73.45035
2003Q3	5.893528	5.940414	93.13	5.911511	6.155594	14.5	72.03462
2003Q4	5.903221	5.947189	97.86	5.923503	6.158092	11.83333	72.29447
2004Q1	5.908905	5.956581	94.6	5.921609	6.164617	11.5	72.70366
2004Q2	5.909877	5.964792	99.26	5.923254	6.170644	11.5	72.80222
2004Q3	5.913275	5.970076	95.68	5.946728	6.177688	11.16667	73.22335
2004Q4	5.927587	5.979019	102.26	5.97965	6.182301	11	73.69228
2005Q1	5.937204	5.989134	100.28	5.991272	6.186694	11	74.05666
2005Q2	5.956589	6.011103	93.79	6.011097	6.194419	10.5	74.54649
2005Q3	5.966192	6.022207	99.61	6.036235	6.200301	10.5	74.73167
2005Q4	5.961735	6.018651	102.27	6.056979	6.203199	10.5	75.20058
2006Q1	5.985327	6.048073	102.43	6.085346	6.209751	10.5	75.93832
2006Q2	6.002619	6.072461	90.7	6.102558	6.216838	10.66667	77.35105
2006Q3	5.996765	6.064733	88.28	6.134182	6.222984	11.33333	78.17241
2006Q4	6.016165	6.083306	92.7	6.156813	6.229689	12.16667	79.06545
2007Q1	6.015753	6.095279	88.91	6.178956	6.236531	12.5	80.50507
2007Q2	6.039093	6.123532	92.69	6.198792	6.239874	12.66667	82.21051
2007Q3	6.061179	6.137546	90.76	6.222635	6.245218	13.33333	83.82634
2007Q4	6.061245	6.139298	92.84	6.241511	6.251536	14.16667	86.14365
2008Q1	6.061215	7.148619	76.04	6.267511	6.254632	14.5	88.51024
2008Q2	6.077783	6.166906	83.11	6.281353	6.25946	15.16667	91.4448
2008Q3	6.073555	6.168504	87.92	6.288601	6.261398	15.5	92.24944
2008Q4	6.082991	6.174828	77.68	6.297074	6.259539	15.33333	93.76405
2009Q1	6.078309	6.165464	79.6	6.30299	6.252467	14	95.70465
2009Q2	6.074423	6.165988	91.42	6.29946	6.249365	11.66667	97.2666
2009Q3	6.060387	6.161049	95.86	6.296666	6.25129	10.66667	97.64525
2009Q4	6.052013	6.148815	94.88	6.296559	6.255004	10.5	98.78121
2010Q1	6.034839	6.126453	97.71	6.300095	6.259925	10.33333	99.72784
2010Q2	6.024746	6.124572	100.82	6.303606	6.263135	10	100.5325

2010Q3	6.025276	6.132624	103.06	6.315338	6.267067	9.833333	100.9585
2010Q4	6.03188	6.133863	104.37	6.319702	6.271891	9.166667	102.4731
2011Q1	6.034258	6.133228	100.03	6.321817	6.277272	9	104.3663
2011Q2	6.024621	6.126951	100.75	6.326024	6.279442	9	105.9756
2011Q3	6.022765	6.128371	93.48	6.338303	6.281367	9	107.2536
2011Q4	6.03652	6.139689	90.11	6.345701	6.285415	9	108.8155
2012Q1	6.039406	6.133981	95.47	6.359876	6.288023	9	110.4721
2012Q2	6.033708	6.133334	90.52	6.362159	6.29084	9	111.4661
2012Q3	6.037653	6.145642	90.43	6.376001	6.292231	8.5	113.3594
2012Q4	6.038526	6.145137	87.71	6.387297	6.294748	8.5	115.158
2013Q1	6.038489	6.141842	84.19	6.392677	6.295583	8.5	116.6726
2013Q2	6.024933	6.12858	79.1	6.399247	6.29905	8.5	118.4712
2013Q3	6.032618	6.138511	80.53	6.40723	6.299824	8.5	119.4652
2013Q4	6.03784	6.137803	77.79	6.413133	6.30391	8.5	121.9264
2014Q1	6.048567	6.140006	77.13	6.429016	6.303232	9	124.3876
2014Q2	6.056109	6.147785	79.22	6.434972	6.30389	9	125.9969
2014Q3	6.057343	6.148034	79.9	6.443173	6.303677	9.25	126.2809
2014Q4	6.05749	6.141945	81.06	6.448511	6.3036	9.25	127.0382
2015Q1	6.091831	6.179813	82.05	6.465104	6.303722	9.25	129.9728
2015Q2	6.074934	6.164922	81.3	6.468573	6.303666	9.25	131.7241
2015Q3	6.058017	6.150684	77.02	6.478165	6.303663	9.5	132.3394
2015Q4	6.039265	6.12587	73.16	6.490574	6.303684	9.666667	135.3686
2016Q1	6.390809	6.638135	72.3	6.501491	6.629203	10.33333	138.4452
2016Q2	6.382537	6.642585	74.2	6.49888	6.638135	10.5	140.1491
2016Q3	6.399556	6.647442	80.15	6.508202	6.642585	10.5	141.4744
2016Q4	6.415174	6.653286	84.56	6.512187	6.647442	10.5	144.125
2017Q1	6.412548	6.666329	88.64	6.522575	6.653286	10.5	145.6396
2017Q2	6.410783	6.672468	88.07	6.525484	6.666329	10.5	146.5862
2017Q3	6.428585	6.678661	84.47	6.531455	6.672468	10.25	147.8642
2017Q4	6.448093	6.671739	85.32	6.540399	6.678661	10.25	149.8048
2018Q1	6.445445	6.686649	91.62	6.547833	6.671739	10.16667	151.9347
2018Q2	6.431996	6.693396	85.81	6.54878	6.686649	10	153.7806
2018Q3	6.457008	6.699239	80.26	6.557904	6.693396	10	155.0112
2018Q4	6.461661	6.692374	85.53	6.562206	6.699239	10.16667	156.0525
2019Q1	6.464856	6.705991	83.97	6.573286	6.692374	10.25	158.6558
2019Q2	6.463075	6.708925	85.22	6.577695	6.705991	10.25	160.1704
2019Q3	6.475385	6.715038	85.26	6.58394	6.708925	10	160.833
2019Q4	6.481362	6.575386	85.36	6.587779	6.715038	10	160.5017

GUIDELINES FOR SUBMISSION OF ARTICLES.

1. Two (2) hardcopies and a softcopy of the original manuscript should be addressed to the:

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P.M.B.0187, Garki, Abuja

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Areas of emphasis should be on topics within the following broad themes:

- Economic Growth and Development
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The essence of this guideline is to help focus on areas we want covered. Note, this is not exhaustive. Please feel free to address all other issues you consider pertinent to the mandate of the Central Bank of Nigeria.

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