

**THE EFFECT OF OIL PRODUCTION ON FINANCIAL MARKET
DEVELOPMENT AMONG COUNTRIES IN AFRICA**

BY

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DECLARATION

This research project is my original work and has not been presented for a degree in any other university.

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D61/64374/2013

This research project has been submitted for examinations with my approval as the university supervisor.

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LIST OF ABBREVIATIONS AND ACRONYMS

GDP	Gross Domestic Product
GFDD	Global Financial Development Database
IPOs	Initial Public Offer
JSE	Johannesburg Securities Exchange
MV	Moderating Variable
PC	Personal Computer
SPSS	Statistical Package for Social Sciences

ABSTRACT

Financial market experts have frequently cited oil production stability as a significant requisite for increasing financial markets development. The appropriate operating financial institution enables expansion of the economic market by bringing together and directly involving entrepreneurs in viable opportunities within the continent. This research aimed to establish the effect of oil production on financial sector development in Africa. The study was guided by the following research hypotheses: **H₀₁**: There is no statistical significant effect between exchange rate of oil production and the financial sector development in Africa. **H₀₂**: There is no statistical significant effect between quantity (Barrels) of oil production and financial sector development in Africa and **H₀₃**: There is no statistical significant effect between quality of oil production and financial sector development in Africa. The study employed the Solow neoclassical model of economic growth and the Keynesian Model by utilizing their models of economic analysis to explain the correlation between oil production and financial sector development. The study adopted an analytical research design where comparative investigation was utilized to discover the correlation between the study variables and to establish the relevance of oil production to financial market development by comparing financial market development in oil producing countries in comparison to non-oil producing countries in Africa. This research utilized second hand data on financial market development indicators and oil exports data that are largely available on the internet. The researcher collected data on market capitalization value trends in each country for a period of ten years from 2008 to 2017. The quantitative data was gathered from the annual reports of the listed oil producing countries in Africa from World Bank. The data collected was analyzed using descriptive and inferential statistics. Descriptive statistics employs frequencies and percentages while inferential statistics was done through multivariate regression. The study results found that the country with the highest inflation rate in the economy is Malawi with 19.1% while the country with list interest rate is Gabon with a moving average of 1.5% interest rate. The study also concluded that Nigeria produces the highest barrels of oil in Africa with quantitative figure of 4,017,117 barrel per annum while the list producing oil country in Africa is Tunisia with quantitative value of 24382 barrel per annum spread over 10 years from 2008 to 2017. Finally, the study findings concluded that all the oil producing countries in Africa produces light crude oil. The study recommends that that a more stable economy is needed in all the oil producing countries because they have resources that contributes greatly to the real gross domestic product. Another recommendation is that the oil producing countries in Africa should form a market block that controls oil production. Statistically, the β coefficients were all significant to be used for multiple regression exchange rate ($\beta_1=0.521$, $p<0.000$), quality of oil ($\beta_2=0.069$, $p<0.017$) and quantity of oil ($\beta_3=.108$, $p<0.001$).

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Oil has become one of the greatest important natural resource in the current world financial markets. Oil production plays a prominent role of influencing the production worth of goods and services and as such volatility in oil production poses a new threat to the world financial stability (Kilian, 2014). The focus of academicians and participants of energy market has been on forecasting, modeling and managing financial market risks inherent in frequent oil production volatilities. The practitioners, governments and financial markets are thus, concerned majorly about oil production and prices volatility and the probable negative effects on the economy (Hassan & Zaman, 2012).

This research will be anchored on the Solow neoclassical model of economic growth and the Keynesian Model by utilizing their models of economic analysis to explain the correlation between oil production and financial sector development. By hypothetically expanding the Solow model and assuming that the financial markets consists of two sectors oil and non-oil, we will assume that the financial markets is on a steady-state path of financial markets development at a rate equal to the sum of the oil production (Solow, 1956). By hypothetically expanding the Keynesian model by arguing that the increase in oil production would match up to the growth in aggregate income for domestic economic agents and an increase in domestic and imported goods demand leading to increase in output and subsequent growth in financial markets (Keynes, 1930).

Financial market experts have frequently cited financial market development being a significant prerequisite for improving financial markets development (Legrenzi & Momani, 2011). According to Naceur and Ghazouani (2013) stable and efficient financial market minimizes cost of operations used to gather, process and tract investment facts that helps lessen troubles of asymmetry possessed by the entrepreneurs. Ndikumana *et al.*,(2015) stated that good financial system attributes to economic expansion through mobilization of savings; this is done by redirecting financial institutions to seek viable investments.

Oil is among the global markets' crucial commodities. In Africa, Nigeria is one of the largest oil producing country and it is rank fifth oil exporter worldwide. It accumulates daily more than 2,500,000 barrels (Schmukler & Abraham, 2017). Financial market development and financial markets development is positively correlated (Bencivenga, 2014). Oil is a key component for financial markets development and development consequently; investment analysts in Africa have raised the issue with possible interests between financial markets development and development. Revolution occurrences in oil production on financial markets therefore need to be evaluated.

1.1.1 Financial Market Development

A vital requirement for sustainability for the financial markets increased development is the availability of the dynamic financial markets. Financial markets aid in funds attainment from the people who save or units that have surplus like household individuals, businesses, units of public sector, the government. Palmatier (2016) defines financial market as a place where there is financial securities trade, items and

other valuable commodities at a low cost of transaction and prices that mirror demand and supply. Stock shares and bond are termed as the securities whereas gold, silver and diamond together with produces from the farming are termed commodities (Fuller, 2016).

Long period of finance refers to capital markets while money markets refer to short term financing. The constituent of capital is stock and allow the ensuing trade as a result: security funds issue bonds that enable trade. Gold, silver and diamond together with produces from the farming aid in commodities' trade; money markets permit organizations in borrowing short term funds whereas capital markets permit firms to attain long term financial support. Derivative products help issuers in gaining abnormal profit from issuing the instruments using Derivative contracts involving Future, Forward, Option and swap contracts. The function of primary market is to deal with first time securities while secondary market is for securities that have passed through the new issue market (Chance & Brooks, 2015).

1.1.2 Oil Production

According to PWC (2016) report on the choice to change Africa oil & gas review, Africa's share of global oil production is 9.1% of global output. Proven reserves of oil on the continent are approximately 7.6% of the world total. Most activities of exploration and appraisal have been postponed due to the international price of oil downturn. In spite of this, Africa has 9 out of the top 20 discoveries that were made in 2016. Africa produces 8.4 million crude oil barrels per day out of the proven oil reserves that total up to 129.1 billion barrels with about 77% of the oil being from Nigeria, Algeria, Egypt and Angola. Despite the storm of oil production, several oil and gas companies view production as their only channel to continuous income

stream. In most cases, there has been increase in production. ISIS emergence and civil war in Libya means that the levels of production in North Africa are low even though they have slightly increased due to increased production in Egypt (Ado, 2016).

By the end of 2015, Africa had 496.7 cubic feet proven natural gas in comparison to 2014 (PWC, 2016). Nigeria, Algeria, Libya and Egypt produce more than 90% of the natural gas of the continent. This represents a slight increase in comparison with production in the year 2014. Africa has fallen from a closely 70 year's production of natural gas to 66.4 years, considering the higher rates of production and slow replacement rate. With reference of current development in the Oil and Gas Industry in Africa, six out of nine largest gas discoveries were in Africa. Oil production in Africa has increased by 30% while the production of natural gas has multiplied. This signifies the impact the energy source to the growth of economies that depend or explore this natural resource as it became an important component of growth in Africa (Ado, 2016).

1.1.3 Oil Production and Financial Market Development

One of the most important raw materials of the industrialized nations is crude oil. It generates heat, drives machinery, vehicles and airplanes. Almost all chemical products, such as plastics, detergents, paints, and even medicines can be produced by the components of crude oil. It is obvious that crude oil has a great impact on the world economy. According to the recent studies which were conducted in the literature, the impact of oil price on the economy is the most important concern of economists nowadays. The relationship between oil prices and stock markets is another interest to economists. Previous studies do not differentiate oil-exporting countries from oil-importing countries when they investigated the effects of oil price

volatilities on the stock market returns. Volatility in oil prices has a considerable effect on stock prices and profits in developing economies (Basher and Sadorsky, 2006). Moreover, according to the argument of Park and Ratti (2008), if sudden and extreme oil price changes are able to affect the real economy due to the consumer and firm behavior, then these results will affect the world stock market. For these reasons, oil price changes should be carefully examined.

1.1.4 Countries in Africa

Most Sub-Saharan Africa exporters, North Africa exporters and substantial Middle-East nations demonstrate a high versatility, near 1 or over: this affirms the simple high reliance of their State spending plan to oil cost. As a delineation, Angola (AGO, with a versatility of government income over 1) has sent on April sixth 2016²² a formal letter to the IMF for help to manage the effect of low oil cost on the monetary incomes of the State. Littler Gulf Cooperation Council exporters and Gabon (GAB) demonstrate a lower proportion (around 0.6), which stays higher than for different exporters (0.2 to 0.4). To finish the investigation on the limit of States to adapt to a low oil value, the oil-related Sovereign Wealth Funds (SWF) set up by the nations that might be utilized as a cradle limit with a snappier reaction time than putting into creation oil holds: Sub-Saharan African oil exporters demonstrate no SWF (Congo, Gabon, Sudan, Chad) or low estimations of their store (Nigeria, Angola); North African oil exporters have progressively considerable assets, with Algeria at 23% of aggregate GDP (70% of Government incomes) and Libya at 160% of GD (Kitous, Saveyn, Keramidas, Vandyck, Santos and Wojtowicz, 2016).

Nigeria is a huge, insecure and exceedingly uncovered exporter, with a little SWF: it seems like the most defenseless against an enduring low oil value; o Sudan 26 does

not look that uncovered but rather is profoundly shaky (because of ongoing clashes): an enduring low oil cost could exacerbate the circumstance by further constraining the State ability to give essential administrations; o other sub-Saharan nations show up additionally exceptionally uncovered, and with no back-up as SWF, regardless of whether less temperamental; of these, Angola is the biggest as far as populace (and, as referenced above, has officially asked for help from IMF – see Footnote 22). Algeria, a genuinely extensive nation with 40 million occupants, is exceptionally touchy to oil value changes, has low saves per capita, a restricted SWF and a low political soundness file: it seems powerless against an enduring time of low oil cost, particularly in the present circumstance of rising radicalism in the area and clashes at its eastern outskirts (Libya) and on the South (Niger, Mali); Libya is now experiencing a contention: a significant lot of moderately low oil cost could either intensify the circumstance by slicing the rest of the ability to give essential administrations to the populace, or on the other hand diminish the groups' ability to back the war (Gelb and Grasmann, 2010).

1.2 Research Problem

Financial market experts have frequently cited oil production stability as a significant requisite for increasing financial markets development (Chakra, 2013). The appropriate operating financial institution enables expansion of the economic market by bringing together and directly involving entrepreneurs in viable opportunities within the continent (Ndikumana, 2015). Stable Financial market eliminates expensive meeting costs, monitoring costs and processing which help to minimize asymmetry information within the entrepreneurs (Naceur & Ghazouani, 2013). Stable markets influences allocation of resources between or

among institutions thus increase production unit and reduces unemployment within the country financial market (Chenery, 2013).

Previous studies by Beck (2015) demonstrated that states possessing good operating financial market and oil production encounter decrease in poverty levels instantaneously. A study was conducted in Tunisia by Brahim (2013) on the impact of oil generation on budgetary division execution utilizing information of the area. There were two main goals of the paper. To assess the linkages on oil production and capital share in Tunisia using a bivariate GARCH model and by analyzing the optimal weights and hedge ratios for oil–stock portfolio holdings; findings indicated a positive correlation between oil production and improved performance in oil-based stock folio and industry dynamics. One drawback of this study is the focus on oil based stock portfolio and ignored the impact of oil production on the overall financial market.

Even though many empirical assessed correlation on oil production and stock market in several developed nations, little study has been carried out on the correlation between production of oil and stock market in developing nations (Papapetrou, 2001). Additionally, little focus has been dedicated to the oil production impact on development of the financial sector. Review reveals missing links to phenomenon attached to the oil production units and financial balance on economic expansion on African soil, this requires enough research on policy attention hence the examine question on what is the impact of oil generation on financial sector development in Africa is what the study seeks to research.

1.3 Research objective

The study was guided by the following research objective:

- i. To examine the effect of exchange rate of oil production on financial sector development in Africa.

1.4 Research Hypotheses

The study was guided by the following research hypotheses:

H₀₁: There is no statistical significant effect between exchange rate of oil production and the financial sector development in Africa.

H₀₂: There is no statistical significant effect between quantity (Barrels) of oil production and financial sector development in Africa.

H₀₃: There is no statistical significant effect between quality of oil production and financial sector development in Africa.

1.5 Value of the Study

The study provided an exposure to the rapidly dynamic evolving oil sector and financial markets in Africa and how such sectors influence one another and subsequently inform management strategies to utilize the relationship between the study variables to achieve their long term performance and growth objectives. This kind of information is probably of importance to managers and seeking to attain competitive advantage in the fast-developing financial markets of Africa.

The study's findings and recommendations facilitated the efficiency of decisions of policy made by the policy makers because decisions on policy are support by real findings of research. Kenya's developing oil industry investors and other industry players finds the information useful especially in implementing strategies to enhanced financial sector performance in light of the recent oil discovery in Kenya.

To literature, the results of this study is important to future researchers and scholars as the information forms a literature review basis, knowledge gap establishments and being a guide to a specific school of thought. The methods and approaches of research utilized in the study helps future researchers with the interest of investigating similar occurrences in this area of research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

In this chapter, theoretical literature reviews offering a critical analysis of literature and finally the summary of the studies carried out in correlation to the problem under study and emerging research gaps.

2.2 Theoretical Foundation

This research borrows heavily from the theories the Solow neoclassical model of economic growth and the Keynesian Model by utilizing their models of economic analysis to explain the correlation between oil production and financial sector development. The section below is a further discussion of the model.

2.2.1 Solow Neoclassical Model of Economic Growth

When putting the potential impact of global oil production on financial Market development into consideration in the context of Solow's (1956) neoclassical economic growth model, one should remember that a long-term financial market development dependency on universal oil production can only be confirmed via the mechanism of capital accumulation. This approach was used in the following works; Kazakova and Sinelnikov-Murylev (2009). The basic Solow model presumes a growth rate that is consistent in the oil production and economic growth. Its other assumption is that an output share determined exogenously is saved after allocated pay off to fixed capital accumulation. The model's main impact is the steady-state path existence of financial markets development with a steady ratio of oil production.

According to the Solow model, this shows how long-term financial markets development rate is impacted on, only by the rate of growth in the oil production and the progression of technology.

Assumption of Solow Neoclassical Model posits that the financial markets consists of two oil and non-oil sectors, we will presume that the financial markets is on a steady-state path of financial markets development at a rate that is equal to the oil production sum productivity growth rates. We will further assume rising global oil production. Generally, the increase can be deduced as wealth transfer from abroad, which might be utilized in consumption or investment. Thus amplifying oil production provides a further investment funding source, which may have a positive impact on accumulated capital within the domestic financial markets and, consequently, on the physical output of products and services (Solow,1956). Accumulation of capital leads to increase in oil exports and other sectors' output, resulting in extra growth of savings and more input to rising capital on steady-state path. Due to the declining marginal productivity of capital, each additional unit of capital will provide an increasingly smaller contribution to output growth and to incremental savings.

Accordingly, the capital accumulation process will follow a certain new path where amortization and investments will converge. This means that rising oil production will lead to a change in output while leaving its long-term growth. In a more general case, when the oil production is growing at a certain rate and there is technological progress, the increase of savings from rising global oil production will lead to an improvement in the capital–labor ratio per share. In other words, on a new equilibrium path, with higher oil production, the level of capital per share and the level of output will increase hence financial markets development (Chen & Ross, 1986).

2.2.2 Keynesian Model

Borrowing from the Keynesian Model which states that if the factors of production are not fully utilized theoretically, output may change simultaneously with an increase in production, due to a greater capital deployment and more hours worked. The model summarizes market forces which sums up supply line to be equal, which responds to normal prices and salaries fully fixed to high unutilized production abilities. Accordingly, output in the Keynesian model may be determined to a greater extent by changes in the aggregate supply than by fluctuations in production (Keynes, 1930).

In considering a hypothetical situation where nominal exchange rate is fixed, nominal indicators are completely rigid, the financial markets has a high volume of unused factors of production and global oil production are constantly rising (Murray 1947).The increase in production of oil would be correspondent with the aggregate income growth for domestic agents of the economy and to increased demand for imported and domestic good resulting in output increase and consequent financial markets growth. In a floating case, nominal rate of exchange and rising global oil production , the nominal exchange rate in an oil-producing financial markets strengthens rapidly, resulting in an increase in the actual rate of exchange, relative prices for domestic goods compared with imported goods, and aggregate demand hence growth in investment in productive sectors and subsequent development of financial markets. With reference to rigid exchange stock, alternate prices will change in long run; this gives noticeable increase on market forces locally through supply line leading to expansion on local market.

2.2.3 Neoclassical Counter-Revolution Models

Neoclassical Counter-Revolution Models was developed in 1980s; Bauer (1984), Lal (1983) and Little (1982), who concentrated on advancing free markets, disposing of

government-forced mutilations related with protectionism, endowments and open proprietorship, neoclassical counter-upheaval financial specialists utilized three methodologies, in particular the free market approach, the new political economy approach and the market-accommodating methodology, to counter the universal reliance show. Interestingly with the universal reliance show, these methodologies for the most part contended that underdevelopment isn't the aftereffect of the ruthless exercises of the created nations and the global organizations however was somewhat caused by the household issues emerging from substantial state mediation, for example, poor asset assignment, government-incited value twists and debasement (Meier 2000).

Neoclassical financial specialists concentrated to discover an oil exit plan for the creating nations. Approaches of progression, adjustment and privatization in this way turn into the focal components of the national improvement plan. Outside exchange, private worldwide ventures and remote guide streaming into the creating nations are relied upon to quicken monetary proficiency and financial development of these nations. Exactly, the models, in any case, did not achieve the normal outcomes. The development rates per capita have separated among nations (Azariadis and Drazen, 1990). A few African nations concentrating on these issues accomplished a normal development rate of just 0.5 % every year. With feeble and lacking legitimate and administrative structure, also the distinctive institutional, social and chronicled setting of the creating nations, free market in these nations neglects to invigorate monetary advancement (World Bank, 2000).

2.3 Determinants of Financial Market Development

Determinants of financial market development will discuss the exchange rates, the Interest Rates and inflation.

2.3.1 Exchange Rates

Exchange Rates can be characterized as the cost at which a nation's money can be traded for another nation's cash. Exchange rate volatility has implications on a country's cash related division, the offer exchanging framework to be correct. Benita and Lauterbach (2004) found that exchange rate volatility have veritable fiscal costs that impact esteem quality, firm profitability and a country's robustness.. Setting up the connection between stock costs and trade rates is vital for a couple of reasons. To start with, it might influence choices about financial and monetary arrangement.

Gavin (1989) demonstrates that a booming securities exchange positively affects total interest. Exchange rate development influences yield levels of firms and furthermore the exchange parity of an economy. Hsing (2011) found a positive association between exchange rate and currency showcases in Johannesburg Stock Exchange. Cheng' et al., (2011) coordinated examination on Taiwan securities trade and the results exhibited a positive association between exchange rate change and stock return. Bailey and Chung (1995) coordinated an examination on Exchange Rate Fluctuations, Political Risk, and Stock Returns at the Mexican securities trade and the results exhibited there is a positive association between exchange rate change and securities trade return.

2.3.3 The Interest Rates

The financing cost can be described as the yearly cost charged by a moneylender to a borrower all together for the borrower to get a credit. This is ordinarily conveyed as a dimension of the total aggregate credited. Customary theories describe financing cost as the expense of venture supports directed by intrigue and supply of loanable resources. Ngugi and Kabubo (1998) states that the basic occupation of credit cost is to help initiate cash related resources and assurance the capable utilization of benefits in the headway of financial advancement and enhancement. Chen et al. (1986) exhibited that advance charge had constructive outcome on stock return.

Wongbangpo et al. (2002) clarified financing cost contrarily influenced Southeast Asian countries. In the cutting edge examination, Nguyen (2007) found credit charge spreads essentially influenced the threat of capital-heightened endeavors. Money supply effects can either make sure or negative. Since the rate of swelling is unequivocally related to the improvement rate of money Fama (1981), a climb in real money supply could provoke an extension in the discount rate and thusly cut down the stock expenses. In any case, this negative effect may be countered with money advancement, which would possibly extend cash streams and stock expenses Mukherjee and Naka (1995).

2.3.4 Inflation

The rate of expansion estimates the yearly rate increment in costs; the most common measure is that of retail costs. Johnson (1972) essentially characterizes expansion as the maintained ascent by and large value level. Expenses of stocks are directed by the net benefit of an association. It depends upon how much advantage; the association is

likely going to make as time goes on. Offer expenses of an association typically rise if there is hypothesis that the association will do well later on. If there is a plummeting design theory of an association's future stock esteem advancements, by then its stock cost will subside.

Stock expenses are clearly in respect to the execution of an association. In the event of a development in swelling, the association's salary will in like manner fade away and this will inimically impact the stock expenses and over the long haul the benefits from association stocks. The apparent advance expense includes a real rate notwithstanding expected extension rate. The ordinary certifiable rate of an economy is managed by the real factors, for instance, gainfulness of capital and time tendency of savers. It is free of the typical extension rate (Fisher, 1930).

2.4 Empirical Review

There has been wide investigation on the correlation between the price of oil and the actual economic activity. Hamilton (1983) had positive stuns that oil costs are an impressive reason for the subsidence of an economy in the United States. Following this work, the oil production dynamic impact has inspired numerous researches, including those that focus on the connection between the prices of oil and stock. Numerous papers, dedicated to countries that import oil show a correlation that is negative between production of oil and activities of the stock market.

Among the earliest papers was one by Sadorsky (2016) showed that shocks of production of oil have effects that are symmetric on the financial markets, shocks that are positive have greater impacts on the securities exchanges and financial exercises than of negative oil value stun.

Mogaka and Ochien (2018) analyzed the Effect of Domestic Public Debt on Financial Market Development in The East African Community. The examination received a spellbinding report and utilized auxiliary information gathered from the National Treasury, Central Bank of Kenya and the Kenya National Bureau of Statistics. The investigation time frame was between the monetary years 2012 - 2016. The data was analyzed using descriptive and multiple regression analysis to test the relationship between Domestic Public Debt and Financial Market Development in East African Community Countries. The study findings showed that a negative relationship between domestic debt and financial markets development. Furthermore, there was a weak relationship between inflation rate and financial markets development. The study also revealed that there was a high variation on domestic debts due to various policies of debt management, Political instability, external debts and grants received from foreign donors, in the various countries in EAC community.

The study implications concluded that most countries depend on external borrowings for their development projects and minimal domestic borrowings are acquired from the domestic market owing to the fact that domestic debt is has high interest rates when compared to the external debt which is acquired mainly on a concessional term, therefore it can be expensive to maintain. Domestic debt should be reduced by use of privatization programs, grants from donors. The government should, therefore, develop a framework to monitor and manage domestic public debt since it is growing at a high rate, reforms on private investments in Treasury bonds and treasury bills and commercial papers should be encouraged since it does not involve foreign currencies that have higher rate of interest.

Basher (2010) and Chen (2009) showed that the oil value effect on securities exchanges can be feebly essential. Hammoudeh (2014) connected the trial of combination and the VEC model to week by week information from February 2004 to December 2014. The creators found that developments of oil costs had no immediate effect on securities exchanges, while the last meant fewer than 4% of the varieties in the generation of oil following a time of 20 weeks. By utilization of the multifaceted technique, Syed and Sardosky (2016) explored that oil value affect changes on the up and coming securities exchange. Their contention was that dangers of oil cost affected stock value returns.

Nuhu (2016) utilize the EGARCH strategy in demonstrating of the day by day oil creation information and presumed that stuns always and symmetrically affected the unpredictability over a significant lot. Hilter kilter impact demonstrates that positive stuns affect costs of oil uniquely in contrast to the negative stuns. Dahl (2015) surveyed the awry effects of WTI day by day generation of oil on Standard Poor 500 stock returns. By utilization of Autoregressive Conditional Jump Intensity show with expected, surprising and negative unforeseen value changes of oil, they found that high oil creation vacillations have sudden awry impacts on the stock returns.

The reliance of Guesmi and Fattoum (2014) was on bivariate GARCH models for estimation of the volatility transmission between weekly production of oil and returns of equity sector and found spillover mechanism evidence. Boubaker, Guesmi and Nguyen (2014) extended the time-varying relationship assessment by consideration of prices of commodity of Brent oil, WTI oil, copper, gold and silver and share price index. They indicated that relationship between commodities have been on the rise since 2003, preventing hedging substitutability in portfolios. By use of GARCH

model, Arouri and Nguyen (2013) inspected the oil production effect on returns of European sector instead of only on the returns of aggregate stock market. Their conclusion was that production of oil tended to practice a considerable effect on several European sectors; nonetheless, the degree and course of the impact vary between sectors.

Creti, Ftiti and Guesmi (2014) demonstrate an expansion costs of oil by 10% in Norway brought about 2.5% of the list of the share trading system increment. Norway is a nation that fares oil. Kang, Ratti & Yoon (2015) debate on the negative oil value impact on securities exchanges is just practical from nations without oil however their evaluation is limited to some nations; Norway, Korea, Saudi Arabia and Russia. Filis (2014) researched that time-changing connection between Brent generation of oil and securities exchanges on nations that either sent out or imported oil. By utilization of multivariate uneven DCC-GARCH strategy, they find that the contingent oil and stock costs differences are not conveyed for economies that import oil. In any case, time-shifting connections relied upon the oil stuns source; the response from interest side stuns total is more noteworthy than supply-side stuns started by generation cuts of OPEC.

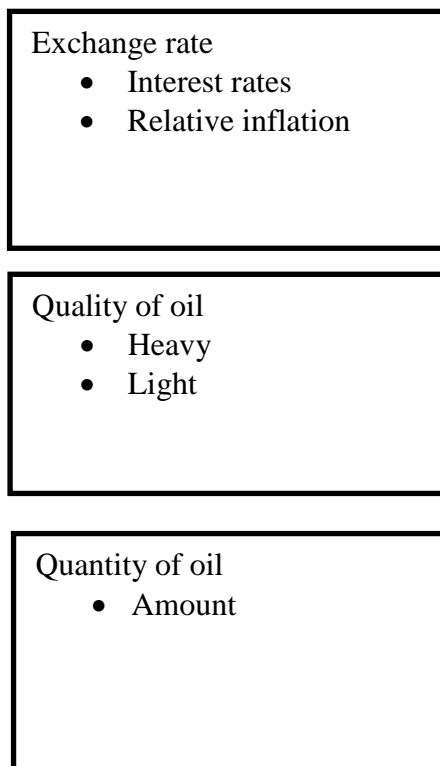
In regards to particularly countries that export oil, Creti (2014) utilized bootstrap test for causality in studying financial data that was non-normal with time-varying volatility. He concluded that production of oil tends not to influence securities exchanges and henceforth creation of oil can't be used as Gulf Cooperation Council stock exchanges indicators. Mohamed, Arouri and Rault (2012) examined the effect of oil generation stuns on Gulf nations, with a bootstrap board co integrate model, and

gave verification that the execution of securities exchange of the Gulf markets is affected on by positive oil value stuns.

2.5 Conceptual Framework

Through assessing the literature review, conceptual framework aiding in understanding the connection between the examination variables can be developed. The independent variable was studied in terms of oil production. On the other side, the dependent variable was majorly discussed in terms of development of the financial market. The control variable include: inflation and exchange rate.

Independent Variable



Dependent Variable



Figure 2.1 Conceptual Framework

2.6 Summary and Research Gaps

There is little investigation concerning the influence of corporate brand image on development of the financial sector where most researchers have paid attention on the correlation between all of the models named above do not put into consideration the various group of nations on the weight of oil basis in their financial markets. This paper provides a new perception in assessment of the connections between production of oil and the stock markets. The technique used in assessment is the approach of time frequency. In contrast to the time series, our method permits for non-stationary series representation without the misspecification risk.

Certainly, varied from the conventional time series model relationship, assessment is independent of presumptions on the data and does not demonstrate end-point issue: there is no usage of future data, suggested or required as in the strategies for band pass and pattern projection. The most significant information thinking about the investigation of the conventional time arrangement, contain the arrangement disintegration on two measurements which is recurrence and the reliance time event. This licenses exploring time arrangement according to the different skylines, for models short and medium term. Thus we focus on the complementation of the previous investigations to reveal the robustness of the results to specification of the model particularly in the dynamic dimension of the relationship of the oil-stock market in the countries that export.

Table 2.1 Empirical review

Author	Focus of Study	Methodology	Findings	Research/ Knowledge gaps
Alban Kitous, Bert Saveyn (2016).	Oil exporting countries and analyses the potential economic effects that current low oil prices may have in their economy and political stability	The study used GEM-E3 model to analyze its data.	The results show that such an oil price drop has different effects across oil exporting countries, unsurprisingly strongly correlated with export dependence to oil.	The fall in the price of oil could lead to a reduction of the GDP of Sub-Saharan Africa.
Lutz Kilian (2014)	The study focused on Oil price shocks: Causes and consequences.	The study used time-varying parameters in a similar VAR model.	Some of the key insights are that the real price of oil is endogenous with respect to economic fundamentals, and that oil price shocks do not occur ceteris paribus.	The flow demand shocks associated with the global business cycle were a primary determinant not only of the 1973/74 oil price increase, but of most major oil price increases
Bodenstein, M. (2011)	The study focused on oil Shocks and external adjustment	The study intensified cross-border listing of stocks with its ntecedent implication of shocks transmission	The study find evidence of low positive significant dependencies between all African markets and their developed counterparts, except for Egypt	The study was unable to ascribe the dynamics in the causality structure to level of market integration.
Ndikumana, L. (2015)	The study focused on growth and development in Africa	The study used time-varying parameters in a similar VAR model	The role of refineries and refining margins might seem straightforward at first, but it is important to note that regional differences are profound in refining margins and in the state of the refineries themselves.	The apparent global economic resilience to record high oil prices.

Gourene, G. A. Z., Mendy, P., & Ake, G. M. N. G. (2018)	Multiple time-scales analysis of global stock markets spillovers effects in African stock markets.	The study used By analyzing GARCH models	Results reveal that the US market is more influential to Indonesia, but less to Malaysia, and recently growing Chinese market has a significant influence to both of the two emerging markets.	Given the fact that the stock markets in the region are attracting many investors with global portfolio diversification, understanding the interdependence of the stock markets would be crucial to implement appropriate financial policies.
Yeshan Withanage and Prabhath Jayasinghe (2017)	The study examines the existence, magnitude and direction of volatility spillovers.	Elements measure the lagged own GARCH effect on a certain market as well as such effects from other markets	Findings show the existence of bilateral intraday volatility spillovers between Sri Lanka and India as well as Sri Lanka and Pakistan	The gap states that there is increasing globalization and regionalization of economic activities and financial liberalization of nations have resulted in the integration of economies and equity markets around the globe.
Mesagan, Ekundayo Peter (2016)	Oil resource abundance, institutions and growth: Evidence from oil producing African countries	The study used time-varying parameters in a similar VAR model	Result showed that institutional quality insignificantly enhanced per-capita income growth. It is therefore expedient to strengthen the quality of the institutions to sustain growth and enhance proper resource management in these countries	Research gap showed that quality and oil-resource abundance can reverse resource curse or enhance resource blessing in African oil rich countries.
Vittoria Lana. (2016)	Ethical business models in developing countries: the inclusive business	This study employed explanatory survey research design	welfare can be seen as the benefit a person derives from consuming goods and services over time, wellbeing includes benefits deriving from things other than	Research gap states that market is not considered to be critical for long-term growth and vitality of the private sector and, being it at best only “an attractive distraction.

			consumption	
Lawal, A. I., Somoye, R. O., Babajide, A. A., & Nwanji, T. I. (2018)	The effect of fiscal and monetary policies interaction on stock market performance	The study analysed monthly data using the ARDL and EGARCH models	The results show the interaction between monetary and fiscal policies influence on stock market returns in Nigeria	Literature in this area of research has neglected the complex relationship between monetary and fiscal policy
World Bank Group. (2014)	Oil and Gas in Africa	The study used time-varying parameters in a similar VAR model	Africa is endowed with vast quantities of both fossil and renewable energy resources. Furthermore, it is the main continent in the world with frequent and substantial new findings of oil and gas.	Gap reveals that there are challenges and constraints facing the continent in the exploitation and utilization of these resources

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This part explains the methodological ways utilized during collection and analysis of data is presented. This comprises of the design of the research, location of the study, study populace, procedures in sampling and the size of the sample, instruments in collection and analysis of data.

3.2 Research Design

Ogula (2005) notes that a research design is the arrangement, structure and examination procedure followed in finding research question answers and irregularity control. However, it is also the activity arrangement adopted by analysts in answering of the research question and establishes the system for the study (Kerlinger, 1973). The study adopted an analytical research design where comparative investigation was utilized to discover the correlation between the study variables and to establish the relevance of oil production to financial market development by comparing financial market development in oil producing countries in comparison to non-oil producing countries in Africa.

3.3 Target Population

Every item in consideration within any field of questioning consists of population and universe (Kothari, 2004). It is the total number of individuals or things from where a study aims at the generalization of its findings (Cooper & Schindler, 2008). This research targets 21 oil producing Countries in Africa that started operation earlier than

the year 2008. Given the small number of the population, the study employed a census study.

3.4 Data Collection

This research utilized second hand data on financial market development indicators and oil exports data that are largely available on the internet. The researcher collected data on market capitalization value trends in each country for a period of ten years from 2006 to 2016 and volume of oil production measured in barrels for the same study period for non-oil producing countries only data on financial market development was used for purposes of using the findings as a control test.

3.5 Diagnostic Test

The investigation set up the relationship between oil creation and budgetary market improvement by using chi-square. The test is utilized to decide if an affiliation (or relationship) between 2 factors in an example is probably going to mirror a genuine relationship between these 2 factors in the populace or if there is a distinction between the two factors. This in this way tests the likelihood (p-value) that the watched relationship between the two factors has happened by chance because of examining mistake.

3.6 Data Analysis

Analysis of data and procedures according to Berkiwertz (1997) is that it is a set of mechanisms portraying certainties, recognition of design, and creation of clarity and test theories. In line with the research being conducted, both quantitative and qualitative analysis was utilized for analysis of data. Correlation and comparative

analysis was both utilized in establishment of the correlation between the variables of the study. The coded quantitative data was bolstered into the PC for expressive measurements calculation. The Statistical Package for Social Sciences (SPSS variant 21) was used in running the descriptive statistics like the frequency and percentages with the end goal to introduce the quantitative information in tables and charts based on the significant research questions.

3.6.1 Analytical Model

The quantitative data was gathered from the annual reports of the listed oil producing countries in Africa from World Bank. The data collected was analyzed using descriptive and inferential statistics. Descriptive statistics employs frequencies and percentages while inferential statistics was done through multivariate regression. The research employed a panel type of study. Panel data is also known as longitudinal or cross-sectional time-series data which is a dataset in which the behaviors of entities are observed across time (Torres-Reyna, 2007). Longitudinal research was employed in this study because it is a particular design of longitudinal *study* in which the unit of analysis is followed at specified intervals over a long period, often many years and since the study looked at data from countries for the last 10 years which is relevant to the study.

The analyzed data was presented in tabular forms. Inferential statistics was used through moderation regression analysis using the 4 step of Baron and Kenny (1986); First, standardizing all variables to make interpretations easier afterwards and to avoid multicollinearity; secondly do to dummy code categorical variables and manually create product terms for the predictor and moderator variables; thirdly is fitting a regression model (block 1) predicting the outcome variable Y from both the predictor

variable X and the moderator variable M. Both effects as well as the model in general (R^2) should be significant and finally adding the interaction effect to the previous model (block 2) and check for a significant R^2 change as well as a significant effect by the new interaction term. If both are significant, then moderation is occurring.

If the predictor and moderator are not significant with the interaction term added, then complete moderation has occurred. If the predictor and moderator are significant with the interaction term added, then moderation has occurred, however the main effects are also significant. The data consisted of observations on the same n entities at two or more-time periods T . If the data set contains observations on the independent variables. The study used both ordinary least square (OLS) equation and moderated multiple regressions (MMR) because the study has moderating variable. This were created consisting scores for predictor variable y, score for 2nd predictor variable m hypothesized to be a moderator (Aquinis & Gottfredson, 2010).

Model specification

Model specification

$$Y_{it} = \beta_0 + \beta_1 X1_{it} + \beta_2 X2_{it} + \beta_3 X3_{it} + \epsilon_{it} \dots\dots\dots \text{equation 3.1}$$

$$Y_{it} = \beta_0 + \beta_1 C_{it} + \beta_2 X1_{it} + \beta_3 X2_{it} + \beta_4 X3_{it} + \epsilon_{it} \dots\dots\dots \text{equation 3.2}$$

Where;

Y_{it} represents financial sector development in Africa

β_0 represents constant

X_{1it} represents exchange rate of oil production of Africa i in time t

X_{2it} represents quantity (Barrels) of oil production of Africa i in time t

X_{3it} represents quality of oil production of Africa i in time t

$\beta_1, \beta_2, \beta_3, \beta_4$ = are coefficients of exchange rate of oil production, quantity (Barrels) of oil production and quality of oil production, moderating effect of oil production on the relationship between exchange rate and financial sector development in Africa, moderating effect of oil production on the relationship between quantity of oil and financial sector development in Africa and moderating effect of oil production on the relationship between quality of oil and on financial sector development in Africa respectively.

MV represents moderating variable (oil production)

ε represents error term

CHAPTER FOUR

DATA ANALYSIS, INTERPRETATION AND DISCUSSIONS

4.1 Descriptive Statistics (Analysis of Specific Objective)

The study focused the effect of oil production on financial market development among countries in Africa. The descriptive statistics of data collected (frequency and percentage) are discussed in this section. The study therefore determined the mean averages (moving average) of exchange rate of oil production in the selected countries, quantity (Barrels) of oil production in the selected countries and quality of oil production in the selected countries. From the target population of 21 countries only 16 countries had reliable information from the internet sources as published by World Bank. This represented 76% of the response rate which is supported by Bable (1995) who posits that a response rate of 70 percent and above is satisfactory to conduct adequate data analysis.

4.1.1 Exchange rate of oil production

The study sought to find out the mean average on the interest rates and inflation rates of each of the oil producing countries in Africa for the last 10 years from 2008 to 2017 as shown in table 4.1. The results on exchange rates are

Table 4.1 Exchange rate of oil production

S.N	Country	Interest rate (%)	Inflation rate (%)	Year (2008 to 2017)
1	Nigeria	13.6	12.803	2008 to 2017
2	Angola	13.7	7.3	2008 to 2017
3	Algeria	13.2	5.3	2008 to 2017
4	Egypt	6.2	9.1	2008 to 2017
5	Libya	4.1	10.6	2008 to 2017
6	Congo	2.7	3.2	2008 to 2017
7	Sudan	13.7	3.6	2008 to 2017
8	Morocco	3.0	3.6	2008 to 2017
9	Malawi	19.8	19.1	2008 to 2017
10	Equatorial- Guinea	13.6	7.5	2008 to 2017
11	Gabon	3.5	1.5	2008 to 2017
12	South-Africa	8.3	5.5	2008 to 2017
13	Ghana	17.6	13.9	2008 to 2017
14	Tunisia	6.5	4.8	2008 to 2017
15	Cote d' Ivoire	4.4	2.3	2008 to 2017
16	Chad	2.4	1.9	2008 to 2017

Table 4.1 shows the moving average of interest rate and inflation rate for 16 oil producing countries in Africa. The findings revealed that the interest rate moving average for the last 10 years (since 2008 to 2017) for Nigeria was 13.6%, Angola was 13.7%, Algeria was 13.2%, Egypt was 6.2%, Libya was 4.1%, Congo was 2.7%, Sudan was 13.7%, Morocco 3%, Malawi 19.8%, Equatorial- Guinea 13.6%, Gabon was 3.5%, South-Africa was 8.3%, Ghana was 17.6%, Tunisia was 6.5%, Cote d' Ivoire was 4.4% and Chad was 2.4%. The study results revealed that the country with the highest interest rates was Malawi with 19.8% while the country with the minimal interest rate was Chad with a moving average of 2.4% interest rate.

Further, Table 4.1 shows the moving average of the inflation rate for the last 10 years in oil producing countries in Africa since the year 2008 to 2017. The findings showed that the inflation rate moving average for the last 10 years (2008 to 2017) for Nigeria was 12.8%, Angola 7.3%, Algeria 5.3%, Egypt 9.1%, Libya 10.6%, Congo 3.2%, Sudan 3.6%, Morocco 3.6%, Malawi 19.1%, Equatorial- Guinea 7.5%, Gabon 1.5%,

South-Africa 5.5%, Ghana 13.9%, Tunisia 4.8%, Cote d' Ivoire 2.3% and Chad 1.9%.

The study results found that the country with the highest inflation rate in the economy is Malawi with 19.1% while the country with list interest rate is Gabon with a moving average of 1.5% interest rate.

The impact of interest rates significantly controls the financial sector of market development of a given country. The developing and the underdeveloped countries that produces oil faces competitive economic market that needs a stronger economy to enable moderate and stabilize its interest rates so as to attract more investors in the country. With regard to the African nations producing oil, it is projected to show strong financial development stability and growth rate since oil is a power fool resource that drives the currency in the world.

The study findings concur with (Creti et al., 2014) which demonstrates that expansion costs of oil by 10% in Norway brought about 2.5% of the list of the share trading system increment. Norway is a nation that fares oil. Kang, Ratti & Yoon (2015) debate on the negative oil value impact on securities exchanges is just practical from nations without oil however their evaluation is limited to some nations; Norway, Korea, Saudi Arabia and Russia. Filis (2014) researched that time-changing connection between Brent generation of oil and securities exchanges on nations that either sent out or imported oil. By utilization of multivariate uneven DCC-GARCH strategy, they find that the contingent oil and stock costs differences are not conveyed for economies that import oil. In any case, time-shifting connections relied upon the oil stuns source; the response from interest side stuns total is more noteworthy than supply-side stuns started by generation cuts of OPEC.

4.1.2 Quantity (Barrels) of oil production

The study examined the quantity of barrels produced by the oil producing countries in Africa. The study results are as shown in table 4.2.

Table 4.2 Quantity of oil (thousand barrels per annum)

S.N	Country	Quantity of oil (thousand barrels per annum)	Year (2008 to 2017)
1	Nigeria	4017117.0	2008 to 2017
2	Angola	661927.5	2008 to 2017
3	Algeria	597176.5	2008 to 2017
4	Egypt	43519.0	2008 to 2017
5	Libya	275520.3	2008 to 2017
6	Congo	119318.5	2008 to 2017
7	Sudan	84570.5	2008 to 2017
8	Morocco	187938.5	2008 to 2017
9	Malawi	2212812.5	2008 to 2017
10	Equatorial-	111327.6	2008 to 2017
11	Gabon	76500.4	2008 to 2017
12	South-Africa	202283.0	2008 to 2017
13	Ghana	28944.5	2008 to 2017
14	Tunisia	24382.0	2008 to 2017
15	Cote d' Ivoire	16607.5	2008 to 2017
16	Chad	296077.1	2008 to 2017

The study findings on the quantity of oil produced annually by countries show that the moving average oil produced by Nigeria is 4,017,117 barrel per annum, Angola 661927.5 barrel per annum, Algeria 597176.5 barrel per annum, Egypt 43518.95 barrel per annum, Libya 275520.25 barrel per annum, Congo 119318.5 barrel per annum, Sudan 84570.5 barrel per annum, Morocco 187938.5 barrel per annum, Malawi 2212812.5 barrel per annum, Equatorial- Guinea 111327.58 barrel per annum, Gabon 76500.35 barrel per annum, South-Africa 202283 barrel per annum, Ghana 28944.5 barrel per annum, Tunisia 24382 barrel per annum, Cote d' Ivoire 16607.5 barrel per annum and Chad produces 296077.05 barrel per annum.

The study findings showed that Nigeria produces highest barrels of oil annually with quantitative figure of 4,017,117 barrel per annum while the list producing oil country in Africa is Tunisia with quantitative value of 24382 barrel per annum spread over 10 years from 2008 to 2017. The quantity of oil produced per county greatly impacts financial market development of a country. For example Nigeria is rapidly developing in Africa since its growth rate real GDP is contributed largely by oil production. Large oil production has the power to drive economy of the country to a better level in terms of financial development.

In line with the quantity of oil production Guesmi and Fattoum (2014) did a bivariate GARCH models for estimation of the volatility transmission between weekly production of oil and returns of equity sector and found spillover mechanism evidence. Choi and Hammoudeh (2015) extended the time-varying relationship assessment by consideration of prices of commodity of Brent oil, WTI oil, copper, gold and silver and share price index.

4.1.3 Quality of oil production

The study evaluated the quality of oil production in African countries and the study results are as shown in table 4.3 Quality of oil production in Africa.

Table 4.3 Quality of oil production in Africa

S.N	Country	Quality of oil production	Year (2008 to 2017)
1	Nigeria	Light oil	2008 to 2017
2	Angola	Light oil	2008 to 2017
3	Algeria	Light oil	2008 to 2017
4	Egypt	Light oil	2008 to 2017
5	Libya	Light oil	2008 to 2017
6	Congo	Light oil	2008 to 2017
7	Sudan	Light oil	2008 to 2017
8	Morocco	Light oil	2008 to 2017
9	Malawi	Light oil	2008 to 2017
10	Equatorial-Guinea	Light oil	2008 to 2017
11	Gabon	Light oil	2008 to 2017
12	South-Africa	Light oil	2008 to 2017
13	Ghana	Light oil	2008 to 2017
14	Tunisia	Light oil	2008 to 2017
15	Cote d' Ivoire	Light oil	2008 to 2017
16	Chad	Light oil	2008 to 2017

The study findings on table 4.3 showed that all the oil producing countries in Africa produces light crude oil. The value of Light crude petroleum gets a more expensive rate than overwhelming heavy unrefined petroleum in light of the fact that it creates a higher level of gas and diesel fuel when changed over into items by an oil refinery. Substantial heavy unrefined petroleum has more negative effect on nature than its light partner since its refinement requires the utilization of further developed strategies a the utilization of contaminants. This implies that Africa's countries that produce oil have resources that are of high demand in the market and can command a significant development in the real GDP growth. The real GDP of African nations producing oil is so far improving despite the corruption crisis of leaders. The quality of oil in this essence has attracted more investors to the African soil that have reservoirs' for oil extraction.

The findings are in agreement with Basher (2010) and Chen (2009) who noted that quality of oil value effect on securities exchanges can be feebly essential.

Hammoudeh (2014) connected the trial of combination and the VEC model to week by week information from February 2004 to December 2014. The creators found that developments of oil costs had no immediate effect on securities exchanges, while the last meant fewer than 4% of the varieties in the generation of oil following a time of 20 weeks. By utilization of the multifaceted technique, Syed and Sardosky (2016) explored that oil value affect changes on the up and coming securities exchange. Their contention was that dangers of oil cost affected stock value returns.

4.2 Inferential Statistics

This section describes the results of the relationship between independent variables and the dependent variables and shows the influence of the independent variables on the dependent variable.

4.2.1 Multiple Regression Analysis

A regression analysis was conducted to determine how exchange rate, quantity (Barrels) of oil production and quality of oil production affect financial market development among countries in Africa. The Statistical Package for Social Sciences (SPSS) was used to code, enter and compute the measurements of the multiple regressions for the study.

The coefficient of determination R^2 value was 0.652 and it shows how much of the total variation in the dependent variable, financial market development, was explained by the independent variables; exchange rate, quantity (Barrels) of oil production and quality of oil production. Therefore, the study results revealed that 65.2% can be explained by independent variables in relation to dependent variable. The adjusted R^2 value is 0.645 which is slightly lower than R^2 value; it is an indicator of relationship

between the independent and dependent variable since it is sensitive when irrelevant variables are added. However, the typical error when the model is used to predict financial market development is 0.35865. This is represented in Table 4.4

Table 4.4 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.807 ^a	0.652	0.645	0.35865

4.2.2 Assessing the Fit of Multiple Regression Model

The study conducted Analysis of Variance (ANOVA) to examine whether the multiple regression models was fit for the data. This helped to find out if the financial market development can be predicted without relying on the independent variables. The results of Analysis of Variance (ANOVA) are shown in Table 4.5. The study findings provides F test which shows an overall test of significance of the fitted regression model. The F value indicates that all the variables in the equation were significant hence the overall regression model is significant.

From the findings in table below the results show that the model had an F ratio of 97.266 and the p value was $0.000 < 0.05$, implying that the F ratio was statistically significant, therefore the overall regression model for Exchange rate, Quantity of oil and Quality of oil was statistically significant and can be used for prediction purposes at 5 % significance level, this further indicate that the variables used in this study are statistically significant.

Table 4.5 ANOVA for Testing Multiple Regression Model

Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	37.534	3	12.511	97.266	.000 ^b
Residual	20.066	156	.129		
Total	57.600	159			

a. Dependent Variable: financial market development

b. Predictors: (Constant), Exchange rate, Quantity of oil, Quality of oil

4.2.3 Regression Analysis Coefficients

The study conducted t-test of statistical significance of each individual regression coefficient and results and are presented in Table 4.6. The findings indicate that all the t values were significant implying that independent variable is a predictor of the dependent variable; quality of oil (t=2.406 p< 0.017), quantity of oil (t=3.279 p< 0.001) and exchange rate (t=16.444 p< 0.00). However, the β coefficients were all significant to be used for multiple regression as follows; exchange rate ($\beta_1=0.521$, p<0.000), quality of oil ($\beta_2=0.069$, p<0.017) and quantity of oil ($\beta_3=.108$, p<0.001). This implies that a unit increase in exchange rate caused a 0.521 increase in financial market development, a unit increase in quality of oil caused 0.069 increases in financial market development and a unit increase in quantity of oil caused a 0.108 increase in financial market development. From the Table 4.6, the regression model can be written as:

$$Y = .598 + 0.531 X_1 + 0.069 X_2 + 0.108 X_3 + \epsilon \dots \dots \dots \text{Equation 4.1}$$

This can be translated to;

$$\text{Financial market development} = 598 + 0.531 (\text{Exchange rate}) + 0.069 (\text{quality of oil}) + 0.108 (\text{quantity of oil}) \dots \dots \dots \text{Equation 4.2}$$

Based on the above, the predictor variables Exchange rate, quality of oil and quantity of oil are statistically significantly predict the dependent variable, which is the financial market development of oil producing countries in Africa.

Table 4.6 Regression Analysis Coefficients

Model	Unstandardized		Standardized	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.598	.139		4.302	.000
Quality of oil	.069	.029	.120	2.406	.017
Quantity of oil	.108	.033	.163	3.279	.001
Exchange rate	.531	.032	.785	16.444	.000

a. Dependent Variable: Financial market development

4.3 Hypotheses Testing

In this study, all the three hypotheses were tested where p value of less than 5 shows there was noteworthy connection between the factors and null hypothesis was rejected while p value of more than 0.05 shows there was no significant relationship between study variables and we fail to reject the null hypothesis. The study findings were presented in Table 4.7.

The null hypothesis H_{01} stated that there is no statistical significant effect between exchange rate of oil production and the financial sector development in Africa. However, the study found out that exchange rate of oil production has a positive significant effect on financial sector development in Africa ($\beta_1=0.531$, $P=0.000<0.05$). Thus the null hypothesis was rejected. This implies that exchange rate have a positive effect on financial sector development in Africa. The exchange rate has the ability to limit flow of capital within a state. Thus there is need to ensure stable and affordable exchange rates managed in the financial market so as to attract more investors who will in turn promote development in African countries.

The second null hypotheses H_{02} : postulated that there is no statistical significant effect between quantity (Barrels) of oil production and financial sector development in Africa. But the study findings revealed quantity (Barrels) of oil produced in a country

has a positive significant effect on financial market development in oil producing countries in Africa ($\beta_2=0.069$, $P=0.017<0.05$). Therefore, the study rejected the null hypothesis. This gives an implication that a quantity (Barrels) of oil produced in a country has a great significant control over financial sector development in Africa.

The third null hypothesis stated that H_{03} : there is no statistical significant effect between quality of oil production and financial sector development in Africa. However, the study found out that there was a positive and significant effect between quality of oil production and financial sector development in Africa ($\beta_3=0.108$, $P=0.001<0.05$). Thus the null hypothesis was rejected and the study concluded that quality of oil production have effect on financial sector development in Africa.

Table 4.6 Hypothesis Table

Hypotheses	β and P values	Decision rule(accept/reject)
H_{01} : There is no statistical significant effect between exchange rate of oil production and the financial sector development in Africa.	$\beta_1=0.531$, $P=0.000<0.05$	Rejected the null hypothesis
H_{02} : There is no statistical significant effect between quantity (Barrels) of oil production and financial sector development in Africa.	$\beta_2=0.069$, $P=0.017<0.05$	Rejected the null hypothesis
H_{03} : There is no statistical significant effect between quality of oil production and financial sector development in Africa.	$\beta_3=0.108$, $P=0.001<0.05$	Rejected the null hypothesis

4.4 Interpretations of findings

The findings revealed that the exchange rates of the oil producing countries face a competitive market share in the fight to stabilize the economic crisis that are interpreted on the inflation and the interest rates of every country. With regard to the

African nations producing oil, it is projected to show strong financial development stability and growth rate since oil is a power fuel resource that drives the currency in the world.

The quantity of oil produced annually by countries show great variance in all the countries. Some countries project an increasing oil harvesting for example Malawi while other countries like South Africa show a decreasing oil production unit. The study findings showed that Nigeria produces highest barrels of oil annually with quantitative figure of 4,017,117 barrel per annum while the list producing oil country in Africa is Tunisia with quantitative value of 24382 barrel per annum spread over 10 years from 2008 to 2017.

All the oil producing countries in Africa produces light crude oil. The value of Light crude petroleum gets a more expensive rate than overwhelming heavy unrefined petroleum in light of the fact that it creates a higher level of gas and diesel fuel when changed over into items by an oil refinery. Substantial heavy unrefined petroleum has more negative effect on nature than its light partner since its refinement requires the utilization of further developed strategies a the utilization of contaminants. This implies that Africa's countries that produce oil have resources that are of high demand in the market and can command a significant development in the real GDP growth. The real GDP of African nations producing oil is so far improving despite the corruption crisis of leaders.

Inferentially, the study findings provides F test which shows an overall test of significance of the fitted regression model. The F value indicates that all the variables in the equation were significant hence the overall regression model is significant. The F ratio of 97.266 and the p value of $0.000 < 0.05$, implied that the F ratio was statistically significant, therefore the overall regression model for Exchange rate, Quantity of oil and Quality of oil was statistically significant and can be used for prediction purposes at 5 % significance level.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

The study is summarized in chapter five by reviewing summary of the findings, the conclusions of the objectives and recommendations and suggestions for further study.

This research presented as follows;

5.2 Summary of Findings

In summary, only 16 countries out of the target population of 21 countries had reliable information from the internet sources as published by World Bank (2017). This represented 76% of the response rate which is supported by Bable (1995) who posits that a response rate of 70 percent and above is satisfactory to conduct adequate data analysis.

5.2.1 Exchange rate of oil production

The findings on the interest rate moving average for the last 10 years (since 2008 to 2017) for Nigeria was 13.6%, Angola was 13.7%, Algeria was 13.2%, Egypt was 6.2%, Libya was 4.1%, Congo was 2.7%, Sudan was 13.7%, Morocco 3%, Malawi 19.8%, Equatorial- Guinea 13.6%, Gabon was 3.5%, South-Africa was 8.3%, Ghana was 17.6%, Tunisia was 6.5%, Cote d' Ivoire was 4.4% and Chad was 2.4%. The study results revealed that the country with the highest interest rates was Malawi with 19.8% while the country with the minimal interest rate was Chad with a moving average of 2.4% interest rate.

Further, the moving average of the inflation rate for the last 10 years in oil producing countries in Africa since the year 2008 to 2017 showed that the inflation rate for the last 10 years in Nigeria was 12.8%, Angola 7.3%, Algeria 5.3%, Egypt 9.1%, Libya 10.6%, Congo 3.2%, Sudan 3.6%, Morocco 3.6%, Malawi 19.1%, Equatorial- Guinea 7.5%, Gabon 1.5%, South-Africa 5.5%, Ghana 13.9%, Tunisia 4.8%, Cote d' Ivoire 2.3% and Chad 1.9%. The study results found that the country with the highest inflation rate in the economy is Malawi with 19.1% while the country with lowest interest rate is Gabon with a moving average of 1.5% interest rate.

The study findings concur with (Creti et al., 2014) which demonstrates that expansion costs of oil by 10% in Norway brought about 2.5% of the list of the share trading system increment. Norway is a nation that fares oil. Kang, Ratti & Yoon (2015) debate on the negative oil value impact on securities exchanges is just practical from nations without oil however their evaluation is limited to some nations; Norway, Korea, Saudi Arabia and Russia.

5.2.2 Quantity (Barrels) of oil production

The study findings on the quantity of oil produced annually by countries show that the moving average oil produced by Nigeria is 4,017,117 barrel per annum, Angola 661927.5 barrel per annum, Algeria 597176.5 barrel per annum, Egypt 43518.95 barrel per annum, Libya 275520.25 barrel per annum, Congo 119318.5 barrel per annum, Sudan 84570.5 barrel per annum, Morocco 187938.5 barrel per annum, Malawi 2212812.5 barrel per annum, Equatorial- Guinea 111327.58 barrel per annum, Gabon 76500.35 barrel per annum, South-Africa 202283 barrel per annum, Ghana 28944.5 barrel per annum, Tunisia 24382 barrel per annum, Cote d' Ivoire 16607.5 barrel per annum and Chad produces 296077.05 barrel per annum.

In line with the quantity of oil production Guesmi and Fattoum (2014) did a bivariate GARCH models for estimation of the volatility transmission between weekly production of oil and returns of equity sector and found spillover mechanism evidence. Choi and Hammoudeh (2015) extended the time-varying relationship assessment by consideration of prices of commodity of Brent oil, WTI oil, copper, gold and silver and share price index.

5.2.3 Quality of oil production

The study findings on Quality of oil production showed that all the oil producing countries in Africa produces light crude oil. The value of Light crude petroleum gets a more expensive rate than overwhelming heavy unrefined petroleum in light of the fact that it creates a higher level of gas and diesel fuel when changed over into items by an oil refinery. Substantial heavy unrefined petroleum has more negative effect on nature than its light partner since its refinement requires the utilization of further developed strategies a the utilization of contaminants.

The findings are in agreement with Basher (2010) and Chen (2009) who noted that quality of oil value effect on securities exchanges can be feebly essential. Hammoudeh (2014) connected the trial of combination and the VEC model to week by week information from February 2004 to December 2014. The creators found that developments of oil costs had no immediate effect on securities exchanges, while the last meant fewer than 4% of the varieties in the generation of oil following a time of 20 weeks. By utilization of the multifaceted technique, Syed and Sardosky (2016) explored that oil value affect changes on the up and coming securities exchange. Their contention was that dangers of oil cost affected stock value returns.

The coefficient of determination R^2 value was 0.652 and it shows how much of the total variation in the dependent variable, financial market development, was explained by the independent variables; exchange rate, quantity (Barrels) of oil production and quality of oil production. Therefore, the study results revealed that 65.2% can be explained by independent variables in relation to dependent variable.

5.3 Conclusions

The study concludes that the impact of interest rates significantly controls the financial sector of market development of a given country. The developing and the underdeveloped countries that produces oil faces competitive economic market that needs a stronger economy to enable moderate and stabilize its interest rates so as to attract more investors in the country. With regard to the African nations producing oil, it is projected to show strong financial development stability and growth rate since oil is a power fool resource that drives the currency in the world.

The study also concluded that Nigeria produces the highest barrels of oil in Africa with quantitative figure of 4,017,117 barrel per annum while the list producing oil country in Africa is Tunisia with quantitative value of 24,382 barrel per annum spread over 10 years from 2008 to 2017. The quantity of oil produced per county greatly impacts financial market development of a country. For example Nigeria is rapidly developing in Africa since its growth rate real GDP is contributed largely by oil production. Large oil production has the power to drive economy of the country to a better level in terms of financial development.

Finally, the study findings concluded that all the oil producing countries in Africa produces light crude oil. The value of Light crude petroleum gets a more expensive

rate than overwhelming heavy unrefined petroleum in light of the fact that it creates a higher level of gas and diesel fuel when changed over into items by an oil refinery. Substantial heavy unrefined petroleum has more negative effect on nature than its light partner since its refinement requires the utilization of further developed strategies a the utilization of contaminants. This implies that Africa's countries that produces oil has strong resource that is of high demand in the market.

5.4 Recommendations

A more stable economy is needed in all the oil producing countries because they have resources that contributes greatly to the real gross domestic product. This will enable quick growth rate over long period of time thus leads to improved living standards of African Nations.

The study recommends that African countries have potential to produce oil reserves which are not yet identified. For example Kenya is one of the recently identified potential of oil reserves. The natural resources are still available in countries that have not explored them.

Another recommendation is that the oil producing countries in Africa should form a market block that controls oil production. This is because the quality of oil produced is highly demanded globally. The light crude oil can produce a number of petroleum products like Jet Fuel, Gasoline, Kerosene, Petroleum Ether and Petroleum Spirit. Further Light crude petroleum gets a more expensive rate than overwhelming heavy unrefined petroleum in light of the fact that it creates a higher level of gas and diesel fuel when changed over into items by an oil refinery.

5.5 Limitations

The study was limited to the effect of oil production on financial market development among countries in Africa. Specifically the study determined the effect of exchange rate on oil production, the quality of oil produced and the quantity produced and how it affects financial market development in Africa.

Some countries like southern Sudan, Mauritius, Niger and DRC had limited online information on oil producing and how it affects its economy. The limited information drawn from the 16 countries was utilized by the study.

Finally the study relied on the online information which is a limitation. This was attributed by the nature of the scope that the study focused on (21 oil producing countries in Africa since the year 2008 to 2017). It was not economical for the researcher to tour all the 21 countries within the limited time of study to source out the information.

5.6 Suggested areas for further Research

The study suggests that a research need to be done on the challenges facing oil production in Africa.

The study also suggests that a research need to be done on ways of stabilizing exchange rates in African countries so as to encourage quick financial market development.

The study further suggests that a research need to be done to evaluate goals and priorities of oil producing countries in relation to the economic growth of the country.

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APPENDICES

APPENDIX I: OIL PRODUCING COUNTRIES IN AFRICA

S.N	Oil Producing Countries in Africa
1	Nigeria
2	Angola
3	Algeria
4	Egypt
5	Libya
6	Congo
7	Sudan
8	South Sudan
9	Mauritius
10	Morocco
11	Malawi
12	Equatorial Guinea
13	Gabon
14	South Africa
15	Chad
16	Cameroon
17	Ghana
18	Tunisia
19	Cote d' Ivoire
20	DRC Congo
21	Niger

Source: (Benjamin, 2018: *Sub-Saharan Africa Short Article: Africa's Oil Resources*)

APPENDIX II: DATA COLLECTION SHEET

Country	Year	Exchange rate		Quality of oil		Quantity of oil		Financial Market development	
Nigeria	2007	1= Interest rates 2= Relative inflation	14% 11.28%	1= Heavy 2= Light	Low	1= Amount	2726915	1= Economic growth 2= Capitalization	1.6% 25%
	2008	1= Interest rates 2= Relative inflation	14% 11.28%	1= Heavy 2= Light	Low	1= Amount	2762685	1= Economic growth 2= Capitalization	1.5% 21%
	2009	1= Interest rates 2= Relative inflation	15% 11.2%	1= Heavy 2= Light	Standard	1= Amount	2974750	1= Economic growth 2= Capitalization	1.7% 24%
	2010	1= Interest rates 2= Relative inflation	12% 11.23%	1= Heavy 2= Light	Standard	1= Amount	3146665	1= Economic growth 2= Capitalization	1.8% 36%
	2011	1= Interest rates 2= Relative inflation	13% 12.5%	1= Heavy 2= Light	Standard	1= Amount	3303250	1= Economic growth 2= Capitalization	1.9% 29%
	2012	1= Interest rates 2= Relative inflation	13% 12.5%	1= Heavy 2= Light	Standard	1= Amount	3671535	1= Economic growth 2= Capitalization	1.9% 28%
	2013	1= Interest rates 2= Relative inflation	14% 12.5%	1= Heavy 2= Light	Standard	1= Amount	4117565	1= Economic growth 2= Capitalization	1.7% 26%
	2014	1= Interest rates 2= Relative inflation	11% 12.5%	1= Heavy 2= Light	Standard	1= Amount	4759965	1= Economic growth 2= Capitalization	1.6% 22%
	2015	1= Interest rates 2= Relative inflation	15% 12.5%	1= Heavy 2= Light	Standard	1= Amount	5130075	1= Economic growth 2= Capitalization	1.5% 19%
	2016	1= Interest rates 2= Relative inflation	15% 15.91%	1= Heavy 2= Light	Standard	1= Amount	5014005	1= Economic growth 2= Capitalization	1.4% 28%
2017	1= Interest rates 2= Relative inflation	14% 15.91%	1= Heavy 2= Light	Standard	1= Amount	5290675	1= Economic growth 2= Capitalization	1.4% 26%	

Angola	2007	1= Interest rates 2= Relative inflation	14.0% 7.69%	1= Heavy 2= Light	Low	1= Amount	629260	1= Economic growth 2= Capitalization	8.0% 31%
	2008	1= Interest rates 2= Relative inflation	11.5% 6.80%	1= Heavy 2= Light	Low	1= Amount	710290	1= Economic growth 2= Capitalization	7.2% 27%
	2009	1= Interest rates 2= Relative inflation	15.0% 7.16%	1= Heavy 2= Light	Low	1= Amount	681455	1= Economic growth 2= Capitalization	0.9% 35%
	2010	1= Interest rates 2= Relative inflation	15.0% 7.32%	1= Heavy 2= Light	Standard	1= Amount	693135	1= Economic growth 2= Capitalization	4.9% 41%
	2011	1= Interest rates 2= Relative inflation	15.6% 7.50%	1= Heavy 2= Light	Low	1= Amount	637290	1= Economic growth 2= Capitalization	3.5% 29%
	2012	1= Interest rates 2= Relative inflation	12.5% 6.89%	1= Heavy 2= Light	Low	1= Amount	648605	1= Economic growth 2= Capitalization	3.5% 28%
	2013	1= Interest rates 2= Relative inflation	16.0% 8.8%	1= Heavy 2= Light	Standard	1= Amount	668315	1= Economic growth 2= Capitalization	5.0% 27
	2014	1= Interest rates 2= Relative inflation	12.6% 6.25%	1= Heavy 2= Light	Low	1= Amount	635465	1= Economic growth 2= Capitalization	4.8% 30%
	2015	1= Interest rates 2= Relative inflation	11.5% 6.81%	1= Heavy 2= Light	Low	1= Amount	671965	1= Economic growth 2= Capitalization	3% 31%
	2016	1= Interest rates 2= Relative inflation	14.5% 7.35%	1= Heavy 2= Light	Low	1= Amount	656270	1= Economic growth 2= Capitalization	1.6% 35%
2017	1= Interest rates 2= Relative inflation	14.2% 7.69%	1= Heavy 2= Light	Standard	1= Amount	616485	1= Economic growth 2= Capitalization	1.2% 34%	

Algeria	2007	1= Interest rates 2= Relative inflation	13.6% 7.1%	1= Heavy 2= Light	low	1= Amount	727080	1= Economic growth 2= Capitalization	3.4% 54%
	2008	1= Interest rates 2= Relative inflation	13.6% 6.1%	1= Heavy 2= Light	low	1= Amount	718685	1= Economic growth 2= Capitalization	2.4% 37%
	2009	1= Interest rates 2= Relative inflation	13.6% 8%	1= Heavy 2= Light	low	1= Amount	647875	1= Economic growth 2= Capitalization	1.6% 22%
	2010	1= Interest rates 2= Relative inflation	13% 4.9%	1= Heavy 2= Light	low	1= Amount	616485	1= Economic growth 2= Capitalization	3.6% 66%
	2011	1= Interest rates 2= Relative inflation	12% 5.5%	1= Heavy 2= Light	standard	1= Amount	599330	1= Economic growth 2= Capitalization	2.8% 43%
	2012	1= Interest rates 2= Relative inflation	11% 7%	1= Heavy 2= Light	standard	1= Amount	561005	1= Economic growth 2= Capitalization	3.3% 58%
	2013	1= Interest rates 2= Relative inflation	14% 3.3%	1= Heavy 2= Light	standard	1= Amount	542025	1= Economic growth 2= Capitalization	2.8% 57%
	2014	1= Interest rates 2= Relative inflation	15% 2.9%	1= Heavy 2= Light	high	1= Amount	579985	1= Economic growth 2= Capitalization	3.8% 49%
	2015	1= Interest rates 2= Relative inflation	14% 4.8%	1= Heavy 2= Light	high	1= Amount	568670	1= Economic growth 2= Capitalization	3.9% 25%
	2016	1= Interest rates 2= Relative inflation	11% 5.9%	1= Heavy 2= Light	standard	1= Amount	575605	1= Economic growth 2= Capitalization	3.6% 39%
	2017	1= Interest rates 2= Relative inflation	15% 4.8%	1= Heavy 2= Light	standard	1= Amount	562100	1= Economic growth 2= Capitalization	2.9% 45%

Egypt	2007	1= Interest rates 2= Relative inflation	4.1% 5.3%	1= Heavy 2= Light	High	1= Amount	16,060	1= Economic growth 2= Capitalization	12.5% 71.4%
	2008	1= Interest rates 2= Relative inflation	5.1% 8.07%	1= Heavy 2= Light	High	1= Amount	35,770	1= Economic growth 2= Capitalization	10.4% 103.2%
	2009	1= Interest rates 2= Relative inflation	6.4% 2.41%	1= Heavy 2= Light	Standard	1= Amount	37,230	1= Economic growth 2= Capitalization	7% 66.5%
	2010	1= Interest rates 2= Relative inflation	4.2% 4.37%	1= Heavy 2= Light	High	1= Amount	31,025	1= Economic growth 2= Capitalization	12.3% 41.8%
	2011	1= Interest rates 2= Relative inflation	4.7% 5.84%	1= Heavy 2= Light	Low	1= Amount	30,331.5	1= Economic growth 2= Capitalization	2.0% 58.0%
	2012	1= Interest rates 2= Relative inflation	3.3% 8.64%	1= Heavy 2= Light	Low	1= Amount	33,215	1= Economic growth 2= Capitalization	2.9% 11.5%
	2013	1= Interest rates 2= Relative inflation	6.3% 6.91	1= Heavy 2= Light	Low	1= Amount	35,222.5	1= Economic growth 2= Capitalization	2.2% 33.3%
	2014	1= Interest rates 2= Relative inflation	10.1% 10.1%	1= Heavy 2= Light	High	1= Amount	64,605	1= Economic growth 2= Capitalization	3.2% 28.9%
	2015	1= Interest rates 2= Relative inflation	6.4% 10.99%	1= Heavy 2= Light	Standard	1= Amount	56,867	1= Economic growth 2= Capitalization	2.8% 12.6%
	2016	1= Interest rates 2= Relative inflation	9.2% 10.2%	1= Heavy 2= Light	Standard	1= Amount	60,079	1= Economic growth 2= Capitalization	3.5% 12.6%
	2017	1= Interest rates 2= Relative inflation	6.7% 23.54%	1= Heavy 2= Light	Standard	1= Amount	50,844.5	1= Economic growth 2= Capitalization	3.0% 25.7%

Libya	2007	1= Interest rates 2= Relative inflation	4.8% 2.1%	1= Heavy 2= Light	High	1= Amount	502,970	1= Economic growth 2= Capitalization	1.3% 17.9%
	2008	1= Interest rates 2= Relative inflation	5.2% 4.5%	1= Heavy 2= Light	High	1= Amount	512,095	1= Economic growth 2= Capitalization	1.7% 25.4%
	2009	1= Interest rates 2= Relative inflation	6% 9.3%	1= Heavy 2= Light	Standard	1= Amount	427,050	1= Economic growth 2= Capitalization	1.3% 49.0%
	2010	1= Interest rates 2= Relative inflation	3.4% 7.6%	1= Heavy 2= Light	Standard	1= Amount	408,070	1= Economic growth 2= Capitalization	1.9% 49.7%
	2011	1= Interest rates 2= Relative inflation	2.9% 8.9%	1= Heavy 2= Light	Standard	1= Amount	109,317.5	1= Economic growth 2= Capitalization	1.1% 30.5%
	2012	1= Interest rates 2= Relative inflation	4.1% 6.07%	1= Heavy 2= Light	Standard	1= Amount	351,130	1= Economic growth 2= Capitalization	1.2% 23.4%
	2013	1= Interest rates 2= Relative inflation	3.8% 2.59%	1= Heavy 2= Light	High	1= Amount	305,140	1= Economic growth 2= Capitalization	1.5% 24.8%
	2014	1= Interest rates 2= Relative inflation	5.0% 2.43%	1= Heavy 2= Light	High	1= Amount	120,231	1= Economic growth 2= Capitalization	1.7% 32.1%
	2015	1= Interest rates 2= Relative inflation	4.0% 9.84%	1= Heavy 2= Light	Standard	1= Amount	105,266	1= Economic growth 2= Capitalization	0.8% 55.4%
	2016	1= Interest rates 2= Relative inflation	3.1% 25.88%	1= Heavy 2= Light	Low	1= Amount	127,786.5	1= Economic growth 2= Capitalization	0.1% 49.7%
	2017	1= Interest rates 2= Relative inflation	3.0% 28.53%	1= Heavy 2= Light	Low	1= Amount	289,116.5	1= Economic growth 2= Capitalization	1.1% 91.0%

Congo	2007	1= Interest rates 2= Relative inflation	2.1% 1.1%	1= Heavy 2= Light	Standard	1= Amount	125925	1= Economic growth 2= Capitalization	3.6% 71%
	2008	1= Interest rates 2= Relative inflation	3.2% 9.9%	1= Heavy 2= Light	Standard	1= Amount	118625	1= Economic growth 2= Capitalization	2.8% 67%
	2009	1= Interest rates 2= Relative inflation	2.3% 2.9%	1= Heavy 2= Light	Standard	1= Amount	113515	1= Economic growth 2= Capitalization	3.9% 59%
	2010	1= Interest rates 2= Relative inflation	4.2% 1.1%	1= Heavy 2= Light	Standard	1= Amount	115340	1= Economic growth 2= Capitalization	4.1% 72%
	2011	1= Interest rates 2= Relative inflation	3.2% 10%	1= Heavy 2= Light	Standard	1= Amount	109135	1= Economic growth 2= Capitalization	4.5% 56%
	2012	1= Interest rates 2= Relative inflation	2.9% 2.2%	1= Heavy 2= Light	Standard	1= Amount	105120	1= Economic growth 2= Capitalization	3.8% 61%
	2013	1= Interest rates 2= Relative inflation	2.5% 1.2%	1= Heavy 2= Light	Standard	1= Amount	117165	1= Economic growth 2= Capitalization	3.9% 63%
	2014	1= Interest rates 2= Relative inflation	3.2% 1.0%	1= Heavy 2= Light	Standard	1= Amount	123735	1= Economic growth 2= Capitalization	4.1% 67%
	2015	1= Interest rates 2= Relative inflation	2.1% 1.2%	1= Heavy 2= Light	Standard	1= Amount	130305	1= Economic growth 2= Capitalization	4.5% 55%
	2016	1= Interest rates 2= Relative inflation	1.2% 1.2%	1= Heavy 2= Light	Standard	1= Amount	125925	1= Economic growth 2= Capitalization	3.8% 59%
	2017	1= Interest rates 2= Relative inflation	2.5% 1.2%	1= Heavy 2= Light	Standard	1= Amount	134320	1= Economic growth 2= Capitalization	4.1% 75%

Sudan	2007	1= Interest rates 2= Relative inflation	13% 5.34%	1= Heavy 2= Light	High	1= Amount	129575.0	1= Economic growth 2= Capitalization	7.5% 8.6%
	2008	1= Interest rates 2= Relative inflation	12% 8.08%	1= Heavy 2= Light	High	1= Amount	133225.0	1= Economic growth 2= Capitalization	8.9% 6.3%
	2009	1= Interest rates 2= Relative inflation	14% 2.41%	1= Heavy 2= Light	High	1= Amount	135415.0	1= Economic growth 2= Capitalization	9.5% 5.4%
	2010	1= Interest rates 2= Relative inflation	11% 4.37%	1= Heavy 2= Light	High	1= Amount	141985.0	1= Economic growth 2= Capitalization	8.5% 4.0%
	2011	1= Interest rates 2= Relative inflation	15% 5.84	1= Heavy 2= Light	High	1= Amount	132130.0	1= Economic growth 2= Capitalization	8.9% 3.8%
	2012	1= Interest rates 2= Relative inflation	16% 3.55%	1= Heavy 2= Light	Low	1= Amount	21900.0	1= Economic growth 2= Capitalization	3.5% 4.0%
	2013	1= Interest rates 2= Relative inflation	14% 2.11%	1= Heavy 2= Light	Low	1= Amount	48545.0	1= Economic growth 2= Capitalization	3.5% 3.3%
	2014	1= Interest rates 2= Relative inflation	14% 2.05	1= Heavy 2= Light	Standard	1= Amount	61320.0	1= Economic growth 2= Capitalization	2.29% 2.7%
	2015	1= Interest rates 2= Relative inflation	14% 2.02	1= Heavy 2= Light	Standard	1= Amount	60590.0	1= Economic growth 2= Capitalization	0.17% 2.4%
	2016	1= Interest rates 2= Relative inflation	13% 1.98%	1= Heavy 2= Light	Standard	1= Amount	59130.0	1= Economic growth 2= Capitalization	0.01% 2.4%
	2017	1= Interest rates 2= Relative inflation	14% 3.42%	1= Heavy 2= Light	Standard	1= Amount	51465.0	1= Economic growth 2= Capitalization	0.11% 2.4%

South-Sudan	2007	1= Interest rates 2= Relative inflation		1= Heavy 2= Light	Low	1= Amount		1= Economic growth 2= Capitalization	
	2008	1= Interest rates 2= Relative inflation		1= Heavy 2= Light	Low	1= Amount		1= Economic growth 2= Capitalization	
	2009	1= Interest rates 2= Relative inflation		1= Heavy 2= Light	Low	1= Amount		1= Economic growth 2= Capitalization	
	2010	1= Interest rates 2= Relative inflation		1= Heavy 2= Light	Low	1= Amount		1= Economic growth 2= Capitalization	
	2011	1= Interest rates 2= Relative inflation		1= Heavy 2= Light	Low	1= Amount		1= Economic growth 2= Capitalization	
	2012	1= Interest rates 2= Relative inflation		1= Heavy 2= Light	Low	1= Amount		1= Economic growth 2= Capitalization	
	2013	1= Interest rates 2= Relative inflation		1= Heavy 2= Light	Low	1= Amount		1= Economic growth 2= Capitalization	
	2014	1= Interest rates 2= Relative inflation		1= Heavy 2= Light	Low	1= Amount		1= Economic growth 2= Capitalization	
	2015	1= Interest rates 2= Relative inflation		1= Heavy 2= Light	Low	1= Amount		1= Economic growth 2= Capitalization	
	2016	1= Interest rates 2= Relative inflation		1= Heavy 2= Light	Low	1= Amount		1= Economic growth 2= Capitalization	
	2017	1= Interest rates 2= Relative inflation		1= Heavy 2= Light	Low	1= Amount		1= Economic growth 2= Capitalization	

Mauritius	2007	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2008	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2009	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2010	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2011	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2012	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2013	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2014	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2015	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2016	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2017	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	

Morocco	2007	1= Interest rates 2= Relative inflation	3.1% 5.34%	1= Heavy 2= Light	Low	1= Amount	181770.0	1= Economic growth 2= Capitalization	3.0% 72.0%
	2008	1= Interest rates 2= Relative inflation	3.2% 8.08%	1= Heavy 2= Light	Low	1= Amount	180675.0	1= Economic growth 2= Capitalization	3.5% 59.1%
	2009	1= Interest rates 2= Relative inflation	2.8% 2.41%	1= Heavy 2= Light	Standard	1= Amount	174470.0	1= Economic growth 2= Capitalization	4.5% 55.8%
	2010	1= Interest rates 2= Relative inflation	2.9% 3.64%	1= Heavy 2= Light	Standard	1= Amount	178850.0	1= Economic growth 2= Capitalization	5.1% 68.9%
	2011	1= Interest rates 2= Relative inflation	3.5% 5.84%	1= Heavy 2= Light	Standard	1= Amount	181770.0	1= Economic growth 2= Capitalization	5.2% 71.1%
	2012	1= Interest rates 2= Relative inflation	3.4% 3.54%	1= Heavy 2= Light	Standard	1= Amount	184690.0	1= Economic growth 2= Capitalization	3.2% 69%
	2013	1= Interest rates 2= Relative inflation	3.0% 2.11%	1= Heavy 2= Light	Standard	1= Amount	185420.0	1= Economic growth 2= Capitalization	5.5% 56.1%
	2014	1= Interest rates 2= Relative inflation	3.1% 2.05%	1= Heavy 2= Light	Standard	1= Amount	197100.0	1= Economic growth 2= Capitalization	2.8% 60.1%
	2015	1= Interest rates 2= Relative inflation	2.8% 2.02%	1= Heavy 2= Light	Standard	1= Amount	200020.0	1= Economic growth 2= Capitalization	2.7% 58.7%
	2016	1= Interest rates 2= Relative inflation	2.5% 1.98%	1= Heavy 2= Light	High	1= Amount	200750.0	1= Economic growth 2= Capitalization	4.2% 57.6%
2017	1= Interest rates 2= Relative inflation	2.4% 3.4%	1= Heavy 2= Light	High	1= Amount	195640.0	1= Economic growth 2= Capitalization	3.9% 59.0%	

Malawi	2007	1= Interest rates 2= Relative inflation	17% 9.56%	1= Heavy 2= Light	Standard	1= Amount	1331155.0	1= Economic growth 2= Capitalization	8.1% 35%
	2008	1= Interest rates 2= Relative inflation	17% 12.3%	1= Heavy 2= Light	Standard	1= Amount	1560740.0	1= Economic growth 2= Capitalization	8.6% 49%
	2009	1= Interest rates 2= Relative inflation	17% 15.0%	1= Heavy 2= Light	Standard	1= Amount	2259715.0	1= Economic growth 2= Capitalization	8.9% 46%
	2010	1= Interest rates 2= Relative inflation	17% 14.8%	1= Heavy 2= Light	High	1= Amount	2540035.0	1= Economic growth 2= Capitalization	9.5% 38%
	2011	1= Interest rates 2= Relative inflation	13% 19.6%	1= Heavy 2= Light	High	1= Amount	2921460.0	1= Economic growth 2= Capitalization	3.5% 37%
	2012	1= Interest rates 2= Relative inflation	16% 21.3%	1= Heavy 2= Light	High	1= Amount	2111160.0	1= Economic growth 2= Capitalization	2.1% 31%
	2013	1= Interest rates 2= Relative inflation	21% 28.28%	1= Heavy 2= Light	Standard	1= Amount	1930850.0	1= Economic growth 2= Capitalization	6.3% 21%
	2014	1= Interest rates 2= Relative inflation	25% 23.78%	1= Heavy 2= Light	High	1= Amount	2176860.0	1= Economic growth 2= Capitalization	6.2% 28%
	2015	1= Interest rates 2= Relative inflation	23% 21.86%	1= Heavy 2= Light	High	1= Amount	2346950.0	1= Economic growth 2= Capitalization	3.3% 25%
	2016	1= Interest rates 2= Relative inflation	27% 21.73%	1= Heavy 2= Light	Standard	1= Amount	1937785.0	1= Economic growth 2= Capitalization	2.7% 14%
2017	1= Interest rates 2= Relative inflation	22% 12.2%	1= Heavy 2= Light	High	1= Amount	2342570.0	1= Economic growth 2= Capitalization	6.4% 25%	

Equatorial-Guinea	2007	1= Interest rates 2= Relative inflation	15% 7%	1= Heavy 2= Light	Standard	1= Amount	72459.8	1= Economic growth 2= Capitalization	15% 76%
	2008	1= Interest rates 2= Relative inflation	14% 5%	1= Heavy 2= Light	Standard	1= Amount	81351.2	1= Economic growth 2= Capitalization	17.8% 71%
	2009	1= Interest rates 2= Relative inflation	12% 7%	1= Heavy 2= Light	Standard	1= Amount	94746.7	1= Economic growth 2= Capitalization	1.3% 73%
	2010	1= Interest rates 2= Relative inflation	14% 9%	1= Heavy 2= Light	Standard	1= Amount	103773.2	1= Economic growth 2= Capitalization	8.9% 75%
	2011	1= Interest rates 2= Relative inflation	12% 4%	1= Heavy 2= Light	Standard	1= Amount	102951.9	1= Economic growth 2= Capitalization	6.5% 59%
	2012	1= Interest rates 2= Relative inflation	14% 7%	1= Heavy 2= Light	Standard	1= Amount	116701.5	1= Economic growth 2= Capitalization	8.3% 76%
	2013	1= Interest rates 2= Relative inflation	15% 10%	1= Heavy 2= Light	Standard	1= Amount	109733.6	1= Economic growth 2= Capitalization	4.1% 70%
	2014	1= Interest rates 2= Relative inflation	14% 4.5%	1= Heavy 2= Light	Standard	1= Amount	111730.2	1= Economic growth 2= Capitalization	0.5% 81%
	2015	1= Interest rates 2= Relative inflation	14% 7%	1= Heavy 2= Light	Standard	1= Amount	121198.3	1= Economic growth 2= Capitalization	7.4% 82%
	2016	1= Interest rates 2= Relative inflation	13% 11%	1= Heavy 2= Light	Standard	1= Amount	134725.2	1= Economic growth 2= Capitalization	9.9% 85%
	2017	1= Interest rates 2= Relative inflation	14% 10.1%	1= Heavy 2= Light	Standard	1= Amount	136364.0	1= Economic growth 2= Capitalization	5.8% 89%

Gabon	2007	1= Interest rates 2= Relative inflation	3% 1.6%	1= Heavy 2= Light	Standard	1= Amount	75555.0	1= Economic growth 2= Capitalization	6.3% 79%
	2008	1= Interest rates 2= Relative inflation	3% 1%	1= Heavy 2= Light	Standard	1= Amount	76285.0	1= Economic growth 2= Capitalization	1.7% 78%
	2009	1= Interest rates 2= Relative inflation	4% 3%	1= Heavy 2= Light	Standard	1= Amount	68620.0	1= Economic growth 2= Capitalization	2.3% 91%
	2010	1= Interest rates 2= Relative inflation	4% 1%	1= Heavy 2= Light	Standard	1= Amount	82125.0	1= Economic growth 2= Capitalization	6.3% 56%
	2011	1= Interest rates 2= Relative inflation	3.2% 3%	1= Heavy 2= Light	Standard	1= Amount	85775.0	1= Economic growth 2= Capitalization	7.1% 71%
	2012	1= Interest rates 2= Relative inflation	3% 2%	1= Heavy 2= Light	Standard	1= Amount	81760.0	1= Economic growth 2= Capitalization	5.3% 59%
	2013	1= Interest rates 2= Relative inflation	4% 1.2%	1= Heavy 2= Light	Standard	1= Amount	75737.5	1= Economic growth 2= Capitalization	5.6% 69%
	2014	1= Interest rates 2= Relative inflation	4% 1.4%	1= Heavy 2= Light	Standard	1= Amount	75701.0	1= Economic growth 2= Capitalization	4.3% 79%
	2015	1= Interest rates 2= Relative inflation	3.2% 1.1%	1= Heavy 2= Light	Standard	1= Amount	75336.0	1= Economic growth 2= Capitalization	4% 81%
	2016	1= Interest rates 2= Relative inflation	2.5% 0.2%	1= Heavy 2= Light	Standard	1= Amount	74898.0	1= Economic growth 2= Capitalization	3.2% 89%
2017	1= Interest rates 2= Relative inflation	4% 0.8%	1= Heavy 2= Light	Standard	1= Amount	68766.0	1= Economic growth 2= Capitalization	4.5% 85%	

South-Africa	2007	1= Interest rates 2= Relative inflation	7.9% 4.9%	1= Heavy 2= Light	Standard	1= Amount	196735.0	1= Economic growth 2= Capitalization	4.23% 270%
	2008	1= Interest rates 2= Relative inflation	7.3% 5.5%	1= Heavy 2= Light	Standard	1= Amount	186150.0	1= Economic growth 2= Capitalization	1.82% 48%
	2009	1= Interest rates 2= Relative inflation	8.1% 5.1%	1= Heavy 2= Light	Standard	1= Amount	184690.0	1= Economic growth 2= Capitalization	1.73% 59%
	2010	1= Interest rates 2= Relative inflation	8.8% 5.4%	1= Heavy 2= Light	Standard	1= Amount	197100.0	1= Economic growth 2= Capitalization	4.31% 61%
	2011	1= Interest rates 2= Relative inflation	8.7% 4.5%	1= Heavy 2= Light	Standard	1= Amount	198560.0	1= Economic growth 2= Capitalization	3.18% 57%
	2012	1= Interest rates 2= Relative inflation	8.4% 5.6%	1= Heavy 2= Light	High	1= Amount	202940.0	1= Economic growth 2= Capitalization	2.51% 64%
	2013	1= Interest rates 2= Relative inflation	7.4% 5.7%	1= Heavy 2= Light	High	1= Amount	208415.0	1= Economic growth 2= Capitalization	2.62% 75%
	2014	1= Interest rates 2= Relative inflation	8.5% 6.1%	1= Heavy 2= Light	High	1= Amount	207320.0	1= Economic growth 2= Capitalization	2.86% 75%
	2015	1= Interest rates 2= Relative inflation	7.8% 5.6%	1= Heavy 2= Light	High	1= Amount	215715.0	1= Economic growth 2= Capitalization	2.86% 72%
	2016	1= Interest rates 2= Relative inflation	9.3% 6.3%	1= Heavy 2= Light	High	1= Amount	210240.0	1= Economic growth 2= Capitalization	2.51% 78%
2017	1= Interest rates 2= Relative inflation	9.1% 5.3%	1= Heavy 2= Light	High	1= Amount	211700.0	1= Economic growth 2= Capitalization	3.15% 83%	

Chad	2007	1= Interest rates 2= Relative inflation	5.1 1.6	1= Heavy 2= Light		1= Amount	238345.0	1= Economic growth 2= Capitalization	3.4 40
	2008	1= Interest rates 2= Relative inflation	3.9 1.2	1= Heavy 2= Light		1= Amount	244185.0	1= Economic growth 2= Capitalization	8.2 60
	2009	1= Interest rates 2= Relative inflation	4.6 3.2	1= Heavy 2= Light		1= Amount	260099.0	1= Economic growth 2= Capitalization	7.8 54
	2010	1= Interest rates 2= Relative inflation	3.9 1.2	1= Heavy 2= Light		1= Amount	276779.5	1= Economic growth 2= Capitalization	5.9 49
	2011	1= Interest rates 2= Relative inflation	4.6 3.2	1= Heavy 2= Light		1= Amount	284736.5	1= Economic growth 2= Capitalization	3.6 35
	2012	1= Interest rates 2= Relative inflation	7.8 2.9	1= Heavy 2= Light		1= Amount	296927.5	1= Economic growth 2= Capitalization	7.5 55
	2013	1= Interest rates 2= Relative inflation	6.4 3.4	1= Heavy 2= Light		1= Amount	308169.5	1= Economic growth 2= Capitalization	2.8 25
	2014	1= Interest rates 2= Relative inflation	2.5 1.1	1= Heavy 2= Light		1= Amount	312476.5	1= Economic growth 2= Capitalization	3.9 36
	2015	1= Interest rates 2= Relative inflation	2.4 0.9	1= Heavy 2= Light		1= Amount	323098.0	1= Economic growth 2= Capitalization	4.7 46
	2016	1= Interest rates 2= Relative inflation	2.5 1.1	1= Heavy 2= Light		1= Amount	331675.5	1= Economic growth 2= Capitalization	5.4 48
2017	1= Interest rates 2= Relative inflation	2.4 1.0	1= Heavy 2= Light		1= Amount	322623.5	1= Economic growth 2= Capitalization	5.7 56	

Cameroon	2007	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2008	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2009	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2010	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2011	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2012	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2013	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2014	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2015	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2016	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
2017	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization		

Ghana	2007	1= Interest rates 2= Relative inflation	13% 9%	1= Heavy 2= Light	Low	1= Amount	2190.0	1= Economic growth 2= Capitalization	5.8% 49%
	2008	1= Interest rates 2= Relative inflation	14% 13%	1= Heavy 2= Light	Standard	1= Amount	2190.0	1= Economic growth 2= Capitalization	4.2% 56%
	2009	1= Interest rates 2= Relative inflation	17% 18%	1= Heavy 2= Light	Standard	1= Amount	2190.0	1= Economic growth 2= Capitalization	2.4 57%
	2010	1= Interest rates 2= Relative inflation	18% 15%	1= Heavy 2= Light	Low	1= Amount	26280.0	1= Economic growth 2= Capitalization	7.0% 48%
	2011	1= Interest rates 2= Relative inflation	13.7% 9.2%	1= Heavy 2= Light	Standard	1= Amount	28105.0	1= Economic growth 2= Capitalization	12.3% 59%
	2012	1= Interest rates 2= Relative inflation	12.2% 8.6%	1= Heavy 2= Light	Standard	1= Amount	28470.0	1= Economic growth 2= Capitalization	16% 58%
	2013	1= Interest rates 2= Relative inflation	15% 9.5%	1= Heavy 2= Light	High	1= Amount	35770.0	1= Economic growth 2= Capitalization	4% 64%
	2014	1= Interest rates 2= Relative inflation	18% 14%	1= Heavy 2= Light	Standard	1= Amount	38325.0	1= Economic growth 2= Capitalization	5.5% 57%
	2015	1= Interest rates 2= Relative inflation	19% 17%	1= Heavy 2= Light	Standard	1= Amount	37230.0	1= Economic growth 2= Capitalization	2.3% 59%
	2016	1= Interest rates 2= Relative inflation	26% 18.7%	1= Heavy 2= Light	Standard	1= Amount	35770.0	1= Economic growth 2= Capitalization	3.2% 60%
2017	1= Interest rates 2= Relative inflation	23% 15.8%	1= Heavy 2= Light	Standard	1= Amount	55115.0	1= Economic growth 2= Capitalization	4.8% 64%	

Tunisia	2007	1= Interest rates 2= Relative inflation	6.8% 5%	1= Heavy 2= Light	Standard	1= Amount	29565.0	1= Economic growth 2= Capitalization	2.5% 60%
	2008	1= Interest rates 2= Relative inflation	6.7% 4.5%	1= Heavy 2= Light	Standard	1= Amount	29200.0	1= Economic growth 2= Capitalization	2.3% 56%
	2009	1= Interest rates 2= Relative inflation	6.8% 9%	1= Heavy 2= Light	Standard	1= Amount	31025.0	1= Economic growth 2= Capitalization	2.0% 79%
	2010	1= Interest rates 2= Relative inflation	6.8% 7%	1= Heavy 2= Light	Standard	1= Amount	28470.0	1= Economic growth 2= Capitalization	2.8% 70%
	2011	1= Interest rates 2= Relative inflation	6.6% 5.4%	1= Heavy 2= Light	Standard	1= Amount	25550.0	1= Economic growth 2= Capitalization	3% 75%
	2012	1= Interest rates 2= Relative inflation	6.5% 3.5%	1= Heavy 2= Light	Standard	1= Amount	23725.0	1= Economic growth 2= Capitalization	2.5% 66%
	2013	1= Interest rates 2= Relative inflation	6.5% 3.5%	1= Heavy 2= Light	Standard	1= Amount	24820.0	1= Economic growth 2= Capitalization	2.3% 78%
	2014	1= Interest rates 2= Relative inflation	6.5% 2.95	1= Heavy 2= Light	Standard	1= Amount	20075.0	1= Economic growth 2= Capitalization	2.0% 78%
	2015	1= Interest rates 2= Relative inflation	6.4% 2.8%	1= Heavy 2= Light	Standard	1= Amount	17520.0	1= Economic growth 2= Capitalization	2.8% 67%
	2016	1= Interest rates 2= Relative inflation	6.1% 3.5%	1= Heavy 2= Light	Standard	1= Amount	13870.0	1= Economic growth 2= Capitalization	3% 71%
	2017	1= Interest rates 2= Relative inflation	6.2% 5.5%	1= Heavy 2= Light	Standard	1= Amount	16060.0	1= Economic growth 2= Capitalization	2.5% 65%

Cote d'Ivoire	2007	1= Interest rates 2= Relative inflation	4.5% 1.5%	1= Heavy 2= Light	Standard	1= Amount	18980.0	1= Economic growth 2= Capitalization	7.6% 30%
	2008	1= Interest rates 2= Relative inflation	4.5% 0.9%	1= Heavy 2= Light	High	1= Amount	21535.0	1= Economic growth 2= Capitalization	4.7% 29.9%
	2009	1= Interest rates 2= Relative inflation	4.3% 3%	1= Heavy 2= Light	High	1= Amount	21170.0	1= Economic growth 2= Capitalization	5.6% 41%
	2010	1= Interest rates 2= Relative inflation	4.1% 2.1%	1= Heavy 2= Light	High	1= Amount	20075.0	1= Economic growth 2= Capitalization	8.9% 50%
	2011	1= Interest rates 2= Relative inflation	4.8% 2.5%	1= Heavy 2= Light	Standard	1= Amount	19710.0	1= Economic growth 2= Capitalization	7.6% 32%
	2012	1= Interest rates 2= Relative inflation	4.5% 1.5%	1= Heavy 2= Light	Standard	1= Amount	16425.0	1= Economic growth 2= Capitalization	4.7% 48%
	2013	1= Interest rates 2= Relative inflation	4.5% 4%	1= Heavy 2= Light	Standard	1= Amount	14600.0	1= Economic growth 2= Capitalization	5.6% 55%
	2014	1= Interest rates 2= Relative inflation	4.5% 3.6%	1= Heavy 2= Light	Standard	1= Amount	13870.0	1= Economic growth 2= Capitalization	8.9% 44%
	2015	1= Interest rates 2= Relative inflation	4.3% 2.3%	1= Heavy 2= Light	Standard	1= Amount	13505.0	1= Economic growth 2= Capitalization	4% 39%
	2016	1= Interest rates 2= Relative inflation	4.1% 1.6%	1= Heavy 2= Light	Standard	1= Amount	13140.0	1= Economic growth 2= Capitalization	7% 48%
	2017	1= Interest rates 2= Relative inflation	4.8% 1.7%	1= Heavy 2= Light	Standard	1= Amount	12045.0	1= Economic growth 2= Capitalization	4.9% 51%

DRC Congo	2007	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2008	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2009	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2010	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2011	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2012	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2013	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2014	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2015	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2016	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2017	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	

Niger	2007	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2008	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2009	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2010	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2011	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2012	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2013	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2014	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2015	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2016	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	
	2017	1= Interest rates 2= Relative inflation		1= Heavy 2= Light		1= Amount		1= Economic growth 2= Capitalization	