

2 **ABSTRACT**

3 *This study sought to examine the impact of interest rate on the Nigeria's economy during the pre and post*
 4 *Regulation periods (1986 – 2013).It also investigated the joint influence of Inflation, Investment, Exchange Rate,*
 5 *Money Supply and Monetary Policy Rate individually on the Gross domestic Product (GDP)which was used a proxy*
 6 *for output as well as the causality between all the factors combined and gross domestic product. Ex post facto*
 7 *method was adopted In order to test the hypothesis, the researcher adopted ADF, ECM and co-integration tests. The*
 8 *result showed that no significant relationship exists between GDP and Investment while still affirming that a*
 9 *significant relationship exist between GDP, Monetary Policy Rate, Inflation , Exchange Rate and Money Supply.*
 10 *The result of Johansen co-integration test showed the existence of two (2) co-integrating equations at 5% critical*
 11 *level; which is an indication of the existence of long-run or equilibrium relationship among our observed variables*
 12 *and as such there is the need to ascertain the speed of adjustment to the equilibrium in the case of short-run*
 13 *disequilibrium. The result of granger causality test indicates the absence of causal or directional relationship of any*
 14 *kind among our employed variables. This implies that the selected variables of interest did not lend support to each*
 15 *other as shown by their f-statistics and probability values. The following recommendations were made: The*
 16 *Monetary authority should ensure the Money supply in the economy is always sufficient to boost economic activities.*
 17 *this will equally make banks grant loans at a competitive rate of Interest, the Cash Reserve Requirement should be*
 18 *reduced further , this will leave more funds in the vault of Banks, making it easy to obtain loans at competitive rates,*
 19 *Banking habit should be inculcated in the citizenry, this will enable banks to further mop-up funds which by natural*
 20 *causes will increase her lending ability and at rates that can enable entrepreneurs make profit, The eye of the*
 21 *authorities should be on Inflation, because uncontrolled inflationary trends can make a mess of all the other efforts,*
 22 *Prudent management of our Oil earnings, adequate savings (Foreign Reserve) and investments in*
 23 *Infrastructure/Education will help stabilize the fluctuating exchange rate of the Naira. Because we are in the period*
 24 *of Deregulation when the economy has been opened up for investors globally, with consistent effort at investing by*
 25 *Nigerians and Foreigners alike, a fairly stable interest rate of interest will lead to consistent economic growth.*

26 **Keywords:** *interest rate management, exchange rate, monetary policy rate, inflation, gross domestic product,*
 27 *Investments, Money Supply*

28
 29 **1. INTRODUCTION**

30 Interest rate facilitates the flow of funds from lenders to borrowers. It is the cost of borrowing, and shows
 31 what a borrower pays to the lender for the use of money. Interest rate aids the flow of credit in the
 32 economy and helps financial entities such as corporate organization, banks, mutual funds and insurance
 33 companies carry out their intermediation role. In other words, the economic activity in any economy, to a
 34 large extent, is influenced by interest rate. Interest rate affects the demand for and allocation of available
 35 loanable funds. It also affects the level of consumption, and the level and pattern of investment. (CBN
 36 2016)

37 Interest rate is important because it can affect the lives of people, the government, business firms,
 38 entrepreneurs, foreign investors, the financial sector, the household and also to a large extent determines
 39 the level of investment and the economic growth in an economy. The frequent changes (upward
 40 especially) in the rate of interest charged by different banks and non-bank financial institutions have
 41 retarded capital formation, investment and even economic growth in Nigeria.
 42

43 That is why Fuller (1990) opined that interest rate is the factor reward or earning of capital. Interest rate is
44 also seen as the payment for the use of money. Fuller added that “this source of finance will only be
45 available if other people are willing to forgo current consumption and provide a pool of financial
46 resources from which loans can be advanced. This supply of fund will only be forthcoming if those
47 supplying it receive some reward for sacrificing their current consumption...” to sacrifice current
48 consumption implies a form of savings for investment.

49
50 Interest rates, like other prices, perform a rationing function by allocating limited supply of credit among
51 the many competing demands on it. Thus, it is an important instrument for monetary policy. For this
52 reason, Nigeria has adopted two major interest rates regimes which include the low and fixed interest
53 rates regime between 1960 and 1986. In these regimes, interest rates were administratively determined.
54 But in 1987, Nigeria had a dynamic interest rates regime during which partial deregulation of interest
55 rates started, market forces were allowed to interplay in addition to the management decision of interest
56 rates. This continued till 2006 when it was fully deregulated. Under these arrangements, efforts were
57 made in mobilizing savings for the purpose of channeling it into investment and other productive
58 activities in order to attain high economic growth.

59
60 The end result is that almost four decades of policy somersault especially at an interest rate and exchange
61 rate management, the Nigerian economy has not benefited immensely from the processes (Onagowora,
62 2007).

63 In August 1987, the Central Bank of Nigeria (CBN) liberalized the interest rate regime and adopted the
64 policy of fixing only its Minimum Rediscount Rate (MRR). This was however modified in 1989, when
65 the Central Bank of Nigeria (CBN) issued further directives on the required spreads between deposit and
66 lending rates (Ojodu H; 2012).

67
68 Partial deregulation was restored in 1992 when financial institutions were required to only maintain a
69 specified spread between their average cost of funds and maximum lending rates. The removal of the
70 maximum lending rate ceiling in 1993 by the Central Bank of Nigeria (CBN) saw interest rates rising to
71 unprecedented levels in sympathy with rising inflation rate which rendered banks' high lending rates
72 negative in real terms. Interest rates in 1993 were volatile and rose to unprecedented levels.

73 The behavior of interest rates was traceable to a number of factors including: i). The high rate of domestic
74 inflation arising from the huge fiscal deficit of Federal Government which was financed mainly by
75 Central Bank; ii). The undue discretion which the deregulation of interest rates conferred on key market
76 players in pricing their funds as well as the arbitraging activities of market speculators; and iii). The use
77 of stabilization securities and the system of allocation of foreign exchange both induced the sterilization
78 of large funds at the CBN. There was major objective to keep the supply of money just within the

79 required level needed for the target economic growth rate in a particular year. The policy of interest rate
80 deregulation was retained in 1997, and developments since the beginning of the year show relative
81 stability in the rates. Indeed, contrary to expectations, interest rates had fallen. Deposit rates on savings
82 account at commercial banks declined from an average of 10.1 percent in December 1996 to 7.5 percent
83 in March and further to 5.9 percent at the end of April 1997. Similarly, 3-month deposit rates declined
84 from 12.3 percent in December 1996 to 7.3 percent in April 1997. During the fiscal year 2000, monetary,
85 and other financial sector policies were also designed to maintain internal and external balance. The
86 primary objective was to maintain the inflation rate at single digit. In order to achieve this objective, the
87 monetary program focused on curtailing excess liquidity in the banking system and enhancing the
88 viability of the external sector as well as the stability of the financial system. Other important objectives
89 included enhanced growth of the economy and reduction in unemployment. The performance of the
90 financial sector in 2000 indicated that deposit and lending rates fluctuated downwards due to liquidity
91 overhang in the banking system and the reduction in MRR from 18.0 to 14.0, cash reserve ratio, from
92 12.0 to 10.0 percent, and liquidity ratio from 40.0 to 35.0 percent.

93
94 The Central Bank of Nigeria (CBN) may choose to roll out an improvement in the Minimum Rediscount
95 Rate (MRR) now Monetary Policy Rate (MPR). A choice by the CBN to change the MPR influences the
96 business sector loan in various ways. At the point when the Bank makes a declaration on the MPR which
97 influence the desires of individuals and monetary specialists about the future heading of the economy.
98 Such choices influence the costs of budgetary resources (like shares) and the conversion scale of the naira
99 to different monetary forms and in addition the capacity of individuals and financial operators to spare
100 and burn through cash. Factors such as Inflation, Fiscal Deficit, Exchange rate, Money supply, Risk and
101 even government's monetary stance/Policy affect interest rates. However, interest rates play a pivotal role
102 in influencing economic activities in any economy.
103

104 Additionally, the adjustment in interest rate could create an aberrant impact on the costs of products and
105 administrations which rival merchandise that are locally delivered or those products and administrations
106 that utilized imported crude materials. Again, an adjustment in interest rate has impact on the segment of
107 the general value level of those merchandise that are foreign and this influence every single monetary
108 operator in the nation. Interest rate level is affected by movement in price level or inflation rate, fiscal
109 policy stance, and intermediation cost (cost of funds), how deep and developed financial markets are,
110 level of risks and uncertainty, among other factors.

111 Interest rates are regarded as “high” or “low” relative to some economic fundamentals, namely:

112 The level of inflation rate; The degree of uncertainty and risks economic agents face; and How developed
113 and deep financial markets are; The structure of the banking system—how competitive it is; The cost of

114 funds to the banks including deposit rates; The demand for credit by government when it runs deficit and
115 whether it competes with the private sector.

116
117 There are conflicting and competing views about what constitutes an appropriate interest rate depending
118 on whose perspective—savers or lenders/borrowers. Generally, interest rates are prices and must be right
119 and attractive to: Reward depositors and encourage long-term savings as well as reward lenders; Long-
120 term savings can only occur when inflation is tamed;

121
122 **Statement of the Problem**
123

124 The high cost of capital is suspected to be one of the factors militating against the growth of the Nigerian
125 economy; this development according to critics has had negative impacts on the economy. No wonder
126 successive administrations have intervened in the determination of the level and cost of funds; that is
127 interest rate. The frequent changes in the rate of interest charged by different banks and non-bank
128 financial institutions and worse still the private lenders is suspected to have made capital formation,
129 investment and even economic growth really difficult

130 Critics have alleged that it has no doubt frustrated the efforts of the investors willing to invest in the
131 economy as well as contributed in reducing the margin of profit expected in business deals.
132 Inconsistencies in implementing this monetary policy Instrument is assumed to have had its toll; for
133 instance, there has been this complaint that while the rates paid to customers on savings, Current and
134 Deposit accounts have been so low, the charges for borrowing i. e. interest on loans have been high.

135 What is unclear, however, is whether there is a strong response in saving as a result of the rising interest
136 rates or fixed interest rates. There appears to be a consensus among researchers on the relationship
137 between interest rate and savings.

138
139 Empirical evidence from developing countries is however at variance with theorized relationship and
140 when there exists any relationship, they are ambiguous and insignificant. However, the question there still
141 exist unanswered questions such as, to what extent does interest rate affect savings? What impact does it
142 have on investment and even economic growth?

143
144 The not too encouraging performance of the economy especially the private sector spreads through both
145 the controlled and liberalized regimes. This study is therefore hoped to unravel which of the regimes
146 contributed more or less to Nigeria's economic growth under the same circumstances.

147
148 Furthermore, the economy is still and essentially bedeviled by large size and inefficient public sector, low
149 rates of savings and investment, persistent large budget deficits, and inconsistent macroeconomic
150 environment (Eze, 2010).

151 All these have hampered the growth of the economy and Nigerians still remain expectant for brighter days
152 ahead that improvements in the exchange rate and interest rate management could make a difference to
153 the economic growth efforts (Jelilov, Gylych; Kachallah Ibrahim, Fatima; Onder, Evren, 2016)
154

155 **Objectives of the Study**

156
157 The aim of the study was to know the effect of Interest rate Management on the Nigerian economy 1986 – 2018

158 Other specific objectives were:

- 159
- 160 a) To find out the inter-relationships among the variables interest rates, investment, Money Supply,
161 Monetary Policy Rate, Exchange Rate and Economic Growth in pre and post regulation periods
162 in Nigeria
 - 163 b) To ascertain how interest rate has affected economic growth in pre and post regulation periods
164 in Nigeria.

165 **Research questions**

- 166 a) What are the inter-relationships between Interest Rates, Investments, Money Supply, Monetary
167 Policy Rates, Exchange Rates and Economic Development in pre and post Regulation periods in
168 Nigeria?
- 169 b) To what Extent has Interest Rates affected Economic Development in pre and post regulation
170 periods in Nigeria?

171 **Statements of Hypotheses**

172 To capture the objectives of the study, the following hypotheses were formulated:

173 **H₀₁:** There is no significant relationship between Interest Rate, Investments, Inflation, Money Supply,
174 Monetary Policy Rate, Exchange Rate and Gross Domestic Product in pre and post regulation
175 periods in Nigeria.

176
177 **H₀₂:** There is no causality between monetary policy rate, inflation, exchange rate, investment, money
178 supply and Gross Domestic Product in pre and post regulation periods in Nigeria.

179

180 The rest of the paper is divided into four sections. Section two has literature review, three contains
181 methodology with four housing the empirical results while five concludes.

182

183 **2. REVIEW OF RELATED LITERATURES**

184 **Conceptual Framework**

185 Emekekwe (2016) differentiated between the rediscount rate; the rate at which the Central Bank
186 discounts bills from Commercial Banks stating that the Prime rate is the lowest rate of interest charged by

187 the nation's leading Banks on business loans to the most important and reliable business borrowers. He
188 added that Banks determine the rate at which they charge their customers by adding a premium on the
189 prime rate to adjust it for the borrower's riskiness. Fixed and floating interest rates were differentiated as
190 meaning that it is fixed when the rate of interest is determined as a set increment above the prime rate and
191 remains static until maturity while floating interest rate occurs when the increment above the rate is
192 initially established and the rate of interest is allowed to float or vary above the prime as the prime rate
193 varies until maturity.

194 Same interest rate can be paid at maturity , in installments or in advance and each method used leads to
195 different effective costs for the loan, that quiving up maintaining, or reducing the effective cost/N; this is
196 called the time dimension of the loan. Another consideration he said is on the method of calculation of
197 interest; whether on the entire principal or on reducing balance.

198
199 Interest rates play a crucial role in the efficient allocation of resources aimed at facilitating the growth and
200 development of an economy and as a demand management technique for achieving both internal and
201 external balance with specific attention for deposit mobilization and credit creation for enhanced
202 economic development (Ebiringa, 2012).

203
204 Though many expansionary monetary policies have been implemented, the inflationary pressure increased
205 and forced the CBN to raise interest rate (CBN, 2013). As a result, the interest rate raised became
206 controversial; in this study, we will try to figure the effects of interest rate on the economic growth in
207 Nigeria. The study will examine the impact of interest rate as one of the main variables that affects
208 economic growth in

209 The Monetary Policy Committee (MPC) of the Central Bank of Nigeria (CBN) on 5th June 2007
210 reviewed the major macroeconomic development and the implementation of fiscal, monetary and
211 exchange rate policies in the first five months of 2007, as well as the challenges for the rest of the year.
212 The MPC noted with satisfaction the macroeconomic performances (CBN; 2009).

213 Anyanwu (1993) stated that interest rate management in Nigeria and its economic impact refers to the
214 totality of steps and procedures planned and utilized by central bank of Nigeria to decide, maintain or
215 bolster the level of interest rates in an economy in ways that it will induce the accomplishment of the
216 satiated macroeconomic aims and objectives.

217 However, the observed facts of exchange rate and interest rate management on macroeconomic variables
218 that would culminate into economic growth are sluggish and not impressive let alone being sustainable
219 (Obansa *et al.*, 2010).

220

221 What Nigeria gains from International trade and domestic investment is not consistent with the reform put
222 in place expected to attain robust results. Accessing of funds for investment is still a challenge with
223 lending rate being very high compared to the deposit rate in the economy (Oweoye, 2007).

224

225 The indirect monetary instruments aimed at the economic growth of Nigeria. According to the Central
226 Bank of Nigeria's Annual Report and Statement of Accounts for the year ended 31st December, 2007,
227 monetary policy alone did not automatically result in the development. The Nigerian economy appeared
228 to improve in 2000 as the real GDP growth rate rose to 3.8 per cent compared with 2.8 per cent in 1999
229 and 1.8 percent in 1998 (Charles, 2010).

230

231 Several factors determine the interest rate on loans, Anyanwaokoro (2008) outlined the following:
232 Characteristics of the loan (Type, amount and maturity of the loan), Supply and Demand for Credits,
233 Attitude towards future expectations, Degree of Credit risk, Borrowers habit and custom and
234 Macroeconomic factors(Competition, Interest Rates ceiling, Inflation).
235 Interest rate can be viewed as changing through many dimensions.

236 Okoro (1987) observed that the principal dimensions are time, space quality of loans and majority of
237 loans. Other factors being marketability, size of loans, redemption terms, legality, tax statues, class of
238 debtor and class of creditor.

239 Otiti (1988) has this to say "Discount rate influences the interest rate structure in the Nigeria economy
240 thereby providing a situation where the monetary authorities could control the monetary base thereby
241 influencing the operations of banks"

242 Hansen (1975) observed that the amount of interest to be paid on a loan depends on;

- 243 a. The character of the borrower
- 244 b. The expenses the lender incurs in making the loan
- 245 c. The prevailing rate of pure interest.

246 Orisakwe (1988) observed that the demand for funds exceeds the supply during boom period. He
247 attributed the condition to the profit potentials available in the economy which is supposed to be matched
248 with increase in demand for funds in order to take advantages of the profit potentials. The increase in the
249 demand for funds consequently lends to an increase in the rate of interest. During a period of depression,
250 the level of interest rate falls as a result of slump in business activities. Under depression, expected

251 returns may not be adequate to offset the cost of capital. Inflation is another critical factor that affects
252 interest rates.

253 Nduka (1998) observed that inflation disease shows many symptoms not the least of which is a trend
254 towards higher interest rate as lenders demand higher returns, and borrowers more willingly put up to
255 higher interest charges.

256 Obilor (1988) observed that the nominal interest rate is a straight towards money rate, whereas the real
257 rate of interest is the nominal rate adjusted for the expected rate of inflation, if the inflationary rate is
258 expected to exceed the level of the nominal rate of interest during the period of the loan, the real rate to
259 the lender becomes negative.

260 **Interest Rates Deregulation**

261 Interest rate deregulation is a financial term used to refer the circumstance where by the forces of demand
262 and supply is permitted to decide the estimation of financing costs as opposed to its worth being regulated
263 specifically by fiscal powers. Interest rate deregulation is seen as a deviation from budgetary restraint. It
264 has been supported by numerous financial specialists that interest rate deregulation upgrades reserve
265 funds, support venture and thus improve monetary development.

266 The Financial Liberalization Theory set forth by Mckinnon (1973) and Shaw (1973) proposes that
267 financial liberalization in developing economies would trigger higher funds, particularly monetary reserve
268 funds, build credit supply, empower speculation and consequently support financial development. Their
269 claim is that regulation of interest rate lead to low real interest rate and at times negative which causes
270 unacceptable growth in the developing countries

271
272 As indicated by Jhingan (2003), if there is an increment in interest rate, venture is at low level and when
273 interest rate falls, speculation will rise. Hence, there is urgent need to promote interest rate regime. A
274 similar view was held by Anyanwaokoro (2008) , who stated that a reduction in interest rate encourages
275 bank lending and increases the liquidity in the economy;the reverse being the case when interest is
276 increased.

277 Nwankwo (1989) trusted that interest rate deregulation will prompt more effective distribution of
278 budgetary allocation assets. His position is in accordance with the contentions of Mckinnon (1973) and
279 Shaw (1973).

280
281 Abiodun (1988), then holds that deregulation of interest rate resemble a two-fold edged sword, which will
282 either empower or deface the economy. He declared that the deregulation of interest rate will prompt an
283 expansion in interest rate, which will build investment funds. Be that as it may, he opined that high cost

284 of getting might realize cost-push inflation as borrowers of assets will pass the high cost of acquiring to
285 the clients by pushing up costs.

286
287 Ojo (1988) and Ani (1988) are both of the conclusions that interest rate deregulation would damage the
288 Nigerian economy. In their different papers, they imperfect the deregulation exercise, asserting it would
289 demoralize investors and consequently financial development, by pushing interest rate high.

290 Ojo and Ani's position are upheld by Soyinbo and Olayiwola (2000) and Akpan (2004) who all pointed
291 out the low positive effect of deposit rate on financial development after interest rate liberalization in
292 Nigeria. These opposite feelings about the adequacy of the deregulation exercise in Nigeria raises the
293 issue of the viability of the deregulation exercise. There is mainly, the requirement for a thorough
294 assessment of the part of interest rate deregulation in advancing financial development in Nigeria through
295 funds and venture.

296 **Management of Interest Rate in Nigeria: Control Period (Before -1986)**

297 Interest rate management refers to the totality of steps and processes designed and used by the monetary
298 authorities (the CBN) to determine, sustain or support the level of interest rates in an economy in ways
299 that engender the achievement of the stated macroeconomic goals of price and exchange rate stability,
300 rapid and sustainable employment, and generating growth.

301 Interest rate management also entails anticipating the financial markets and developing appropriate policy
302 measures to impact the markets using known monetary tools.

303 It needs to also ensure that rates do not fall to levels where the liquidity trap ensnares the economy.
304 (Liquidity trap - the level of interest rate below' which further reductions will not impact on the level of
305 economic activities/national income).

306 Some of the tools employed by the Apex bank in managing interest rates in Nigeria include: Regular
307 Open Market Operations, adjustments in the following key ratios; Cash Reserve Ratio, Rediscount ratio,
308 Liquidity ratio, regular examination of the documents/activities of deposit money banks and the
309 publishing/monitoring of Prudential guidelines

310
311 According to Anynwaokoro (2008), interest rate deregulation began in 1988,; before then, the rates were
312 fixed by the Central Bank.

313 The two major regimes of interest rate management in Nigeria are the period of Fixed and floating
314 Interest Rates popularly referred to as period of Control and that of Liberalization. The period of
315 control/Regulation was characterized as described below:

316 **Use of Administrative Fiat :** This involves direct approach (controls) of determining interest rates. It
317 entails the administrative fixing of Lending and other bank charges by CBN with Periodic adjustments
318 based on policy decisions. Funds allocation and Credit expansions are strictly under the control of
319 monetary authorities. It was practiced during the pre-Structural Adjustment Programme era mainly to
320 stimulate investment to promote orderly growth of the financial market, reduce inflation and lessen the
321 burden of domestic debt servicing on government.

322 They added that the techniques had both positive and negative outcomes; it promotes stability and creates
323 a high level of credibility. Negatively, Capital input is insufficiently used due to inappropriate pricing of
324 Credit and Deposits. Loan able assets are on short supply since banks want to put their assets in treasury
325 charges that are loaned underneath their normal expense of assets; capital development is at very low
326 level.

327 In the words of Soludo (2008), the Fixed Exchange regime was characterized by the following: It was
328 operated preceding 1986, under it, interest rate were settled at the management level by the CBN and it
329 was likewise proposed to get socially ideal asset portion, to advance systematic development in the
330 financial sector, to encourage stream of credit to the favored segments agribusiness, production, and so
331 on.

332 **Deregulation (Free Market) Period (Post - 1986)**

333 Okereke, et al (2009), observed that this involves indirect approach in determining interest rate. Market
334 forces determine the operations. Regulatory authorities only set the rules and allowed operators to play
335 according to and within the rules. Monetary Policy Rate, called Minimum Rediscount Rate before
336 December 2006 which is CBN's nominal anchor of interest rate play significant role in influencing the
337 cost and availability of credit in the economy.

338 They further added that the determination of interest rates using indirect techniques is characterized by
339 regular Open Market Operations. It increase the use of money market instruments like CBN Certificate,
340 National Savings Certificate, adjustment of key Ratios like Cash Reserve Ratio, Liquidity Ratio and so
341 on. During the liberalize regime, where market powers are at play, low inflation comprise the key target
342 while interest rate turn into the principle approach instrument leaving costs to conform to guarantee value
343 dependability.

344 According to Akanye (1986), every year, the CBN would fix ranges within which both the deposit and
345 lending rates were to be maintained. It was therefore as a result of deregulation that the government
346 allowed the forces of demand and supply in the money market to determine the rates of interest that will

347 be charged. The CBN brief N0. 98/04 noted that it was in 1996 interest rate were completely deregulated
348 giving the banks opportunity to decide the structure of loan costs in discussion with their clients.
349 Observers of financial market trends were of the view that interest rates rose to unprecedented rates
350 immediately after deregulation.

351 Ogwuma (1993) alleged that the rapid upward movement in the interest rates was not favourable to
352 production and growth. In an attempt to economize on a resource that was getting increasingly expensive,
353 many firms refrained from borrowing from banks while the bulk of those who borrowed made losses or
354 profits that could not support production initiative.

355 Soludo (2008) equally noted that: Following liberalization of interest rates in 1986 with the adoption of
356 SAP, the level of interest rates has been market-determined, interest rates have risen relative to repressed
357 regime era, inflation rate moderated significantly (lowest) since then, particularly during 1998-2006,
358 except for the aberration between 1993- 1998, the period of “guided deregulation”.

359 Real interest rate became generally positive since liberalization. In a liberalized environment, a choice
360 must be made with regard to the main objective and instrument of monetary policy.

361 Under a liberalized regime, where market forces are at play, low inflation constitutes the *key objective*
362 while interest rates become the main *policy instrument* leaving prices to adjust to ensure price stability. o
363 Hardly any two customers are charged the same lending rate.

364
365 Regarding the impact of interest rates on Nigeria’s economy after deregulation, CBN (1997) stated that
366 the performance of the manufacturing sectors and sub-sector was below expectation in 1987. Anticipated
367 growth in the sub-sector in 1997 was hindered by a number of factors which include high cost of
368 production, traceable largely to high but relatively stable exchange and lending rates.

369 **The Relationships between GDP, Exchange Rate, Money supply and Inflation**

370 **Inflation & GDP (Output)**

371 Gross domestic product and inflation are both viewed as imperative in economic variables. It is broadly
372 understood that there is a relationship between the two. In effect, when government takes decisions on
373 inflation and GDP, the result frequently cannot be ensured. Investigation of the relationship amongst
374 Gross Domestic Product and inflation is best started by building up a comprehension of each term
375 separately. GDP is an acronym for total national output, which is the estimation of a country's
376 merchandise and administrations amid a predetermined period. This is by and large viewed as a vital
377 maker of an economy's wellbeing. Inflation is defined as a situation where normal cost levels increases. In
378 effect, cash has less purchasing power. As an oversimplified case, imagine that a nation's financial unit is

379 known as a Naira and every Naira buys a measure of rice and a cut of meat. At the point when people go
380 to the business sector one day, they find that getting a measure of rice and pieces of meat will cost two
381 naira. In this occasion, inflation has taken place.

382 When costs are pushed up according to belief system, individuals are fighting for a constrained supply of
383 items. This implies an expansion of GDP, should equal the level of price. Everybody does not concur that
384 this relationship is total. Gross domestic product and inflation are regularly connected with each other on
385 the grounds that government and apex banks frequently by taking into account the figures and they
386 endeavor to control them. On the off chance that an economy is not developing or is not developing
387 sufficiently quickly, a national bank may bring down loan costs to make obtaining more alluring. The
388 rationale behind this is it will empower spending, which will prompt an ascent in GDP. The disadvantage
389 of this move is that, as indicated by numerous mainstream views, it will likewise incite expansion.

390 **Output (GDP) and Exchange Rates**

391 The relationship between Exchange Rates and Economic Growth is mainly expressed as a percentage. A
392 portion of theories in exchange rate determinations, for example, the monetary policy is a way to deal
393 with exchange rates, anticipate that higher development rates in an economy will bring about
394 appreciation in country's currency. The circumstance outlines the relationship between say percent
395 change in the Naira –dollar conversion standard and development rates in Nigeria's real Gross Domestic
396 Product. One important issue on exchange rate is that it is more volatile than GDP. Regarding the normal
397 relationship between changes in the exchange rate and monetary development, a few periods, for
398 example, in the mid - 1970s, show valuation for the Naira when development rates are higher and show
399 deterioration of the Naira when the development rates are lower. These affiliations are steady with the
400 forecasts of the hypothesis of Monetary Approach to Balance of Payments (or the MBOP).

401 **Money supply and Output(GDP)**

402
403
404 Supply of money is the measure of cash that is accessible to the economy anytime. Money supply could
405 be characterized both in restricted and in wide terms. Money supply consists of money available for use
406 and demand deposit, while a more extensive meaning would incorporate parities in other demand deposit
407 accounts. But In Nigeria, M1 narrow comprises of the availability of money in circulation and demand
408 deposit while M2 the broad money represent narrow money in addition with savings and foreign currency
409 deposit. Money supply can exert a lot of influence on productivity, but consideration has to be given to;
410 the level of inflation, the Cash Reserve Requirement and the liquidity Ratio.

411 412 **GDP and Interest Rate**

413
414 Real interest rate is nominal rate adjusted to inflation and real GDP is how much goods you can buy
415 actually (nominal adjusted to inflation). When interest rate decreases it gives incentive to companies to
416 invest in business leading to increase in investment component which increases gross domestic
417 product. The general principle is that the gross domestic product growth rate is higher for small
418 estimations of interest rate and also respectively for higher value of investment. In contrary, small
419 development rate relates to higher estimations of financing cost and in respect to small estimations of rate
420 of investment. In reality, besides inflation must be viewed as together with other macroeconomic
421 variables. In such way, we might consider a dynamic model of conditions including changes in inflation.
422 Further, the model, showing complex flow, could supply answer for assessment regular rate of interest
423 and other key parameters for macroeconomic choices.

424 **Theoretical Framework**

425 **Theories of Interest rate**

426 **Market Segmentation or Hedging Pressure Theory**

427 The desires Theory accept that on the total, loan specialists and borrowers are aloof between long haul
428 and transient speculations aside from any normal yield differentials between the sorts of securities.

429 **The Time Preference Theory**

430 The time inclination hypothesis is connected with Irving fisher who characterized enthusiasm as a "record
431 of the group's inclination for a dollar of present over a dollar of future salary." Time inclination is the
432 inclination that individuals have for present wage over future pay of an equivalent sum and break even
433 with assurance.

434 **The Classical Theory or Savings –Investment Theory**

435 The reserve funds –investment hypothesis of premium is otherwise called the traditional hypothesis of
436 premium. In this hypothesis, financing cost is said to be controlled by the association between the interest
437 for credits (capital) and the supply of loanable assets.

438 **The Neo-Classical or Loanable Funds Theory of Interest**

439 As a consequence of disappointment with the traditional sparing –investment hypothesis, the loanable
440 assets hypothesis was produced by Robertson (1938) in his loanable assets hypothesis of financing cost,
441 Robertson expressed that the rate of premium is controlled by the convergence of the interest timetable
442 for loanable assets with supply-plan.

443 **The Keynesian Liquidity Preference Theory**

444 According to Keynes (1936) he recognized the hypothetical validity of the loanable capital theory but
445 pointed out that the extension of the theory to savings-investment equality was fallacy .He argued that it is
446 not necessarily true that all savings will be directly invested or placed in the bond market, so that the
447 equilibrium is not necessarily $I = S$

448 **Modern Theory of Interest**

449 We have seen over that no single hypothesis of loan cost is satisfactory and determinate. A sufficient
450 hypothesis to be determinate must mull over both the genuine financial elements that impact the loan cost.
451 Hicks has used the Keynesian apparatuses in a strategy for presentation which demonstrates that
452 profitability, thrift, liquidity inclination and cash Supply are all vital components in a far reaching and
453 determinate premium hypothesis. Thus in the modern theory of interest, saving, investment, liquidity
454 preference and the quantity of money are integrated at various levels of income for a synthesis of the
455 loanable funds theory with the liquidity preference theory.

456 **Theories of Economic Growth**

457 **Classical Theory**

458 The classical theory of economic growth was a combination of economic work done by Adam Smith,
459 David Ricardo, and Robert Malthus in the eighteenth and nineteenth centuries. The theory states that
460 every economy has a steady state GDP. Any deviation off of that steady state is temporary and will
461 eventually return. This is based on the concept that when there is a growth in GDP, population will
462 increase.

463 The Harrod-Domar growth theory, an off shoot of the classical theory is based on the work by these two
464 authors. They developed their models independently, but the assumptions and results are, nevertheless,
465 basically the same.

466 **Neo- Classical Theory of Economic Growth**

467 Two economists, T.W. Swan and Robert Solow, made important contributions to economic growth theory
468 in developing what is now known as the Solow-Swan growth model. The theory focuses on three factors
469 that impact economic growth: labor, capital, and technology, or more specifically, technological
470 advances. The output per worker (growth per unit of labor) increases with the output per capital (growth
471 per unit of capital) ,but at a decreasing rate.

472 **Empirical Review**

473

474 The relationship between interest rate management and economic growth has been a subject of discourse
475 among modern financial researchers. This relationship has fortified a considerable measure of
476 experimental investigation. For this reason, a well-known study is the MacKinnon-Shaw financial
477 intermediation hypothesis.

478 According to MacKinnon (1973) and Shaw (1973), using OLS, positive relations exist between saving
479 and interest rate. Interest rate is an important economic price, this is because its diverse role in the
480 economy, and it has a fundamental implication for the economy. Interest rate increase savings when cost
481 of capital and availability of credit are influenced if interest rate is administratively determined, it is
482 known as fixed interest rate and floating if determined by market forces.

483
484 Ostry and Reinhart (1995) measured the interest rate sensitivity of household saving using the inter-
485 temporal Elasticity of Substitution (IES) in consumption. The IES measures how easily households can
486 substitute future consumption for current consumption subject to a resources constraint. They used IES
487 for household in different income levels (low-income, middle-income, upper-income, high-income) in
488 developing countries. The result showed that a 1% point rise in the real interest rate should elicit a rise in
489 saving of only two-tenths of percentage point for the poorest countries in the sample. On the contrary, the
490 rise in the savings rate because of a comparative change in the genuine loan cost in light of a comparable
491 change in the genuine financing cost is around 66% of a rate point for the wealthiest nations
492 contemplated. They upheld the adage that reserve funds rate and its affectability to loan cost changes is a
493 rising capacity of wage, but instead noticed that its impact will be likely lesser in low-pay nations.

494
495 Ndukwe (1991) noticed that the bank stores expanded generously amid the period of loan fee variability.
496 This portrays the deregulation of saving money operation in Nigeria. Using information for the periods
497 1984 to 1988 and OLS, he observed that reserve funds through bank stores have been exceptionally
498 receptive to 1988.

499 Kendall (2000) used two Stage Least Squares (2SLS) and different procedures of econometric
500 investigation in his study. Drawing from the McKinnon-Shaw model, he assessed the theory "an ascent in
501 the normal real store loan cost prompts an expanded investment funds salary proportion." Using the
502 proportion of gross domestic to GDP as the subordinate variable and five different variables, he found
503 that the coefficient of the premium variables is of the right sign and critical, giving backing to the
504 McKinnon-Shaw speculation.

505
506 Obamuyi (2009) looked at the relationship between interest rate and fiscal improvement in the regulation
507 and deregulation period in Nigeria. His discoveries were that there existed a long run relationship between
508 interest rate and monetary development and that the deregulation of interest rate in Nigeria may not

509 ideally accomplish its objective, if those different components which contrarily influence interest in the
510 nation are not handled.

511
512 Eregha (2010) investigated the relationship between financing cost and interest in Nigeria somewhere
513 around 1970 and 2002. He discovered that varieties in interest rate played a negative and huge part in
514 speculation choice in the economy and interest for credit likewise has negative and huge impact on
515 financing cost varieties in both the short-run and long-run.

516
517 Akintoye and Olowalaju (2008), in their work titled "Streamlining Macro Economic Speculation choices
518 lesson from Nigeria" uncovered that low interest have compelled business choices in Nigeria. This
519 disclosure does not bolster Eregha (2010) whose study demonstrated an opposite relationship between
520 interest rate and speculation rate in Nigeria.

521

522 3. METHODOLOGY

523 Data and Design

524 The researcher adopted ex-post facto research design. The purpose was to examine interest Rate management and
525 Nigerian economy between 1986 and 2013. It involves an investigation and analysis of apriori relationship between
526 Interest Rate management and Economic Growth (GDP).

527 The use of secondary data was adopted to compute and present results in a tabular form. It also enabled the
528 measurement of the dependent and independent variables. In this work econometric method of data analysis was
529 adopted. Also since in time series, data are highly trended econometric methods may be of immense value for
530 predicting the Interest Rate Management and Nigerian Economy between 1986 and 2013.

531 The data required for this study will include annual time series on GDP (This serves as proxy for collective growth
532 of all sectors of the economy), Monetary Policy Rate, Money Supply, Inflation, Investment and Exchange Rate
533 between 1986 and 2013. Estimation procedures of unit root test, Johansen co-integration, error correction model and
534 Granger causality was deployed in this study.

535 Model Specification

536 The model specification in this work will be carried out within a panel data and a time series data analysis was also
537 adopted. The use of this specification will help to control the heterogeneity issues within the system. Therefore a
538 panel data analysis was permitted to control the individual specific relationship usually unobservable.

539 The model specifies that the Gross domestic product (Proxy) is significantly influenced by investment, inflation,
540 money supply, monetary policy rate and exchange rate

541 Using econometric model, the model can be presented as:

$$542 \text{GDP} = f(\text{INVT}, \text{INFL}, \text{MS}, \text{MPR}, \text{EXR}) \dots \dots \dots (1)$$

543 The variables are defined as follows:

- 544 • GDP – Gross Domestic Product
- 545 • INVT – Investment
- 546 • INFL – Inflation
- 547 • MS - Money Supply
- 548 • MPR - Monetary Policy Rate
- 549 • EXR - Exchange Rate

550 The model can be restated mathematically as:

$$551 \text{GDP} = \alpha_0 + \beta_1 \text{LOG}(\text{INVT})_t + \beta_2 \text{LOG}(\text{INFL})_t + \beta_3 \text{LOG}(\text{MS})_t + \beta_4 \text{LOG}(\text{MPR})_t + \beta_5 \text{LOG}(\text{EXR})_t +$$

$$552 \mu \dots \dots \dots (2)$$

553 $B_1, b_2, \dots b_5$ are parameter estimate

554 Where;

555 The apriori expectation is $b_1, b_3 \& b_5 > 0$ while $b_2 \& b_4 < 0$

556 α_0 = Intercept

557 μ = Stochastic error term

558 **Techniques of Data Analysis**

559 To analyze the relationship between variables, the regression analysis was adopted using the Ordinary
 560 Least square method (OLS). The use of this technique is based on the properties of the estimators, which
 561 are efficiency and consistency unbiasedness. E-view 7.1 was used to analyze the data and the empirical
 562 evaluation of the model shall be based on the software package result at 5% level of significance.

563 The usual tests of significance and goodness-of-fit were employed to decide whether or not interest rate
 564 deregulation has a significant impact on the economic growth in Nigeria.

565 These included the t-values, the coefficient of determination (R^2) and adjusted R^2 , the F test, and the
 566 Durbin-Watson test for autocorrelation. The t-test and F-test were both conducted at 5% and 10% level of
 567 significance. As a result, using their respective probability values, where their probabilities were below
 568 10%, they were considered as being statistically significant.

569 In order to determine if the time series data is stationary or non-stationary, the widely used Augmented
 570 Dickey – Fuller (ADF) test (Dickey and Fuller (1979) also Phillips and Perron (1996), Phillips – Perron
 571 test were employed.

572 The Pseudo t-value associated with β_0 and δ_0 are the ADF and PP statistics. The null hypothesis of non-
 573 cointegration is rejected, if the estimated ADF and PP statistics are found to be greater than its critical
 574 value at 1 or 5 or 10 percent level of significance.

575 F-Test (Joint test), this shows whether or not to accept the hypothesis. The calculated value of f (that is
 576 $f_{cal.}$) is compared with the value of F obtained from the F table (that is F, table) at the $k-1$ and $n-k$ degrees

577 of Freedom and at α level of significance. The test is said to be significant (that is, the null hypothesis of
 578 no joint relationship is rejected if $F_{cal} > F - table$ and accepted if otherwise).

579 **Decision Rule:**

580 If the calculated $t^{*0.05} > t_{0.05}$ tabulated, we accept the alternative hypothesis and reject the null
 581 hypothesis and vice versa.

582 **SECTION IV: DATA PRESENTATION, ANALYSIS & DISCUSSION OF FINDINGS**

583 **Data Analyses**

584 We analyze the results generated from the econometric views as given below

585 **4.1.2 Analysis of ADF Results**

586 To eliminate possible occurrences of spurious regression results, the Augmented Dickey Fuller test is applied.

587 **Table 1 ADF Statistical Results**

Variables	Critical values at 5%	ADF Stat at Level	ADF Stat at Differenced	Order of integration
GDP	-1.953858	-3.077414		I(0)
INVT	-1.953858	-0.625351	-4.523074	I(1)
INF	-1.953858	-1.558406	-3.442516	I(1)
MS	-1.958088	-0.738395	-5.515162	I(1)
MPR	-1.955020	-0.219443	-5.941690	I(1)
EXR	-1.953858	1.219722	-4.364759	I(1)

588 From the ADF result tabulated above, all the variables fail to reject the null hypothesis of non stationary at levels
 589 except gross domestic product which proved to be stationary at level; however, at the first differencing, all the
 590 variables proved to be stationary and as such leads to the rejection of null hypothesis of non-stationary at first
 591 differencing.
 592

593 **4.2.1 Johansen Co-integration**

594 **Table 2 co integration result**

Date: 06/20/18 Time: 11:44
 Sample (adjusted): 3 28
 Included observations: 26 after adjustments
 Trend assumption: Linear deterministic trend
 Series: GDP INVT INF MPR MS EXR
 Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.865425	126.9573	95.75366	0.0001
At most 1 *	0.669037	74.81093	69.81889	0.0189
At most 2	0.598986	46.06144	47.85613	0.0730
At most 3	0.455399	22.30372	29.79707	0.2819
At most 4	0.202195	6.503479	15.49471	0.6360
At most 5	0.023951	0.630299	3.841466	0.4272

Trace test indicates 2 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

595
596 From the result of Johansen co-integration test depicted above, the test statistic indicates the existence of two (2) co-
597 integrating equations at 5% critical level; which is an indication of the existence of long-run or equilibrium
598 relationship among our observed variables and as such there is the need to ascertain the speed of adjustment to the
599 equilibrium in the case of short-run disequilibrium.

600 4.3.1 Analysis of ECM Results.

601 Table 3 ECM Result

Dependent Variable: D(GDP)

Method: Least Squares

Date: 01/20/16 Time: 11:38

Sample (adjusted): 2 28

Included observations: 27 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.788665	1.438602	0.548217	0.5896
D(INVT)	0.004410	0.701473	0.006286	0.9950
D(INF)	-0.018650	0.086804	-0.214848	0.8321
D(MS)	0.041751	0.088232	0.473196	0.6412
D(MPR)	0.274304	0.378423	0.724862	0.4769
D(EXR)	-0.042757	0.097236	-0.439726	0.6649
ECM(-1)	-0.529994	0.209110	-4.925606	0.0001
R-squared	0.560620	Mean dependent var		0.523704
Adjusted R-squared	0.428806	S.D. dependent var		9.126411
S.E. of regression	6.897499	Akaike info criterion		6.918609
Sum squared resid	951.5099	Schwarz criterion		7.254567
		Hannan-Quinn		
Log likelihood	-86.40122	criter.		7.018507
F-statistic	4.253120	Durbin-Watson stat		2.090766
Prob(F-statistic)	0.006407			

602 Resulting from the multiple linear regression result depicted above, the variables subjected to the error correction
603 test reveals that the parameters of investment, money supply, monetary policy rate possess a positive relationship
604 with gross domestic product while inflation and exchange rates tends to be negative. Judging from the result, all the
605 variables failed the test of significance at 95 percent confidence level. Our co-efficient of determination which is R²
606 stood at 0.560620 which denotes that approximately 56% variations in our explained variable (GDP) were
607 determined by our selected independent variables. However, our F-statistics which measures the fitness of our
608 model was reported to be significant at 5% level with the value of 4.253120, and 0.006407 probability; which
609 implies that our model significantly captured interest rate management and Nigerian economy. On the side of serial
610 correlation, our Durbin-Watson statistics of 2.09 approximately indicates the absence of serial correlation among the
611 successive error terms as expected following the assumptions of classical linear regression. The parsimonious error
612 correction model carried out as depicted in table one above, ECM was significant and rightly signed with -0.529994,
613 which implies that over 53% of deviation from the equilibrium will be corrected over a year approximately.

614 **4.4.1 Analysis of Heteroskedasticity Results**

Table 4. Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.325960	Prob. F(6,20)	0.9155
Obs*R-squared	2.405086	Prob. Chi-Square(6)	0.8789
Scaled explained SS	6.479951	Prob. Chi-Square(6)	0.3716

615 From the result estimation of Breusch-Pagan-Godfrey Heteroskedasticity test, the observed F-statistics of 0.325960
 616 with probability of 0.9155 denotes that the absence of heteroskedasticity among our error terms which is in line with
 617 the classical linear regression assumption; and as such we accept the null hypothesis of no heteroskedasticity.

618 **4.4.2 Serial Correlation LM Results**

619 The Breusch-Godfrey Serial Correlation LM Test is a statistical devoted to the testing of serial autocorrelation
 620 among successive error terms in a multivariate model. The basic need for this test arose because of the postulations
 621 of the classical linear model assumptions.
 622

Table 5 Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.952404	Prob. F(2,18)	0.4044
Obs*R-squared	2.583789	Prob. Chi-Square(2)	0.2747

623
 624 From the result estimation of Breush-Godfrey serial correlation LM test, the observed probabilities were all greater
 625 than our critical probability of 5% and as such, we accept the null hypothesis that the data are not serially correlated
 626 which is in line with our Durbin-Watson postulation.

4.5.1 Analysis of Pair-wise Granger Causality Results

Date: 01/20/16 Time: 11:45
 Sample: 1 29
 Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
INVT does not Granger Cause GDP	26	1.21174	0.3177
GDP does not Granger Cause INVT	0.38539	0.6849	
INF does not Granger Cause GDP	26	0.32776	0.7242
GDP does not Granger Cause INF	1.90174	0.1741	
MPR does not Granger Cause GDP	26	0.05434	0.9472
GDP does not Granger Cause MPR	0.60006	0.5579	
MS does not Granger Cause GDP	26	0.88259	0.4285
GDP does not Granger Cause MS	2.47765	0.1081	
EXR does not Granger Cause GDP	26	1.33399	0.2848
GDP does not Granger Cause EXR	0.05527	0.9464	

627 As shown above, the result of granger causality test indicates the absence of causal or directional relationship of any
628 kind among our employed variables. This implies that the selected variables of interest did not lend support to each
629 other as shown by their F-statistics and probability values.

630 **Hypothesis Testing**

633 This is evidenced in the probabilities obtained which are all greater than our 5% critical probability.

634
635 **Hypothesis one: There is no significant relationship between investment and gross domestic product in**
636 **Nigeria.**

637 With the probability of 0.9950 which is more than our 5% critical probability, this study therefore fail to rejects the
638 null hypothesis in hypothesis one and as such, concludes that there is no significant relationship between investment
639 and gross domestic product in Nigeria.

640 **Hypothesis two: There is no significant relationship between inflation and gross domestic product in Nigeria.**

641 From the analysis carried, investment reported a coefficient of -0.018650 and probability of 0.8321 with gross
642 domestic product over the years of our study; and as such, we accept the null hypothesis in our hypothesis two since
643 the calculated probability is more than our critical probability and conclude thereof, that there is no significant
644 relationship between inflation and gross domestic product in Nigeria.

645 **Hypothesis three: There is no significant relationship between money supply and gross domestic product in**
646 **Nigeria.**

647 As shown in OLS table depicted above, the coefficient of money supply with gross domestic product stood at
648 0.041751 with 0.6412 probability level. Therefore, based on the probability which is higher than our 5% critical
649 probability, this piece of work fail to sustain the alternate hypothesis and as such accept the null hypothesis and
650 conclude that there is no significant relationship between money supply and gross domestic product in Nigeria over
651 the years of our study.

652 **Hypothesis four: There is no significant relationship between monetary policy rate and gross domestic**
653 **product in Nigeria.**

654 From the regression result obtained, monetary policy rate revealed a probability of 0.4769 with coefficient of
655 0.274304 and t-statistics of 0.724862. Therefore, based on the probability which is more than our 5% critical level,
656 we accept the null hypothesis in our hypothesis four and conclude thereof that there is no significant relationship
657 between monetary policy rate and gross domestic product in Nigeria.

658 **Hypothesis five: There is no significant relationship between exchange rate and gross domestic product in**
659 **Nigeria.**

660 Having reported a coefficient of -0.042757 and probability of 0.6649, we therefore accept the null hypothesis at 5%
661 level of confidence and conclude thereof that there is no significant relationship between exchange rate and gross
662 domestic product in Nigeria.

663 **Discussion of research findings**

664
665 The variables subjected to the error correction test reveals that the **investment** parameter is positively but
666 insignificantly related to gross domestic product. The relationship is positive but insignificant. This implies that
667 when Investment Increases, the demand for loanable funds will increase which will increase the Interest Rate (Price
668 of Money).

669 By implication an increase in domestic investment will definitely lead to a positive change in economic growth and
670 development. In the model, **money supply** contributes positively to gross domestic product but in an insignificant
671 manner. This implies that a change in money supply by the apex bank-central bank will result to an increase in gross
672 domestic product.

673 **Inflation** carried a negative sign in the multivariate equation of the error correction model. This basically imply that
674 high inflation tends to discourage economic development as such individuals tend to redefine themselves and their
675 income to best fit persistent rise in prices of goods and services. This suggests that increase in Inflation will reduce
676 the value of money and increase interest rate for loanable funds, thereby reducing borrowing by investors and in turn
677 diminishing the output level of goods and services.

678 **Monetary policy rate** possess a positive relationship with gross domestic product. Judging from the result, this
679 variable failed the test of significance at 95 percent confidence level which is inconsistent with our appriori. MPR is
680 perceived to be a major determinant of interest rate in an economy and a positive relationship between MPR and
681 GDP implies that an increase in MPR and by extension Interest rate will lead to a rise in GDP. This result though it
682 is against the appriori could be occasioned by other factors other than the price of money (Interest Rate).

683 Concerning **Exchange rate**, a direct but insignificant relationship exists between the two variables. Large inflow of
684 funds from outside occasioned by increase in export due to a rise in the exchange rate of the local currency will
685 increase money supply which will in turn reduce interest rate . This will stimulate investment thereby increasing the
686 output level of goods and services.

687 The ECM result however, showed an inverse relationship which is not consistent with our appriori and known
688 economic theory. According to the World Bank, the history of the exchange rate of the Naira to the U.S \$ has been
689 N1.75/\$ in 1986, N9.91 in 1991, N21.88/\$ in 1996, N111.23 in 2001, N128.65 /\$ in 2006, N154.74 in 2011 and
690 N157.31/\$ in 2013 showing a steady fall in the value of the Naira to the U.S \$.

691 In the following indices given by the same World Bank (2014) for measuring the stability of exchange rate of any
692 countries currency: Countries income levels, level of development, economic structure, unemployment, corruption ,
693 rule of law and governance, financial development, Economic freedom, Globalization ,Internal and external
694 balances, Infrastructural development, Energy production and use, Health and education, Nigeria ranked low in
695 most of them, little wonder why the Naira kept falling even in times of seemingly increasing GDP. Drawing
696 implication from the above, we conclude that exchange rate did not contribute to the performance of Nigerian
697 economy given the GDP growth rate. Furthermore this result testifies the fact exchange rate depreciation retard
698 economic development while currency appreciation encourages or promotes developmental processes.

699 From the result of the co-efficient of determination which denotes that approximately 56% of the variations in gross
700 domestic product were determined or explained by our selected independent variables with unexplained variations
701 of about 44% which is ascribed to forces outside the model.

702 The F-statistics confirms how the variables are jointly related at 5% significant level given the probability value.
703 This further implies that our model significantly captured interest rate management and a good performance of the
704 Nigerian economy. Also the Durbin-Watson statistics of 2.09 approximately indicates the absence of serial
705 correlation among the successive error terms as expected following the assumptions of classical linear regression.
706 Generally drawing conclusion from the performance of the parsimonious error correction model carried out in the
707 analyses, we can accept our results without caution or fear since the is significant and rightly signed at -0.529994
708 implying that over 53% of deviation from the equilibrium will be corrected or adjusted over a year approximately.

709 The Breusch-Pagan-Godfrey test for Heteroskedasticity reveals the presence of no heteroskedasticity in the model.
710 This implies that the variance and mean of the error terms is not constant and this thus obeys the classical linear
711 regression postulations. In like manner, the result of Breush-Godfrey serial correlation test also allows us to accept
712 the null hypothesis that the data we employed in the analyses are not serially correlated with their respected error
713 terms.

714 Having ascertained the presence of long run relationship in the ECM and co integration tests in the model, The
715 result of Granger causality test did not established these correlations rather it went further to indicates the absence of
716 unidirectional or bidirectional relationship of any kind among our employed variables; meaning that the selected
717 variables of interest in the model did not lend full support to each other. This empirical evidence is due from the
718 insignificant nature of the parameters in the Error Correction Model.

719 **5. Conclusion**

720 All in all, the study could demonstrate that interest rate management has no critical effect on economic growth in
721 Nigeria. This repudiates the generally established relations between interest rate deregulation and these variables, as
722 introduced by the Mckinnon–Shaw money related freedom theory. This may notwithstanding, be because of the
723 inadequate deregulation and the effects of the other factors already mentioned.

724 From the findings of study, it was observed that there is no significant relationship between interest rate
725 management and gross domestic product which is in conformity with the economic expectation.

726 Since economist are of the opinion, that investable funds for economic development can largely be sourced through
727 the banking system, high monetary policy rate retard the economic growth in Nigeria; after critical consideration of
728 the effect of inflation.

729 From the discussion of findings, the following recommendations are necessary:

- 730 • Provision of adequate security and other infrastructure in the banking sub-sector will engender savings
731 culture on the citizenry, this will minimize leakages and naturally increase liquidity making loan able funds
732 available at an affordable rate.

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- Enforcing accountability especially in the financial sector will even encourage people to save for longer periods thereby guaranteeing liquidity in the economy at all times.
 - Competition should be encouraged among the providers of loan able funds; this in the long-run will bring interest rate down.
 - Inflation should be put at a reasonable level that will encourage no negative real interest rate thereby making credit affordable to investors and as such, boost the output level of goods and services.
 - Corruption needs to be brought to its knees as well as improve our energy generation and consumption; this will help a great deal in stabilizing the exchange rate of the naira.
 - CBN should continue with the interest subsidy on agriculture as this is capable of increasing Foreign Exchange earnings through export of Agricultural products.
 - The Bank will undertake a careful review of the liquidity ratio, Cash Reserve ratio to enable Deposit Money banks have available more fund to loan out to their customers
 - A careful review of the NDIC premium should also be undertaken in a bid to reduce cost of funds to Deposit money banks

753 The findings of this study has contributed to existing knowledge as it has empirically and scientifically revealed a
 754 strong link between interest rate management and economic growth in Nigeria. The study contributes to the existing
 755 body of knowledge as it helps to fill up all loopholes arising from other research works. Also, the findings of this
 756 study will aid an effective and efficient financing decision of projects by banks and other financial institutions in
 757 Nigeria. It will guide analysts, consultants, other professionals, leaders and even the entire populace especially as it
 758 relates to the effects of Interest Rates and its effect on Productivity.

759 It is important to equally state here that further research work could be carried out on the effect of interest rate on the
 760 Nigerian Economy using Fiscal Deficit as an additional variable and testing separately for the pre and post
 761 deregulation periods. Furthermore, this further work can apply other econometric tools to achieve its objectives. To
 762 this extent therefore this research work is suggesting the use of correlation analysis or discriminate analysis. All
 763 these will enable other researchers to evaluate the extent of the impact of interest rate on Productivity in Nigeria.

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References

- 770 Abiodun, (1988). Cited in Adofu et al (2010). An Assessment of the Effects of Interest Rates Deregulation in
 771 Enhancing Agricultural Productivity in Nigeria. *Current Research Journal of Economic Theory*. PP. 82 – 86.
 772 Akanye F., (1986), “Financial system regulation, deregulation and savings mobilization in Nigeria,” *AERC*
 773 *Research Paper No 11, Nairobi; AERC.*
 774
 775 Akintoye, I.R and P.S. Olowolaju, (2008).”Optimizing Macroeconomic Investment Decision: Lesson from Nigeria”
 776 *European Journal of Scientific Research* 22:469– 479.

- 777 Akpan (2004). "Financial Liberalization and Endogenous Growth: The case of Nigeria. *African Institute for*
778 *Economic Development and Planning (IDEP).*
- 779 Ani (1988). Cited in Adofu et al (2010) An Assessment of the Effects of Interest Rates Deregulation in Enhancing
780 Agricultural Productivity in Nigeria. *Current Research Journal of Economic Theory.* PP. 82 – 86
- 781
- 782 Anyanwu, J.C. (1993); *Monetary Economics :Theory, Policy and Institutions ;* Onitsha, Hybrid Publishers Ltd
783
- 784 Central Bank of Nigeria (2012) Handbook of Statistical Methods Denmark's National Bank Financial Statistics
785 Sources and Methodology
- 786
- 787 Central Bank of Nigeria, (2008) . Annual Report and Statement of Accounts. Abuja: *Central Bank of Nigeria.*
- 788 Central Bank of Nigeria (CBN): Statistical Bulletin December of various years- 2004,2005,2006
- 789 Central Bank of Nigeria (CBN), Annual Reports of Accounts 1999 – 2006
- 790 CBN (2004) . "Procedure manual for Processing Applications for Banks Mergers /Takeovers," Banking Supervision
791 Department, December.
- 792
- 793 CBN. (2013), "Central Bank Monetary Policy Committee," A meeting organized by CBN.
- 794
- 795 CBN. (2016). "Central Bank Monetary Policy Committee," A meeting organized by CBN
- 796 Engle, R. F. And Granger, C. W. (1987). Co-integration and Error Correction:
797 Representation, Estimation and Testing, *Econometric*, vol. 55,..
- 798
- 799 Eregha, P.B (2010). "Interest Rate Variation and Investment Determination in Nigeria". *International Business*
800 *Management 4(2): 41-46*
- 801
- 802 Fuller, W. A. (1990). Distribution of the Estimates for Autoregressive Time Series with Unit Root, *Journal of*
803 *the American Statistical Association*, 74(366).
- 804
- 805 IMF Staff (2002): Globalisation: Threat or Opportunity? [http:// www.imf.org/external/np/exer/ib/2000/041200.htm](http://www.imf.org/external/np/exer/ib/2000/041200.htm)
- 806
- 807 IMF. (2009). *Interest Rate Liberalization in China*. IMF Working Paper WP/09/171.
- 808
- 809 Jhingan, M.L. (2003) .Macro-Economic Theory. Delhi. Vrinda Publication (P) Ltd.
- 810 Kendall, P. (2000). Interest rates, savings and growth in Guyana. *Carribbean Development Bank: Economics and*
811 *programming Department. August 2000.*
- 812
- 813 Mckinnon, R.I. (1973). Money and capital market in economic development. Washington DC: The Brooking
814 Institute.
- 815
- 816 Ndukwe, E.C. (1991). Interest rates, bank deposits and growth of the Nigerian economy. *National Institute of Social*
817 *and Economic Research (NISER) Monograph Series. No.4,*
- 818
- 819 Nwakwo, G.O (1989) , Nigeria Financial System. Ibadan. Macmillan Publishers Ltd.
- 820
- 821 Obamuyi, T.M (2009). An investigation of the Relationship between Interest Rates and Economic Growth in
822 Nigeria, (1970-2006) *Journal of Economic and International Finance Vol. 1(4), pp. 093-098.*
- 823
- 824 Ogwuma, P. A. (1993) "The Control of Monetary and Banking System by Central bank of Nigeria(CBN)" Bullion,
825 20(2), April -June.
- 826
- 827 Ojo M.O, (1988). *Agricultural and Policy under Structural Adjustment Programme in Nigeria: A paper Presented at*
828 *the 1988 Annual Conference of the Economic Society at Obefemi Awolowo University, Ile Ife, Nigeria.*
- 829
- 830 Okereke E.J., T.A. Sanni, Anyanwu G.I. and S. Ogunbiyi (2009), Money and the Nigerian Financial System, 3rd
831 edition, Owerri, Jeso International
- 832
- 833 Reinhert, C & Ostry, J. (1995). *Savings and real interest rates in developing countries. Maryland: University of*
Maryland.
- 834 Shaw, E (1973). Financial Deepening in Economic Development. Oxford. Oxford University press.
- 835
- 836 Soludo, C.C. (2008). Issues on the level of interest rate in Nigeria. *Central Bank of Nigeria.* June, 2008.
- 837 Soyinbo, A. Olayiwola, K (2000). Interest Rate policy and the Promotion of Savings, Investment and Resources
838 Mobilization in Nigeria; Research Report 24. Development Policy Centre, Ibadan.

840 World Bank (2002): *Globalization, Growth and Poverty; A World Bank Policy Research Report*; Washington
841 D.C., The World Bank/ Oxford University Press.
842
843 World Bank (2007): *World Development Indicators*; Washington D.C. The World Bank
844
845 World Bank (2014): *Nigeria's Official Exchange rate*; Washington D.C.,The World Bank
846 <http://www.indexmundi.com/facts/nigeria/official-exchange-rate>
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