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# Bank Lending Rate and Economic Growth: Evidence from Nigeria

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#### Abstract

The relationship between bank lending rate and economic growth has generated intense debate and findings have been inconclusive. More so, bank lending rate has constituted serious limitation to the attainment of sustainable development and economic growth of the developing countries, Nigeria's inclusive. Hence, the need for further investigation becomes imperative. This study examined the relationship between bank lending and economic growth in Nigeria between 1980 and 2016. Data sourced from the various issues of Central Bank of Nigeria Statistical Bulletin was analyzed through Dynamic Ordinary Least estimation technique. Data treatment was done through stationarity and cointegration tests. The unit root test showed that the variables were integrated at order on I(0) except rate of bank lending, inflation and real exchange were integrated at order on 1(1). The result of cointegrated showed a long run relationship among the variables. The Results proved that a unit percent decrease in bank lending rate will bring about 118% increase in economic growth. Furthermore, the findings of Greenwood and Jovanovic Hypothesis established that as bank lending rate decreased, economic growth tend to increase and it is statistically significant at 1% level. The study concluded that a decreased in bank lending rate increased economic growth during the study period. Therefore, policy that will reduced bank lending rate should be put in place so as to boost economic growth in Nigeria. Keywords: Bank Lending Rate, Economic Growth, Money Supply, Interest Rate

#### Introduction

It is believed that low bank lending rate induce investment, increase income, increases consumption at the long run bring about inflation in the economy and in turns stimulating economic growth. But how true is this in real sense? Over the few decades, the determinants of economic growth have attracted increasing attraction in literatures. Yet, the process underlining economic performance is inadequately conceptualized and poorly understood and interpreted, something which can be partly attributed to the lack of generalized or unifying proposed theory and the myopic way conventional economic method in literatures. Hence, the development of

financial institutions become imperative in determine the active role of bank lending rate in a given economy. In performing their primary function of the intermediation, bank collects deposit from the surplus spending (unit) of the economy and lends it out to the deficit unit in form of loans and advances (Kalu, 2009). More so, lending practices in the world could be traced to the period of industrial revolution which increase the pace of commercial activities, production activities and technological changes, thereby bringing about the need for large capital outlays for project. Unfortunately, most of the captains of industry at this period were unable to meet up with the sudden upturn in the financial requirement and therefore turn to the banks for assistance over time. While, some studies (Kurihara, 2006; Ologunde, Elumilade & Saolu 2006) opined that the macroeconomic environment has significant implication on the stock market capitalization a portfolio investment technique such as inflation, money supply, demand for money, gross domestic product, exchange rates, interest rates and current account.

Following the emergence of banks in Nigeria in 1872 with the establishment of African Banks Corporation (ABC) and later appearance of other banks in the scene during the colonial era, witnessed the beginning of bank lending practices in Nigeria, though the practice of the then colonial banks were highly biased and discriminatory and could not be said to be a good lending practice as only the expatriates were given loans and advances and this were considered unsatisfactory by customers. This among others led to the establishment of banks in Nigeria. Now one can say that lending rate is the rates charged on loans to prime customers. Also, lending rate implies bank charge customers on loans and advances while interest rate means the rate at which a nations central lend money to domestic banks and also the domestic banks lend to the individuals. According to the recent decision of the Monetary Policy Committee (MPC) of the central bank of Nigeria (CBN) to reduce both the lending and interest rate on the monetary policy rate (MPR) and the cash reserve requirement (CRR) is a welcome agenda that can easily propel economic growth. It is expected that the reduction in lending rate would have positive effect on the economy if it is well implemented and close supervision by monetary authority.

According to Economic Analyst, the MPR is the benchmark, interest rate at which CBN lends money to commercial banks, whereas lending rate is the rate at which banks lend money to their customers and this implies that the role of bank credits in the growth of the economy cannot be over-emphasized. For instance, the federal government's Appropriation Bill for the year 2005 has one of its broad policy objectives to achieve a high economic growth rate (GDP of at least 5%) through a better mobilization and prudent use of economic resources. This objective is not achievable without significant level of resources from the financial sectors being mobilized and deployed to finance business expansion and growth. Banks has to be effective intermediaries for mobilizing and channeling deposits to the productive sectors of the economy. Since independence in 1960, commercial banks in Nigeria have been playing an important role in development process of the nation. The MRR has undergone some fluctuations since 1987 to date as a result of the changes in the CBN policies which in turn have changed the overall economic conditions. In august 1987 was 15.0% and was reduced to 12.75% in December of 1987 with the objective of stimulating investment and growth in the economy. In 1989, the MRR was raised to 13.25% in order to contain inflation to further liberalized interest rate management, the cap on interest rate was lifted in 1992 and re-imposed in 1994 when inflationary spiral could not be contained. The advent of Structural Adjustment Programme (SAP) in Nigeria in 1986, made

the lending practice of banks to be strictly regulated under the close surveillance of the banks supervisory bodies.

Since 2004, the monetary policy committee of the Apex Bank of Nigeria has been meeting to deliberate and if possible fix the monetary policy rate depending on the performance of the economy. In 2004, the lending rate was 20% while the minimum rediscount rate (MRR) was 15% the time deposit rate for the same period was 10.8% while saving rate was 4.9% (World Bank, 2015). In support, International Monetary Fund (IMF, 2016) reported lending rate raged from 17.59% to 17.00% while the economic growth was 9.97% to 2.70% in between 2010-2016 in that order. In the similar view, in between 2000-2005, World Bank (2015) reported lending rate was 21.27% to 17.95% while economic growth rate was 7.70% to 8.68% respectively. This implies that as bank lending rate decreases, economic growth hardly increased and this is hindered by undermined factors in which the study seeks to examine in the economy.

As observed by Baum, Mustafa and Nestihan (2005), a very limited attention has been paid to this area of study even in the developed economies. The expectation of lending interest rate was that it will encourage domestic savings and make loanable funds available in the banking institution but the criticism has been that the "tunnel-like" structure of interest rate in Nigeria is capable of discouraging savings, and retarding growth (Ojo,1976). Moreover, it is expected that bank lending play an important role in investment decision making and economic growth. Therefore, economic policy makers, businessmen, entrepreneurs in developing economies have traditionally focused on the necessity of keeping bank lending rate low in order to encourage private domestic investors which in turns bring about economic growth. Furthermore, previous studies have examined the relationship between bank lending rate and economic growth. Some studies found positive relationship between bank lending rate and economic growth (Nicholas, 2010; Obamuyi & Olorunfemi, 2011; Noula, 2012; Bouga & Bouga, 2011) while Giovanni and Shambaugh (2007), Gouseh and Oritsejafor (2007) Williams (2009) opined negative relationship existed between the variables. But Onwumere, Okore and Ibe (2012), Obute, Asor and Itodo (2012) report no relationship between interest/lending rate and economic growth.

Findings from previous studies on the relationship between bank lending rate and economic growth are inconclusive. Moreover, it is an attempt to explain the divergent views positive and negative on the relationships between bank lending rate-economic growth nexus has led to consideration of Greenwood-Jovannovic hypothesis which predicts an inverted U-shaped relationship between bank lending rate and economic growth. That is, bank lending rate may improve economic growth at the early period; but, then, tends to lower it when average investors/ entrepreneurs gain access to financial institutions. Theoretically, lending rate is low and it is expected to fostering economic growth. The question is how applicable is this theory in real sense to Nigeria? Thus, this is motivated by examined the relationship between bank lending rate and economic growth in Nigeria using Dynamic Ordinary Least Square (DOLS) method for the period 1980-2016. Hence, this study seeks to fill the gap. To guide this study, the following questions were raised-what is the nexus between bank lending and economic growth? is Greenwood-Jovannovic Hypothesis applicable to Nigeria?

The rest of this paper is organized as follows. Following this introduction, section two provides literature review. Section method of analysis, section four deals with results and discussions. Section five concludes the study. However, the paper will be significance in Nigerian

economy in the following ways: firstly, the worrisome outcome from bank lending issues (fluctuations of Bank lending rate, high cost of borrowing) in Nigeria calls for the need to investigate the nexus between the variables. Secondly, establishing a link between bank lending rate and economic growth is necessary for individuals, economists, policy-makers, researchers and analysts, if improvement and policy efficiency are to be achieved. Finally, the paper will provide effective policy-guidelines capable of helping individuals, bankers, researchers, analysts and policy-makers to foster economic growth through astute bank lending and, also, to add to the existing body of knowledge.

#### **Literature Review**

The relationship between bank lending rate and economic growth has generated lots of contradictions in economic thinking. Some researchers argued that bank lending rate promotes economic growth while others said it hampers economic growth. Tridico (2007) opined that low bank lending rate stimulates economic growth as a complex issue which needs positive interaction of several socio-economic and institutional factors. While Gruseh and Oritsejafor (2007) argued that bank lending rate affects n economic growth in Nigeria. In other studies, conducted in Nigeria found positive relationship bank lending rate and economic growth (Nicholas, 2010; Obamuyi & Olorunfemi, 2011; Obamuyi, 2009; Chete, 2006; Habbullah & Eng, 2006; Olutan, 2009; Noula, 2012; Bouga & Bouga, 2011). Diego (2003) found similar result from his study of fifteen European Union economies, using panel estimation technique. Habibullah and Eng (2006) conducted causality testing analysis on 13 Asian developing countries and also found that bank lending promotes economic growth.

However, Giovanni and Shambaugh (2007), Gouseh and Oritsejafor (2007), Agu (1988), Williams (2009) found inverse relationship between bank lending rate and economic growth. Using least square and Granger causality methods, Akinboade (2004) found no consensus on the relationship between bank lending rate and economic growth in Nigeria. The findings ranged from positive to negative and unidirectional to bi-directional or no directional between the variables.

Eregha (2010) explored variations in interest rate and investment determination in Nigeria for the period 1970-2002 using dynamic model of two equations and found that inverse relationship exists between interest rate and investment. In Romanian, Albu (2006) found positive and significant relationship between interest rate and economic growth using tow partial models. In support, using ECM, Nwachukwu and Odigie (2009), Rasheed (2010) opined that positive relationship existed between real interest rate and economic growth and statistically significant within the estimated model. However, Obute, Asor and Itodo (2012) reported no relationship between the real bank lending rate and economic growth.

Other related studies, the likes of Onyishi and Ifiorah (2015) who examined the impact of interest rate reform on agricultural finance and growth in Nigeria employing OLS and ARDL methods. They found that interest rate has significant effect on agricultural sector and economic growth. whereas, Onwumere, Okore and Ibe (2012) found no relationship between interest rate, savings mobilization and economic growth. Majority of the studies spanned between 1980 and 2012. Furthermore, findings from previous studies on the relationship between bank lending rate-economic growth are still debatable in literature due to divergent views. Moreover, it is an attempt to explain the divergent views positive and negative on the relationships between bank

lending rate-economic growth nexus has led to consideration of Greenwood-Jovannovic hypothesis which predicts an inverted U-shaped relationship between bank lending rate and economic growth, which previous studies failed to consider. Thus, this study seeks to fill the gap by examining the relationship between bank lending rate—economic growth nexus in Nigeria using DOLS method for the period 1980-2016.

#### **Method of Analysis**

The data series for this study was sourced from secondary sources. The sources are various edition of the Central Bank of Nigeria Statistical Bulletin within the period of 1980-2016. The study made use of the following data series as follows;

- economic growth is proxy for real gross domestic product (RGDP)
- bank lending rate is capture by rate of discount loan to customers (BLD)
- inflation rate is measure by consumer price index (INFL)
- real interest rate is capture by rate of discount from Apex to deposit money bank (INTR)
- deposit rate is proxy for interest accrue on savings by customers (DR)
- money supply is measure aggregate total stock of money in circulation (MSR)
- real exchange rate is measure by rate of naira and other currencies of the world especially dollar per year (EXR)

This study adopts Obamuyi (2009) model with little modification. According to the model, economic growth is a function of real lending rate, real deposit rate, ratio of domestic savings, ratio of broad money to GDP, inflation and dummy variable, and this is mathematically written as:

RGDP = f (RLR, RDR, FID, INF, DSG, FPS)

(1)

The model of Obamuyi (*ibid*) is modified such that real exchange rate is incorporated into the model. As observed over the years, any variation in real exchange rate tend to affect bank lending rate domestically. It fluctuates on hourly, daily and weekly basis over the years. There is no limit to variability. This fluctuation has made naira to be very unstable and its value reduced to the barest minimum which in turns influence economic growth. In view this, the functional relationship between bank lending rate and economic growth is specified as follows:

RGDP = f (BLD, INFL, INTR, DR, MSR, EXR)

(2)

(3)

Equation (2) is written as:

 $InRGDP_{t} = \alpha_{0} + \alpha_{1}BLD_{t} + \alpha_{2}INFLt \alpha_{3}INTR_{t} + \alpha_{4}DR_{t} + \alpha_{5}InMSR_{t} + \alpha_{6}EXR_{t} + U_{1}$ 

Equation (3) is used to achieve objective 1 (bank lending rate-economic growth nexus). Moreover, to achieve the objective 2, (test the Greenwood-Jovanovic Hypothesis in relation to Nigeria using an inverted U-shaped relationship between bank lending and economic growth. the model is specified as:

InRGDP<sub>t</sub> =  $\alpha_0 + \alpha_1$ BLD<sub>t</sub>+  $a_2$ BLD<sup>2</sup><sub>t</sub> + U<sub>2</sub>

(4)

Where bank lending rate is squared (BLD<sup>2</sup>)

The study used pre-test-i.e., stationary and co-integration to examine the relationship between the variables in Nigeria. The use of unit-root tests to determine the stationarity of the variables in the short-run, by the Augmented Dickey–Fuller (ADF) test. Also, the study used cointegration Mechanism to investigate the long-run equilibrium level existing between the response and independent variables in each of the models. In addition, the DOLS was applied to establish the coefficients or the types of relationship that exist and the degrees of the

relationship in the model in Nigeria. Furthermore, Granger Causality test is also used to strengthen the findings of the study.

#### **Empirical Results**

#### Pre-Test Analysis

#### Table 1: Test for Unit Root

Variables	<b>Test Statistics</b>	0.05 Critical Value	Order of Stationary	Remark
RGDP	(5.532459)	(2.948404)	1(0)***	S
BLD	(5.132956)	(2.954021)	1(1)**	S
INFL	(5.515203)	(2.954021)	1(1)**	S
INTR	(3.628372)	(2.948404)	1(0)***	S
DR	(3.414857)	(2.948404)	1(0)***	S
MSR	(3.268589)	(2.948404)	1(0)***	S
EXR	(5.919467)	(2.951125)	1(1)**	S

Source: Researcher's computations, 2018.

Where: S = Significance;

 $1(0)^{***} = |eve|$ 

 $1(1)^{**} = 1^{st}$  difference

The Table 1 showed that the economic growth, real interest rate, deposit rate, and money supply were found stationary at levels whereas bank lending rate, inflation rate and real exchange rate were found to be stationary at 1<sup>st</sup> difference in the estimated model within the period. Thus, the findings showed that the data series were stationary in the model.

#### **Table 2: Test for Johansen Co-Integration Results**

Result of Cointegration Test

Trace Statistic	0.05 Critical Value	Hypothesized No of CE(S)	Prob**
170.5786	125.6154	None *	0.0000
118.1952	95.75366	At most 1 *	0.0006
73.56986	69.81889	At most 2 *	0.0243
39.45552	47.85613	At most 3	0.2426
19.72363	29.79707	At most 4	0.4417
7.028701	15.49471	At most 5	0.5743
0.194493	3.841466	At most 6	0.6592
Max-Eigen Statistic	0.05 Critical Value	Hypothesized No of CE(S)	Prob**
52.38346	46.23142	None *	0.0098
44.62531	40.07757	At most 1 *	0.0144
44.62531 34.11434	40.07757 33.87687	At most 1 * At most 2 *	0.0144 0.0468
44.62531 34.11434 19.73189	40.07757 33.87687 27.58434	At most 1 * At most 2 * At most 3	0.0144 0.0468 0.3600
44.62531 34.11434 19.73189 12.69493	40.07757 33.87687 27.58434 21.13162	At most 1 * At most 2 * At most 3 At most 4	0.0144 0.0468 0.3600 0.4807
44.62531 34.11434 19.73189 12.69493 6.834209	40.07757 33.87687 27.58434 21.13162 14.26460	At most 1 * At most 2 * At most 3 At most 4 At most 5	0.0144 0.0468 0.3600 0.4807 0.5089

**Source:** Researcher's Computation, 2018.

The Table 2 provides the results from the application of Johansen co-integration test among the data series and found integrated in the model using maximum eigenvalue and the trace tests. The findings suggest that there exists long-run equilibrium relationship among the variables. Since the data series revealed both short and long-run relationship, the study therefore estimated a long run model using DOLS.

Variable	Coefficient	Std. Error	t-statistic	Prob.
BLD	-1.186485	0.444077	-2.671801	0.0283 ***
INFL	-0.378725	0.218245	-1.735321	0.1209
INTR	0.101771	0.406928	0.250095	0.8088
DR	1.819751	0.403289	4.512277	0.0020 ***
MSR	0.817613	0.244245	3.347511	0.0019
EXR	0.006617	0.040367	0.163920	0.8739
С	16.05919	14.29089	1.123736	0.2937
R-squared C	.679997			
Durbin-Watson stat 2.954551				

## Table 3: The Empirical Result of Dynamic Ordinary Least Square Dependent Variable: RGDP

Source: Researcher's Computation, 2018.

The table 3 reveals that the relationship between bank lending rate (BLD) is negative and statistically significant at 5% level. Findings show that a unit percent increase in bank lending rate led to about 1186 percent decrease in economic growth in Nigeria. Furthermore, *ceteris paribus,* inflation rate (INFL) shows a negative sign with economic growth in the model, although it is not statistically significant. The results prove that a unit percent increase in inflation rate brings about 37.9% decrease in economic growth. Moreover, a positive but not significant relationship exists between real interest rate and economic growth in Nigeria and this implies that a unit percent increase in real interest rate will bring about 10% increase in economic growth. In the same way, holding other variables constant, deposit rate (DR) has a positive sign (1.819751) in the model and it is statistically significant at 1% level. The findings show that a unit percent increase in deposit rate brings about 181 percent increase in economic growth.

Furthermore, positive relationship exists between money supply and economic growth in the model and this suggests that a unit percent increase in money supply led to about 82% increase in economic growth within the model. In the same view, positive relationship exists between real exchange rate and economic growth and this implies that a unit percent increase in real exchange rate improves economic growth by 6% percent. However, if all the explanatory variables excluded from the estimated model, the value of the constant value is shown at 16.05919 positive in the model. This means that the intercept value ( $\alpha_0$ ) has significant relationship with economic growth within the period of study.

#### Test for the Goodness of the Model (Coefficient of Determination (R<sup>2</sup>)

The R-square (R<sup>2</sup>) shows the predictor power of a model and it is derived to be 0.679997; using DOLS approach. This implies that data series used in the estimation explain about 68% systematic variation on economic growth in Nigeria, while the error term accounts for the 32% variation in economic growth, outside the estimated model.

#### Test for Auto-correlation using Durbin-Watson Test

This is used in examining the presence of auto-correction. Since the Durbin-Watson statistic is marginally above to 2 i.e., 2.954551- in the estimated model, then, it can be concluded that there is absence of auto-correction in the estimated model.

#### Estimate of Greenwood-Jovanovic Hypothesis Table 4: Regression Result of Greenwood-Jovanovic Hypothesis

Dependent Variable: RGDP

Variable	Coefficient	Std. Error	t-statistic	Prob.	
BLD	0.867402	0.241271	3.595138	0.0010 ***	
BLD <sup>2</sup>	-0.126970	0.011505	-11.03607	0.0000 ***	
R-squared	0.292200				
Durbin-Watson stat 2.018787					

Source: Researcher's Computation, 2018.

\*\*\* denotes significance at 1% level

Table 4 shows the coefficient of bank lending rate is positive (0.867402) on economic growth in the estimated model. The empirical result proves that a 1% increase bank lending rate will lead to about 87% increase in economic growth and it is statistically significant at 1% level. Furthermore, bank lending rate (BLD<sup>2</sup>) using Greenwood-Jovanovic test hypothesis shows an inverse relationship between bank lending rate and economic growth and, it is statistically significant at 1% level. The finding suggests that 1% change in bank lending rate would lead to about 13% increase in the model. as suggested by Greenwood-Jovanovic hypothesis which states that bank lending rate influenced economic growth. In addition, the R-square (R<sup>2</sup>) reveals the predictor power of a model and it is derived to be 0.292200. This implies that bank lending rate and bank lending rate square (BLD<sup>2</sup>) explains about 30 percent systematic variation on economic growth for the period 1980-2015 in Nigeria. The empirical result establishes that there is a both positive and significant long-run relationship between bank lending rate and economic growth in the model.

#### **Discussion of Findings**

The study examined the nexus between bank lending rate and economic growth, with aimed of assessed the Greenwood and Jovanovic Hypothesis in relation to Nigeria. The findings prove that strong relationship existed between bank lending rate and economic growth in Nigeria. Thus, a high bank lending rate discourages investors, businessmen and entrepreneurs from accessing deposit money banks which turns hindered economic growth while a low bank lending rate encourages to access loan with little cost and thereby bring about economic. This result is in agreement with the prediction of economic theory and existing studies (Nicholas,

2010; Obamuyi & Olorunfemi, 2011; Obamuyi, 2009; Olutan, 2009; Noula, 2012; Bouga & Bouga, 2011) who surmise that positive and significant relationship exited between bank lending rate and economic growth. More so, in term of method applied, Nwachukwu and Odigie (2009), Rasheed (2010) opined that positive relationship existed between bank lending rate and economic growth and statistically significant in the estimated model.

However, the conclusion opposes Giovanni and Shambaugh (2007), Gouseh and Oritsejafor (2007), Williams (2009) who opined that an inverse nexus existed between bank lending rate and economic growth. The findings prove that a low in bank lending rate increases demand for money by an average Nigerian which, ultimately, lead to economic growth within the economy. Again, more access to deposit rate in the banking sector have positive effect on economic growth in Nigeria. But, other studies who surmise that no nexus between bank lending rate and economic growth while Akinboade (2004) who found unidirectional and bi-directional Granger causal relationship between the variables and no consensus on the relationship between bank lending rate and economic growth using Granger Causality and OLS techniques. By implication therefore, the study suggests that policy makers, financial institutions via CBN should provide adequate deepening financial system through innovations, necessary and effective regulation and supervision, a sound and efficient legal system, sufficient funds by DMBs and making such funds available for investment with bearable rate, so as to boost economic growth in Nigeria.

The Greenwood and Jovanovic Hypothesis used to this study shows that bank lending rate has a significant relationship with economic growth; and, it is statistically significant at 1% in the model. The findings imply that economic growth increases as bank lending rate decreases at very low levels and, also, in agreement with Clarke *et. al.*, (2007) who found an inverted U-shaped relationship between economic growth and bank lending rate. This implies that economic growth rises first as the bank lending rate reduces before eventually attracting more investors to access financial institutions with low rate, but in the long run as more people gain access to the system bank lending rate tend to rise while economic growth gentle reduces over a time in Nigeria. Thus, the Greenwood and Jovanovic Hypothesis is applicable to Nigeria.

#### **Concluding Remarks**

The study considered the relationship between bank lending rate and economic growth in Nigeria between 1980 and 2016 using dynamic ordinary least method. Data treatment was done through stationarity and co-integration tests. The unit root test showed that the variables were integrated and co-integrated in the estimated model. The DOLS results proved that positive relationship existed between bank lending rate and economic growth. Furthermore, the findings of Greenwood and Jovanovic Hypothesis established that as bank lending rate decreased, economic growth tend to increase and it is statistically significant at 1% level. From the findings of the study, the study revealed that as economic growth increased, bank lending rate tend to decrease within the study period. Also, Greenwood and Jovanovic hypothesis showed an inverse relationship between bank lending rate-economic growth nexus. By implication, the study established that as financial development improves (gain access to funds), bank lending rate reduces and proved that Greenwood and Jovanovic Hypothesis is applicable to Nigeria. Given the findings of the study, it is expected that this will serves as effective policy-guidelines capable of helping individuals, bankers, researchers, analysts and policy-makers, so as to fostering economic

growth through astute bank lending in Nigeria. The study concluded that economic growth is highly influenced by bank lending rate in Nigeria. Therefore, policies that will reduce bank lending rate put in place so as to boost economic growth. It is therefore recommended that for the economy to experience growth, financial development must be comprehensively improved as this will subsequently reduce lending rate. Other policies that will reduced bank lending rate should be put in place so as to boost economic growth in Nigeria.

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