Credit Risk Management: Implications on Bank Performance and Lending Growth in Nigeria

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ABSTRACT

This study investigates the impact of credit risk on banks' performance in Nigeria. A panel estimation of six banks from 2001 to 2016 was done using the random effect model frame work. Our findings show that credit risk is negatively and significantly related to bank performance measured by return on assets (ROA). This suggests that an increased exposure to credit risk reduces bank profitability. We also found that total loan has a positive and significant impact on bank performance. Therefore, to stem the cyclical nature of non-performing loans and increase their profits, The banks should adopt an aggressive deposit mobilization to increase credit availability and develop a reliable credit risk management strategy with adequate punishment for loan payment defaults.

Keywords: Bank performance, Credit risk, Return on assets, Deposit mobilization, Non-performing loans, and Random effect.

INTRODUCTION

The banking industry in Nigeria is in the business of providing financial capital to the business community as well as individual customers. Banks do this with the expectation of achieving targeted rates of returns on the extensions of credit over a period of time, and eventually reclaiming their principal with interest. Any extension of credit carries with it the risk of non-repayment, under the terms of the financial relationship between the financier and an individual or corporate organization. Based on this fact, banks have a strong vested interest in performing extensive due diligence, prior to committing funds, and on a regular basis to minimize credit risk and achieve an enhanced value for their organization.

Since most banking assets are loans and advances, the process of assessing the quality of bank credit and its impact on the bank's financial condition is critical. As rightly observed by [1], it is unfortunate that one of the most serious deficiencies prevalent among Nigerian banks has been the inability of their management to identify problem assets. This, according to [2], is borne, perhaps out of ignorance or intense desire to declare huge profits at the end of the financial year. As a result, balance sheets often do not reflect the banks' true financial condition, while profit and loss account often over state profits from which taxes and dividends are paid. Whenever the bank's supervisors and regulators discover such deficiencies, the affected banks are often required to make up for the shortfall in provisions with adverse consequences for their financial statements. The profit for the emerging period is usually wiped off while the resultant losses would negatively affect the banks' assets quality as well as their capital adequacy ratios.

Assets quality reflects the state of existing and potential credit risks associated with loan and investment portfolio, real estate owned, and other assets, as well as those relating to off balance sheet transactions. The ability of management to identify, measure, monitor and control credit risk is central to asset quality because loans and advances constitute the largest risk assets carried by banks [3]. Consequently, a problem with the loan portfolio passes a guilty verdict on the management, and it is synonymous with a problem with the bank.

Credit risk arises when an obligor fails to perform its obligations under a trading or loan contractor when its ability to perform such obligations is impaired

resulting in an economic loss to the bank (CBN, 2000). It does not only arise when a borrower defaults on re-payment of a loan or settlement of principal and interest, but also when its repayment capability declines. [4] defined credit risk as the probability that a payment will not be fully settled because the debtor becomes insolvent.

The issue of credit risk in the bank lending activities is of serious concern to the bank authorities and regulators because of the high levels of perceived risks resulting from some of the characteristics of clients and their business environment, which can easily cause banks symptomatic distress. Given the strong association between bad credit risk policy, inadequate internal supervision and weak management, bad credit risk management typified by poor lending practices could be taken as the most serious causes of distress in the Nigerian financial service industry. Poor management of credit risk leads to the accumulation of non- performing loans (NPLs), which has become a serious problem in the Nigerian banking industry. Non- Performing Loan (NPLs) reduces the liquidity of banks, credit expansion and its lows down the growth of the real sector with direct consequences on the performance of banks, the firm which is in default and the economy as a whole.

The Asset Management Corporation of Nigeria (AMCON) was established by the Federal Government in July, 2010 to buy off trillions of toxic assets to stave off a major collapse of the Nigeria banks. Having succeeded in buying off about 95% of the non-performing loans, the corporation has achieved the primary purpose for which its act was made, with a cave at not to buy new non-performing loans. Before AMCON was created, the country witnessed a consolidation and clean-up of the banks under former Central Bank of Nigeria CBN governors: Charles Soludo and Sanusi Lamido, because most of the banks were substantially under- capitalized, arising mainly from non-performing loans. As at January, 2006 when the banking licenses of 14 banks were revoked, due to their failure to meet the mini mumre-

capitalization directive of the CBN, some of the banks had ratios of non-performing credits that were up to 80% of loan portfolios. In 2000 for instance, the ratio of non-performing loans to total loans of the industry was 21.5% and as at the end of 2001, the ratio had improved to16.9%. In 2002, 2003 and 2004, the ratio deteriorated to 21.3%, 21.6% and 23.8% respectively. However, in 2005, 2006, 2007 and 2008 there were consistent improvement of; 18.1%, 8.8%, 8.4% and 6.3% respectively. (NDIC and CBN Annual Reports; various years). Unfortunately, non-performing loans is becoming cyclical in Nigeria. The Deposit Money Banks recorded a N56.31 billion increase in non-performing loans from August 2013 to August 2014. The increase in non-performing loans from N344.26 billion as at August, 2013, to N400.57 billion, as at August 2014, represents a 16.36% increase. Also, total credit recorded a growth rate of 23.8% in 2004, 30.4% in 2005, 40.9% in 2006, 82.7% in 2007 and 62.3% in 2008. (CBN Annual Reports; various years). Gross loans by the banks increased by 21.03%, from N9.278trillion in August, 2013 to N11.229 trillion as at August, 2014.

However, in spite of the alarming credit risk exposures, the profit ability of the Nigeria banks seems not adversely affected. Some banks with high level of NPLs, occasioned by poor credit risk policies, declared positive performances, reflected by good profit margin on the profit and loss account and balance sheet. In the light of the seemingly contradiction, the study is guided by the following research questions: What is the impact of loans on banks' profitability in Nigeria? What is the effect of Non-performing Loans on the profitability of the Nigerian banks?

The broad objective of this study is to examine the effect of credit risk on banks performance in Nigeria. The specific objectives are to: examine the impact of loans on profitability of the Nigerian banks; determine the effect of non-performing loans on banks profitability in Nigeria. Toad dress there search questions, and achieve the objectives of this study, it is postulated that there is no significant relationship between non-

performing loans and banks profitability. Also, there is no relationship between loans and banks profitability in Nigeria.

This study is very timely, considering the falls in the international price of crude oil amidst the quantum of banks' exposure to the oil and gas sector, combined with credit risk managements deficiencies revealed by the recent risk based supervision, there is a need to proactively guard against a crystallization of credit risk. Also Nigerian banks are currently undergoing reforms, and credit risk exposure is evolving at an alarming rate and for the reforms to have meaningful impact, a conscious effort has to be made to arrive at a reliable framework for banks to develop a reliable credit risk management strategy, to provide a platform for efficient and effective banking practices. Also, this research work will provide a clear understanding of the concepts of credit risk and bank performance, so as to generate reliable.

information which the bank management could use to appraise their strategies, plans and designs, and underscores areas for improvement.

On the whole, the study is divided into five sections. Section 1 deals with the introduction of the study; section 2 contains the review of relevant literature; section 3, focuses on variables, model and estimation technique. Section 4 provides the findings and major results and section 5 concludes the research work with useful policy recommendations.

LITERATURE REVIEW: THEORETICAL BACKGROUND

According to [5], credit refers to a situation whereby card is issued by banks allowing the holder to draw money from its branches and use its cheque in payment for goods and services with a maximum for each occasion. Credit can be financial resources in form of over draft, personal loan, bridging loan, local purchase, order credit, direct credit facility, probate advance, export credit, import facility, equipment leasing etc., which banks make available for its customers at a rate of interest (cost of fund) which the later will pay on the facility to pave way for profit margin.

Credit risk arises from the potential that a creditor is either unwilling to perform an obligation or his ability to perform such obligation is impaired, resulting in economic loss to the bank. [6] stressed that credit risk is the risk that an asset or loan becomes irrecoverable, in the case of total default or the risk of delay in servicing of loans and advances. Hence, when this occurs or becomes persistent, the performance of the bank is affected. In a bank's portfolio, losses often stem from outright default due to inability or unwillingness of a customer to meet commitments in relation to lending, trading, settlement and other financial transactions. Alternatively, losses may result from reduction in assets value due to actual or perceived deterioration in credit quality. Credit risk emanates from a bank's financial exposure to dealing with individuals, corporation, financial institutions or a sovereign. [7] defined credit risk as a risk based on the assumption that a borrower would default in repayment to the lender. In addition to direct accounting loss, credit risk could also be viewed in the context of economic exposures. This encompasses opportunity costs, transaction costs and expenses associated with a non-performing asset over and above the accounting loss. It can be further sub-categorized on the basis of reasons responsible for default. For instance the default could be due to country in which there is exposure or problems in settlement of financial transaction. Moreover, it does not necessarily occur in isolation, the same source that endangers credit risk for the banking institution may also expose it to other risk. For instance, a bad portfolio may attract liquidity problem. According to [8], for most banks, loans are the largest and the most obvious source of credit risk, however, credit risk could stem from activities relating to both on and off balance sheet transactions.

EMPIRICAL REVIEW

Empirical evidences and results of various studies show a mixed trend on the effect of credit risk on Bank performance. While some established a negative relationship between credit risk and bank performance, other found a positive relationship. In the extreme is the study that found no relationship between credit risk and bank profitability. Also, some of the studies considered the overall risk as a determinant of bank performance, others focus on credit risk as the major risk affecting bank profitability.

On studies that found an inverse relationship between credit risk and bank performance, [8], in a panel of European, North America and Australian banks, found that the level of credit risk tend to be negatively associated with banks profitability. [9] argued that volatility of bank profitability is mainly due to credit risk. Specifically, they established that change in bank profitability is often due to an increased exposure to credit risk.

[10] investigated the determinants of bank profitability using a panel of multi-country setting of 18 European countries from1986 to 1989 time period. Their findings suggest a negative relationship between credit risk and bank profitability. The findings of [11] also shows that banks that have higher loan portfolio with lower credit risk improve on their profitability. Also, [12] suggest a significant negative relationship between credit risk and bank profitability, because a higher loan or asset ratio increases bank exposure to unpaid loans and hence a reduced profit margin. In the same direction, [13] found that loan loss provision has a positive and significant influence on non-performing loans. Hence, an increase in loan loss provision implies an increase in credit risk and deterioration in the quality of loans, leading to an adverse effect on bank performance. [14] examined the determinants of Islamic banks' profitability using a sample of Islamic banks from 21 countries. They found that a higher loan ratio has a negative impact on the banks' profitability.

[15] Adopted dynamic panel data models to investigate the effect of credit risk on the profitability of Greek banks. Their findings show that credit risk is negatively and significantly related to profitability. The result implies that an increased exposure to credit risk lowers profits. Similarly, [16] examined the influence of credit risk management on bank performance. Their findings suggest that bank profitability is inversely related to the ratio of non-performing loan to total loan of banking institution. In a study on effective credit processing and administration as a panacea for non-performing assets in the Nigerian banking system, [17] identifies non-performing credit as the major threat to the profitability of banks in Nigeria.

[18] investigated the impact of credit risk on the profitability of Nigerian banks, using data on six selected banks for the periods of 2004 to 2008. The ratio of non-performing loans to total loans and advances and the ratio of total loans and advances to total deposit were used as indicators of credit risk while return on asset indicates performance. From their findings, it is established that banks profitability is inversely influenced by the levels of loans and advances, non-performing loans and deposits, there by exposing the banks to great risk of illiquidity and distress. Also, [19] in their study approximating credit risk by the loan loss provisions over total loans ratio, suggest a negative relationship between credit risk and banks' profitability.

[20] examined the determinants of banks profitability in Turkey over the time period from 2002 to 2010. In that study, the bank profitability is measured by return on assets (ROA) and return on equity ROE), while credit risk is proxied by loans to total assets and loans under follow-up to total loans. In their findings, the ratios of loans/assets and loans under follow-up/total loans are found to have negative and significant impact on profitability.

[17] carried out an empirical investigation into the quantitative effect of credit risk on the performance of commercial banks in Nigeria over the period from 2000 to 2010. In their panel model approach, profitability is proxied by return on assets and credit risk by; the ratio of non-performing loan to total loans and advances, ratio of total loans and advances to total deposit and the ratio of loan loss provision to classified loans. Their findings show that the effect of credit risk is similar across banks in Nigeria and that an increase in non-performing loan and loan loss provision reduce profitability. The results further shows that an increase in total loans and advances increase profitability.

In a study using Costa-Rican banking industry for a period of 1998 to 2007, [13] investigated bank performance in the presence of risk. Their findings show that performance improvements follow regulatory changes and that risk explains differences in banks and non-performing loans negatively affect return on assets and efficiency. [11] analyzed the determinants of bank profitability in Nigeria over the time period from 1998 to 2012, using a panel data model. The results shows that credit risk has a negative and significant effect on bank profitability.

On studies that found a direct relationship between credit risk and bank performance [9] examined the determinants of profitability of Domestic UK commercial banks from the period of 1995 to 2012. The findings of their study provide the evidence that credit risk affect positively the bank profitability. The study carried out by [7] to examine the impact of bank concentration, regulations, financial and institutional development on bank profitability in middle East and North Africa countries from 1989 to 2005, found that credit risk has positive and significant effect on bank profitability

and cost efficiency. [5] investigated the relationship between credit risk and profitability of some selected banks in Ghana, using a panel of six selected banks for a period of five years from 2005 to 2009. Their study represents

one of the few attempts to account for credit risk beyond non-performing loans. From their results, credit risk (non-performing loan rate, net charge-off rate, and pre-provision profit as a percentage of net total loans and advances) has a positive and significant relationship with bank profitability. The results indicate that banks in Ghana enjoy high profitability in spite of high credit risk. Using a dynamic model specification, [4] examined the explanatory factors of bank performance in Tunisia over the period from 1998 to 2011. Their results clearly show that credit risk proxied by the ratio of non-performing loans to total loans, has positive impact on bank profitability.

However, contrary to the findings of the studies above, [11] investigated the effect of credit risk management on the profitability of commercial banks in Kenya from 2004 to 2008 period, and found that the bulk of the profits of commercial banks are not influenced by the amount of credit and non-performing loans. His interesting but quite surprising results show that credit risk indicators have no relationship with bank profitability.

Overall, the existing literature provides a rather comprehensive account of the effect of credit risk on bank performance, but the empirical results vary significantly. Also, the time dimension of the panels used in most of the empirical studies is too small to appropriately capture the effect of volatility of credit risk on bank profitability. Finally, literature describing the effect of credit risk on the Nigerian banking sector is sparse. Therefore, more studies are needed to address the above issues satisfactorily, in order to allow a better insight in to the effect of credit risk on bank profitability, especially in Nigeria.

Variable Description, Model And Estimation Technique
Variable description Bank performance:
In the literature, bank performance is usually measured by profitability. Also, profitability
Is normally proxied by two alternative measures: the return on assets (ROA),

which is the ratio of profits to assets and return on equity (ROE), which is profit to equity ratio. Generally, ROA shows the ability of banks management to generate profits from the banks' assets, which may be biased due to off-balance-sheet transactions. On the other hand, ROE, which is often referred to as bank's equity multiplier, indicates the return to share holders' on their equity and it equals return on assets times' the total assets-to-equity ratio. Banks with high equity and low leverage in the capital structure usually report high ROA, but low ROE. However, the analysis of return on equity (ROE) ignores the high risk associated with high leverage, and bank financial leverage is usually determined by monetary authorities. Hence, ROA emerges as the key ratio for analyzing bank profitability (IMF,2002). Therefore, for the purpose of this study, ROA, which is measured as running year averages, is used as a proxy for Nigerian bank performance

Credit risk: In modeling the influence of credit risk, the ratios of; non-performing loans to total loans and advances (NPL/TLA), total loan and advances to total assets (TLA/TAS) and loan-loss provisions to total loans and advances (LLP/TLA) are used. Notwithstanding the general lack of consensus in the literature on the effect of credit risk on bank performance, theory suggest that an increased exposure to credit risk is often associated with decrease in bank profitability. Hence, we expect a negative relationship between ROA and the credit risk variables of NPL/TLA and LLP/TLA, with the only exception of TLA/TAS where we expect positive relationship.

Model specification:
The empirical models to be estimated for this study is specified functionally as;

$$ROA = F(\beta_0 + \beta_1 NPL/TLA + \beta_2 LLP/TLA + \beta_3 TLA/TAS + \varepsilon_{it}) \quad ..... \quad (1)$$

and the panel data model becomes;

$$ROA_{it} = \beta_0 + \beta_1 (NPL/TLA)_{it} + \beta_2 (LLP/TLA)_{it} + \beta_3 (TLA/TAS)_{it} + \varepsilon_{it} .... \quad (2)$$

$$ROA_{it} = \beta_0 + \beta_1 NP + \beta_2 LP_{it} + \beta_3 TA_{it} + \varepsilon_{it} .... \quad (3)$$

Where, NP=NPL/TLA, LP=LLP/TLA and TA=TLA/TAS.

Bank profit always reflect a tendency to persist over time, showing impediments to market competition, informational opacity, sensitivity to regional and macro economic shocks to the extent that these are serially correlated, see: [1]; [2], [3]. Based on the foregoing, we adopt a dynamic specification of the model for this study by including a one-period lagged return on assets among the regressors. Therefore, Equation (3) augmented with one period lagged ROA becomes;

$$ROA_{it} = \beta_0 + \alpha ROA_{i,t-1} + \beta_1 NP_{it} + \beta_2 LP_{it} + \beta_3 TA_{it} + \varepsilon_{it} ..... \quad (4)$$

Where α represent the speed of adjustment of ROA to equilibrium and ROA $_{it-1}$ is the one-period lagged Of ROA. Also, for this study, it is assumed that the variables of interest evolve as a random walk. Hence, we assumed that the process for a series of observations of variable ε_{it} is generated by a drift less random walk.

Hence, $\varepsilon_{it}=1+\mu_t$
....   (5)

Where ε_{it} is a value of the variable at time t and μ_t is a random disturbance which is not predictable from the history of the process.

Estimation Technique

This study uses an unbalanced panel of six Nigeria banks spanning the period of 14 years from 2000 to 2013. The banks included for this study are: Ecobank Nigeria Plc, First Bank of Nigeria Plc, First City Monument Bank Plc, Skye Bank Plc, Wema Bank Plc, and Zenith Bank Plc. Given the time frame of our data set and there forms that took place in the Nigerian banking industry during the sample period, there exist the possibility of time effects in the error component of the model.

The econometric analysis of the model is done as follows; Firstly, we carry out the statistical description of the variables. Secondly, we examine the stationary of the unbalanced panel using Fisher test. Thirdly, we evaluate the model to see whether the individual effects are random or fixed. Finally, we proceed to estimate our model using dynamic panel estimation technique.

Empirical Results

The summary of the statistics for all the variables used in the study is presented in Table1. For each variable, the table reports the mean, median, standard deviation, minimum and maximum values.

Table1: Descriptive Statistics for the variables of the model

Variable	Mean	Std.Dev.	Min.	Max.
ROA	0.65	1.44	0.47	2.06
NP	0.62	0.52	0.13	0.72
LP	0.46	0.33	0.16	0.54

Source: authors' Computation

From Table1, ROA has a mean of 65% with standard deviation of 144% indicating that on the average, the sampled banks recorded high profit with a significant variation among the banks.

TA has a mean of 806% with standard deviation of 524%, implying that huge credit facilities were given to borrowers with significant variation among the banks with minimum and maximum

values of 243% and 2,256% respectively.

The huge credit availability occasioned the high profits declared by some of the banks. The credit risk variables of NP and LP have positive averages of 62% and 46% respectively over the study period. This shows that on the average, the credit risk in the sampled banks is high. Also, the statistics show a large difference in the variance of the credit risk variables as measured by their standard deviation of 52% and 33% respectively.

Stationary tests

[18] suggest that Fisher test is better than other tests for determining the Stationary of panel data. They suggest that the test unlike the others has the advantage of not requiring a balanced panel. It is based on combining the P-values of the test-statistic for a unit root in each of the banks. The results obtained are presented in Table 2.

Table 2: Panel data unit root test result

Variable	ROA	NP	LP	TA
Test-statistic	62.45	54.36	51.22	76.48

Chi-square distribution: $x^2 = 38.12$
Source: authors' computation

From Table 2, the test-statistics of the variables are higher than the critical value under the chi-squared distribution.

Specification test
The Hausman specification test is reported in Table 3. The Hausman test (1978), is used to decide whether a random effect model or fixed effect model

Therefore the non-stationary is rejected at the 5% level for all the variables of the model.

should be used for a panel data model. Hausman test has an asymptotic distribution with a null hypothesis that the fixed effect and random effect do not differ substantially.

Table 3: Random effect (RE) and fixed effect (FE) specification test

Dependentvariable:ROA				
	RE		FE	
Explanatoryvariable	Co-efficient	t-stat.	Co-efficient	t-stat.
Constant	0.2360	1.09	0.0314	1.34
ROA$_{t-1}$	0.6013	6.01	0.5851	4.62
	-0.3216	-4.18	-0.4011	-3.82
NP	-0.4315	-2.86	-0.3812	-2.56
	0.6413	5.48	0.6216	4.20
Hausman test	13.27	0.001		
R^2	0.71		0.68	
F-statistic	8.03	0.000		

Source: authors' computation

From Table 3, the difference in the co-efficient of Random effect and Fixed effect is significant, providing a systematic evidence that the null hypothesis could not be rejected. Hence random effect is favoured at 1% significant level. Apart from the evidence provided by the Hausman test

in favour of random effect. Hsiao, [6] suggest that the least squares estimator of the fixed effect model in the presence of a lagged dependent variable among the explanatory variables is both biased and inconsistent. Therefore, our analysis is focused on the outcomes provided by the random effect model.

Estimation of the panel data model
Table 4: Results of the random effect model for bank performance

Dependent Variable:ROA		
	RandomEffect	
ExplanatoryVariable	Coefficient	t-statistic
Constant	0.2361	1.08
ROA$_{t-1}$	0.6015	8.03
NP	-0.3218	-4.12
LP	-0.4312	-2.83
R^2	0.72	
F-statistic	8.01	0.000

Source: authors' computation

From Table 4, it is observes that the model seems to fit the panel data reasonably well, having fairly stable coefficients, with a goodness of fit of 72%. Turning to the explanatory variables, the coefficient of the lagged profitability variable is significant at 1% level. The highly significant coefficient of the lagged of ROA confirms the

dynamic nature of the model specification. The value of 0.6 as coefficient ROA$_{t-1}$ indicates that profit persistence in the Nigerian banks is weak. This implies a low competitive structure in the Nigerian banking industry, revealing that few of the banks are dominating with large market share.

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This finding is in line with that of [8] for European banks. However, the result contradict the findings of [8]; [9] for Greek banks.

In line with our prior expectation, credit risk is negatively and significantly related to bank performance. The highly significant coefficients of non-performing loan and loan loss provision indicate that a 100% increase in the credit risk variables NP and LP would reduce profitability by 32% and 43% respectively. This finding is in agreement with the findings of Kargi (2011), Kolapo, Ayeni and Oke(2012) and Boahene, Dasah and Agyei (2012) and Epure and Lafuente (2012) for a specific country banking industry. Also, it corroborate the findings of Bourke (1989), Molyneux and Thorton (1992) for a panel of countries.

Also, as expected, Total loans and advances is positively and significantly related to bank profitability. According to the results, a 100% increase in total loans and advances increases profitability by about 64%. This is not surprising because loans and advances formed the major source of profit (interest earned) by banks. This finding is consistent with that of Boahene, Dasah and Agyei (2012) and Kolapo, Ayeni and Oke (2012), among others, who found a positive relationship between total loans and bank profitability. However, it contradicts the finding of Kargi (2011), who found an inverse relationship between total loans and bank profitability.

CONCLUSION

This study has investigated the effect of credit risk on bank performance in Nigeria. We adopted dynamic panel model to analyze data on six Deposit Money Banks from 2000 to 2013. Our results provide evidence for weak profit persistence in the Nigerian banks. We established a significantly negative relationship between credit risk and bank profitability. This implies that bank increased exposure to credit risk reduces profits. We also found that total loan is positively and significantly related to bank profitability.

Therefore, to maximize profits and edge against loss, banks should adopt an aggressive deposit mobilization to increase credit availability and develop are liable credit risk management strategy. The banks should engage in proper credit risk assessment before giving out loans and promote are liable loan recovery process with adequate punishment for loan payment defaulters.

Also, AMCON should not encourage chronic debtors and errant banks to run up their debts with the assurance that AMCON will be there to clean up their toxic assets. It should use its powers under its enabling laws to fully exercise liens on collaterals and acquire appropriate equity inerrant companies.

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