RESEARCH ARTICLE

# The Moderating Effects of Dynamism on Management of Credit Risk and Financial Performance in Commercial Banks, Libya

**Khaled Mohamad A. Masli**

Dr.

Post Graduate Centre, Management and Science University, University Drive, Off Persiaran Olahraga, 40100 Shah Alam

Selangor, Malaysia

Email: kamas2005@yahoo.com, ORCİD: 0000-0003-0972-4016

**S. M Ferdous Azam**

Dr.

Post Graduate Centre, Management and Science University, University Drive, Off Persiaran Olahraga, 40100 Shah Alam

Selangor, Malaysia

Email: drferdous@msu.edu.my

ORCİD: 0000-0002-0001-3595

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**Abstract**

A company's operating and financial features are derived from its financial performance. Bank performance and credit risk management measures have been linked in the literature. Credit risk management, as well as their effect on performance of bank with moderating effect of dynamism, have not been studied in Libya. Those that participated in the study were commercial banks in western Libya. Members of Libyan commercial banks' executive management, risk committee members and department heads could be potential constituents. They were picked for their ability to manage credit risks as well as their financial performance. In order to better understand how bank risk management influences the financial outcomes of banks, survey participants were given standardised questions to complete. A partially least squares (PLS) (SEM) model was used to analyze the empirical data. Based on bank directors' assessments on credit risk management, the data are related. The statistical research results support the hypothesis that uncertainty represents one of the significant moderators between credit risk management and financial performance. Thus, Libyan banks are impacted by their willingness to handle credit risk. The experiment shows that environmental uncertainty influences credit risk management, permitting financial improvement to be achieved with minimal degree of uncertainty's influence.

**Citation**

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## Introduction

Finance is a game-changer in terms of poverty reduction, owing to the fact that this institution and its operating model are better equipped to deal with information difficulty (Banerjee & Jackson, 2017). This objective is accomplished by the provision of credit or loans to clients. Providing customers with credit or loans achieves this goal. Debt default, according to Ibtissem and Bouri (2013), is the most important risk that an organisation confronts while issuing and collecting credit. A default happens when a borrower is unable to satisfy his or her basic financial obligations, such as paying interest and principal (Islam, 2019). This creates a high risk of credit default, which can jeopardise the financial institution's viability. Credit risk management is simply the risk a bank's borrower or counterparty would default on agreed terms as a result of all the steps involved in identifying and handling credit transactions. Credit identification is of vital significance to banks as it provides an essential component for their viability. Risky endeavours include money manipulation, the management of financial instruments, and the drafting of loan agreements (Gregory, 2010). Initial risk management begins with certain losses being identified and proceeds through the identification of borrower selection according to real facts. After this, the directives regarding the principal sources of risk must be assessed and the possible levels of its detection must be measured. The creditworthiness of a potential business partner must be taken into account when judging its quality (Brown & Moles, 2014). To see if he is able and willing to meet the requirements of the agreement, this is the first step. When a borrower applies for a loan, a credit risk score is calculated using information from the applicant's credit report. To sum things up, credit risk management is the practise of segmenting consumers into groups depending on their compliance with the terms of their loan agreement. If a customer does not pay on time, for example, this monitor will be checked to see if there is a month's delay, and action is taken based on the customer's present status. Depending on their categorization, certain credit has to be closely monitored or classified as bad credit, doubtful credit, or loss.

The primary purpose of bank management is to maximise shareholder returns, which exemplifies the bank's success (Adeusi, Akeke, Adebisi, & Oladunjoye, 2014). Accomplishing one's goals often involves taking on more risk. There are several risks that the bank is vulnerable to, including interest rate and market risks; credit risk; balance risk; technology and operational risks; currency risk; country and bankruptcy risk; and so on and so forth (Adeusi et al., 2014). Underperformance of the bank serves as a driving force behind risk management.

Risk management issues in the banking industry are more detrimental to economic development than they are to banks themselves (Adeusi et al., 2014). Evidence suggests that previous deviations in the return on deposit had a significant effect on not only trade price fluctuations but the corporate value of stocks as well, which means that banks can be a contributor to panics in times of crisis.

Recent research has revealed certain criteria that appear to be common to the majority of failed banks. Additionally, failed banks usually lack an efficient strategy for identifying loan problems early on and frequently struggle with spending control. Credit risk management must be implemented in Libyan banks to assist them in making reasonable credit facility decisions. Furthermore, no research has shown that Libyan banks employ credit scoring methodologies to make acceptable lending decisions. Libyan banks continue to utilise conventional credit analysis procedures, notwithstanding the significance of these models in decision-making (Musbah, Cowton, & Tyfa, 2016). These models are absent from Libyan banks and this article focuses on how credit management impacts financial performance in Libya as a way to rectify this neglect.

According to previous research, uncertainty dynamism is an important factor to consider when deciding on the best approach to use (Badshah et al. 2019; Nowak & Wojtowicz 2015; Vukosavljevi et al. 2016). Moderators might have been found in some studies that supported findings indicating weak or inconsistent relationships between the independent and dependent variables. In these studies, the inclusion of moderators verified that relationship between the two independent variables. This approach may be used to explain the interaction between the independent variables and dependent variables. For this reason, this article explores how uncertainty dynamics relate to risk management and success.

In Libya, studies into the impact of risk management in general, or credit risk management in particular, have not been conducted. As a result, the goal of this study is to fill in that knowledge vacuum by assessing the link between risk management and financial performance and the moderating influence of uncertainty dynamism on risk management (risk identification and risk analysis).

### *Financial performance and credit risk management of commercial banks*

The ultimate goal of a bank is to accept deposits and provide credit, for which financial institutions are inherently subject to credit risk. Credit risk is the main risk to which banks are being exposed, and their success highly depends on their ability to consider and manage the risk's impact on the company. When the value of the debtor (or the counterparty)'s financial instruments or derivatives changes, so will the value of their debt instruments.
It seems that credit risk has mixed effects on bank performance from both practical and academic studies. Credit risk and selling bank performance have gone in opposite directions according to a few surveys, while others demonstrated a positive result. In contrast, a research found no association between bank profits and credit risk. Financial performance is normally decided by credit risk rather than other factors, according to many reports.
Non-performing loans were studied in four Swedish banks between 2000 and 2008, according to the findings of Hosna et al. (2012). Loan nonperformance and capital adequacy ratios were shown to be negatively correlated with ROE, however the size of the correlation varies amongst banks. Since then, Kithinji (2010) has categorized industry sectors into financial and non-financial groups based on loan-to-asset ratios. The group with half of all banks and half of all non-performing loans was the financial group and tended to be profitable but also had relatively high levels of bad debt. Based on the findings, commercial banks' revenues are not meaningfully impacted by the volume of non-performing loans and the total value of loans. There are more aspects that impact a bank's performance that need to be studied further in order to get a more complete picture. Due to its importance as a source of financial uncertainty, credit risk was a focus of this investigation.
Using data from five distinct Nigerian banks over a 15-year period (1997–2011), Marshal and Onyekachi (2014) performed an empirical research to determine how credit risk and bank performance evolved in Nigeria. Time series and cross-sectional bank accounts data were used to construct panel data regression models. There was a linear relationship between the LogNPL ratio and bank performance indicated by the results (LogROA). Predicted results did not match those achieved, suggesting that the banks assessed had a low rate of nonperforming loans. There was also a link between the bank's performance and its loan-to-deposit ratio (LogLA) (LogROA). Banks' performance improves as a result of rising interest income from loan and credit activity. The following hypothesis is posited as a result of this conversation.

Hypothesis 1: Credit risk management and bank financial performance have a significant relationship.

### *Moderating Effect of the Variable Uncertainty Dynamism*

According to fit, independent factors have an effect on dependent variables only to the degree to which a moderating variable is present. Risk management and financial performance are linked in this research with a moderating effect of the dynamism (R. M. Baron & Kenny, 1986; Gligor, 2017). To understand a firm's dynamic capabilities and market attitude, one must look at how well the company is able to adapt its resources and talents to the ever-changing business landscape (Andreeva & Chayka, 2006; Chirico & Salvato, 2008). Globalization theory and strategic management strategies have long considered environmental factors to be essential components (Child, 1972).
According to multiple studies, credit risk does not seem to have a significant impact on a bank's profitability. Some studies found a negative association between credit risk and bank productivity, others found a positive association. The research that found no correlation between credit risk and bank profitability is on the opposite end of the spectrum. Some studies looked at risk in general as a criterion of bank productivity, credit risk was the most common risk factor that could affect bank profitability.
The dynamic nature of the environment is used to understand environmental uncertainty (Tan, Li, & Li, 2006). In the context of the link between risk management and bank performance, dynamism shows the degree of unpredictability that businesses encounter (Zhang, Tan, & Wong, 2015). This link between strategic and operational performance may be improved by using solid risk management practises in a generous environment. Additionally, the resources that organisations depend on to function are a component of generosity.
So, the next part explains how to test these assumptions in the following paragraphs:

H2: Dynamism in the environment modifies the link between management
of credit risk and financial performance.

## Methods

A standard rating questionnaire was prepared and given to members of the sample population. Hand-delivered questions were only sent if they didn't get an answer, Participants were given a chance to finish the survey prior to it was collected, allowing sufficient time for thorough study, therefore the bulk of surveys were distributed and collected physically. Based on a review of relevant literature, questions were formulated to get a deeper understanding of the study's objectives. The questionnaire was sent to the chairperson of four professors on the faculty of the University of Misurata, besides two former officials with experience in Libya's banking industry, in addition to two officers of the Central Bank of Libya. Questions were utilised to uncover measurement errors, to clear up ambiguous situations, and to examine nonverbal behaviour in this pilot research. Before finishing the study, the questions were reworked if required. The study's validity was tested by looking at things like face features and content. Reliability analysis was used to establish good generalizability across the test items for each construct. Participants had the option to leave the research at any moment, and their participation was entirely voluntary. From Stk Ilkay M., and Aslan E., We developed a 5-point scale from 1 (strong disagreement) to 5 (strong agreement) (2012). Dynamics uncertainty can be measured using four different scales (Mar Fuentes-Fuentes et al., 2004).

This survey's high response rate was made possible by the use of pre-coded questions. In social science research, they used Likert scales to gauge participants' perceptions, beliefs, views, and attitudes (DeVellis, 2003). Area, age, gender, department, and productivity level were all factors that were surveyed by participants and were analysed using structural equation modelling and partial least squares (PLS) techniques.

Major Libyan banks in the center part of the states were the study's focus of demographics. The board of directors and members of risk committees, senior managers, and department heads of Libyan banks in the western region were possible subgroups of this committee. Credit risk management and financial performance were the main criteria used to select these subgroups. Participants completed standardised questionnaires to provide their thoughts and insights on the financial performance of universal banks in light of the influence of bank risk management in this paper's experimental design and size. For the protection of personal information, all survey responses were anonymous. Survey results were stationed in a safe among them all in a locked box. To conduct the surveys, they contracted with a professional for questionnaire response. For those who needed clarification on a particular subject, research assistants were informed of the situation.

## Results

The questionnaire was distributed to 280 respondents chosen at random. 234 of the 200 surveys were returned. The ultimate number of usable questionnaires was 216 which deemed enough for data analysis. According to the demographic statistics, 93 percent of respondents were males and 6.6 percent were females. A minority of respondents were aged 50 or older, with a percentage of 37. Meanwhile, 38.9 percent of respondents were between the ages of 30 and 39. According to the respondents' occupations, they were classified as department heads (30.1 per cent). External auditors are then consulted (23.1 per cent). The majority of respondents (51.9%) held a master's degree, followed by those with a diploma (24.5%). In terms of experience, the majority of respondents had between 10 and 20 years of experience, (38.9%). Additionally, 87.7% of the samples were from respondents who worked for public and 12.3% from those who worked for private banks.

### *Validity in Convergence*

Convergent validity refers to the degree to which several items used to test the same concept in study are consistent (Ramayah, Lee, & In, 2011). Convergent validity is generally defined by the principal loadings, average variance extracted (AVE), and composite reliability of the measures utilised in this research (CR). Three components (CRI2; EU5; FP4) were omitted from the main and cross loading analyses using a 0.50 cut-off value. as per Chin (1998b) and Hair et al (2013a).

Following that, the AVE of the variables was determined. The AVE criteria is defined as the grand mean of the squared loadings of the construct's indicators. A value of at least 0.5 implies that a hidden variable can account for more than half of the variance in its indicators on average, and hence is regarded acceptable (Henseler, Ringle, & Sinkovics, 2009). By definition, if uncorrected variance is greater than 0.50 and credit score is greater than 2, the variability of a concept and its measures exceeds its own error. For all other elements, only one factor (credit risk mentorship = CRM2) was removed due to its low AVE score (Abbreviation for UnCorrected Variance). The FICO score for the rest elements was found to be greater than or equal to the minimal level in this analysis, as seen in the table (greater than 0.5).

The reliability of the measuring items used in this research was evaluated using composite reliability. Composite reliability is more suited for PLS-SEM than Cronbach's alpha in comparing the reliability of indicators (Hair et al., 2011). Nunnally and Bernstein (1994), Hair et al. (1995) said that the composite reliability should be more than 0.70. (2011). Internal consistency is a measure of composite dependability, which is related to a block's homogeneity (Barroso et al., 2010). In this study, each endogenous variable had a composite reliability better than 0.70. Given these variables, we may conclude that both measurements have consistency and are reliable. As a result, Table 1 includes the results of the analysis.

**Table 1**: Construct validity and reliability

| Variable | Factor | Loading | AVE | CR |
|---|---|---|---|---|
| Management of Credit risk | Risk identifying | 0.829 | 0.667 | 0.855 |
| | Analysis of risk | 0.934 | | |
| | Monitoring of Risk | 0.665 | | |
| Management of Credit risk | CR1 | 0.886 | 0.709 | 0.957 |
| | CR2 | 0.088 | | |
| | CR3 | 0.849 | | |
| | CR4 | 0.909 | | |
| | CR5 | 0.870 | | |
| | CR6 | 0.874 | | |
| | CR7 | 0.920 | | |
| | CR8 | 0.906 | | |
| | CR9 | 0.875 | | |
| | CR10 | 0.896 | | |
| | | | | |
| Uncertainty Dynamism | DU1 | 0.780 | 0.602 | 0.945 |
| | DU2 | 0.765 | | |
| | DU3 | 0.729 | | |
| | DU4 | 0.755 | | |
| | DU6 | 0.818 | | |
| | DU7 | 0.787 | | |
| | DU8 | 0.792 | | |
| | DU9 | 0.815 | | |
| | DU10 | 0.728 | | |
| | DU11 | 0.775 | | |
| | DU12 | 0.778 | | |
| Financial Bank Performance | FBP1 | 0.816 | 0.618 | 0.904 |
| | FBP2 | 0.839 | | |
| | FBP3 | 0.735 | | |
| | FBP5 | 0.668 | | |
| | FBP6 | 0.825 | | |
| | FBP7 | 0.793 | | |

CR= Credit risk DU = Uncertainty Dynamism, FBP = Financial Bank performance

### *Analyzing the model*

The research model's latent variables are explained by the structural model (Duarte & Raposo, 2010). There must be evidence to support the theoretical model's structural element after confirming the measurements' appropriateness (Chin, 2010). For evaluating structural models, R2 values and significance levels of path coefficients are essential since they represent how well the model explains variance in latent endogenous variables (Hair et al., 2011). In PLS, the R3 value represents the part of the model's variation that is determined by it. Researchers vary on what constitutes an acceptable level of R2 in their studies, and the R2 value is critical. It was characterised by Cohen (1988) as between 0.02-0.12, 0.13-0.25, and 0.26 and above as a moderate R2 score. As Hair, et al. (2011) claim, the R2 level for Financial Performance is dependent on the context in which it is used. The R2 value of Financial Performance is 0.445, according to current findings. A 44.5 percent variation in financial performance can be credited to credit risk management.
The coefficients of the explanatory variables in the PLS structural model show the connection between variables, as depicted in the chart (Hair et al., 2013a). The standardised beta coefficients for regular least squares regression can be used to determine all route coefficients. There is a range of values for path coefficient estimates from -1 to +1. Positive path coefficient estimates indicate a strong positive association, while negative values indicate a strong negative one (Hair et al., 2013a).

### *Direct Outcomes*

The direct effects of factors on each other were studied based on the study's assumptions, and the results were summarised in Table 2.

**Table 2:** Direct analysis

| Hypothesis | | Original Sample | SD | T Stats (\|O/SD) | P Value | Decision |
|---|---|---|---|---|---|---|
| H1 | CR->FBP | 0.174 | 0.068 | 2.494 | 0.014 | Supported |

CR= Credit Risk, FBP = Financial Bank performance

The correlation between credit risk management and financial performance is significant (b = 0.174, p = 0.014).

### *The moderating impact of DU*

The findings reveal that a low degree of environmental dynamism has an effect on the link between credit risk management and financial performance (= -0.092, p<0.01), implying that a higher level of environmental unpredictability reduces financial performance. Satisfaction's R2 score is enhanced from 0.634 to 0.683. As a result, it is reasonable to conclude that H2 was accepted, but in a negative manner.

**Table 3**: Results of moderator variable

| Hypothesis | | Original Sample | Sample Mean | Standard Deviation | T Statistics | P Value | Decision |
|---|---|---|---|---|---|---|---|
| H2 | Moderating Effect of UE between CR and FBP | -0.092 | -0.092 | 0.042 | 2.186 | **0.026** | Supported |

CR = Credit Risk. DU = Uncertainty Dynamism, FP = Financial performance
Predictive Relevance (Q2)

Besides evaluating the R2, the predictive sample reuse method called Stone-Q2, named after Michael Geisser, can be used as a standard to evaluate predictive relevancy. According to Geisser (1975), this technique combines cross validation with function estimation, with the emphasis on predicting observables or possible observables rather than estimating false construct parameters. Henseler et al. (2009) also emphasised the importance of using this metric to assess the research model's predictive capabilities. In addition to the factor analysis method, an alternate method for blindfolding is referred to as PLS (partial least squares). Under this method, some of the data for the parameter estimates for a given portion of the data to be estimated is excluded, and the estimates are generated to estimate this

omitted data. Q2 analyses a model's prediction validity via PLS based on the blindfolding method. Q2 is typically estimated in PLS with a distance omission of 5-10 (Akter, D'ambra, & Ray, 2011). Q2 values greater than zero suggest that the external variables are predictive of the endogenous variable (Hair et al., 2011). Table 4.8 summarised the predictive relevance of the endogenous component studied in this study. The findings indicated that the endogenous construct used in this study has predictive value.

**Table 4:** Prediction Relevance ($Q^2$)

| | SSO | SSE | $Q^2$ (=1-SSE/SSO) |
|---|---|---|---|
| FP | 1,295 | 987.32 | 0.237 |

Credit risk management appears to have a significant relationship with financial performance (=0.174, p = 0.014).

## Discussion

If a company has fulfilled or exceeded financial objectives, they are said to have achieved financial success. Based on little experience, Libyan banks' financial performance looks to be adequate. Based on a standard definition of financial success, this result is congruent with findings from earlier research (Mohammad, Prajanti, & Setyadharma, 2020). The descriptive analysis reveals a satisfactory level of financial performance, with an average score of 3.6. Risk identification, risk analysis, and risk monitoring were all examined by the researchers in their study of the association between financial performance and risk management aspects. The management of credit risk seems to have a positive relationship with financial performance. Good credit risk management's impact on financial performance, both qualitative and quantitative, is still up for debate. Prior research on credit risk management have shown how much the performance of an institution's finances may affect that institution (Adekunle, Alalade, Agbatogun, & Abimbola, 2015; Taiwo et al., 2017).

Studies of bank managers' evaluations of financial performance found a strong link between credit risk management and financial success. This confirms the findings of previous studies, such as (Alshatti, 2015; Bastomi, Salim, & Aisjah, 2017; Serwadda, 2018). Thus, credit risk management has a considerable and positive impact on the financial performance of Libyan commercial banks. Environmental dynamism may serve as a bridge between credit risk management and financial success, according to the findings of this statistical research. According to scholars, managers see the external environment as uncertain when its components are quickly changing and unpredictable. The high probability of making a mistake that has a negative effect on the company makes it harder for managers to make judgments that are regarded acceptable for the conditions or that are seen as the proper option. This means that companies in an unpredictable environment are required to spend more on tangible and non-physical resources so that they can develop the competencies necessary to plan ahead (Amit & Schoemaker, 2006).

According to previous studies on risk management and external environmental dynamism, organisations face significant hurdles when implementing an active strategy in a changing environment. A significant degree of environmental uncertainty needs a more proactive technique, such as particular credit risk management, in this scenario (Clemens, Bamford, & Douglas, 2008; Tscheikner-Gratl et al., 2019). This contradicts Miller and Toulouse (1998) who claimed that with more environmental uncertainty, there is a larger risk of disease. Perceived uncertainty is linked to more active strategy when it originates from unpredictability of their customers' needs, competitive challenges, and important operating-related technology. This new research also supports the conclusions of previous studies conducted by (Leonidou, Leonidou, Fotiadis, & Aykol, 2015). Dynamism was shown to have a moderating effect on the association between stakeholder and corporate internationalisation capacities and the adoption of a proactive environmental strategy in this research. According to this study, organisations' capacity to adopt appropriate credit risk management is weakened in a highly dynamic environment resulting in poorer levels of financial performance because of this.

However, the characteristics of Libyan banks may be a plausible explanation for this insignificant result. Non-parametric tests were utilised in this study instead of the PLS software's parametric testing, which may have contributed to the findings. There may be another reason for this result, which is that managers' strategic position toward credit risk is unlikely to be quickly altered by their perceptions of a dynamic environment or changes in the environment. Uncertainty was measured using descriptive data, which indicated a consistent level of environment for the responder. Credit risk management strategies seem to have been overlooked by the managers of responding organisations in a stable environment despite the fact that these managers are capable of forecasting their stakeholders' expectations for a natural or steady environment.

Report finishes with a list of policy suggestions for the country's management and investors. Libyan banks' financial performance seems to be influenced by credit risk management. For this reason, banks must ensure that they have enough liquidity in each product area and keep it at an optimum level in order to reduce their cash holdings. Additionally, banks may want to target large corporations that are willing to keep a big amount of cash on hand in their accounts for a long period.

To guarantee the study's efficacy, certain methodological limits were taken into consideration. Even though the research technique was tailored to the study's aims and concentrated on the study's most significant aspects, this research has its limits. Several people expressed their displeasure with the process of completing the survey. The study was hampered by the uncertain political climate in Libya, as well as the fear of the issue's sensitivity.

Second, this research depends on self-reporting by Libyan banks executives and middle managers. The problem of common method variance was inescapable since the questionnaire was constructed in such a manner that individual banking managers might approach it. In research, common method variance is an issue when response variability overlaps due to data collection from one source. To rule out this possibility, the Harman-single factor test with unrotated factor analysis was used. The common method variance posed a limitation since it did not account for the majority of the variation in this inquiry.

Using data from the study, the authors provide the following suggestions for reducing credit risk and maximising financial advantages. Risk identification, risk analysis, and risk monitoring are critical components of credit risk management in Libyan commercial banks. An effective risk management system must have a good credit-giving mechanism, a professional credit administration system, as well as proper credit risk controls to ensure that the system is efficient. In order to minimise their exposure to credit risk, banks should have comprehensive credit risk management systems, including extensive credit assessments prior to lending to customers. Credit risk management was also examined in this research. Bank financial performance is influenced by 55.5 percent unresearched factors, and 44.5 percent studied ones. As a result, future studies may look at other aspects that impact a bank's financial success.

A bank's financial performance is dependent on risk management, hence banks should prioritise risk management. Banks must set aside more funds for default rate reduction while maintaining an acceptable level of capital to reduce loan risk and maximise performance.

When looking at banking concerns, it is essential to take into account external contextual elements (such as the environment's dynamic behaviour). The dynamic environment that affects risk management in Libyan commercial banks is the most important factor in understanding the poor financial and non-financial performance of Libyan banks.

## Conclusion

Credit risk management, this study concluded, is a significant predictor of financial performance in the Libyan banking system. Additionally, environmental dynamism was discovered to have an effect on the relationship between credit risk management and bank performance, showing that financial performance can be easily attained despite environmental dynamism's interference. It is certain that if the Libyan banking industry takes into account the study's conclusions, it will perform well and, more significantly, will achieve greater financial performance.

## Limitation

The political volatility and the sensitivity of the present situation in Libya made the study particularly challenging. Second, the findings of this research were based on information supplied by the Libyan banking industry's top and intermediate management. Because the questionnaire was meant to be completed by individual bank managers, the problem of common technique variation was inevitable.

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