Evaluating Performance of Libyan Banks Using Camel Model

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ABSTRACT

Using the CAMEL model, this study compares the results of the performance of Libyan commercial banks from 2004 to 2010. The first stage of the study used the CAMEL model to assess the performance of Libyan commercial banks. Pool Ordinary Least Square was employed in the second stage. The findings demonstrated that the variables used for this study are appropriate and represent the banking ratio for locating reliable banking institutions. Additionally, the findings demonstrated that the independent factors had a significant impact on bank performance, and the hypothesis were accepted. According to the study, corporate governance should be taken into account in future research in order to analyze bank performance in Libya and obtain further results.

Keywords: CAMEL Model, Libyan Banks, Performance.

I. INTRODUCTION

The financial sector typically contributes significantly to a nation's advancement and economic growth. Banks, acting as financial intermediaries, are crucial in this regard for converting deposits into financial assets (Mohammed, 2002). The banking industry, which is one of the most important sectors in contemporary countries, has also evolved into a yardstick for gauging the stability of a nation's overall economy (Berger & DeYoung, 1997). Nevertheless, the roles played by banks have been impacted by technology advancement, financial services sector liberalization, and global rivalry. More significantly, these adjustments have changed how banks function in terms of production efficiency.

Four banks—Aljumhoria Bank, Wahda Bank, Sahara Bank, and National Commercial Bank—that are entirely or predominately owned by the Libyan Central Bank dominate the country's financial sector. Nearly 90% of the assets in Libya's banking sector are held by these institutions. Two of these banks (Wahda Bank and Sahara Bank) were in the process of being privatized in 2006, and all of them have capital of at least 100 million Libyan Dinars (about 76,923 million USD). For the Wahda Bank privatization, five foreign banks were shortlisted in November 2007. These affiliates are institutions from France, Italy, Jordan, Bahrain, and Morocco. Jordan's Arab Bank was chosen. With the potential to extend their shareholding to 51% in three to five years, they bid on a 19% stake in Wahda Bank. In July 2007, France's BNP Paribas purchased 19% of Libya's Sahara Bank and assumed operational control of the institution. As part of the agreement, BNP Paribas has the option to buy additional shares totaling up to 51% of Sahara's capital during the following three to five years.

Financing wasn't readily available on the local market. Lending decisions in Libya are frequently based on personal relationships rather than business strategies, and state bank management lack clear incentives to diversify their portfolios. It is obvious that a lack of funding is what is stopping Libya's progress. The Libyan banking system is currently going through a significant modernization program to improve the services and products offered, deal with a significant amount of nonperforming loans, set up a working national payments system, make it easier to use non-cash payment instruments, and implement new standards of accounting and training. Although the Banking Law of 2005 legally permits international banks to enter the Libyan market, the Central Bank has sought to postpone their admission until the reform process is complete (Mireles et al., 2009).

With the implementation of a new national payments system, a program that was put into place in 2005 after consultation with the World Bank, the financial industry in Libya underwent significant and significant changes (Panorama, 2008). This demonstrates how the banking industry in Libya used to be a small, tightly controlled, and restricted industry, leading to a closed and noncompetitive banking sector. After 2003, the sector started a series of economic reforms to create a free market and make it more open and competitive. With these reforms, interest and foreign exchange rates were freed, and new financial products and institutions were permitted. In addition to that, the mixed economy of the country, where all sizes and types of banks (commercial, private, and specialized) compete with each other, makes the Libyan banking industry a significant case for evaluating the efficiency performance levels of the different types of banks. These banks face serious challenges in the face of liberalization.

The banking system in Libya was affected by this challenging environment because, with banking liberalization, any inefficient banks will be forced out of the market by the more efficient banks. An audit of the writing has uncovered that exceptionally small exertion has been
made to decide the managing an account proficiency in creating nations (Hassan et al., 2004). Subsequently, it shows up that there are no adequate ponders that have been conducted for Libyan keeping money.

For this reason, this paper gives a comparative examination of the execution of keeping money division in Libya over the period 2004 to 2010 by taking after a two stages approach: assessing execution of Libyan banks utilizing CAMEL show within the to begin with arrange, and utilizing Pool Ordinary Stiffest Square within the moment organize. The paper unfolds as follows. Section II provides a review of the literature, and Section III provides an overview of CAMEL model, followed by Section IV on the methodology, data, variables, and hypotheses. Section V provides discussion on the results while Section VI is the conclusion.

II. LITERATURE REVIEW

In a quickly changing monetary showcase around the world, bank controllers; supervisors; and financial specialists are concerned approximately how effectively banks change their costly inputs into different monetary items and administrations.

Khatik and Nag (2014) analyzed the soundness of five nationalized banks in India during period 2007-2013, by utilizing CAMEL demonstrate. The finding of the consider appeared that Bank of Baroda has been positioned at the best position, the Union Bank of India and Dena Bank secured the 2nd position, and the 4th position was the State Bank of India and within the final position was the UCO Bank which secured the 5th position.

In their study, Muhmad and Hashim (2015) highlighted the assessment of bank execution domestic and foreign banks that working in Malaysia, utilizing CAMEL system shape 2008 to 2012. The results appeared that capital amappiness, resource quality, gaining quality and liquidity have a critical affect on execution of Malaysian banks.

In their study, Abdul Rauf (2016) aimed to assess comparative capacity of monetary execution of private and public banks in Sri Lanka from 2005 to 2014 utilizing CAMEL model. This study found that private banks are best in all parameters of CAMEL and money related execution. Be that as it may, exhibitions of public banks were less compared to the private banks.

Panrod (2018) analyzed the financial position and execution of seven Commercial Banks in Thailand utilizing CAMEL model, and pointed to assess the execution of Commercial Banks compare with industry normal from 2006 to 2015. The finding of this study was best seven Commercial banks in Thailand attempted to keep their money related execution and nearly all firms succeed in anticipated target. And when comparing to industrial average standard the inquire about comes about required to be comprised with the result of each bank financial execution study.

Using the CAMEL model, Das and Nayak (2020) assessed the financial performance of the public and private sector banks in Odisha (India) and establish whether there was a discernible difference in their performance between the years 2005 and 2019. According to the findings, the Bank of Baroda scored first among public sector banks from 2005 to 2019 due to its good financial performance, while the Indian Overseas Bank rated last because of its subpar operations.

Tibebe (2020) evaluated the CAMEL model that were unique to each bank as drivers of the financial performance of 16 active private commercial banks in Ethiopia from 2016 to 2020. According to the study, the capital sufficiency, managerial effectiveness, and liquidity position of private commercial banks all have a substantial impact on financial performance. On the other hand, the relationship between asset quality and earnings is tenuous and negligible.

Naushad (2021) used the CAMEL Framework to assess the effectiveness of Sharia-compliant banks in Saudi Arabia from 2009 to 2019. According to the analysis's final findings, every bank fared incredibly well using the CAMEL framework. Of the four banks that adhere to Sharia law, AlRajhi Bank received the highest rating. Alinma Bank, AlBlad Bank, and Aljazeera Bank, however, have also performed well and exceeded all of the criteria for CAMEL's ranking.

The model used in earlier investigations is the same in this one. However, this study will be conducted in 2023, whereas other studies were carried out between 2014 and 2021. Finally, yet importantly, earlier research did not discuss the CAMEL framework in Libyan banks.

III. OVERVIEW OF CAMEL MODEL

One of the most significant classification schemes used by regulatory agencies around the globe to evaluate the safety of banks is known as the CAMELS system. The US Federal Council for the Examination of Financial Institutions employed this technique for the first time in November of 1979, which is when it first became known as such. The Federal National Board of Directors Credit (NCUA) in the United States of America subsequently approved this system (Milligan, 2002, p. 70). The acronym (CAMELS) stands for the first letters of the six parts that make up this system: Capital adequacy, Assets quality, and so on. Management competency, earnings quality, liquidity, and market risk sensitivity. The CAMELS system is based on a five-point rating scale with a rating of one being the highest and a rating of five being the lowest. The Bank considers the existence of sound practices to perform and that it best reflects the soundness of risk management procedures. Score (5) (The worst rating for a bank indicates that the institution's performance is subpar, indicating a high likelihood of bank failure and the existence of significant management challenges. The procedures used in this situation by the supervisory authorities typically involve liquidating the institution or turning to merger and acquisition (National Credit Unions Administration, 2003).

CAMEL model is using as a very useful, accurate, and efficient instrument for assessing the performance of the banking sector and predicting future trends and relative risk. According to Lavanya and Srinivas (2018), the CAMEL grading system for evaluating the soundness of banks is a very helpful instrument for reducing the risks and circumsances that can cause bank failures. According to Muhmad and Hashim (2015)The CAMEL can explain as:

- C for Capital adequacy: A bank's financial strength is measured by its capital adequacy.
• A for Asset quality: The performance of assets, notably loans granted by the bank, is considered when determining asset quality.
• M for Management: Performance of banks is significantly influenced by management quality.
• E for Earning: An institution’s ability to generate profits is based on how well its assets and liabilities are managed, and
• L for Liquidity: liquidity describes a bank’s capacity to promptly handle depositor withdrawals, maturing liabilities, and loan requests.

IV. RESEARCH METHODOLOGY

A. Sample and Data

The sample for this study consists of only eight banks of 17 Libyan banks that comprise four Public commercial banks, and four of eight private commercial banks that were established before or at 2004. These banks are owned by individuals, whether they be natural or legal persons, who take control of the management of the business and are in charge of all legal and financial operations. This study spans the years 2004 to 2010. This period was selected because the Libyan economy began to be privatized after the United Nations and the United States lifted their sanctions against Libya in 2003. In addition, the year 2011 was left out because the revolution in Libya had already begun. The Libyan people rose up in revolt against Muammar Gaddafi’s government in February 2011, sparking a conflict that lasted until the end of October 2011. The economy of Libya has been impacted by this war. Therefore, 2011 was not included in this study because it was an exceptional year. The data from 2011 will have a detrimental impact on the study’s overall findings and may provide an inaccurate picture of how Libyan banks operate. In addition, after 2011 most important institutions in Libya were division between eastern and western zone including Libyan Central Bank. This study covers the years 2004 to 2010 because of this.

The Data was collected from the annual reports of banks, the Libyan stock market, and the statistics bulletin of the central bank of Libya. The names and types of Libyan banks are shown in Table I.

Table II shows the banks that consist the sample of this study.

B. Dependent and Independent Variables

Table III shows each independent variable has ratios that represent the variable itself. Each ratio has a unique significance and impact on independent variables. For instance, the independent variables will be higher the smaller the ratio. In order to determine the optimal ratios that affect ROA and ROE, or the performance of the bank, all the ratios will be analyzed.

C. Model of Study

The functional model used by Muhmad and Hashim (2015), Khrawish (2011), and Freahat (2009) is followed in this study, which tests the model using cross-sectional data at the bank level in the setting of Libyan commercial banks from 2004 to 2010.

\[
ROA = \beta_1 + \beta_2CA + \beta_3AQ + \beta_4MC + \beta_5EQ + \beta_6LQ + e
\]  
(1)

\[
ROE = \beta_1 + \beta_2CA + \beta_3AQ + \beta_4MC + \beta_5EQ + \beta_6LQ + e
\]  
(2)
The determinants of the above models are elaborated below:

1) **Capital Adequacy (CA)**
   A bank’s financial strength is measured by its capital adequacy, which measures the minimal amount of capital necessary to safeguard it against portfolio losses. However, there exists a debate on the minimum level of capital that a bank should hold (Muhmad & Hashim, 2015; Datta & Al Mahmud, 2018). Our hypothesis is suggested below:
   - H₀: There is a statistically significant relationship between capital adequacy and bank performance.
   - H₁: There is no statistically significant relationship between capital adequacy and bank performance.

2) **Assets Quality (AQ)**
   Asset quality considers the performance of assets, particularly loans made by the bank, where credit risk associated with loan and investment portfolios, other real estate owned, and other assets, as well as off-balance sheet transactions, is quantified as well as the quantity of current and potential credit risk (Muhmad & Hashim, 2015). Our hypothesis is suggested below:
   - H₀: There is a statistically significant relationship between assets quality and bank performance.
   - H₁: There is no statistically significant relationship between assets quality and bank performance.

3) **Management Competency (MC)**
   Management competency plays an important role in determining bank performance (Muhmad & Hashim, 2015). Our hypothesis is suggested below:
   - H₀: There is a statistically significant relationship between management competency and bank performance.
   - H₁: There is no statistically significant relationship between management competency and bank performance.

4) **Earning Quality (EQ)**
   The quality of a bank’s earnings depends on the effectiveness and efficient management of assets and liabilities (Muhmad & Hashim, 2015). Our hypothesis is suggested below:
   - H₀: There is a statistically significant relationship between earning quality and bank performance.
   - H₁: There is no statistically significant relationship between earning quality and bank performance.

5) **Liquidity (LQ)**
   The ability of an asset or security to be converted into immediate cash without having an impact on its market price is referred to as liquidity (Muhmad & Hashim, 2015). Our hypothesis is suggested below:
   - H₀: There is a statistically significant relationship between liquidity and bank performance.
   - H₁: There is no statistically significant relationship between liquidity and bank performance.

V. **DATA ANALYSIS**

In this section, we will discuss the performance of Libyan banks, measured by the CAMEL model.

**A. Descriptive Statistics**

Table IV shows the descriptive statistics for dependent variables (ROA and ROE).

**TABLE IV: DESCRIPTIVE STATISTICS FOR DEPENDENT VARIABLES**

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROA</td>
<td>1.1334</td>
<td>1.1856</td>
<td>1.5388</td>
<td>2.4129</td>
</tr>
<tr>
<td>ROE</td>
<td>5.8827</td>
<td>2.3033</td>
<td>1.4833</td>
<td>2.6000</td>
</tr>
</tbody>
</table>

The mean of ROA is 1.1334 and Standard deviation equal 1.1856, while the mean of ROE is 5.8827 and its standard deviation equal 2.3033. Also, both of ROA and ROE have a positive rightward skew and they have a more flattened top. These results differ from Muhmad and Hashim (2015) and Khawarish (2011), and the reason for the difference may be due to the work environment in Libyan banks, whether it is an internal environment or an external environment represented in the laws and regulations that govern work in Libyan banks. Table V shows the descriptive statistics for independent variables.

**TABLE V: DESCRIPTIVE STATISTICS FOR INDEPENDENT VARIABLES**

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>Skewness</th>
<th>Kurtosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>CA1</td>
<td>56</td>
<td>0.07125</td>
<td>0.0422</td>
<td>0.9511</td>
<td>1.6607</td>
</tr>
<tr>
<td>CA2</td>
<td>56</td>
<td>0.0970</td>
<td>0.0447</td>
<td>1.2760</td>
<td>2.2805</td>
</tr>
<tr>
<td>CA3</td>
<td>56</td>
<td>7.5515</td>
<td>14.3728</td>
<td>0.9668</td>
<td>1.1518</td>
</tr>
<tr>
<td>AQ1</td>
<td>56</td>
<td>0.1503</td>
<td>0.0545</td>
<td>-0.0060</td>
<td>0.0535</td>
</tr>
<tr>
<td>AQ2</td>
<td>56</td>
<td>0.2708</td>
<td>0.1572</td>
<td>0.5225</td>
<td>1.0617</td>
</tr>
<tr>
<td>MC1</td>
<td>56</td>
<td>0.3250</td>
<td>0.6411</td>
<td>0.7844</td>
<td>1.3281</td>
</tr>
<tr>
<td>MC2</td>
<td>56</td>
<td>2.4629</td>
<td>1.6259</td>
<td>0.6815</td>
<td>2.5938</td>
</tr>
<tr>
<td>MC3</td>
<td>56</td>
<td>0.7326</td>
<td>0.2316</td>
<td>-0.1393</td>
<td>-0.1459</td>
</tr>
<tr>
<td>EQ1</td>
<td>56</td>
<td>0.0218</td>
<td>0.0098</td>
<td>0.0239</td>
<td>2.7209</td>
</tr>
<tr>
<td>EQ2</td>
<td>56</td>
<td>0.0059</td>
<td>0.0054</td>
<td>1.1775</td>
<td>1.6720</td>
</tr>
<tr>
<td>LQ1</td>
<td>56</td>
<td>0.0875</td>
<td>2.3095</td>
<td>1.2650</td>
<td>1.2650</td>
</tr>
<tr>
<td>LQ2</td>
<td>56</td>
<td>0.5357</td>
<td>0.1429</td>
<td>0.4528</td>
<td>0.9508</td>
</tr>
<tr>
<td>LQ3</td>
<td>56</td>
<td>1.3041</td>
<td>0.3446</td>
<td>0.8224</td>
<td>1.2753</td>
</tr>
</tbody>
</table>

In Table V the results shows that the range of mean is between 0.0059 and 7.5515. The mean value of CA3 is among the highest scores that exhibited the ratio of total equity to total loans, which is important in measuring the capital adequacy of the Libyan banks. The second highest is MC2 2.4629, which is the ratio of operating profit to net income. The high value of MC2 means the Libyan banks have the ability to achieve operating profits, which is equal 2.5 times of the net income.

The mean value of LQ3 is 1.3041, which indicates that the ratio of total loans to total deposits has a high value, as total loans cover total deposits 1.3 times. From the perspective of asset quality, AQ2 has the highest value of 0.2078. The ratio of total loans to total assets represents the percentage of a bank’s assets financed with loans.

Among the variables, the one with the highest standard deviation is CA3 (14.3728). This indicates a large variance in total equity to total loans among Libyan commercial banks. Overall, the descriptive results show that the variables chosen in this study are acceptable and represent the banking ratio for identifying sound banking institutions.
Testing on normality is represented by the test of Skewness and Kurtosis, in which the perfect normal value for Skewness is zero while Kurtosis is three (Pevalin and Robson, 2009).

The result of Skewness test showed the data is not normal for dependent variables (ROA and ROE), which have the value higher than zero. It means that the extreme values lie to the right. In term of Kurtosis, almost all the values are lower than three. However, the data distribution is not normal but flatter than normal distribution with a wider peak.

These results agree with Roman and Sargu (2013) in Romania, Khatik and Nag (2014) in India, on other hand, the results disagree with Tibbe (2020) in Ethiopia, the reason for the difference may be due to the operating environment in which Libyan commercial banks operate, in contrast to the operating environment for banks in Ethiopia.

B. Regression Analysis

The purpose of using regression analysis is to predict and estimate the effect of some explanatory variable on the dependent variable. Table VI shows the results of regression analysis of the ROA and ROE model used to explain the CAMEL variables of the Libyan commercial banks.

Table VI shows that there is a statistically significant relationship at 1% between the ROA and CA1 and CA2 in (1), therefore the null hypothesis which states that (There is a statistically significant relationship between capital adequacy and bank performance) is accepted. While there is a statistically significant relationship at 1% between the ROE and CA3 in (2), therefore the null hypothesis is accepted.

Also, there is a statistically significant relationship at 10% between the ROA and AQ2 in (1), and there is a statistically significant relationship at 1% between the ROE and AQ1, so the null hypothesis which states that (There is a statistically significant relationship between assets quality and bank performance) is accepted.

In addition, there is a statistically significant relationship at 1% between the ROA and MC2 in (1), and there is a statistically significant relationship at 1% between the ROE and MC1, so the null hypothesis which states that (There is a statistically significant relationship between management competency and bank performance) is accepted. There is a statistically significant relationship at 10% between the ROA and EQ1 in (1), so the null hypothesis which states that (There is a statistically significant relationship between earning quality and bank performance) is accepted. In construct, there is no statistically significant relationship between the ROE and earning quality, so the alternative hypothesis which states that (There is a statistically significant relationship between earning quality and bank performance) is accepted.

On other hand, there is no statistically significant relationship between the ROA and liquidity, so the alternative hypothesis which states that (There is a statistically significant relationship between liquidity and bank performance) is accepted.

The results of regression agree with Muhmad and Hashim (2015) for four independent variables, in construct, disagree with management competency, the reason for the difference may be due to the operating environment in which Libyan commercial banks operate, in contrast to the operating environment for banks in Malaysia.

VI. Conclusion

This study evaluated the performance of selected Libyan commercial banks. The study uses the CAMEL framework to examine the relationship between CAMEL variables and bank performance in Libya. This framework is known to be the best technique for evaluating bank performance.

Results from this study suggested all factors are contributing for better performance of Libyan commercial banks, namely capital adequacy, asset quality, Management competency, earnings quality and liquidity. It was suggested that Libyan commercial banks need to continuously monitor the health and profitability of bank borrowers to decrease the risk of non-performing loan. In addition, banks must take steps to improve employee productivity by controlling personnel expenses and operating profit. The independent variables were significant with bank performance and the hypothesis were accepted, that means the ratio used is suitable for the banking situation in Libya during the period of study.
Additionally, the study suggest that another factor should be considered for the future studies, such as corporate governance to evaluate and get the other results supported our evaluation for bank performance in Libya.

Also, the study suggested the Libyan banks should strive to attain optimal utilization of the capacities that they have like inputs or resources, and improve their managerial expertise particularly on exercising efficient allocation of scarce resources. By doing these, they can easily achieve economies of scale for their banks. Eventually, those efforts may facilitate sustainable competitiveness for the banks in Libya.

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REFERENCES


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