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Determinants of Commercial Bank Lending: Evidence in United Arab Emirates

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ABSTRACT

Banking is one of the highly sensitive industries as its most of the revenue is generated from loans. The current study aims to investigate the impact of interest rates, capital sufficiency, asset quality, and liquidity on the lending behaviour of commercial leading banks of United Arab Emirates (UAE). For this purpose, the investigator aimed to use a quantitative research method so that only accurate, authentic, and fully updated data can be obtained from the selected population. This research would help regulators for the development of credit risk management standards for various credit related problems like economic sector funding, lending restrictions and risk weighted assets, etc. which can put an impact on the asset quality. Moreover, the researcher collected plenty of data from secondary sources to analyse the impact more effectively with good arguments. Furthermore, all the obtained data were further analysed by using a regression model and statistical analysis methods to evaluate the effectiveness, efficiency, and reliability of all the obtained data from various sources. The results of the conducted research suggested that there is a strong impact of various numbers of determinants of commercial banks of UAE on the lending behaviours like interest rates, capital sufficiency, asset quality, and liquidity. The current research study also indicated that the banks of UAE are needed to stay more vigilant in the use of multiple factors while following the lending trends to increase their revenues and profits.

Keywords: lending; bank size; gross domestic product; credit risk; liquidity ratio; volume of deposit; cash reserve; investment portfolio; interest rate

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INTRODUCTION

Since the invention of money in prehistoric times, there have always been some individuals with excess finances, termed as surplus economic units, and others who lack money to fund their immediate needs. K. Miyajima [1] explained the concept of credit emerged when those with surplus funds began loaning money to cover the needs of those with a cash shortfall, resulting in direct lending where participants interacted directly with each other. This involved surpluses (lenders) and deficit units (borrowers) searching for and negotiating with each other individually, with the lender bearing all the risk, as per Sysoeva [2].

Over time, the history of the system witnessed the gradual rise of indirect lending, gradually replacing direct lending. Indirect lending involves banks combining deposits from various surplus entities (companies, governments, and individuals) and providing loans to those in need of funds. Commercial banks reward customers with interest on their savings while also taking on the default risk. The banks attach a margin appropriate to the debtor's risk level to what is paid to depositors to determine the debtor's costs. The loans are then repaid through banks.

Lending is a crucial service provided by banks, contributing significantly to their income generation. Loans may be short, medium, or long-term, playing a vital role in assisting the economic activities of families, businesses, and governments, determining the growth and expansion of any state's economy. According to E.V. Kuz'mina, A.A. Yanin [3], bank lending operation, impact economic growth by providing capital for investment. Despite the liberalization of financial firms in many economies, experts remain divided on the reasons behind borrowing behaviors. Bank loans are a significant source of long-term finance in advanced economies. Commercial banks are crucial in mobilizing assets and

distributing financial resources, playing an important role in shaping a country's economic development and growth. Commercial banks are driven by liquidity, solvency, and profitability in providing loans to clients.

In most industrialized nations, long-term debt accounts for a substantial portion of total loans. Commercial banks in developing markets may be reluctant to make long-term loans to private corporations. The lack of long-term financing is considered a major impediment to economic growth in emerging and developing countries. Large-sized banks, by pooling deposits and capital from multiple industries and organizations, are better positioned to provide a broader range of financial products. Smaller banking institutions are more likely to underwrite modest loans to small business owners. A large balance sheet allows credit risk management teams to diversify their entire portfolio, reducing the risk of asymmetric shocks.

Research has extensively explored the credit extension practices of different financial organizations. This study aims to investigate the influence of asset quality, interest rates, capital adequacy, and liquidity on the lending behavior of commercial banks in the United Arab Emirates (UAE). The study recognizes that savings or cash received from depositors are the primary source of credit, with the loan portfolio accounting for the majority of a bank's assets and income stream. Banks consider factors such as capacity and willingness to repay when making credit decisions. The debtor's risk profile and customer relations are crucial factors assessed by banks, with risk being the most essential component.

Determinants of bank lending behavior relate to the elements influencing commercial banks' loan extension. Factors such as capital adequacy, interest rates, asset quality, and liquidity are considered. Loan pricing, or interest rates, is one of the most important criteria examined during the loan decision-making process. Liquidity refers to a bank's capacity to meet financial commitments, primarily to customers, when those deposits are needed. The relationship between loan provisions and total loans is referred to as asset quality, assessing a bank's effectiveness in increasing income through loan extension. Capital adequacy measures a bank's capital's ability to withstand fiscal and operational fluctuations. In summary, this study delves into the multifaceted dynamics of bank lending behavior, considering various factors that shape credit extension and its impact on economic development.

Problem Statement

Banking is a highly sensitive industry as most of its revenue is generated through loan operations. The loan procedure exposes the bank to considerable risk, which could result in losses. Understanding the causes of loan behavior is crucial for bank executives to ensure successful bank performance and profitability. The financial intermediaries' function of commercial banks is vital in promoting economic growth and development in every country. Banks accumulate funds through these intermediaries, which are then utilized to fund the economy of a nation. Poor lending practices can lead to significant losses for institutions, potentially leading to their demise. This could have a cascading impact on the economy, resulting in the collapse of the entire financial industry.

The primary goal of the study was to identify the factors influencing lending behavior in UAE banks. The precise objectives guiding this research were as follows:

1. To investigate the impact of capital sufficiency on lending behavior in UAE commercial banks.
2. To ascertain the impact of interest rates on lending behavior in commercial banks in UAE.
3. To investigate the impact of asset quality on lending behavior in commercial banks in UAE.
4. To ascertain the impact of liquidity on lending behavior in commercial banks in UAE.

The purpose of this research was to determine the lending habits of commercial banks in the UAE. It is crucial to understand how the financial systems of emerging countries, particularly the UAE, function. This understanding helps gain insights into how interest rates, capital adequacy, liquidity, and asset quality impact the characteristics and structures of loans, which are then reflected in the loan conditions forming the basis of agreements between the bank and its customers. The research will also assist regulators in developing credit risk management standards to oversee various credit-related hazards, such as lending restrictions, risk-weighted assets, and economic sector funding, which will influence asset quality. The staff and management of commercial banks will also benefit from this research, gaining insights into the elements to consider when making credit judgments and managing their credit facilities.

LITERATURE REVIEW

Various researchers have presented numerous theories concerning credit evaluation and regulation. We will

look at four theories: delegated monitoring of borrowers, credit risk management portfolio theory, loan pricing theory, and information asymmetry theory. Since the 1980s, commercial banks have successfully applied Modern Portfolio Theory (MPT) to market risk and credit risk management. Most financial institutions use Value at Risk (VaR) models to manage their market risk vulnerabilities and interest rates. Regrettably, even though banks identify credit risk as their primary problem, the application of current portfolio theory to credit risk has lagged.

Commercial banks understand the influence of credit saturation on their firm profitability, which may be negative if not handled properly. This has commanded most commercial banks to use quantitative techniques for credit risk measurement, while the main impediment has been a lack of trustworthy data. The banking sector [1, 2], has also taken major efforts toward developing tools for assessing credit risk. Banks have also used credit derivative instruments to quickly and effectively shift risk that they do not want to bear while simultaneously preserving client rapport. As a result of these two developing concerns, advancement in credit risk management on a portfolio level has risen tremendously.

In the beginning, banks used an asset-by-asset approach to credit risk management. This approach entailed periodically assessing the loan book's quality and other credit hazards, employing credit risk ratings, and completely incorporating the findings of this study to calculate the potential losses of a specific loan portfolio. The asset-by-asset method is based on a thorough credit examination as well as the bank's own credit risk rating system. Credit risk assessment systems and frequent loan reviews enable managers to identify portfolio changes in real time. Depending on the conclusion of an institution's difficulty in loan recognition, credit risk rating system, and loan assessment, administration may then adjust its portfolio tactics or simply speed up loan monitoring [3].

The fundamental shortcoming of the asset-by-asset method is a failure to give a holistic perspective of the credit risk portfolio, where risk alludes to the possibility that actual losses exceed predicted losses. The incapacity to detect and assess concentration risk is the primary drawback of the asset-by-asset method. Concentration risk is the heightened risk caused by increasing exposure to a potential borrower, related debtors, or a certain sector [2]. As a result, commercial banks supplement this technique with a quantitative evaluation of their loan portfolios using multiple credit models.

The Information Asymmetry Theory concept is based on the notion that a borrower may know a great deal of information about the risk involved with the project that they have asked the bank to fund that the lender may not have. This might result in an issue with unfavorable selection and behavioral hazard. These significant gaps can reduce the efficacy of shifting monies from those with surplus to those in fiscal distress. The bank may overcome these problems in three ways. One, by building a promise to long-term client relationships. Second, by facilitating communication with other stakeholders, and third, by outsourcing the responsibility of borrowers monitoring [3]. Prior to a bank issuing out a loan, all essential information must be gathered to overcome the information asymmetry challenge.

Banks screen borrowers by obtaining information during the loan evaluation process and after loan disbursement. It entails determining if the applicant has met the bank's lending criteria, assessing the borrower to determine his creditworthiness, and post-loan surveillance to ensure that all agreements are met. When banks manage their clients' operational accounts, they have access to sensitive information on cash movements and spending. This confidential data is helpful in the scenario of small and medium businesses.

Financial efficacy in the banking industry has been identified as a need for economic progress. This reveals why so much attention is placed on ongoing study in this field. This is influenced further by changes in the banking business, which is marked by fierce rivalry. Globalization of markets and financial liberalization have spawned a new age of competitiveness for local banking, with many banks broadening their businesses to keep up with the latest trends.

It is impractical for banks to continually give very low interest rates on deposits while still giving high interest rates on credit facilities to increase their revenue. Banks, according to Gamukin [4], should address the issue of moral hazard and adverse selection when attempting to optimize income because it is difficult to target borrower type with confidence at the time of commencing client connection. Because high interest rates are usually favorable to high-risk borrowers, they may cause an unfavorable selection problem. Once these debtors obtain the loans, it is extremely likely that they will engage in

moral hazard behavior because of pursuing high-risk developments.

Banks are in a stronger role to predict the likely achievement of envisaged project financing because they can draw on encounter from equivalent previous undertakings that they have funded. They are generally in a place to obtain important information that entrepreneurs might not even be successful in obtaining easily. They must also be acquainted with the macroeconomic environment of their geographical scope as well as prevalent economic indicators. This discussed the significance of banks in the business communities. Simultaneously, they must strike a balance between income generation and the dangers associated with their bank lending practices, [3, 4].

The bank's credit terms may then be driven by the need to retain its customers, which may display it with an attempt to profit from other investment opportunities such as service fees, which are non-interest-bearing incomes. As a result, financial institutions should not ignore the relevance of relationship factors because they may offer inside helpful data to them in the future. As a result, it's fascinating to see how banks incorporate relationship factors into their credit assessment.

Most of the recent work has been on overall credit expansion in both emerging and developed nations. According to the existing research, consumer lending is influenced by supply-side variables such as liquidity and demand variables such as income gains and borrowing rates (interest). M. Coletta, R. De Bonis, and S. Piermattei [5] identified that high per capita GDP has a positive correlation with the level of debt in various households across 33 developing countries. Consumer lending in Pakistan were shown to be favorably linked with bank liquidity, income bracket, and financial system reforms [5]. Ivanovic [6] researched the drivers of credit facilities in Montenegro before the global financial and economic crisis of 2007 and deduced that an increase in national income and bank liquidity had a significant effect in determining commercial lending.

According to [5] and [3], the unemployment level and the CPI (consumer price indices) have affected loans in Romania. Yuksel, Zengin, and Kartal [7] investigated the influence of macroeconomic variables on customers' lending in Turkey, namely the rate of interest and rate of unemployment. According to [7], interest rates had a beneficial influence on consumer lending, but rates of unemployment have a detrimental effect. Using quarterly data, Gambacorta, Mistrulli [8] explored the association between macroeconomic factors and consumer lending in Middle Eastern and North African nations. According to the research, an increase in Gross domestic product has a beneficial influence on commercial lending. Abdul-Muhmin [9] ascribed the surge in debt levels in UAE to the increased liquidity position of the commercial banks. According to Fox [10], commercial lending is favorably associated with stock prices. A notable study that looked at macroeconomic factors that can influence bank lending in UAE was executed. According to the study, economic expansion, the price of oil, and bank liquidity all have a significant positive effect on lending. The rate of interest was negative and inconsequential.

Several research works on commercial bank lending behavior have been assessed. Some studies concentrate on the variables impacting bank credit extension to aspects of the economy, while others examined the effects of lending on economic progress. Most of these studies agreed that commercial banks should have some rudimentary lending precepts and systems in place to serve as a roadmap in their credit extension operations. As a result, *Fig.*, it is critical to evaluate and consider some of the elements suggested by other researchers in their attempt to learn the determinants of commercial bank loan founding. This research utilizes the following conceptual framework to address the variables that have been identified to have an impact on the lending behavior in commercial banks.

As a result, it is possible to infer that there is a scarcity of study on the variables that drive commercial banks' loan creation behaviour, with a particular emphasis on risk and relationship aspects. Most of the previous research provides insufficient empirical data since the authors concentrated on the effect of such actions on bank borrowers instead of what the results demonstrated for the bank and the banking sector. Additionally, there is limited understanding of how developing nations make credit decisions, the similarities, and differences between lending theory in first-world economies, and the role of connection variables and risk in credit generation, as well as their influence on the overall banking industry. There is a scarcity of empirical research on loan creation behaviour that focuses on borrowing terms in connection to relationship characteristics and risk characteristics of debtors in developing countries. Furthermore, the few studies that were conducted have focused on organizations

registered with the securities exchange stock market, and as a result, there have been few efforts to support research on commercial banks. As a result, the study was meant to fill this information vacuum.

DATA & METHODOLOGY

The descriptive correlation research design will be used in this study. A correlation study is a quantitative research approach in which there are two or more quantitative variables from the same group, for which an assessment is being performed to identify whether there is a link (or co-variation) between or among the variables in question. The study of Hunjra, Tayachi, Mehmood, Malik and Malik [11] suggested that a multiple regression model is used to determine the relationship between the total amount of loans advanced by commercial banks and all the other variables, which were identified as interest rate, asset quality, capital adequacy, and liquidity ratio. A target population is the specific group of people who might benefit from knowledge about a topic. In the context of this investigation, a population may be described as a well-defined collection of people, services, elements, events, groups of objects, or homes that are under investigation. In population research, everyone has an equal chance of success, resulting in a more representative sample. This research includes four banks of the UAE (Abu Dhabi Commercial Bank, First Abu Dhabi Bank, National Bank of Fujairah & National Bank of Ras Al-Khaimah).

To carry out the research, the study relies on secondary data collected from Bloomberg. Secondary data consist of the use of already published papers or materials, as well as information from libraries, such as audited financial statements, books, periodicals, and other reports. Additionally, the information available on the websites of the banks is used in the investigation. The research is conducted over a seventeen-year period, from 2005 to 2021.

The information gathered is mostly quantitative in nature. The quantitative portion of the study is carried out using descriptive statistics. Descriptive statistical techniques are utilized by the researcher to aid in the description of the data and the determination of the degree of difficulty. The instrument of choice for this investigation is regression analysis. Regression analysis is a statistical procedure used to estimate the connections between different variables [11]. It consists of a variety of

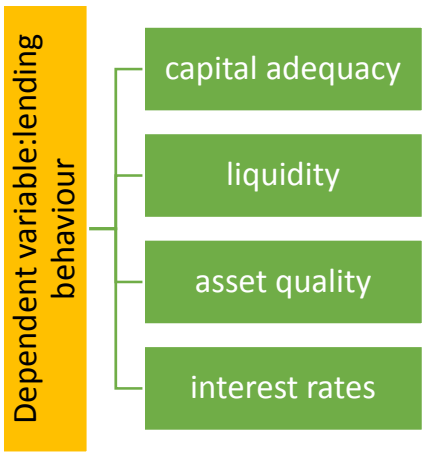

Fig. **Conceptual framework**

Source: Made by authors.

strategies for statistical modeling and analysis of many variables in a situation where the goal of the study is to determine the link between one or more independent factors and a single dependent variable.

During the research, descriptive and inferential statistics will be used in the analysis. The trend analysis method is developed to identify the behavior of the variables over a seventeen-year period. A t-test with a 95 percent confidence interval will be used to calculate the means of the variables and to identify correlations between them. When the degree of correlation between the variables is determined, the research will use an econometric approach, applying the multiple regression analysis of the Ordinary Least Squares (OLS) technique. The secondary data is gathered from the banks' audited financial records, which are then combined. In the research, descriptive and inferential statistics were employed in the analysis, with regression analysis serving as the primary instrument of investigation.

The aggregate of all loans advanced by the banks in each financial year is used to assess bank lending behavior. To determine liquidity, the ratio of total loans issued to total assets is calculated for each bank during the research, and the results will be combined to determine the overall industry position. The capital adequacy of a company is determined by calculating the equity capital to total assets ratio. The term "total assets" refers to the total amount of loans and advances. The interest rates component was calculated by computing the average interest rates issued by the Central Bank, designated as Central Bank Rates in this case. Asset quality is determined by dividing the loan loss provision by

the total amount of loans and advances. Regression analysis is carried out to find the correlations between two or more variables that have cause-and-effect relationships and to make predictions about the subject matter based on the correlations. Answers to questions such as:

1. Are there any relationships between the dependent and independent variables?

2. What is the power of the relationship if one exists?

3. Is it feasible to make future-oriented predictions about the dependent variable?

Are sought in this study, among others.

The analysis of regression using a single independent variable is referred to as univariate regression analysis, while the analysis of regression using many independent variables is referred to as multivariate regression analysis. Aiming to account for the fluctuation of the independent variables in the dependent variable synchronously is the goal of multivariate regression analysis Burton, Alexander [12]. The following is how the multiple regression analysis models are formulated in this way:

$$Y = \beta_0 + \beta_1 X_1 + \ldots \beta_{n(1)} X_n + \mu. \quad (1)$$

When attempting to determine the drivers of commercial bank lending behavior in the banking industry in the UAE, with a particular emphasis on the lending behavior of banks in the UAE, the following regression equation is used:

$$Y = \beta_0 + \beta_1 X_1 + \ldots \beta_4 X_4 + \mu, \quad (2)$$

where Y is the dependent variable, in this case, the lending behavior of commercial banks; β is the regression coefficient; β1, β2, β3 and β4 are the slopes of the regression equation; Liquidity is represented by $X1$ = Liquidity ratio (Total loans to Total Assets); Capital Adequacy is represented by $X2$ = Capital Adequacy ratio (Total Capital to Total Assets); Interest Rates are represented by $X3$ Interest/credit Rates (Central Bank Rates, Treasury bill Rates); Asset Quality is represented by $X4$ = Asset Quality (Loan loss provisions to Total Loans); the Volume of Deposits (total deposits to Total assets); and ε is an error term; μ is the error term.

To determine the significance of the regression constants β0, β1, β2, β3, and β4, the t-statistic with a 95 percent confidence level is employed. The F-test will be used to determine the significance of the whole regression at a 95 percent confidence level. The coefficient of determination R 2 and the modified coefficient of determination R 2 are used to determine the extent to which the four independent variables $X1$, $X2$, $X3$, and $X4$.

The Least Squares Method is a kind of statistical analysis. It is quite simple to understand the least squares approach utilized in OLS regression. Consider a scatterplot of data points that shows a linear trend in a single direction. As a result of an OLS linear regression technique, a line of best fit is created, which can then be used to accurately portray the dispersion of the data points with a single line [13]. Because of this fact, the line fit obtained by using the Ordinary Least Squares (OLS) approach will have the minimum value of the sum of squared deviations of each data point from the line.

The OLS regression technique of analysis involves fitting a regression plane onto a "cloud" of data that is considered to have a linear trend, as opposed to other analysis methods. However, even though the regression plane does not touch every point in the data cloud, it can model the partial relationships between each slope (that is, each regression coefficient) and the outcome variable while simultaneously controlling for the effects of the other variables in the model. As a result, in OLS, regression coefficients are determined by minimizing the sum of squares of the differences between the values fitted onto the regression plane and the values observed in the data. For various reasons, OLS regression has many data assumptions that the researcher must verify before starting the study.

In multivariate regression analysis, the following assumptions must be met normal distribution, linearity, freedom from extreme values, and the absence of additional independent variables (assumed by the model).

It is stated in the linearity assumption that a model cannot be adequately defined if the independent variables in the model do not have a linear relationship with the dependent variable when considered as a whole. Another critical requirement is that the connection between each independent variable (except binary variables) and the dependent variable must be linear. This assumption Gambacorta and Mistrulli [8], is vital since a non-linear model fails to describe the systematic pattern of the connection between the dependent and independent variables when using a non-linear model. OLS suffers from interpretability bias due to nonlinearity,

which is exacerbated by the fact that the independent variable's units (or levels) are non-consequential (i.e., any unit change in the independent variables always results in the exact resulting change in the dependent variable).

This assumption may be tested in various ways, including visual and statistical representations. Examination of a scatter plot of the student residuals plotted against the un-standardized projected values is one graphical approach to determining whether the linearity assumption is valid. This scatter plot may be used to determine whether there is a linear connection between the independent factors and the dependent variable taken as a whole.

Incremental F-tests may be performed to determine if any independent variables in the model cannot be described linearly with the outcome variable to perform a statistical assessment of linearity. These tests may reveal whether the variables in the model have a statistically significant impact on the divergence from linearity for the whole model. If there are no statistically significant departures from the mean, the linearity condition is satisfied, and it may be argued that a linear model fits the data well.

The independence assumption of OLS is satisfied if the error terms in the regression model are not connected with one another (i.e., independent of each other) [13]. This assumption is primarily based on how the data were gathered. As a result, if data were randomly picked from a large population, there is probably no link between the error factors.

It is required that the distribution of mistakes (residuals) be regularly distributed throughout the multiple regression plane, according to the normality assumption in multiple regression. Although huge samples are used, there are three reasons why it is critical to test for this assumption. OLS estimators are less efficient for starters when the error distribution includes heavy tails, which happens when outlying data points cause non-normal error distributions to be generated.

Second, skewed error distributions might have a negative impact on how the least squares fit is interpreted in each situation. Since the conditional mean of the dependent variable is impacted by the skewed distribution when the predictors are considered, this is the case. At the end of the day, multimodal error distributions may lead data to be dichotomized into groups, resulting in non-normality in the error distribution as a result.

As a result of this assumption, the dependent variable's volatility around the regression plane (i.e., the error variance) remains constant throughout the analysis. In regression models, heteroskedasticity, also known as nonconstant error variance, is a concern since it reduces the efficiency of least squares estimators and may result in incorrect computations of coefficient standard errors. To test this assumption, a scatterplot of the studentized residuals plotted against the unstandardized projected values should be used to do so. This graphic may be visually inspected to see whether this assumption has been fulfilled by the model. It is possible to test the assumption of heteroskedasticity statistically if it is assumed to exist and if visual examination does not provide compelling evidence of homoscedasticity.

A Breusch-Pagan test may be used to statistically evaluate this assumption. The significance of a significant result ($p < 0.05$) using this test indicates that the dependent variable's variation around the regression plane is not constant under the null hypothesis that the model has constant error variance (i.e., homoscedasticity and heteroskedastic). A nonsignificant p-value, on the other hand, implies that the model's assumption of homoscedasticity has been fulfilled.

RESULTS & DISCUSSIONS

Descriptive Statistics

The descriptive statistics is computed for all the dependent and independent variables included in study.

Measures of central tendency and measures of dispersion are both integral parts of this study. From Table 1, the mean of all variables is greater than the median (except GDP), indicating that all the variables follow a positively skewed distribution rather than a normal distribution. Only GDP is the variable that follows a negatively skewed distribution. The dataset shows variation, as evidenced by the high standard deviation values. The coefficient of skewness supports this observation. Each variable is based on 68 values, and the data were collected over time, spanning from 2005 to 2021. To assess any potential stationarity in the time series data, a Stationarity test is conducted.

Table 2 consists of the results of the Stationarity test. The obtained p-value is compared with a 5% level of significance to examine which variables are significant or not. Only one variable named "RR" is significant, and all the other variables are insignificant. Following Tayachi,

Table 1

Descriptive Statistics

Statistics / Ariable	BL	ASSETS	GDP	IP	LENRAT	LR	RR	CR
Mean	100780.5	174480.4	1.24E+12	0.104470	5159.951	0.119427	0.121853	0.030544
Median	39570.15	57302.00	1.25E+12	0.101854	3381.750	0.102319	0.107216	0.024477
Maximum	423382.7	1000343.	1.51E+12	0.226891	20831.60	0.314797	0.261057	0.107806
Minimum	3302.600	6279.800	9.45E+11	0.023268	246.6000	0.012409	0.023413	0.006161
Std. Dev.	109924.6	225798.4	1.74E+11	0.056284	4798.967	0.066624	0.063260	0.021034
Skewness	1.388818	1.995654	−0.033598	0.406640	1.427546	0.973272	0.460012	1.613339
Kurtosis	4.276462	6.705286	1.612615	2.111203	4.798696	3.720859	2.349282	5.326968
Jarque-Bera	26.47642	84.03577	5.466500	4.112262	32.26276	12.20789	3.597990	44.84097
Probability	0.000002	0.000000	0.065008	0.127948	0.000000	0.002234	0.165465	0.000000
Sum	6853073.	11864665	8.44E+13	7.103973	350876.7	8.121065	8.285972	2.076965
Sum Sq. Dev.	8.10E+11	3.42E+12	2.04E+24	0.212250	1.54E+09	0.297399	0.268120	0.029642
Observations	68	68	68	68	68	68	68	68

Source: Compiled by the authors.

Table 2

Stationarity Test at Level

Variable / Test	t-Stat	P-Val
BL	0.781049	0.538348
ASSETS	0.923884	0.892140
GDP	0.630070	0.630070
IP	0.244592	0.979818
LENRAT	0.936962	0.388858
LR	0.048794	0.645071
RR	0.000264	0.053181
CR	0.098409	0.122262

Source: Compiled by the authors.

Hunjra, Jones, Mehmood, and Al-Faryan [14], to eliminate the effect of stationarity, the 1st Difference technique is applied to the dataset. After applying the 1st difference, the Stationarity test is repeated. Table 3 consists of the results of the Stationarity test.

Table 3 has computed p-value for every variable is compared with 5% level of significance to estimate about the significance of variables. In this 2nd test, "BL, ASSETS, LR and RR" four variables become significant at 5% alpha level while remaining all variables is still insignificant. The 1st difference technique is not effective as much as expected because 6 variables are still insignificant.

Before applying regression analysis, log transformation is applied to the entire dataset in *Table 4*. The value of R-squared explains that 99% of the dataset shows variation, and the fitted regression model is a well-fitted model. Four of the coefficients of the regression equation have a negative effect, and the rest of them show a positive effect on the dependent variable. The significance of all coefficients is tested by comparing with a 5% level of significance. "LOG(ASSETS), LOG(GDP), LOG(LR), LOG(RR), and LOG(IP)" are the significant variables of this fitted model.

CONCLUSION AND RECOMMENDATIONS

The primary objective of this research was to examine the lending habits of commercial banks in the United Arab Emirates (UAE). The financial system of any country plays an integral role in establishing and developing a strong economy. Given that the UAE has faced economic challenges in recent years, the research aimed to analyze the contribution of various determinants, such as interest rates, liquidity, capital adequacy, asset quality, and loan structures, to the

Table 3

Stationarity Test at 1st Difference

Variable / Test	t-Stat	P-Val
BL	0.132471	0.027599
ASSETS	0.056883	0.007803
GDP	0.387849	0.387849
CR	0.045036	0.064163
LR	0.012612	0.010389
VD	0.000979	0.126194
RR	0.042563	0.001912
IP	0.438370	0.069703
LA	0.002701	0.077749
LENRAT	0.139850	0.978875

Source: Compiled by the authors.

Table 4

ANOVA and Log of Variables

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	–3.364927	2.058895	–1.634337	0.1075
LOG(ASSETS)	1.036347	0.032539	31.84924	0.0000
LOG(CR)	0.048022	0.011613	4.135079	0.0001
LOG(GDP)	0.087989	0.079277	1.109888	0.2716
LOG(IP)	–0.027256	0.018275	–1.491395	0.1412
LOG(LR)	–0.042670	0.013667	–3.122032	0.0028
LOG(LENDRATE)	–0.019568	0.033436	–0.585255	0.5606
LOG(RR)	–0.052226	0.018469	–2.827854	0.0064
LOG(VD)	0.159345	0.028629	5.565923	0.0000
Root MSE	0.050529	R-squared		0.997960
Mean dependent var	11.09646	Adjusted R-squared		0.997684
S.D. dependent var	1.127128	S.E. of regression		0.054246
Akaike info criterion	–2.867848	Sum squared reside		0.173614
Schwarz criterion	–2.574089	Log likelihood		106.5068
Hannan-Quinn criterion	–2.751451	F-statistic		3608.384
Durbin-Watson stat	1.615712	Prob(F-statistic)		0.000000

Source: Compiled by the authors.

lending behavior of commercial banks in the region. To achieve this objective, the research employed the quantitative research method, utilizing surveys from a selected population of four leading commercial banks in four UAE countries. Additionally, the study collected ample data from various secondary sources to support its arguments. All the obtained data underwent analysis, presentation, and utilization for decision-making. The SPSS analysis method was adopted for processing the data. The research findings indicated a significant contribution of the discussed determinants to the lending behavior of commercial banks in the UAE. In conclusion, poor lending practices could lead to significant losses, negatively impacting profits, revenues, and the overall economy of the banking industry. The study emphasized the need for vigilant

and strategic management in formulating lending practices to maintain bank revenues and meet the needs of customers.

The research proposes recommendations to enhance financial determinants for sustained profitability. Firstly, there should be a systematic and efficient provision of currency to commercial banks, such as those in KSA and UAE. This would enable basic banking functions, such as accepting deposits, making loans, serving as a banker for the government, regulating other banks, and controlling money supply. Secondly, lending money to commercial banks requires maintaining cash availability, Miroshnichenko & Mostovaya [15], which is not the function of the Federal Reserve Bank but is the responsibility of commercial banks. The use of cryptocurrency for lending and borrowing, which lacks physical existence and is not issued by a central authority, should be avoided as per [13] and [15].

Thirdly, the central bank, as per Byvshev & Meshkova [16], can implement measures such as increasing reserve requirements for commercial banks, compelling them to keep more money with the central bank, thereby reducing their capacity to give loans. This is a tool of monetary policy. Additionally, studies [17–20] confirmed that the central bank can increase the cash reserve proportion as a monetary tool in the same scenario.

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