The bank lending behaviour: Does non-performing loans matter? Evidence from the top-ten banks in the Arab world

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ABSTRACT

This essay examines the third increase in non-performing loans (NPLs) in the Arab World, which the COVID-19 epidemic may have contributed to. This increase follows two previous waves that occurred in 1990 and after 2008. The primary aim is to analyze bank lending behavior, particularly examining the influence of firm-specific determinants on banks' lending activities and the impact of NPLs on this behavior. Utilizing secondary data from 2016 to 2020, this research focuses on the top ten national banks in the Arab region. The methodology incorporates panel data derived from audited financial statements and employs OLS regression (Pooled) for analysis. The findings reveal a significant negative impact of NPLs and capital adequacy ratios on bank lending behavior, while bank size and deposit growth positively influence lending activities. Additionally, the study notes an insignificant relationship between profitability, equity as a percentage of total assets, and lending behavior. These results provide practical insights for banking sector decision-makers, emphasizing the management of NPLs through maintaining adequate capital, enhancing deposits, and increasing bank assets. From a social perspective, the study suggests that banks should prioritize lending to investors likely to fulfil their obligations, potentially limiting credit availability for smaller entities and individuals without guarantees. This approach aims to mitigate the risks associated with NPLs. This work's originality lies in its concentration on a condensed sample that accounts for more than 70% of the banking resources in the Arab region, making it a significant contribution to applied research in this area that stands out for its reliance on pre-existing data.

Contribution/ Originality: This study uniquely investigates the impact of non-performing loans on bank lending behavior in the Arab world's top ten banks during COVID-19, providing novel insights into how firm-specific determinants, particularly NPLs, affect lending activities. This focus on a specific, impactful sample provides novel insights into banking behavior under crisis conditions.

1. INTRODUCTION

Over the past decades (2007/08-2020), the credit quality of loan portfolios across most countries in the world has remained a debatable issue following the World Financial Crisis (2007-08) and the pandemic crisis created by COVID-19. The non-performing loans (NPLs) problem has received great attention in both developed and developing economies, and the Arab world is no exception.

Following the global financial crisis of 2007/08, a significant increase in credit growth provided by financial institutions was recorded in the Arab world (International Monetary Fund, 2016). The value of facilities granted by the Arab banking sector has increased by 3.5% in 2019. The facilities in 2019 constituted 62% of the total assets and maintained the same pace during the period (2013-2019). The credit growth rate that exceeds the deposit growth rate is attributed to the deregulation process of financial markets and the mass development of information technology in the banking industry (15% of fixed assets), which collectively led to the enhancement of the banking culture in the Arab World. The deregulation process strengthened competition among banks, leading to credit risk, which affects their loan portfolios in terms of bad loans and relaxation of lending criteria (Ahmed, Ahmed, & Khan, 2021).

The main motivation behind this study is the increase in non-performing loans. The average NPLs ratio has maintained a stable level over the period 2013-2019, with an average of 6.8% in 2018 and 7.1% in 2019. The increase in NPL ratios represents one of the serious concerns for the banks' managers and decision-makers in the region. The growth of credit facilities in the Arab World and the associated NPL ratio created an enlargement of the provision coverage ratio, which soared up to 93.4% in 2019 compared to 93.1% in 2018. The current pandemic COVID-19 crisis, which started in 2019, has been accompanied by an economic downturn, low productivity, the closing down and failure of many businesses in the services and production sectors, and the failure syndrome of SMEs. Bearing in mind that these sectors constitute the bank bone of the economies of the Arab World. Before COVID-19, banks were reportedly more willing to extend credit (Beck, Jakubik, & Piloiu, 2015; Jouini & Obeid, 2020). Ahmed and Ali (2021) provided evidence that the unused lending capacity during the period 2008-2018 ranged between 2% and 5%, and the growth rate of credit facilities in the GCC banking sector was around 103% of the growth rate of total deposits in conventional and Islamic banks. Since the pandemic crisis, banks have reduced credit lines to the private sector and personal loans and levied more conditions on corporate lending (Arab Monetary Fund Annual Reports, 2020). This was aggravated by the fact that there are no bankruptcy rules in most of the Arab countries. The cases of Saudi Oger, Bin Laden Group of the KSA, Al Jaber Group of the KSA, and NMC Group in the UAE cast a shadow on the recovering state of the Gulf Banks and the Arab World banks at large. The empirical data shows that the Gulf banks have experienced difficulties in maintaining asset quality after the Global Financial Crisis and during COVID-19. One of the hottest topics in the Arab banking sector is ensuring mergers and acquisitions that support the creation of the biggest banks (First Gulf Bank (FGB) and National Bank of Abu Dhabi (NBAD) case).

The economic impact of NPLs is well recognized in the financial literature. A number of scholars (Bernanke, 1983; Kalemli-Özcan, Laeven, & Moreno, 2018) have developed models to understand the determinant factors of NPLs. Unresolved NPLs may also derail the post-COVID-19 economic recovery (Park et al., 2020). The past records of the global financial crisis show that 80 banks in the GCC countries were subjected to high credit risk, tight financing conditions, and a high NPLs ratio (Espinoza, Prasad, & Williams, 2011). The global financial crisis resulted in a wave of losses for banks, leading to a financial meltdown. The USA agriculture and electricity crisis (1980), the Asian financial crisis (1997), and the global financial crisis provide evidence that short-term lending dried up and many troubled banks withdrew from emerging market economies to protect their capital (Cetorelli & Goldberg, 2011). The situation has had an adverse impact on the banking industry under the domination of foreign banks incorporated in advanced economies. The aim of the paper is to provide a better understanding of lending behaviour during the COVID-19 crisis and the expected impact on the stability of the financial sector in the Arab world in the post-Covid-19 period. The pandemic could trigger a recession in a world economy that is already heavily indebted. Debts and NPLs are expected to increase significantly in the forthcoming years following COVID-19. The paper investigated the feedback effect of increasing NPLs on lending behaviour and the performance indicators of the bank. The trend of NPLs ratios and their impact on the stability of the financial sector is an area of intense interest and debate. The analysis is based on a sample of the Top-ten commercial banks operating in the Arab world`s financial market as categorized, classified, and rated by the Arab Banking Union Association. The structure of the paper is as follows: Section 2 presents a comprehensive assessment of the existing literature. Section 3 outlines the methods

employed in the empirical studies, while Section 4 reports the findings and gives an interpretation of the results. The final portion has several findings and policy implications.

2. THE LITERATURE

The literature on non-performing loans (NPLs) spans various aspects, from their determinants to their effects on banking sector profitability and stability. A significant body of research has focused on understanding the complexities of NPLs in diverse financial markets. Early studies by Louzis, Vouldis, and Metaxas (2012) concentrated on the European financial market, while Beaton et al. (2016) extended the research to include the USA, EU, Asian, and African financial markets. These studies have collectively underlined the importance of both bank-specific and macroeconomic determinants in understanding NPLs.

Bank-specific determinants have been explored in various contexts. Alshebmi, Adam, Mustafa, and Abdelmaksoud (2020) examined the impact of NPLs on Saudi Arabian banks' profitability, highlighting the significant relationship between NPLs and financial performance. Hernawati, Hadi, Aspiranti, and Rehan (2021) added a unique dimension by focusing on Islamic Banks in the Asia-Pacific region, where distinct financial principles and practices play a crucial role. The influence of bank size, capital ratio, and exposure to local loans in explaining NPL variations was underscored in studies by Salas and Saurina (2002) and Berger and Black (2011).

In terms of macroeconomic determinants, Zhang and Cai (2021) provided insights into the Chinese banking sector, emphasizing how economic trends significantly influence loan performance. Makri, Tsagkanos, and Bellas (2014) discovered a strong correlation between NPLs and various macroeconomic indicators in the Eurozone, such as public debt and unemployment. Laeven and Majnoni (2003) analyzed data from 45 countries to investigate factors influencing NPLs, particularly how banks' provisions in different economic times affect their NPL levels. The findings of Carlo, Barbiero, Boucinha, and Burlon (2023) suggest that lending facility measures can be a practical approach to address the limitations of traditional policy frameworks and support private economic activities.

Research often emphasizes the strong correlation between economic conditions and NPL levels. Economic downturns, recessions, and financial crises tend to contribute to higher rates of non-performing loans.

Region-specific studies have also contributed to the literature. Alaoui Mdaghri (2022) explored the effect of bank liquidity creation on NPLs in the MENA region, providing valuable insights into liquidity management strategies. We used dynamic panel data models to identify the key determinants of NPLs in the Arab banking sector, offering a comprehensive view of credit risk management in this specific regional context. Rajha (2016) examined the impact of both bank-specific and macroeconomic variables on NPLs in Jordan. Anna et al. (2023) examined the relationship between interest rates and the likelihood of loans becoming non-performing. Their main finding is that fluctuations in interest rates can influence borrowers' ability to service their loans.

Historical and comparative studies have enriched our understanding of NPLs. Sinkey Jr and Greenawalt (1991), and Gambera (2000) provided historical perspectives on NPL determinants in the USA, highlighting the effects of agricultural crises, energy shocks, and macroeconomic variables. Messai and Jouini (2013) and Beaton et al. (2017) linked NPLs to factors like bank's operating efficiency and profitability in Southern European banks and the Eastern Caribbean Currency Union, respectively. Past research examining the efficacy of focused liquidity support underscores the significance of such measures in mitigating fragmentation and maintaining the steady provision of credit to both households and businesses Manz (2019) and Boeckx, De Sola Perea, and Peersman (2020).

Despite extensive research, there remains a literature gap concerning the relationship between bank-specific variables, bank lending behavior, and credit risk, particularly under uncertainties created by environmental crises. This paper aims to bridge this gap by focusing on the top ten banks in the Arab World, contributing to the finance literature from a unique regional perspective. The emphasis on bank-specific variables in relation to environmental crises offers a fresh perspective on the challenges and strategies for managing NPLs in a volatile global environment. The findings of Rano and Permana (2021) show that NPL negatively and insignificantly affects CAR. ROA has

positive and insignificant impacts on CAR, while ROE has negative and insignificant effects on CAR. In addition, there are positive and significant impacts on CAR caused by the loan deposit ratio (LDR). Gabriel, Victor, and Innocent (2019) stated that Non-Performing Loans to Total Loans ratio (NPL/TLR) and Cash Reserve Ratio (CRR) had a statistically significant negative effect on Return on Assets (ROA).

In the case of Islamic Banks, the findings may be different. The findings of Permataningayu and Mahdaria (2019) indicate that, in Islamic commercial banks in Indonesia, non-performing financing does not exert an impact on the volume of financing. Similarly, the financing-to-deposit ratio (FDR) does not influence the volume of financing in these banks. Additionally, Non-Performing Loans (NPL) have no discernible effect on third-party funds (DPK), while FDR does not impact DPK either. Interestingly, DPK exhibits a positive influence on the volume of financing in Islamic commercial banks in Indonesia. Furthermore, DPK serves as a partial mediator in the relationship between NPL and the volume of financing in Islamic banks in Indonesia. Conversely, DPK acts as a complete mediator in the relationship between FDR and the volume of financing in Islamic banks in Indonesia.

3. METHODOLOGY AND SAMPLE DESCRIPTION

The sample consists of the top-ten national banks of the Arab world. Data are based on annual frequency derived from the audited financial statement of the sample for the period 2016-2020 (panel data). Panel data regression is made up of two models of estimation, namely, the random effects model (REM) and the fixed effect model (FEM). This study will summarize the two models in the context of the impact of the independent variables mentioned above and bank lending behaviour.

3.1. The Sample

Two waves of rising NPLs had already occurred in the Arab world in the last 30 years (1990-2021). A number of studies have been conducted on the relationship between macroeconomic factors and credit risk. The current paper addresses bank-specific factors, credit risk, and the implications for banking behavior. The study is built around data derived from the Top Ten commercial banks incorporated in the Arab World for the period (2016-2020). The top ten banks have been selected because they possess 72% of the total assets, 77% of the deposits, 68% of the equity holders, and 82% of the operating profits of the banking sector in the region. As per S&P Global Market Intelligence, the aggregate total assets of banks in the UAE, Saudi Arabia, Qatar, and Kuwait accounted for 21%, 17.2%, 12.5%, and 12.2% of the total assets of the 200 largest banks, respectively. The top 20 largest banks in the Middle East and Africa comprise five Saudi Arabian banks, four UAE banks, two Egyptian banks, two Kuwaiti banks, and one each from Jordan, Morocco, and Qatar. Therefore, we have selected the top ten of the top 20 banks in MENA and Africa. Qatar National Bank and First Abu Dhabi Bank have been classified as the top two largest banks in the region, with total assets of $282 billion and $250 billion, respectively, at the end of 2020, and Emirates NBD is in third place. In addition, the selection of this sample is supported by the increase in NPLs ratios over the last few years. The average NPLs ratio has maintained a stable level over the period 2013-2019, with an average of 6.8% in 2018 and 7.1% in 2019. Table 1 shows the trends of the NPLs ratio in the Arab World.

Table 1. NPLS ratios and annual changes.

Year	NPLs ratio	Change %
2013	6.9%	-
2014	6.7%	< 2.89% >
2015	6.5%	< 2.98% >
2016	6.6%	1.5%
2017	6.5%	< 1.5% >
2018	6.8%	4.6%
2019	7.1%	4.4%
Average of an average =	6.73%	

Based on the classification and ratings of the Union of Arab Banks (UAB), the top ten that stand as a research universe could be categorized as shown in Table 2, which shows the sample of the banks, the country of origin, and the nature of the bank.

Table 2. The sample.

Rank	Bank	Country	Nature
1.	Qatar National Bank	Qatar	Conventional
2.	National Comm. Bank	KSA	Conventional
3.	Emirate NBD	UAE	Conventional
4.	National B. Abu Dhabi	UAE	Conventional
5.	Al Rajeh Bank	KSA	Islamic
6.	National Bank of Kuwait	Kuwait	Conventional
7.	National Bank of Egypt	Egypt	Conventional
8.	Abu Comm. Bank	UAE	Conventional
9.	Samba financial Gdap	KSA	Finance house
10.	Riayad Bank	KSA	Conventional

It is apparent that the sample comprises 8 large conventional banks (80%), one large Islamic bank (10%), and one finance house (10%) from five countries. 90 percent of the top ten banks in the Arab world are incorporated in the GCC countries. This point of strength stands as a base for further empirical research work on the Arab banking industry, with a view to establishing well-documented policy-evidence results from a larger sample across the Arab countries.

3.2. The Empirical Model

The model used in the study tries to investigate the impact of non-performing loans on bank lending behaviour. The specification of the model contains other bank-specific factors such as bank size, growth of deposit, capital adequacy ratio, profitability, and Equity as a percentage of total assets that have a significant effect.

$$BB_{i,t} = \propto_0 + \beta_1 NPL_{i,t-1} + \beta_2 DEP_{i,t-1} \, \beta_3 SIZE_{i,t-1} + \beta_4 CAR_{i,t-1} + \beta_5 ROA_{i,t-1} + EAS_{i,t-1} + \varepsilon_{it} \quad (1)$$

Equation 1 includes the dependent and independent variables of the study. The dependent variable, bank behaviour ($BB_{i,t}$), is measured by the growth of gross loan rate for each year, following Berrospide and Edge (2010); Foos, Norden, and Weber (2010) and Alessi, Di Colli, and Lopez (2014).

Within the context of the bank-specific factors, the independent variables are:

1. Non-performing Loans over gross loans at time t-1 (NPL_{it-1}). We use non-performing Loans over gross loans at time t-1 (NPL_{it-1}) as indicator of credit risk. An increase in this ratio means an increase in the credit risk which could lead to a decrease in lending activity (BB) of the banks, and thus a negative sign is expected. (Cucinelli, 2015).

2. The size at time t-1 of the bank is measured by the asset ($SIZE_{i,t-1}$), (in log form), which is expected to positively affect $BB_{i,t}$. This stems from the allegation that large banks are more effective (Human Capital) in credit analysis and in monitoring their asset quality.

3. The growth of total deposits at time t-1 ($DEP_{i,t-1}$) is a measure of banks' funding activity. The growth of total deposits at time t-1 ($DEP_{i,t-1}$) which are measures of banks' funding activity for which we expect a positive sign with $BB_{i,t}$.

4. Solvency is measured by the capital adequacy ratio at time t-1($CAR_{i,t-1}$)., Therefore, we expect a negative sign with $BB_{i,t}$. (Cucinelli, 2015).

5. The profitability at time t-1 1 ($ROA_{i,t-1}$), is used as an indicator for the financial performance of banks for which we expect a positive sign with $BB_{i,t}$.

6. Equity as a percentage of total assets at time t-1 ($EAS_{i,t-1}$) will be used as a surrogate measure for the degree of solvency for which we expect a positive sign with $BB_{i,t}$ (Foos et al., 2010).

3.3. The Method of Analysis

This study employs Ordinary Least Squares (OLS) regression using panel data to analyze the impact of various financial indicators on bank behavior in the Arab banking sector. Panel data, which combines cross-sectional and time-series data, provides a more comprehensive view of the banking sector's dynamics over time. The use of OLS regression in this context is particularly effective for examining the relationships between non-performing loans (NPLs), capital adequacy ratio (CAR), deposits (DEP), bank size, and bank behavior (BB).

The methodology employed in this study stands out in several ways:

Temporal Depth: The use of panel data allows for the analysis of data over a period, offering insights into trends and patterns that might be obscured in a purely cross-sectional study. This temporal depth is crucial for understanding the evolving nature of the banking sector in the Arab world.

Cross-sectional Analysis: By including data from the top ten national banks in the Arab world, the study provides a broad perspective that encapsulates a significant portion of the region's banking activity. This cross-sectional analysis ensures that the findings are more representative and robust.

Dynamic Interactions: The OLS regression model used in this study is adept at capturing the dynamic interactions between the various financial indicators. This is particularly important given the interconnected nature of NPLs, liquidity, capital adequacy, and bank size in influencing bank behavior.

The OLS regression using panel data is particularly suitable for this study due to several reasons:

Handling Complexity: The banking sector is characterized by complex relationships between various financial indicators. OLS regression provides a statistically rigorous method to untangle these relationships and identify significant factors influencing bank behavior.

Efficiency and Consistency: OLS is known for its efficiency and consistency in estimators, especially when the model is correctly specified and the errors are normally distributed. This ensures that the study's findings are reliable and can be replicated in future research.

Comparative Analysis: The use of panel data facilitates comparative analysis over time and across different banks. This is essential for understanding how the Arab banking sector has evolved and how it compares with global trends in banking practices.

Policy Relevance: The methodology's ability to provide detailed insights into the relationships between key financial indicators makes it highly relevant for policy formulation and regulatory oversight in the banking sector.

In summary, the chosen methodology of OLS regression using panel data is well-suited to address the research objectives. It provides the necessary tools to analyze complex relationships within the banking sector, offering valuable insights that are relevant both for academic research and practical applications in banking management and policy formulation.

4. RESULTS

4.1. Descriptive Statistics

Table 3 shows the descriptive statistics, which show the mean, median, minimum value, maximum value, standard deviation, skewness, and kurtosis of the variables used in the study. The findings show that there is no variable with a high standard deviation. The descriptive statistics also show the existence of the problem of kurtosis with values of kurtosis higher than 3 for all variables in the study except NPL and ROA. Finally, the descriptive statistics suggest that most of the variables do not exhibit the problem of skewness.

Table 3. Descriptive statistics.

Variables	BB	NPL	CAR	SIZE	ROA	DEP	ETS
Mean	0.122	0.035	0.168	5.516	0.019	0.138	-0.898
Median	0.067	0.030	0.167	5.630	0.019	0.073	-0.888
Maximum	1.378	0.090	0.222	6.135	0.032	2.104	-0.708

Variables	BB	NPL	CAR	SIZE	ROA	DEP	ETS
Minimum	-0.287	0.000	0.086	4.385	0.010	-0.503	-1.264
Std. dev.	0.250	0.022	0.031	0.446	0.005	0.354	0.121
Skewness	3.255	0.557	-0.696	-1.417	0.314	4.085	-1.359
Kurtosis	16.270	2.765	3.756	4.403	2.867	23.304	5.324

4.2. Correlation Matrix

Before showing the empirical results and analyses, the correlation between the independent variables was checked (Table 4). The results indicate that there is a negative correlation between BB and CAR.

Table 4. Correlation matrix.

	BB	NPL	CAR	SIZE	ROA	DEP	EST
BB	1						
NPL	0.229	1					
CAR	-0.372	-0.123	1				
SIZE	0.301	0.382	0.154	1			
ROA	0.281	-0.086	0.128	0.287	1		
DEP	0.969	0.274	-0.266	0.272	0.189	1	
EST	0.367	0.007	0.659	0.324	0.059	0.325	1

4.3. Regression Results

Panel data regression is made up of two models of estimation, namely, the random effects model (REM) and the fixed effect model (FEM). This study will summarize the two models in the context of the impact of the independent variables mentioned above and BB. Table 5 represents the results of the regression analysis including all the variables under both fixed and random effects.

Table 5. Regression results.

Variable	Fixed effects		Random effects	
	Coefficient	Prob.	Coefficient	Prob.
C	12.826	0.6998	11.2389	0.1014
NPL	-0.2719	0.1531	-0.24106	0.0160
CAR	-2.3507	0.5355	-3.18374	0.0453
SIZE	1.9233	0.5669	1.38910	0.0376
DEP	0.0098	0.1675	0.01173	0.0191
ROA	0.3056	0.8261	0.70062	0.3417
EST	7.2408	0.5471	4.43608	0.1650
R-squared	0.8706		0.8229	
F-statistic	3.6237		10.844	
Prob(F-statistic)	0.0475		0.0000	
Durbin-Watson	2.4596		2.4596	

Hausman's test was employed to determine the preferable model between fixed-effect and random-effect least square models, as outlined in Table 6. The null hypothesis posits a fixed-effect model, with the alternative being a random-effect model. The obtained results indicate an insignificant p-value of 0.8779. Consequently, the conclusion drawn is to opt for the random-effect least square model.

Table 6. Hausman test.

Correlated random effects – Hausman test			
Test cross-section random effects			
Test summary	Chi-sq. statistic	Chi-sq. d.f.	Prob.
Cross-section random	2.414992	6	0.8779

4.4. Discussions

Based on the random-effect model chosen through Hausman's test, the R square for the random-effect panel least square equaled 0.8229. As a result, the independent variables in Table 4 can account for 18% of BB. The F-test for the model yielded a highly significant value of 10.844. Notably, NPLs and CAR exhibited a negative relationship with BB, proving statistically significant with a p-value below 5%, aligning with findings in Cucinelli (2015) and Alhassan, Brobbey, and Aamoah (2013). DEP and SIZE were also significant, with a p-value below 5%, indicating a positive association with BB, consistent with the literature reviews. On the other hand, both ROA and EAS demonstrated a positive relationship with BB, yet their p-values exceeded 10%, rendering them statistically nonsignificant. This outcome diverges from the patterns observed in the literature reviews.

The study's results on the connections between bad loans (NPLs), capital adequacy ratio (CAR), deposits (DEP), bank size, and bank behaviour (BB) in the Arab banking sector are very similar to new research that has been done in similar areas. Our study reveals a significant negative impact of NPLs and CAR on BB, aligning with the findings of Alshebmi et al. (2020) who assessed the effect of NPLs on bank profitability in the Saudi Arabian banking sector. This alignment emphasizes the broader financial implications of NPLs across different banking environments.

Furthermore, the positive relationship between DEP and BB resonates with the findings of Alaoui Mdaghri (2022), who investigated bank liquidity and NPLs in the MENA region. This implies that effective liquidity management, as seen in higher deposit levels, can positively influence bank behavior, highlighting the significance of effective deposit and liquidity strategies in banking operations.

The study, focusing on the determinants of NPLs in the Arab banking sector, offers a broader perspective that complements our study's findings. The negative correlation we observed between NPLs and BB is consistent with Obeid's exploration of the impacts of various determinants on NPLs, suggesting a universal challenge that banks face in managing NPLs across different regions.

The study by Hernawati et al. (2021) on non-performing financing in Islamic Banks in the Asia-Pacific region provides additional context. The similarities in NPL implications across diverse banking systems highlight the widespread challenges in NPL management. This is further supported by Zhang and Cai (2021) work, which offers a macroeconomic viewpoint essential for contextualizing our study's bank-level findings.

These comparisons are crucial for a comprehensive understanding of NPL impacts and broader banking practices. They validate the consistently negative impact of NPLs on bank behavior across varied geographical contexts, reinforcing the need for effective risk management strategies in banking. The insights gained from these studies contribute significantly to the academic field, challenging and affirming existing theories and models about the impact of financial indicators on bank behavior. Moreover, these findings have profound policy implications, emphasizing the importance of policies that focus on NPL management, liquidity enhancement, and capital adequacy for the stability and profitability of banks. Overall, the comparison with recent literature not only confirms some established theories but also provides new insights, particularly in the context of the Arab banking sector. This contributes to a deeper understanding of the dynamics between NPLs, liquidity, bank size, and overall bank behavior, offering valuable guidance for bank management and policymaking.

5. CONCLUSION

This study tries to understand whether an increase in firm-specific determinants can lead banks to reduce their lending activity. The OLS regression (Pooled) was used depending on secondary data with panel data specifications derived from the audited financial statements of the top-ten national banks of the Arab world for the period 2016–2020. Findings reveal a significant negative impact of non-performing loans and the capital adequacy ratio on bank lending behavior, and a significant positive impact with regard to both bank size and the growth of deposit. The results also show an insignificant relationship between profitability, equity as a percentage of total assets, and bank lending behavior. This study has extensively analyzed the impact of non-performing loans (NPLs), capital adequacy

ratio (CAR), deposits (DEP), and bank size on bank behavior (BB) in the Arab banking sector. The findings reveal a significant negative impact of NPLs and CAR on BB, while deposits and size show a positive relationship. These results are in line with recent studies in the field, underscoring the universal challenges and trends in banking across different regions. The negative correlation between NPLs and BB reaffirms the detrimental effect of high NPLs on bank operations and profitability, highlighting the need for effective credit risk management strategies. The study also indicates that strong liquidity management, as reflected in higher deposit levels, positively influences bank behavior. This emphasizes the importance of maintaining robust liquidity and capital adequacy to ensure the stability and efficiency of banking operations.

The insights gained from this research contribute to a broader understanding of the banking sector's dynamics, particularly in the context of the Arab world. The study's findings underscore the critical role of managing NPLs and other key financial indicators to enhance bank performance and stability.

Based on the study's findings, the following recommendations are proposed for banking sector stakeholders:

- Strengthening NPL Management: Banks should prioritize the development of robust strategies to manage and reduce NPLs. This includes implementing effective credit risk assessment tools, enhancing loan monitoring systems, and developing recovery strategies for existing NPLs.

- Enhancing Liquidity Management: Banks should focus on strengthening their liquidity positions. Diversifying deposit sources, keeping a healthy balance between short-term liabilities and liquid assets, and creating backup plans for handling liquidity crises are all ways to achieve this.

- Capital Adequacy Maintenance: Banks must ensure compliance with regulatory capital requirements. Maintaining a strong capital base will not only help absorb potential losses but also instill confidence among investors and depositors.

- Continuous Monitoring and Research: There is a need for ongoing monitoring of the banking sector's health, particularly in relation to NPLs, liquidity, and capital adequacy. Further research should be conducted to continuously update and refine risk management practices in line with evolving market conditions and regulatory landscapes.

- Policy Development and Regulatory Frameworks: Regulators and policymakers should develop and enforce stringent guidelines and frameworks for NPL management, liquidity requirements, and capital adequacy. This should also include providing guidance and support for banks to manage risks associated with environmental crises and other emerging challenges.

- Training and Capacity Building: Investing in training and capacity building for bank personnel in risk management, financial analysis, and crisis management is crucial for enhancing the overall resilience and responsiveness of the banking sector.

Future research may consider the impact of technology on NPL. With the increasing role of technology in the financial sector, research may examine how innovations such as digital lending and fintech impact the likelihood of loans becoming non-performing.

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