THE INFLUENCE OF LIQUIDITY RISK ON THE FINANCIAL PERFORMANCE OF BANKS IN THE MENA REGION

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Abstract

This study investigates the influence of liquidity risk on the financial performance of banks in the MENA region. Liquidity risk is a critical challenge faced by banks. as insufficient liquidity can lead to failure despite strong asset quality, substantial earnings, and adequate capitalization. measured Consequently, enhancing liquidity risk management and understanding the relationship between liquidity risk and performance have become essential. The loans-to-total assets ratio serves as a proxy for the liquidity coverage ratio (LCR), while financial performance is assessed using (ROA, ROE, and NIM). Panel regression analysis is applied to a sample of 135 banks across the MENA region from 2015 to 2019. The findings reveal a significant negative influence of liquidity risk on financial performance and profitability in MENA banks. Specifically, the results indicate that the total loans to total assets ratio adversely affects bank performance in the region. Additionally, bank size is identified as a significant determinant of bank performance. These findings suggest that effective liquidity risk management is crucial for banks to achieve financial stability and optimize shareholder value.

Keywords: Financial Performance; Liquidity Risk; Liquidity Coverage Ratio.

1. INTRODUCTION

The MENA region includes 19 countries and a 357.3 million population and is considered a significant player in the global economy (World Bank Group, 2020). According to Otero, Razia, Cunill, and Mulet-Forteza (2020), the global financial markets have become unstable since the global financial crisis in 2007. As a result, there is a slew of critiques of risk management systems, sparking a hunt for more suitable methodologies to cope with erratic events that result in significant impact. One of these risks is liquidity risk, one of the critical issues for the management of banks, academics, and policymakers. Many economies have deregulated their banking systems, intending to increase productivity, performance, bank liquidity, and profitability and enhance international competitiveness. Through the guidance of the World Bank the International Monetary Fund, or the World Bank, developing countries have shown endless effort to boost the performance and efficiency of their financial sectors and, as well as overall economic performance. These newly implemented measures aim to ensure the stability and security of the banking sector (Hamdi & Hakimi, 2019).

In the MENA region, similar issues happen, reducing banks' profitability (Olson & Zoubi, 2011; Zaiane, & Moussa 2021). On the other hand, (Saleh & Abu Afifa, 2020) explains a higher financing gap liquidity reduces bank profitability. The MENA region has a highly developed banking sector. Therefore, competition among banks is intense. Large banks, in particular, face significant competitive pressures, increasing their vulnerability to reduced profits and potential insolvency. Many well-established banks in the MENA

region have historically operated in less competitive environments (Albaity, Malek, & Noman, 2019). One of the primary challenges for MENA banks is mitigating the impact of financial risks on profitability. Furthermore, persistent crises challenges, including economic instability, terrorism, political conflicts, volatile oil prices, and civil wars, have exacerbated these issues, negatively impacted economic development and contributed to banking sector inefficiencies (Mrad & Mateev, 2020).

Risks encompass any factors that may hinder the achievement of specific objectives, including internal and external factors, as well as unforeseen fluctuations or disruptions in returns (Eid & Asutay, 2019; Kobrin, 2020). These factors contribute to the unpredictability of financial performance, which includes liquidity hazards (Tafri, Omar, Meera & Hamid, 2009; Dimitrakopoulos, Kavussanoss & Spyrou, 2010; Ali & Oudat, 2020; Zahid, Sohail, Raheman & Sindhu, 2020). While Dahir, Mahat & Ali (2018) This study seeks to assess the extent to which liquidity risk affects bank performance by promoting increased risk-taking. Furthermore, the findings indicate that funding liquidity risk significantly influences banks' risk-taking decisions. To enhance financial performance, effective management and mitigation of liquidity risk are essential. Building upon prior research, this study explores the influence of liquidity risk on financial performance. The investigation centres on MENA banks and seeks to provide insights that can improve their liquidity risk management frameworks.

This study enhances the existing literature by examining the influence of liquidity risk on the financial performance of banks in the MENA region, addressing a gap in prior research, concentrating majorly on the liquidity coverage ratio. This study enables us to determine how inadequate liquidity risk management, leading to financial distress in selected banks, affects their financial performance. offering valuable insights for policymakers and investors in the MENA region. While numerous competition indicators commonly used in economic literature and practice capture certain aspects of banking competition, they contribute only marginally to our understanding of bank performance.

However, the development of more appropriate indicators has demonstrated the potential for significant advancements in comprehending the relationship between profitability and competition. For these indicators to serve as effective explanatory variables in a model where competition plays a crucial role, they must provide meaningful and reliable information. Essential indicators should adequately reflect both competitive dynamics and pathways to profitability. Consequently, this study employs ROA, ROE, and NIM as key measures, given their relevance in representing bank profitability. Since profitability is fundamental to a bank's financial security, its implications for overall bank stability are critical.

The following section reviews the theoretical and empirical literature relevant to this study. Section Three details the data sources and research methodology. Section Four presents the empirical findings, while Section Five concludes the discussion by summarizing key insights and providing recommendations.

2. LITERATURE REVIEW

2.1 Theoretical foundation

As the authors state (Mitchell, 1923; Alshatti, 2015; Oganda, Mogwambo & Otieno, 2020) the shiftability theory, a bank's liquidity position is strengthened by possessing assets that can be easily liquidated or transferred to other parties for cash, particularly during times of crisis or market volatility. Also, shiftability theory is a strategy aimed at maintaining bank liquidity by facilitating the transfer of assets. As will Moses, Tobias & Margaret (2018) and Hacini, Boulenfad & Dahou, (2021) The balance sheet's liabilities side is the shiftability theory's focus. on the other hand, the notion is that a bank's obligations can generate additional liquidity. Margono, wardani & safitri, (2020) The liquidity of a bank is underpinned by the ease with which its assets can be shifted, marketed, and transferred for assuring liquidity. According to El Chaarani, (2019), Highly marketable securities held by a bank serve as a reliable source of liquidity. Olalekan, Mustapha, Irom & Emily, 2018 investigate that shiftability theory focuses on liquidity risk by using liquidity coverage ratios as stated by the new Basel III framework. Banks that had certain liquid assets that they would have to sell to the central bank and the discount market can enhance a bank's liquidity. provided that the bank is willing to purchase assets at a discount.

Al-Tahat, & AbuNqira (2016); Nwankwo (1991) contends that there is no need to maintain liquidity on the asset side of the balance sheet because banks may obtain all the money they require as needed. Conversely, Ibe (2013) elaborates on the shiftability theory, asserting that a bank's liquidity can be improved if it consistently holds assets that can be sold, provided that the Central Bank and the discount market are willing to purchase these assets at a discount. This theory posits that the shiftability, marketability, or transferability of a bank's assets is a crucial method for maintaining liquidity. Sathyamoorthi, et.al., (2020); Leo, Sharma & Maddulety (2019); and El Chaarani, (2019), It is worth noting that several researchers have conducted critical reviews of liquidity risk management of shiftability theory.

According to Ajetunmobi, et.al., (2017), Shiftability theory comprises the processes associated with receiving cash from depositors and other sources liquidity and calculating the optimal mix of funds for a bank. He contends that such assets must meet three key requirements are necessary to ensure prompt convertibility or significant loss. On the other hand, Edem (2017) presents the shiftability theory, which suggests that the marketability of bank assets offers a more effective approach to fund investment. This theory considers long-term financing as a more stable and enduring source of funding for banks. However, the common view is that during times of hardship or crisis, banks with severe financial problems and reduced status may face difficulties getting the needed liquidity as investors' or depositors' faith in them has been lost. Financially sound banks don't have to worry as much about running out of money because they have a lot of money from deposits, market funds, and other Liquidity.

2.2 Liquidity Risk

According to Vento and Ganga (2009) and Ahamed (2021), liquidity risk is a critical aspect of bank risk management. Liquidity reflects a financial institution's capacity to operate effectively while maintaining a stable balance between cash inflows and outflows over a given period. On the other hand, Msuku, (2020); Bonfim and Kim, (2012) explain Liquidity risk is one of the most severe forms of liquidity risk facing the banking sector. Therefore, funding liquidity risk may arise when a bank is unable to promptly fulfill its obligations and meet contingent liabilities associated with both on- and off-balance sheet activities. The issue of liquidity arises when all liquidity assets disappear within a short period to increase loan withdrawals (Diamond, 2007; Dahir, Mahat & Ali, 2018). As a result, banks are compelled to sell specific assets to meet their obligations and avoid bankruptcy (Savoiu, (2009); Edem, (2017); Zhang, He & An (2020); Matey, (2021).

Liquidity risk management involves ensuring the availability of adequate cash, marketable securities, and funding for committed liquidity facilities (Msuku, 2020; Kaddumia & Al-Kilani, 2020). According to BCBS (2013), Maaka (2013), and Huong, Nga, and Oanh (2021), banks inherently face Liquidity risk arises from their essential function of converting short-term deposits into long term loans. Furthermore, BCBS (2008) and Tammenga and Haarman (2020) highlight that this maturity transformation process renders banks particularly susceptible to liquidity risk. A liquidity crisis affecting a single bank can have far-reaching systemic implications.

The BCBS (BCBS, 2013) recognizes the inherent liquidity risk faced by banks due to their core function of maturity transformation converting short-term deposits into long-term loans. The 2007–2008 global financial crisis highlighted the critical need for robust liquidity management. Consequently, the BCBS issued the Principles for Sound Liquidity Management and Supervision, defining liquidity in terms of funding liquidity (the ability to access funds) and market liquidity (the ease of asset sales). Fluctuations in market liquidity can pose significant challenges (Clemens, Iman & Robert, 2015; BCBS, 2013; BCBS, 2008).

Liquidity risk is when a bank will not meet its obligations on time (Drehmann and Nikolaou, 2009) describe liquidity risk as an unexpected surge in depositor withdrawals that prompts banks to strive to liquidate their assets as rapidly as feasible. Liquidity risk arises when a bank is unable to meet its obligations without incurring unacceptable losses. This can stem from rapid asset growth, an insufficient business scope, market disruptions, or an inability to access funds (Tahir, 2006; BCBS, 2013; Jenkinson, 2008; Crouhy, Galai, and Mark, 2006). Insufficient liquidity can lead to volatile cash shortfalls requiring costly interventions and impacting profitability. We also point out that a bank may become insolvent if it lacks sufficient liquidity, even if it has adequate capital. Therefore, a bank's liquidity risk should be evaluated as part of a comprehensive risk management framework, taking into account market risk and credit risk to maintain balance sheet stability and dynamic liquidity risk management (Jenkinson, 2008 & Bhattacharya, 2010). As a result, if banks fail to meet their planned and conditional cash needs, they are exposed to liquidity risk and must borrow money when they need it (Fayyaz, 2006).

Liquidity uncertainty causes interest rate risk since future funding and investment rates are unpredictable (Tahir, 2006).

2.2.1 Liquidity coverage ratio

Basel III mandates the Liquidity Coverage Ratio (LCR) to ensure banks maintain sufficient high-quality liquid assets. Consequently, the LCR limits the extent of short-term liquidity risk that a bank can assume. This measure enhances a bank's short-term liquidity risk profile by ensuring sufficient high-quality liquid assets are available to withstand severe financial stress (BCBS, 2013; Sitepu, 2019; Altahtamouni & Alyousef, 2021). Several of these factors similarly influence a firm's decision regarding its target LCR, which in this context is defined as the ratio of total loans to total assets (BCBS, 2013; Carlson, Duygan & Nelson, 2015; Mashamb, 2018).

Basel III is a set of regulatory reforms proposed by the BCBS, aimed at enhancing banking sector regulations, oversight, and risk management in light of lessons learned from the financial crisis (Co-Pierre, 2011). In addition, the committee developed sets of liquidity ratios that did not exist before the financial crisis. The (LCR) is one of the new liquidity ratios (Kumar & Ravi, 2007). On the other hand, Chawwa, (2021) and Ahamed (2021) discovered that lowering the LCR has a negative influence on government bond demand, resulting in a different impact on taxes, deposits, and bank profit. Countercyclical liquidity laws, according to this study, can boost welfare and lower the volatility of bank loans.

2.3 Financial Performance

This study employs return on assets, return on equity and net interest margin to assess bank financial performance. ROA is selected due to its effectiveness in evaluating bank profitability in relation to asset utilization. It measures profitability by comparing net profit before tax to total assets, with a higher ROA indicating greater efficiency in utilizing assets to generate profits (Ahmed, Ahmed, Islam & Ullah, 2015; Liu et al., 2014; Saghi-Zedek & Tarazi, 2015; Hung et al., 2018). The second metric, ROE, reflects the profit generated from shareholders' equity, calculated as the percentage of net income before tax relative to shareholder equity. A higher ROE signifies the bank's capability to efficiently use shareholders' equity to produce profits. NIM, the third measure, calculates the difference between net interest income and earning assets as a percentage of total assets (Anbar & Alper, 2011; Firth et al., 2016; Tan, 2016; Bikker & Vervliet, 2018). This ratio measures the difference between interest income earned on loans and securities and interest expense incurred on borrowed funds, thus directly indicating bank profitability. It encapsulates key elements of bank operations, including deposit-taking and loan disbursement, making it a valuable predictor of profitability. Maximizing profits is central to the bank's strategic objectives (Ongore & Kusa, 2013; Meles et al., 2016).

Thus, these three variables are widely and essentially used in the existing literature as indicators of financial performance. For instance, various recent studies (Sari et al., 2022; Yeasin, 2022; Ahmed et al., 2021) have used ROA as an indicator of banks' financial performance in different regions of the world. Likewise, ROE is also found to be widely

used as a measure of financial performance in several recent studies (Ahmed et al., 2021). Although NIM is not that popular indicator of ROA and ROE; still, many studies (Egly et al., 2018; Memmel and Schertler, 2011) have also incorporated NIM to determine the financial performance of the banks.

2.4 The Relationship Between Liquidity Risk and Financial Performance

The literature on the effects of liquidity risk and financial performance presents mixed and inconclusive findings. Empirical studies have documented both positive and negative relationships between liquidity risk and financial performance (Adusei, 2022; Golubeva, Duljic & Keminen, 2019; Abdelaziz et al., 2020; Sathyamoorthi et al., 2020). For example, Adusei (2022) found a negative relationship between liquidity risk and bank financial performance.

Conversely, Golubeva et al. (2019) identified a significant and positive effect of liquidity risk measures on profitability. Similarly, financial risk has been shown to detrimentally affect bank performance. Additionally, AI-Afeef and AI-Ta'ani (2017) found that both liquidity risk and interest rate risk have a statistically significant impact on banking system stability.

Abdelaziz et al. (2020) also found that the profitability of MENA banks is negatively and significantly influenced by increases in liquidity and liquidity risks. Sathyamoorthi et al. (2020) examined the impact of financial risk on financial performance. Their regression analysis revealed a significant negative effect of interest rates on ROA and ROE.

There are long lists of empirical studies highlighting the issue of liquidity risk on banks' financial performance and profitability in recent years. Indeed, some researchers have found that liquidity positively affects economic performance and bank profitability if there is adequate liquidity. Otherwise, many other studies have found that liquidity hurts financial performance and bank profitability (Djebali & Zaghdoudi, 2020; Abdelaziz et al., 2020; Olagunju, David, & Samuel, 2012; Kosmidou, Tanna, & Pasiouras, 2005; Bourke, 1989).

In several of these research studies, Kim (2015) examining Studies examining the influence of liquidity risk in European countries have generally reported a negative association between liquidity ratios. On the other hand, Ahmed et al., (2021) the findings revealed that Profitability, Firm Size, and Liquidity in leverage of financial risk were found to be insignificant. Furthermore, in the E.U.'s liquidity risk research, Chortareas, Girardone, and Venturi (2012) the loan-to-deposit ratio, a measure of liquidity risk, was found to be positively and significantly related to net interest margins.

Additionally, Umar, Muhammad, Asad, and Mazhar (2015); Naceur and Kandil (2009) studied the impact of liquidity risk on banks' performance, and it was discovered that the liquidity risk was significantly negative for banks. Hamdi and Hakimi (2019) and Abdelaziz et al., (2020) found a non-linear relationship between liquidity risk and bank profitability, with a negative effect.

Moreover, demonstrates that the current ratio is a negative indicator of liquidity risk on performance. Furthermore, Imamul and Arif (2015) studied ten banks over five years and found that interest rate risk and liquidity risk negatively impact financial performance. El-Massah, Bacheer, and Al Sayed (2019) conducted an analysis of liquidity risk factors within Islamic and conventional banks in the MENA region. Their study, which covered 257 banks from 2009 to 2016, explored the liquidity risk characteristics of banks operating in the Middle East and North Africa. The findings indicate that liquidity risk tends to decrease in larger banks. Furthermore, capital adequacy has a positive effect on mitigating liquidity risk across all types of banks. Additionally, the study highlights that bank took various measures to mitigate the adverse effects of the global financial crisis.

3. RESEARCH METHODOLOGY

3.1 Data and Sample

The sample of this study includes 135 commercial banks from 14 MENA countries, covering the period of five years 2015–2019. These represent the most recent years for which banks' data was available. Specifically, various financial information was needed to calculate the variables of liquidity risk, bank size, ROA, ROE, and NIM. Hence, this study collected financial statements data for these 135 banks from the Bankscope database.

3.2 Variable Measurements

Table 1 below outlines the measurements of the variables used in this study. ROA is calculated as the ratio of net profit to total bank assets, providing an indicator of the bank's overall profitability relative to its assets. This ratio assesses a bank's efficiency in generating income from its assets (Zarrouk et al., 2016; Olson & Zoubi, 2011; Khrawish, 2011).

Specifically, ROA is derived by dividing the bank's net profit after tax by its total assets, with a higher ROA indicating greater efficiency in resource utilization (Guillen et al., 2014). Return on Equity is calculated by dividing net profit by shareholders' equity, reflecting the bank's ability to generate profits from equity financing. A higher ROE indicates greater efficiency in utilizing shareholders' capital to generate returns (Khrawish, 2011; Ben Selma Mokni & Rachdi, 2014; Zarrouk et al., 2016).

The third performance measure NIM, is determined as the difference between interest income and interest expense, expressed as a percentage of total assets. In this study, liquidity risk the key predictor variable is assessed using the ratio of total loans to total assets (Mashamb, 2018; BCBS III, 2013; Sitepu, 2019; Altahtamouni & Alyousef, 2021). Additionally, control variables, such as the bank's size, geographical region, and age, are incorporated into the model. Bank size is measured by total assets, while the geographical region is represented as a binary dummy variable for MENA countries. Bank age is calculated as the number of years since the bank's establishment.

Variable	Measurement	Abbreviation	Author
DEPENDENT VARIABLE			
	Return on asset = Net income to total assets	ROA	(Albaity et al., 2019; Anbar and Alper, 2011; Fang et al., 2019)
Financial performance	Return on equity = Net income to Total Equity	ROE	(Albaity et al., 2019; Anbar and Alper, 2011; Fang et al., 2019)
	Net interest income = Net Interest Income to Earning Assets	NIM	(Anbar and Alper, 2011; Fang et al., 2019)
	INDEPEN	DENT VARIABL	.ES
Liquidity Risk	Liquidity coverage ratio = Total Assets to Total Liabilities	LCR	(Mashamb,2018; BCBS, 2013; Sitepu, 2019; Altahtamouni & Alyousef 2021)
Controlling Variables			
Bank' Size	logBSZ	BSZ	(Al-slehat & altameemi, 2021; Bani Yousef et al., 2023; garegnani et al., 2015; Schildbach et al., 2017)
Bank's geographical region	Bank's geographical region (dummy variable)	GEO	(Khasawneh, 2019; Kharabsheh, Daradkah, 2019)
Banks's age	AGE	AGE	(Irfan et al., 2020, García-Meca et al., 2018; Jaffar and Abdul Shukor, 2016)

3.3 Hypothesis and Regression Model

This study develops a model (Equation 1) to investigate the impact of liquidity risk on financial performance within the MENA region's banking sector. The overarching aim is to enhance liquidity risk management practices in MENA banks. Specifically, the research analyzes this relationship by regressing bank financial performance on liquidity risk. Furthermore, the model incorporates three control variables bank size, geographical region, and bank age within the regression framework.

$$FP = \beta_0 + \beta_1 LCR_{it} + \beta_2 BSZ_{it} + \beta_3 GEO_{it} + \beta_4 AGE_{it} + \mathcal{E}_t \varepsilon_{it}$$
(1)

Following Law (2018), Kasman et al. (2011), and Ekinci (2016), this study employs panel regression analysis to investigate the influence of liquidity risk on MENA bank performance. Both fixed and random effects models are estimated, with a Hausman test used to select the appropriate specification. Ordinary least squares (OLS) estimation is then applied.

4. RESULTS AND DISCUSSION

4.1 Descriptive Analysis

Table 1 provides descriptive statistics for the variables, including their means, minimum and maximum values, and standard deviations. For instance, the average Return on Assets (ROA) is 0.024, with a minimum of -4.366 and a maximum of 1. Results also indicate a standard deviation of 0.220 for ROA. Meanwhile, for the ROE, the results reveal

that the values for mean, minimum, and maximum, are 0.036, -9.595, and 1.538, respectively. While the standard deviation is estimated as 0.430. Moreover, the results also reveal that NIM has a mean value of 0.013. Similarly, the minimum, maximum, and standard deviation for NIM, are estimated as -5.971, 1, and 0.276, respectively.

On the other hand, among independent variables. The results indicate mean loans and advances to total deposits is 8.365, with a minimum of -7.731, a maximum of 2.34, and a standard deviation of 1.988. The results further indicate that the mean value of bank size (BSZ) is 15.576, with a minimum of 9.933 and a maximum of 20.527. The bank size has standard deviation of 1.861. Moreover, results also reveal that the average banks in the sample have an age of around 40 years. Likewise, the youngest bank in the sample is found to have 5 years of age, whereas oldest bank is revealed to have experience of 124 years.

	Mean	Sd	Min	Max
variables				
Dependent Variable				
ROA	0.024	0.220	-4.365	1
ROE	0.036	0.430	-9.595	1.538
NIM	0.013	0.276	-5.971	1
Independent Variable				
LCR	8.365	1.988	-7.731	2.34e+07
BSZ	15.576	1.861	9.933	20.527
AGE	39.325	19.764	5	124
GEO	0.820	0.383	0.000	1

 Table 1: Descriptive statistics

4.2 Multivariate Regression Analysis

This section presents the results of multivariate regression analyses for the three primary models in this study. which were predicted using panel data analysis to examine the relation of banks in MENA region.

To examine its objectives, this research specifically employs pooled OLS, random effect, and fixed effect models. These three models are compared using different statistical tests to determine the most adequate findings for this study.

The Breusch-Pagan LM test is conducted to compare pooled OLS and panel regression results. Then, the Hausman test is employed to compare random and fixed effect models within panel regression analysis.

Table 2 presents the results of the first model, in which Return on Assets (ROA) is regressed on liquidity risk, bank size, bank age, and geographic region. The outcomes of the Breusch-Pagan LM test (203.46, p-value = 0.000) and the Hausman test (21.42, 0.000) suggest that the fixed effects model is the most appropriate for this analysis. The results indicate that liquidity risk negatively affects banks' ROA at a 5% significance level.

Similarly, bank size, as a control variable, exhibits a significant positive relationship with profitability. In contrast, both bank age and geographic region (AGE and GEO) were

excluded from the fixed effects model due to their categorical nature. However, the OLS estimator results indicate that bank age has a negative impact on ROA at the 1% significance level.

Additionally, the results indicate that bank size and age do not have a significant impact on ROA. Similarly, the coefficient for the GEO variable is insignificant, suggesting that the impact of liquidity risk on ROA is consistent across both the MENA regions.

	Pooled OLS	Random Effect	Fixed Effect
Constant	0.042	-0.053	-2.449
Constant	(0.56)	(-0.44)	(-4.69)
ICP	-2.49e-10	8.24e-10	1.17e-09
LOR	(-0.03)	(0.13)	(0.17)
PC7	0.0001	0.008	0.158
BSZ	(0.27)	(1.03)	(4.74)
GEO	0.002	-0.0019	0.000
GLO	(0.10)	(-0.05)	(0.000)
ACE	-0.001	-0.0013	0.000
AGL	(-2.09)	(-1.64)	(0.000)
Brousch-Pagan I M test		203.46	
Breusch-Fagan Livi test		(0.000)	
Hausman test			21.42
			(0.000)
R-squared	0.008	0.034	0.040

 Table 2: Result of panel data analysis ROA

Next, Table 3 reports the findings of the model investigating the influence of Liquidity risk on banks' ROE. These results indicate similar associations, thus, proving that both models have consistent findings regarding the influence of Liquidity risk on financial performance.

The fixed effects model proved more suitable than the random effects model in this analysis. Results from the fixed effects model indicate a statistically significant relationship between the loans and advances to total deposits ratio and banks' ROE within the MENA region ROE in the MENA region. Likewise, bank size is found to have a positive association with ROE at a 1% level of significance. However, banks' AGE and GEO are found insignificant in the analysis.

Thus, implying that the relationship of Liquidity risk with banks' ROE is similar in both Middle East and North African regions. Further for the robustness, this research also incorporated NIM as a proxy of bank performance. This analysis aims to validate previous findings and provide further insights into the relationship between liquidity risk and banks NIM. Table 4 presents the results for the third model, which examines this relationship. The Breusch-Pagan LM and Hausman test results confirm the appropriateness of the fixed effects model. Findings indicate that liquidity risk has a significant impact on NIM across all three estimated models.

The ratios of liquidity risk are statistically significant at the 1% level and exhibit a negative correlation. Interestingly, results from pooled OLS regression also show a significant

association of banks' Age with NIM. The coefficient is found negative at a 10% level of significance. This indicates that newly established banks perform better as compared to old MENA banks.

The findings of this study are in line with existing literature, such as Al-Ardah and Al-Okdeh, (2022); Alshatti, A. S. (2015), and Chen et al., (2021) who unveiled that LCR as a proxy of Liquidity risk significantly impacts bank performance. Specifically, Ekinci and Poyraz (2019) have also proved the adverse association of Liquidity risk with banks' ROA and ROE.

Moreover, several recent studies have also exhibited a similar an inverse correlation between liquidity risk and profitability indicators, such as ROA and ROE (Abdelaziz et al., 2020). Existing literature also suggests a significant effect of banks' vulnerability and risk with NIM (Angori, Aristei, and Gallo, 2019).

A significant contributor to the reported findings is the combination of increased loan volumes, insufficient monitoring and evaluation of borrowers, and the growth of non-profitable unsecured assets. These elements collectively exacerbate the negative influence of liquidity risk on bank performance. For instance, the rise in unsecured assets causes banks to raise the amount of money that needs to be set aside for Liquidity loss provisions.

As a result, the growth in unsecured assets would significantly reduce bank profitability. Hence, findings from this research indicate that Liquidity risk is a significant issue for the commercial banks of the MENA region. Previous studies have also shown a significant relationship between bank size and performance. For example, Ekinci and Poyaraz (2019) found a significant impact on the relationship. It is found that banks get a cost advantage because of economies of scale, which further enables them to enhance profitability.

	Pooled OLS	Random Effect	Fixed Effect
Constant	-0.037	-0.053	-2.449
	(-0.25)	(-0.44)	(-4.69)
	-1.12e-09	8.24e-10	1.17e-09
LOK	(-0.08)	(0.13)	(0.17)
BC7	0.010	0.0084	0.158
B32	(1.06)	(1.03)	(4.74)
	-0.010	-0.0019	0.000
GEO	(-0.22)	(-0.05)	(0.00)
ACE	-0.002	-0.0013	0.000
AGE	(-2.19)	(-1.64)	(0.000)
Brougob Dogon I M toot		203.46	
Breusch-Pagan Livi lest		(0.000)	
Hausman tost			21.48
nausiliali lest			(0.000)
R-squared	0.007	0.034	0.040

Table 3: Result of panel data analysis ROE

	Pooled OLS	Random Effect	Fixed Effect
Constant	-0.145	-0.278	-4.375
	(-1.56)	(-1.90)	(-6.50)
LCR	-1.24e-09	3.51e-10	1.00e-09
	(-0.13)	(0.04)	(0.11)
DC7	0.014	0.024	0.281
B32	(2.30)	(2.47)	(6.52)
050	-0.012	-0.018	0.000
GEO	(-0.42)	(-0.40)	(0.000)
AGE	-0.0015	-0.001	0.000
	(-2.44)	(-1.96)	(0.000)
Breusch-Pagan LM		147.65	
test		(0.000)	
Houemon toot			37.42
nausman test			(0.000)
R-squared	0.011	0.073	0.073

Table 4: Result of panel data analysis NIM

5. CONCLUSIONS AND RECOMMENDATIONS

This study aims to investigate and evaluate the influence of liquidity risk and performance of banks throughout 2015–2019 in the MENA banks. Banks in the MENA region faced to maintain strong performance due to a confluence of factors, such as geopolitical instability, volatile oil prices, and persistent political issues.

These challenges create a volatile market that impacts the stability and profitability of these institutions. Thus, the MENA region is regarded as having a highly competitive market for the financial sector. Therefore, such conditions incentivize excessive risk-taking, potentially leading to a weak liquidity coverage ratio. Stable net funding is also associated with weak bank financial performance.

Through the data analysis, we concluded the liquidity coverage ratio significantly affects financial performance. Furthermore, by examining the liquidity coverage ratio, it was discovered that bank liquidity risk has a considerable negative influence on financial performance of MENA banks. It also concluded that unaddressed liquidity concerns could hurt a bank's profitability is contingent upon its capital, and in severe instances, may lead to the bank's failure.

This paper has limitations and also recommendations for future research. It can be concluded that banks in the MENA region can improve their performance by strengthening their capacity to manage risks associated with liquidity shocks, the pressures arising from high demand for short-term liquidity, and the challenges posed by holding substantial non-liquid assets.

This paper is still developing a framework for effective risk management for banks in the event of a financial crisis. Future research recommends studying the different types of risks and their impact on banks' performance and empirically testing the relationships.

According to the study, the management of MENA banks must be informed of their liquidity condition in various product divisions. This will aid in the improvement of their investment portfolio and provide them with a market advantage.

The fundamentals of a bank's management must be addressed as soon as possible, with prompt corrective action taken to prevent the bank from becoming liquid. The LCR and steady net funding must also be accorded the attention they deserve.

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