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THE UNIFORM RELATIONSHIP BETWEEN MANAGERIAL ABILITY AND BANK LOAN QUALITY: DOES IT HOLD? EVIDENCE FROM QUANTILE REGRESSIONS[3]

This study examines the relationship between managerial ability (MA) and bank loan quality, employing a quantile regression model. It analyzes whether the impact of MA on loan quality changes across various quantiles of risk. Using a sample of 126 MENA banks (2006–2020), the results reveal that the impact of MA on bank loan quality varies across loan quality quantiles. Using non-performing loans (NPLs) as a loan quality measure, we find that MA reduces NPLs at moderate quantile levels. This relation becomes inverse at higher level of NPLs. Our findings are strengthened by a quantile-on-quantile regression. These results add to the literature by providing insight between MA and bank loan quality using a non-monotonic methodology.

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1. Introduction

The banking sector plays a key role in the economy by facilitating capital economic growth and stability. In many emerging and developing nations, particularly in the MENA region, the banking sector is the primary source of economic financing. Despite reforms to enhance financial development, businesses predominantly rely on bank loans due to the underdeveloped state of capital markets (Ben Naceur and Omran, 2011). Therefore, it is essential for regulators to ensure a stable banking system to avert failures that could significantly impede economic growth. To do so, banks must continuously assess the quality of these loans. Regulators also keep a close watch on loan quality, as banks face the possibility of borrower defaults. The primary metric used to evaluate loan quality is the ratio of non-performing loans (NPLs).

Research on NPLs has gained heightened attention from policymakers and researchers, particularly following the Global Financial Crisis, a period characterized by a sharp increase in NPLs within banking systems worldwide (Ghosh, 2017; Jabbouri and Naili, 2019). Dimitrios *et al.* (2016) highlight that bank-specific factors, including capital, size, performance, efficiency, and ownership, can significantly influence the behavior of NPLs. Ghosh (2015) emphasizes the impact of economic health on NPLs, noting that business cycle conditions are critical in determining borrowers' abilities to repay their bank debts. Hakimi *et al.* (2020) reveal that institutional quality and government stability play a substantial role in shaping NPL levels.

Despite this extensive literature, less attention has been given to the role of managerial ability (MA) in influencing bank loan quality (Vo *et al.*, 2021). Managers play a crucial role in decision-making, but they are not all the same. Their varying abilities contribute to different outcomes within organizations. Research indicates that managers possess diverse skills that directly affect the success of the banks they oversee. Factors such as age, education, experience, and risk aversion have been shown to influence their decision-making (Bamber *et al.,* 2010; Hambrick, 2007).

Due to its significance, researchers have connected MA to various corporate results, including earnings quality (Choi *et al.*, 2015; Demerjian *et al.,* 2013), financial reporting fraud (Wang *et al.*, 2017), and tax avoidance (Koester *et al.,* 2017). However, empirical studies on the impact of MA on bank risk management are still rare. Vo *et al.* (2021) investigate the role of latent, unobservable MA on bank lending behavior and find that better managed banks produce a higher amount of loans. Tang *et al*. (2024) find that the impact of MA on bank loan interest rates is achieved by mitigating corporate risk, enhancing the quality of corporate information, and mitigating agency conflicts. Francis *et al.* (2024) show that firms with higher-ability managers obtain more favorable loan contract terms, including lower loan spreads, fewer covenants, and more short-term maturities.

In the present work, we study the relationship between MA and bank loan quality more closely by investigating the impact of MA on NPLs. While MA can affect the quality of loans, the bank risk situation also could affect this impact. In banks with lower risk levels, managers with strong capabilities can more effectively allocate resources, assess risk profiles, and make sound lending decisions that contribute to better overall loan quality. However, in a high-risk bank environment even highly skilled managers may struggle to maintain lending quality standards due to increased pressure to take on riskier loans to generate returns. In these cases, the impact of MA on lending quality may be beyond the manager's control. Therefore, we posit that the relationship between MA and loan quality is not uniform and depends on the bank's risk level.

To capture the non-uniform impact, prior studies apply usually subjective criteria to segment sample firms into subsets, such as defining two groups of firms to study the non-uniform relationship (Murphy, 2003). However, such segmentation is exogenously imposed. In light of this, our study is among the first to explore the non-uniform impact of MA on loan quality using a quantile regression (QR). Unlike the traditional least squares regression, which focuses only on the average and median values, QR allows us to examine the entire distribution by estimating conditional quantile functions. This approach gives us a clearer understanding of how different points in the distribution behave (Li *et al.*, 2015, Zaiane *et al.*, 2023).

The non-uniform connection between MA and loan quality across various risk quantiles proposed by this study is meaningful and consistent with managers' attitude towards risk. Specifically, in banks where risk is minimal, skilled managers can more effectively implement strategies to maintain high lending quality standards. Conversely, banks with high levels of risk may require more stringent risk management practices and oversight, potentially limiting the positive impact of MA on lending quality.

The quantile regression method utilized here allows for an in-depth analysis of how MA affects loan quality throughout the entire sample. This approach not only clarifies the diverse relationships, but also effectively addresses the segmentation issue that previous studies encountered.

Our findings indicate that the impact of MA varies significantly across different levels of bank risk. Therefore, this study presents a more complete and detailed picture of the effects of MA than the prior studies, which primarily relied on ordinary least squares (OLS) estimates. By using QR, we deepen our understanding of the relationship between MA and loan quality. Such heterogeneity often goes unnoticed with standard empirical methods.

The results of our quantile regression approach, based on 126 MENA banks over the period 2006–2020, show that the impact of MA is positive across low quantile levels of bank risk (measured by NPLs) and it becomes negative for higher levels. We conduct further analyses by using a quantile-on-

quantile regression (QQR) and we confirm the existence of a non-uniform relationship between MA and NPLs.

The remainder of our study is structured as follows. Section 2 provides a literature review of the theoretical and empirical aspects of how MA influences the quality of bank loans. Section 3 outlines our econometric model specification and details our data sources. Our findings and interpretations are presented in Section 4. Section 5 concludes.

2. Literature review: evidence and hypothesis development

2.1. Contextual framework

The MENA region provides a distinctive setting for our research, shaped by several critical factors. First, the region's economies share social, cultural, and economic characteristics. Arabic is the dominant language, and Islamic customs and traditions deeply influence daily life. These factors significantly shape economic structures, business practices, shareholding patterns, and the information environment (Sarhan and Ntim, 2018; Issa and Fang, 2019). Both formal and informal norms play a crucial role in shaping corporate behavior, with informal traditions often exerting a strong influence on managerial decisions.

Second, the Arab Spring of 2011 represented a pivotal moment, leading to widespread social movements advocating for economic and social change. Since then, the financial systems of MENA countries have undergone significant reforms aimed at enhancing deregulation and liberalization. Notably, this region boasts the highest loan concentration ratio in the world, reflecting a strong bank inclination toward lending to larger firms, which dominate credit allocation (Lima *et al.,* 2016).

Third, the financial systems in MENA countries are largely bank-oriented, resulting in less dynamic capital markets and weaker enforcement of capital market regulations (Issa *et al.*, 2021).

Finally, while the MENA banking sector is generally well-capitalized, persistent economic and political challenges have adversely affected asset quality, leading to a rise in NPLs, particularly in non-Gulf Cooperation Council (GCC) countries. The average NPL ratio in the MENA region stands at 6.2%, significantly higher than the global average of 3.6%. Non-GCC countries are especially impacted, with a NPL ratio reaching an average of 8.2% (Gray *et al.,* 2014).

2.2. Studies on loan quality

Credit risk remains one of the most significant challenges in the banking industry, with NPLs serving as a key indicator of the quality of bank loan portfolios (Abdelaziz *et al.,* 2020). When NPLs rise excessively, banks are forced to support their capital reserves to mitigate potential losses, which can

affect profitability. High levels of NPLs can also be seen as a form of "financial pollution," leading to instability and potential banks insolvency, thereby increasing the risk of bank failures and broader banking crises (Ghosh, 2015).

Some research indicates that a surge in lending growth can result in a higher number of NPLs (Cottarelli *et al.,* 2005; Kraft and Jankov, 2005; Kashif *et al.,* 2016). This rapid loan expansion may lead to more relaxed lending standards due to intense market competition. However, easing these standards often heightens the risk of NPLs since borrowers' repayment capabilities may diminish as the loan application and approval processes become less stringent.

Foos *et al.* (2010) demonstrate that while a sudden increase in lending may temporarily reduce banks' provisions for loan risks, it typically leads to increase risks in the subsequent two to four years. A swift rise in loans can also compromise banks' solvency in the short term. If banks expand their loan portfolio without corresponding increases in equity, they may continue to lend aggressively. Hess *et al.* (2009) show that utilizing borrowed funds and equity for lending can escalate liquidity risks, especially in a volatile economic environment where the adverse effects of loan growth can be magnified.

Nguyen *et al.* (2021) illustrate that high loan growth signals a desire for increased interest income, however, banks that grow too rapidly may end up with lower earnings compared to those that expand at a steadier pace. Although loan growth may yield short-term advantages—reflected in rising interest income and favorable performance indicators—in the long run, it poses risks for shareholders and incoming managers (Saunders *et al.,* 1990). In this scenario, agency theory suggests that managers might focus on maximizing profitability, potentially at the expense of bank liquidity. The authors show that a manger may pursue aggressive revenue strategies during their tenure. Yet, if lending escalates excessively, it can lead to diminished liquidity and an increase in future NPLs.

2.3. The impact of managerial ability on loan quality

Upper echelons theory highlights how crucial managers are in shaping corporate decisions. The theory suggests that in uncertain and complex scenarios, managers operate within a realm of rationality while making choices. Furthermore, manager characteristics such as age, education, career, background and risk tolerance play a significant role in these decisions (Bamber *et al.,* 2010; Hambrick, 2007; Hambrick and Mason, 1984).

Competent managers in the banking sector build substantial knowledge through their experience. This expertise empowers them to evaluate their environment effectively and capitalize on the best investment opportunities when the time is right. In this context, Bonsall *et al.* (2016) illustrate that competent mangers are able to make sound judgments regarding bad debt, manage inherent risks, foresee future changes, and more accurately predict loan losses. This indicates that skilled managers are proactive in

assessing risks ahead of time, which leads to increase the loan quality. Beatty and Liao (2011) show that poorly managed banks tend to delay recognizing expected losses and often cut back on lending during economic downturns.

Asyrafi and Lestari (2022) show that there is an inverse relationship between MA and NPLs. They show that good MA improves the credit quality of the bank and reduces the bank's NPLs level. Vo *et al.* (2021) argue that more competent managers make banks better able to manage and produce higher quality credit. Yung and Chen (2018) find that managers with high abilities are more receptive to risk while managers with low abilities are more risk-averse.

While able managers could improve the loan quality by reducing default risk, they could also go overboard and take risks which exceed optimal levels and result in decreasing loan quality. In this context, Acharya and Naqvi (2019) argue that managers tend to undertake high-risk decisions in the pursuit of self-interest and sanction excessive loans by loosening lending standards. They report that over-lending may come from self-interest in compensation, which is an agency problem between managers and shareholders. This finding is supported by other studies (Mehran and Rosenberg 2007; Bebchuk *et al.*, 2010; Fahlenbrach and Stulz 2011). These studies document that option compensation increases bank risk-taking and bank-specific default risk.

Zhai *et al.,* (2023) show that banks with high vega charge a significantly lower loan spread, demand fewer loan covenants, and have a lower probability of requesting collateral. Therefore, managers could increase bank loans but the quality of loans would be worse as they prioritize their interest over those of shareholders.

Brewer *et al.* (2004) show that riskier banks have higher levels of incentive compensation. High compensation encourages greater risk-taking, suggesting that banks led by more capable managers may face higher exposure to default risk (Ben Abdesslem *et al.*, 2022).

Ho et al. (2016) show that overconfident bank mangers tend to underestimate the risks associated with their investments and have an inflated view of borrowers' prospects. This biased perception leads these managers to pay less attention to potential downsides, ultimately undermining lending standards. When lending standards loosen, the quality of loans deteriorates, pushing banks to take on additional risk. By embracing greater risk, banks become more vulnerable, and those with relaxed lending practices often experience reduced profits and a greater likelihood of financial trouble. Consequently, banks with overconfident leadership are more susceptible to default risks.

MA could affect the quality of loans; however, this impact could depend on the risk level of the bank itself. Taking into consideration the difference between managers in term of competence and their risk averse positions, we suppose that the impact of MA on loan quality is conditioned by the level of bank risk. Thus, we formulate our hypothesis:

H1: The relationship between managerial ability and loan quality is non-uniform and depends on bank risk level.

3. Methodology

3.1. Sample and data sources

Our sample covers the period 2006 to 2020, focusing on 126 commercial banks across 19 countries in the MENA region. Details about the countries and number of banks are presented in Table 1.The accounting data is collected from the BankFocus database. The macro-economic variables are extracted from the World Bank data and International Financial Statistics. Our initial data came from 160 banks, from which we eliminate subsidiary banks and banks with missing data; our final sample is 126 commercial banks operating in 19 countries.

Table 1: Number of banks per country and their distribution

Country	*Number of Banks*	*Country*	*Number of Banks*
ALGERIE	7	SYRIE	2
TUNISIE	11	PALESTINE	1
LIBYE	4	OMAN	5
MAURITANIE	5	LEBENON	10
MAROC	4	KUWAIT	5
TURKEY	17	JORDAN	8
UAE	12	IRAQ	2
QATAR	4	EGYPT	15
KSA	8	BAHRAIN	5
YEMEN	1	**TOTAL**	126
SYRIE	2		

3.2. Research methodology

As discussed earlier in the introduction, numerous studies highlight the asymmetric effect of MA and bank lending activities. These studies often employ different data segmentation techniques, including OLS, to identify factors influencing this relationship.

OLS focuses on minimizing the sum of squared errors, providing an estimate of the mean function of the conditional distribution of the response variable (Li *et al.*, 2015). However, many of these

segmentations tend to be exogenous and arbitrary, which can lead to distortions in the original distribution of the entire sample and may compromise the validity of statistical tests. To address these issues, we utilize the QR method, which helps us better examine the relationship under investigation.

Li *et al.* (2015) show that QR is important in management. It is rarely used, however, and researchers adopting this approach are often addressing corporate governance issues (Hallock *et al.*, 2010; Chen and Yuang, 2011; Nguyen *et al.*, 2018; Zaiane *et al.*, 2023). Li *et al.* (2015) use this model to examine the impact of CEO stock-based incentive compensation on firm performance. Nguyen *et al.* (2018) investigate the effects of CEO characteristics on firm valuation. Zaiane *et al.* (2023) investigate the non-uniform relationship between executive stock options and strategic risk-taking. Following these works, we use this approach in a banking context.

We define the conditional quantile regression model as:

$$y_{it} = x'_{it} * \beta_{\theta} + u_{\theta it}$$
$$Quantile_{\theta}(y_{it} \mid x_{it}) \equiv \inf \{y : F_{it}(y|x)\theta\} = x'_{it} * \beta_{\theta},$$
$$Quantile_{\theta}(u_{\theta it} \mid x_{it}) = 0$$

(1)

Where $Quantile_{\theta}(y_{it} \mid x_{it})$ gives the ϴth conditional quantile of y_{it} on x_{it}. β_{θ} is the unknown vector of parameters to be estimated for different values of in ϴ, (0< ϴ <1). $u_{\theta it}$ is the error term, a continuously differentiable c.d.f. (cumulative density function) of $F_{u\theta}$ (.|x) and a density function $f_{u\theta}$ (.|x). The value F_{it}(.|x) indicates the conditional distribution of the y conditional on x.

Then we use the following equation to obtain the estimator for β_{θ} :

$$Min \sum_{it:u_{\theta it}>0} \theta \times \mid u_{\theta it} \mid + \sum_{it:u_{\theta it}<0} (1-\theta) \times \mid u_{\theta it} \mid =$$

$$\sum_{it:y_{it}-x'_{it}*\beta_{\theta}>0} \theta \times \mid y_{it} - x'_{it} * \beta_{\theta} \mid + \sum_{it:y_{it}-x'_{it}*\beta_{\theta}<0} (1-\theta) \times \mid y_{it} - x'_{it} * \beta_{\theta} \mid$$

(2)

Using this model, we can get multiple vectors to each conditional quantile of the bank risk distribution. QR gives us more information about the relation between those combinations. Using QR, we can abandon the normality assumption of OLS regression because QR does not presume the normality of unobserved errors.

3.3. Variables definition

3.3.1. The dependent variable: Loan quality (NPLs)

According to the IMF, a loan is classified as an NPL if it fails to generate interest and the principal amount remains unpaid for at least 90 days. Alton and Hazen (2001) further explain that loans become NPLs when both the principal and interest payments are not made by the due date and there is no expectation of recovery. In this study, we assess NPLs by calculating the ratio of NPLs to the total amount of loans.

3.3.2. The Independent variable: Managerial ability

Identifying a dependable proxy for MA is quite challenging. This complexity arises because a manger's ability is multifaceted, incorporating aspects like perceived competence, credibility, charisma, integrity, honesty, and vision—qualities that are often hard to measure (Francis *et al.*, 2008). Previous research has leveraged media citations and industry-adjusted returns as indirect proxies for managerial capability. However, these methods have faced criticism for potentially reflecting factors beyond a manager's control.

Demerjian *et al.* (2012) sought to create a more direct measure of MA using financial statement data and Data Envelopment Analysis (DEA) to assess firm efficiency. Their approach focuses on isolating specific effects of managers by eliminating firm-specific factors, ultimately providing an MA score (the residual component). This score has been employed to explore its influence on different aspects—such as management earnings forecasts (Baik *et al.*, 2011), earnings quality indicated by accounting restatements, earnings persistence, and accruals quality (Demerjian *et al.*, 2013), as well as corporate tax avoidance (Francis *et al.*, 2013).

Therefore, we follow previous studies (Tang *et al.*, 2024; Ben Abdesslem *et al.*, 2022; Vo *et al.*, 2021) that use the two-step procedure developed by Demerjian *et al.* (2012). First, we use DEA to estimate a bank's technical efficiency score. To do, we adopt the three inputs and two outputs for the optimization program.

Banks collect liabilities and use capital and labor to transform these funds into loans and other assets. Hence, we use as inputs: fixed assets, labor costs, and deposits; as outputs: loans and other earning assets.

$$MAX_{it} = \frac{loan + otherearningassets}{fixedassets + laborcosts + personalexpense} \quad (3)$$

Second, we estimate MA by regressing the efficiency score on a set of bank-specific characteristics (bank size, age, leverage) and country characteristics (inflation and GDP).

We estimate the following Tobit model to exclude bank and country characteristics:

$$BankEfficiency_{it} = \alpha_0 + \alpha_1 size_{it} + \alpha_2 Age_{it} + \alpha_3 LEV_{it} + \alpha_4 INFL_{jt} + \alpha_5 GDP_{jt} + Yeardummies + Bankdummies + \varepsilon_{it} \quad (4)$$

Where the dependent variable is bank efficiency measured between zero and one. Size is the natural logarithm of total assets. Age is the natural logarithm of bank age. Lev is the Leverage ratio. INFL is the annual inflation rate. GDP is gross domestic product.

The residual from Equation (4) is our main measure of MA (Demerjian *et al.,* 2012).

3.3.3. Control variables

We incorporate a variety of bank-level and country-level control factors in our regression analysis. Bank-level controls include the following variables.

Bank size (SIZE) is calculated as the logarithm of bank assets. Larger institutions typically possess advanced risk management systems and technological tools that help address issues related to asymmetric information (Abdelaziz *et al.,* 2020; Jabbouri and Naili, 2019).

The deposits ratio (DEP) represents the proportion of total deposits to total assets. It is assumed that increased levels of deposits can enhance the bank's asset-transformation activities by promoting loan origination, which may subsequently elevate the probability of credit risk.

Bank profitability (ROA) is defined as the ratio of net income to total assets (Ghosh, 2015; Kjosevski and Petkovski, 2017). More profitable banks tend to feel less pressure to issue risky loans, as they are not compelled to generate excessive income, thus lowering credit risk exposure.

Capital (CAP) measures the ratio of equity to total assets, reflecting a bank's capital adequacy and overall financial health (Louzis *et al.,* 2012; Hoang *et al.,* 2020).

Country-level controls include the following variables.

The inflation rate (INF) is noteworthy, as elevated inflation levels can coincide with increasing nominal interest rates. This scenario may result in higher interest costs, the diminishing capacity of borrowers to meet their debt obligations, thereby escalating NPLs (Ghosh, 2015; Hakimi *et al.,* 2020).

Growth of GDP (GDP) is employed to account for business cycles (Abdelaziz *et al.,* 2020; Jabbouri and Naili, 2019). Economic growth is shown to decrease credit risk (Naili and Lahrichi, 2020).

We also control for *financial crisis and Covid-19* (a binary variable equal to one in the periods 2007–2009 and 2020, zero otherwise). Table 2 presents the measurements of our variables.

Table 2: Variable definition

Variables	Definition	Measure
Dependent variable		
NPLs	Loan quality	The ratio of NPLs to the total amount of loans
Independent variable		
MA	Managerial ability	The managerial ability score of Demerjian *et al.* (2012)
Control variables		
SIZE	Bank size	The logarithm of bank assets
ROA	Bank profitability	The ratio of net income to total assets
DEP	Deposits	The proportion of total deposits to total assets
CAP	Capitalization	The ratio of equity to total assets
GDP	GDP growth	Annual GDP growth rate
INFL	Inflation	Consumer Price Index
CRISES	Financial crises and Covid-19	Binary variable equal to one in the period 2007–2009 and 2020, zero otherwise

4. Empirical results

4.1.Descriptive statistics and correlation matrix

4.1.1. Descriptive statistics

We find that the average value of the NPLs of the sample MENA banks is 8.32% (Table 3), which is above the average value (7.57%) found by Mdaghri (2022) in the same context but during the 2010–2017 period. Figure 1 gives a clearer evolution of average NPL levels. The highest value recorded is 8.25% in 2009. This result can be ascribed to the political and economic disturbances affecting the MENA region during the financial crises.

Regarding MA, we find an average of 0.01, which is close to zero, as it is the residual from a Tobit regression. The highest value is 0.31, which is relatively low compared to other contexts (0.78 in the European context (Ben Abdesslem *et al.*, 2022) and 0.97 in Chinese context (Tang *et al.*, 2024)).

Table 3: Summary statistics

	OBS	*SD*	*Mean*	*Min*	*Max*
			Panel A: the dependent variable		
NPLs	1890	0.04	0.08	0	0.67
			Panel B: the independent variable		
MA	1890	0.19	0.01	-0.70	0.31
			Panel C: the control variables		
SIZE	1890	1.88	9.84	4.88	15.07
ROA	1890	1.91	0.01	-0.17	0.42
DEP	1890	0.17	0.61	0.02	0.84
CAP	1890	0.21	0.57	0.12	4.48
GDP	1890	0.07	0.03	-0.50	0.87
INFL	1890	0.08	0.63	-0.05	0.90

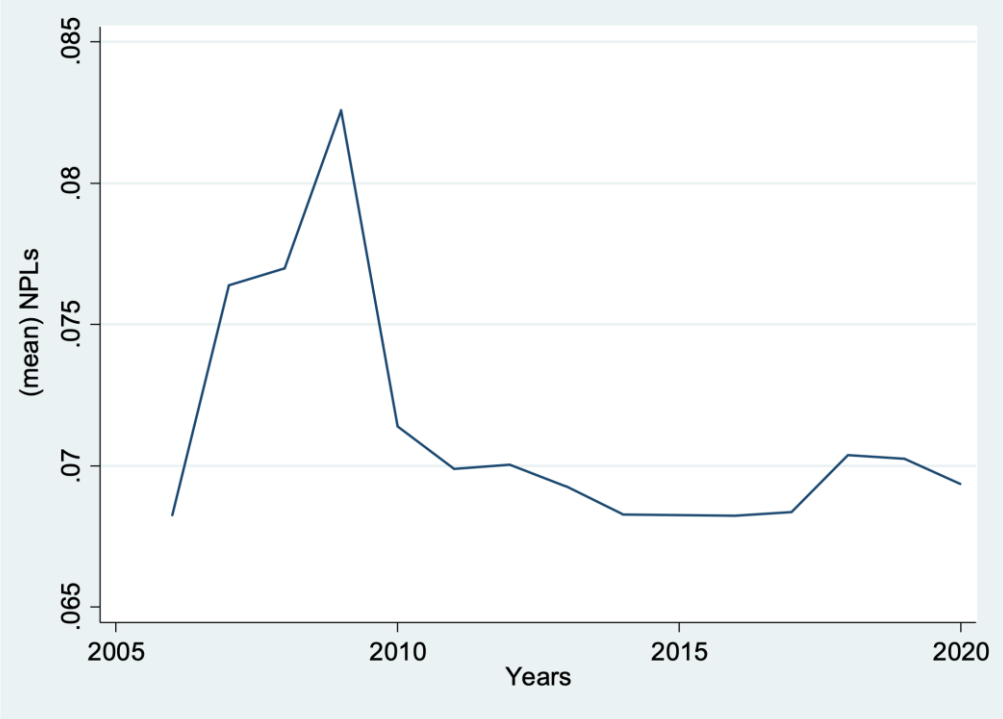

Figure 1: Average NPL ratio in MENA region, 2006–2020

4.1.2. Correlation matrix and variation inflation factor

Table 4 presents the correlation matrix for all the variables used in this study. The results show that there is no multicollinearity issue in our model. We find the average VIF is 1.34, which confirms the non-presence of multicollinearity.

Table 4: Correlation Matrix

	NPLs	MA	SIZE	ROA	DEP	CAP	GDP	INFL
NPLs	1.000							
MA	-0.006*	1.000						
SIZE	-0.052*	0.001	1.000					
ROA	-0.087*	-0.002	0.065	1.000				
DEP	0.003*	-0.081*	-0.143*	-0.129	1.000			
CAP	-0.030	-0.015	-0.163	0.079	0.362*	1.000		
GDP	0.017	-0.001	-0.035	0.090*	0.015	0.019	1.000	
INFL	0.001	0.001	-0.021	-0.02	0.085*	-0.049*	-0.221*	1.000

Note: This table presents the correlation coefficients between the variables used in this study. * indicates statistical significance at the level of 5%

4.2.Regression analysis

We adopt the following regression equation to test our assumption, using panel data to determine the effect of managerial ability on loan quality:

$$NPLs_{it}=\alpha_i + \mu_t + \alpha_1 MA_{i,t-1} + \beta\sum Control_{i,t-1} + Year\_FE + Bank\_FE + \varepsilon_{it} \quad (5)$$

Where ***NPLs*** is the dependent variable that represents loan quality. ***MA*** is the independent variable that represents managerial ability. ***Control*** is a set of control variables (*SIZE* is bank size. *ROA* is bank profitability. *DEP* is deposits. *CAP* is bank capitalization. *GDP* is the gross domestic product. *INFL* represents the inflation. *CRISES* is binary variable equal to one in the period 2007–2009 and 2020, zero otherwise). $\boldsymbol{\alpha_i}$ is the individual fixed effects. μ_t is the time fixed effects. $\boldsymbol{\varepsilon_{it}}$ is the random standard error.

Table 5 illustrates the OLS and QR estimates for the impact of the MA on bank loan quality. First, the OLS estimate is negative but insignificant. This result indicates that, on average, there is no impact of MA on NPLs. However, OLS, by focusing only on the central tendency of the distributions, does not enable the impact of MA variable to differ from various NPLs regimes.

Therefore, we test the relationship in the above model using a panel QR to see whether the relationship between MA and NPLs differs across the range of NPLs.

Moving up the quantile levels, the impact of MA on NPLs varies in the magnitude of the estimated coefficients. In particular, while there is no significant association between MA and NPLs at the lower quantile levels (from 0.05 to 0.25), the relationship becomes significantly negative from 0.3 to 0.8 quantiles, and significantly positive at highest quantile levels (0.9 and 0.95).

The second column of Table 5 illustrates the F-tests of the equality of slope parameters across various quantiles, namely the differences between slope estimates at the $\boldsymbol{\theta}$ against ($\mathbf{1}$-$\boldsymbol{\theta}$) quantiles. Remarkably, differences across various quantiles are significant for all situations, and therefore the observed no-uniformities derived from conditional QR reveal significant differences in the impact of MA on loan quality across different levels of NPLs.

We also test for differences between significant slope estimates at the neighboring quantiles (Column 3). We find no differences across neighboring quantiles (F-Statistics are not significant). This means that the transition across neighboring quantiles is smooth and consistent.

Overall, our empirical findings show that MA not only affects the conditional average of NPLs but also impacts the dispersion of loan quality.

Table 5: The effect of the managerial ability on bank loan quality across various quantile levels

Estimation results of quantile regression				**Tests of the equality of slope estimates across various quantiles**		**Tests of the equality of slope estimates across neighboring quantiles**	
Quantile	Estimate (p-value)	Quantile	Estimate (p-value)	Quantile	F-Statistics (p-value)	Quantile	F-Statistics (p-value)
0.05	0.024 (0.149)	**0.95**	0.038 (0.022)**	**0.05 versus 0.95**	22.34 (0.000)***	**0.30 versus 0.35**	3.47 (0.237)
0.1	0.033 (0.184)	**0.9**	0.037 (0.031)**	**0.10 versus 0.90**	19.12 (0.000)***	**0.35 versus 0.40**	2.92 (0.157)
0.15	0.023 (0.219)	**0.85**	0.036 (0.126)	**0.15 versus 0.85**	16.87 (0.000)***	**0.40 versus 0.45**	2.70 (0.238)
0.2	0.032 (0.133)	**0.8**	-0.022 (0.079)*	**0.20 versus 0.80**	15.11 (0.000)***	**0.45 versus 0.50**	2.01 (0.119)
0.25	0.014 (0.117)	**0.75**	-0.020 (0.050)*	**0.25 versus 0.75**	14.66 (0.001)***	**0.50 versus 0.55**	2.61 (0.229)
0.3	-0.021 (0.042)**	**0.7**	-0.021 (0.007)***	**0.30 versus 0.70**	13.37 (0.000)***	**0.55 versus 0.60**	1.98 (0.168)
0.35	-0.012 (0.088)*	**0.65**	-0.011 (0.039)**	**0.35 versus 0.65**	13.19 (0.000)***	**0.60 versus 0.65**	2.21 (0.209)
0.4	-0.018 (0.097)*	**0.6**	-0.014 (0.021)**	**0.40 versus 0.60**	11.15 (0.020)**	**0.65 versus 0.70**	2.88 (0.163)
0.45	-0.014 (0.002)***	**0.55**	-0.016 (0.020)**	**0.45 versus 0.55**	8.85 (0.087)*	**0.70 versus 0.75**	1.54 (0.140)
0.5	-0.012 (0.026)**	**OLS**	-0.082 (0.875)			**0.75 versus 0.80**	1.49 (0.176)
						0.90 versus 0.95	1.12 (0.194)
Bank fixed-effects: yes ***Time fixed-effects: yes***							

Note: *,** and *** indicate that the test results are significant at the 10% , 5% and 1% confidence level respectively. The F tests of the equality of slope parameters across various quantiles. *The robust standard errors are reported.*

Regarding the control variables (Table 6), while deposits to assets is found to have a significant negative impact only at low levels of NPLs, size, profitability and capital are negatively and significantly linked to NPLs for the majority of quantiles. This is in line with previous studies (Jabbouri and Naili, 2019; Mdaghri, 2022; Hakimi *et al.*, 2020). This finding indicates that larger capitalized banks with better performance tend to have lower NPLs.

Table 6: the estimation results of the control variables across quantile levels of NPLs and OLS regression

	Quantiles					
	0.05	**0.25**	**0.5**	**0.75**	**0.95**	**OLS**
SIZE	0.001 (0.561)	-0.002 (0.000)***	-0.002 (0.000)***	-0.004 (0.000)***	-0.014 (0.168)	-0.018 (0.000)***
ROA	0.005 (0.040)**	-0.005 (0.018)**	-0.032 (0.000)***	-0.046 (0.000)***	-0.061 (0.099)*	-0.020 (0.000)***
DEP	-0.043 (0.428)	-0.037 (0.00)***	-0.012 (0.395)	0.001 (0.937)	0.210 (0.165)	-0.120 (0.020)**
CAP	-0.017 (0.173)	-0.0122 (0.011)**	-0.320 (0.000)***	-0.534 (0.000)***	-1.486 (0.062)*	-0.121 (0.000)***
GDP	0.179 (0.000)***	0.038 (0.405)	-0.007 (0.802)	0.001 (0.986)	0.136 (0.252)	0.164 (0.154)
INFL	-0.235 (0.000)***	-0.149 (0.006)***	-0.021 (0.185)	0.056 (0.259)	0.919 (0.000)***	0.014 (0.884)
CRISES	0.022 (0.020)**	0.012 (0.000)***	0.007 (0.000)***	-0.011 (0.144)	-0.080 (0.489)	0.064 (0.001)***

$\boldsymbol{SIZE_{it}}$ is bank size. $\boldsymbol{ROA_{it}}$ is bank profitability. $\boldsymbol{DEP_{it}}$ is deposits. $\boldsymbol{CAP_{it}}$ is bank capitalization. $\boldsymbol{GDP_{jt}}$ is the gross domestic product. $\boldsymbol{INFL_{jt}}$ is the inflation. The value in the parenthesis denotes the p-value. The ***, ** and * denotes significance at the level of 1, 5 and 10%, respectively. OLS denotes ordinary least squares. Results obtained with robust standard errors.

4.3.Discussion

While the OLS regression shows that there is no significant relationship between MA and NPLs, the QR results show that the relationship is not uniform across the different levels of NPLs. More precisely, while MA is not significantly associated with NPLs at the lower quantile levels, (from 0.05 to 0.25), it becomes significantly and negative associated at medium quantiles (from 0.3 to 0.8). The relationship becomes significantly positive at highest quantile levels (0.9 and 0.95).

There may be different reasons for the different results across the various NPLs levels.

The negative impact means that more able managers reduce NPLs when banks have a moderated level of risk. This could be explained by the fact that more talented managers accumulate more knowledge about the banking industry through their experience. This knowledge and experience enables them better understand the environment and to exploit the best opportunities at the right time. Consequently, they would make effective estimates and judgements concerning future changes, bad debt, inherent risks, and loan losses (Bonsall *et al.*, 2016). Beatty and Liao (2011) states that, by taking into account macroeconomic conditions, manager risk taking results in a

greater likelihood of successful outcomes. Therefore, able managers are more likely to adopt best practices for the purpose of efficient lending, which increases the loan quality.

On the other hand, the positive impact of MA on NPLs at high level of bank risk could be explained in different ways. In banks with higher risk levels, managers may feel more pressure to demonstrate their ability as variability in performance outcomes increases. This situation may let managers frame bank decisions negatively (Zaiane *et al.,* 2023).

Manger overconfidence could lead to an increase in NPLs. Ho *et al.* (2016) reveal that overconfident managers tend to underestimate the risks tied to their investments, often holding an unrealistic perception of borrowers' abilities to repay debt. This can result in a lack of attention to potential downsides, leading to a relaxation of lending standards. As these standards become less stringent, loan quality suffers, forcing banks to take on more risk. The pursuit of higher risk can leave banks vulnerable; those with lenient lending practices frequently face diminished profits and an increased likelihood of financial distress.

Another explanation could be linked to manager compensation. Brewer *et al.* (2004) support the notion that riskier banks often provide higher levels of incentive compensation, further driving risk-taking behavior. This creates a scenario in which banks led by able managers might inadvertently expose themselves to greater default risk (Ben Abdesslem *et al.,* 2022).

Overall, we show that skilled managers make efficient loans when banks have a moderate risk level. These managers are better at assessing timing and potential returns, as well as synthesizing information into accurate forecasts about the risks (Demerjian *et al.,* 2012). Therefore, such managers will use their talent to choose the best lending schemata leading to improved loan quality. However, when banks have a high level of risk, managers might focus excessively on their personal interests, often leading to decisions that increase agency costs (Huang *et al.,* 2011; Lin *et al.,* 2005) and bad lending choices.

4.4.Additional analyses: Quantile-on-Quantile regression

To validate the use of quantile approach quality and give a more detailed picture in the relationship between managerial ability and bank loan, we apply QQR. While QR shows how the effect of the independent variable (MA) changes across different quantiles of the dependent variable (NPLs), QQR examines the relationship between the quantiles of the independent and dependent variables.

QQR can provide valuable supplementary information after a quantile regression. It helps to explore the heterogeneity and non-linearity of the relationship in a different way, potentially revealing inconsistencies that warrant further investigation.

Figure 2 illustrates a QQR plot of MA on NPLs. The plot shows similar patterns of heterogeneity compared with QR results, strengthening the findings. More precisely, the impact of MA on NPLs is negative in almost all quantiles of MA and NPLs for low and medium quantiles [0–80%] (Dark blue). At high NPLs quantiles [90–95%], the impact of MA on NPLs becomes positive. Able mangers increase NPLs when banks already have a high risk level. This confirms our finding using quantile regressions. We can also see that at both high level of MA and NPLs (top right corner of the plot in red) the impact is positive (the highest). It means that highly skilled managers increase NPLs when banks have a high risk level.

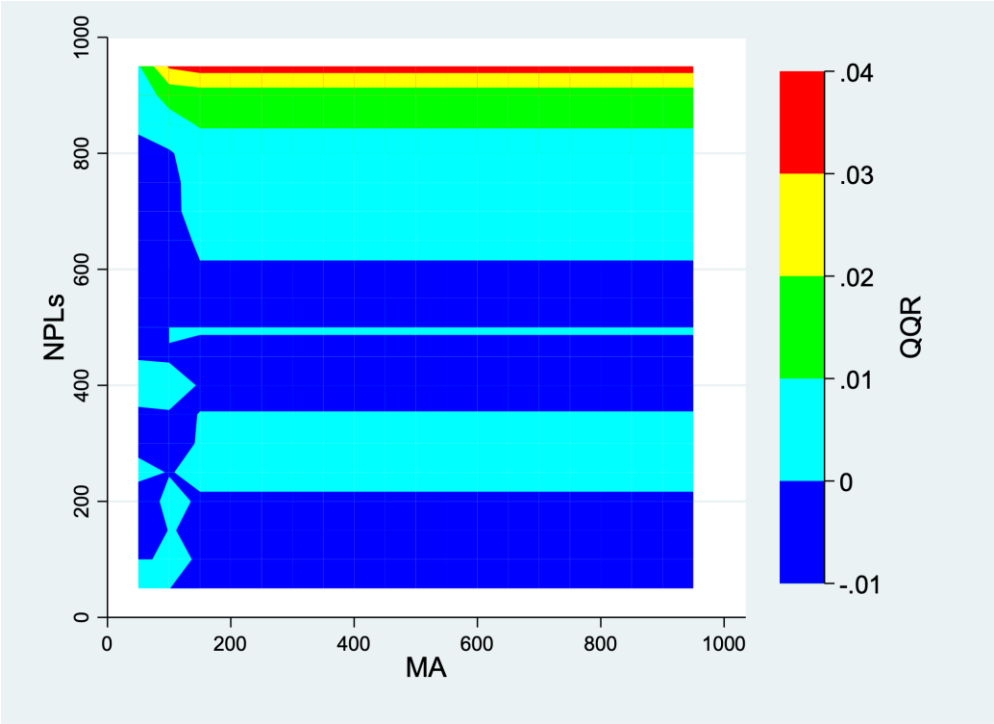

Figure 2: Quantile-on-Quantile regression of managerial ability on loan quality (2D plot)

A 3D plot (Figure 3) gives a clearer picture on the impact of managerial ability on NPLs across various quantiles and confirms our findings. For all most low and medium quantiles of NPLs, the impact of managerial ability is negative and it becomes positive at the highest quantiles.

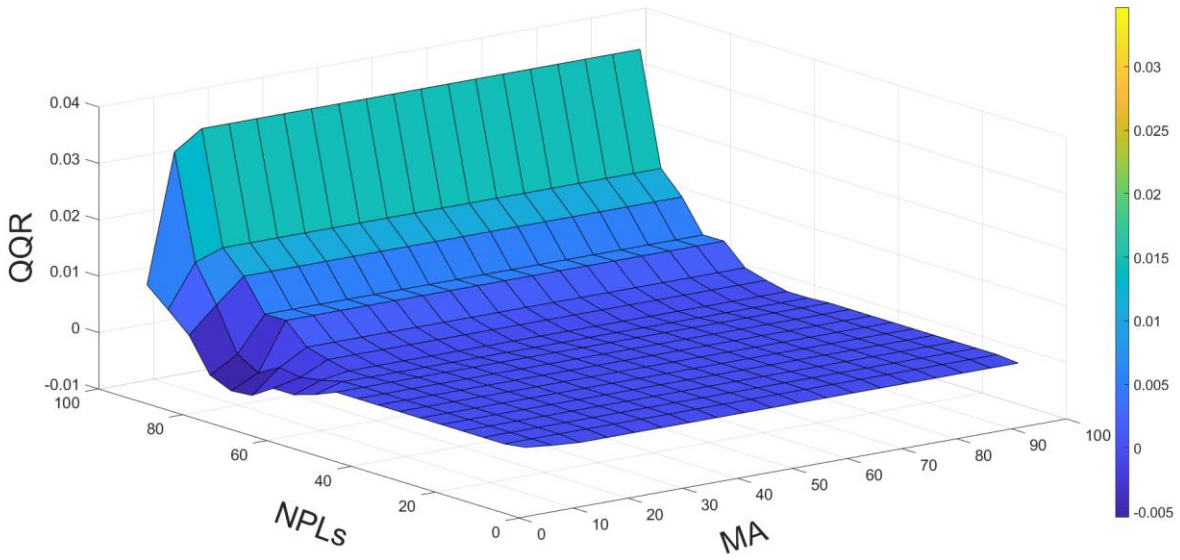

Figure 3: Quantile-on-Quantile regression of managerial ability on loan quality (3D plot)

4.5.Robustness check

4.5.1. Sub-sampling

To validate the use of QR and to check if our findings hold, we re-estimated the main equation by splitting our sample into North African countries in the first sub-sample and Middle Eastern countries in the second sub-sample.

Despite the significant homogeneity within the MENA region (see Section 2.1), the Middle Eastern and the North African countries represent distinct sub-regions with unique economic, political, and cultural characteristics. By analyzing these subsamples separately, we ensure that our findings are not driven by regional outliers and are robust across different contexts.

The results in Table 7 confirm our main finding and strengthen the validity of our results for the subsamples. Using the two sub-samples, we confirm that the impact of MA on loan quality varies across different quantiles of NPLs for both North African and Middle Eastern countries. More specifically, able mangers help to ameliorate the quality of loans by reducing NPLs when banks have a moderated level of risk. However, at high risk levels, able managers worsen the quality of loans by increasing NPLs.

Table 7: The effect of the managerial ability on bank loan quality across various quantile levels (sub-sampling)

North African Countries				*Middle East Countries*			
Quantile	**Estimate (p-value)**	**Quantile**	**Estimate (p-value)**	**Quantile**	**Estimate (p-value)**	**Quantile**	**Estimate (p-value)**
0.05	0.022 (0.164)	**0.95**	0.071 (0.022)**	**0.05**	0.015 (0.119)	**0.95**	0.016 (0.002)***
0.1	0.037 (0.227)	**0.9**	0.047 (0.025)**	**0.1**	0.017 (0.193)	**0.9**	0.022 (0.241)
0.15	0.014 (0.234)	**0.85**	0.015 (0.114)	**0.15**	0.021 (0.137)	**0.85**	-0.020 (0.262)
0.2	0.021 (0.210)	**0.8**	-0.045 (0.106)	**0.2**	0.027 (0.111)	**0.8**	-0.019 (0.029)**
0.25	0.024 (0.179)	**0.75**	-0.031 (0.041)**	**0.25**	0.034 (0.227)	**0.75**	-0.015 (0.036)**
0.3	0.015 (0.144)	**0.7**	-0.022 (0.001)***	**0.3**	-0.011 (0.002)***	**0.7**	-0.021 (0.000)***
0.35	-0.017 (0.061)*	**0.65**	-0.028 (0.000)***	**0.35**	-0.016 (0.000)***	**0.65**	-0.023 (0.009)***
0.4	-0.019 (0.036)**	**0.6**	-0.039 (0.001)***	**0.4**	-0.025 (0.024)**	**0.6**	-0.022 (0.001)***
0.45	-0.023 (0.000)***	**0.55**	-0.031 (0.000)***	**0.45**	-0.021 (0.030)**	**0.55**	-0.018 (0.000)***
0.5	-0.025 (0.020)**	**OLS**	-0.048 (0.257)	**0.5**	-0.019 (0.037)**	**OLS**	-0.096 (0.322)
Bank fixed-effects: yes							
Time fixed-effects: yes							

*Note: *,** and *** indicate that the test results are significant at the 10% , 5% and 1% confidence level respectively.*
The robust standard errors are reported. The lagged variables are used as instruments.

4.5.2. Endogeneity

To check for potential endogeneity, we use a panel quantile regression with instrumental variables (IV-QR). The lagged variables, used in this study, are found to be strong instruments and thus are used as instruments in this regression.

The IV-QR results, presented in Table 8, remain the same. Particularly, MA does not affect NPLs at the lower quantile levels, (from 0.05 to 0.30). The impact becomes significantly negative at medium quantiles (from 0.35 to 0.85) and significantly positive at highest quantile levels (0.9 and 0.95).

Table 8: The effect of the managerial ability on bank loan quality across various quantile levels (control for endogeneity)

Estimation results of IV-QR				**Tests of the equality of slope estimates across various quantiles**	
Quantile	Estimate (p-value)	Quantile	Estimate (p-value)	Quantile	F-Statistics (p-value)
0.05	0.019 (0.126)	**0.95**	0.035 (0.000)***	**0.05 versus 0.95**	19.21 (0.000)***
0.1	0.028 (0.141)	**0.9**	0.032 (0.001)***	**0.10 versus 0.90**	18.84 (0.000)***
0.15	0.026 (0.167)	**0.85**	-0.029 (0.081)*	**0.15 versus 0.85**	17.05 (0.000)***
0.2	0.029 (0.117)	**0.8**	-0.025 (0.037)**	**0.20 versus 0.80**	16.91 (0.000)***
0.25	0.024 (0.211)	**0.75**	-0.022 (0.041)**	**0.25 versus 0.75**	15.13 (0.001)***
0.3	-0.023 (0.111)	**0.7**	-0.019 (0.001)***	**0.30 versus 0.70**	13.29 (0.000)***
0.35	-0.012 (0.024)**	**0.65**	-0.013 (0.000)***	**0.35 versus 0.65**	12.01 (0.000)***
0.4	-0.016 (0.034)**	**0.6**	-0.016 (0.000)***	**0.40 versus 0.60**	10.47 (0.011)**
0.45	-0.015 (0.007)***	**0.55**	-0.017 (0.000)***	**0.45 versus 0.55**	7.15 (0.081)*
0.5	-0.014 (0.001)***	**OLS**	-0.082 (0.875)		
Bank fixed-effects: yes ***Time fixed-effects: yes***					

Note: *,** and *** indicate that the test results are significant at the 10% , 5% and 1% confidence level respectively. The F tests of the equality of slope parameters across various quantiles: the differences between slope estimates at the $\boldsymbol{\theta}$ and (1-$\boldsymbol{\theta}$) quantiles are presented in the two right columns of this table.
The robust standard errors are reported. *The lagged variables as instruments.*

5. Conclusion

This paper uses QR to examine whether there is heterogeneity in the MA–NPL nexus across the conditional distribution of MA of MENA banks.

Using fifteen years of panel data (2006–2020), this study sheds light how MA affects bank loan quality. The empirical findings show that the relationship varies widely across the quantiles of bank loan quality measured by NPLs. For banks with low/medium level of NPLs, the effect of MA is negative, suggesting that able mangers improve the quality of loans. The effect becomes positive when banks have high level of risk. Using QQR as an additional analysis, we validate the methodology used and confirm the existence of a non-uniform association between MA and NPLs.

To ascertain the validity of our results, we perform two robustness tests. First, we split our sample into two sub-samples (North African countries and Middle Eastern countries). The results confirm our main findings. Second, we apply an IV-QR model to control for potential endogeneity. The findings confirm our choice of using a non-monotonic model as it give a more complete and detailed picture on the impact of managerial ability on bank loan quality.

This study has theoretical, empirical, and practical value. It reveals that traditional OLS optimization techniques capture central behaviors only, and misidentify the relationship between MA and NPLs with regard to size, significance, and even sign. This work fills a gap in the literature by giving a more complete and detailed picture concerning the impact of MA on bank loan quality in the MENA region.

Our findings offer guidance for policy-makers and regulators. First, we show that MA is a double-edged sword. Competent mangers are good at enhancing the quality of bank loans; however, they can increase NPLs at banks with a high level of risk. This evidence suggests that regulators should implement effective governance mechanisms in order to control managers' behavior. Even managers competent in dealing and monitoring banking risk may fail in doing so because of opportunism or overconfidence. Thus, strong governance mechanisms can affect the way risk is managed. Second, banks should maintain high standards in loan initiation and subsequent monitoring and have countercyclical provisions to reduce default risks. Third, our findings are valuable for regulators formulating policies, such as revising managerial compensation to manage risk-taking behavior effectively.

The study has some limitations that highlight the need for further research. First, the effect of MA on loan quality may differ between Islamic and non-Islamic banks—a comparative study between the two types in the region would shed further light on the issue. Second, our study suggests that the relationship between MA and bank loan quality is heterogeneous and depends on the level of loan quality in the MENA region; however, the findings may differ for developed countries due to differences in banking infrastructure. Therefore, further studies should examine this issue in other contexts using the quantile approach.

References

Abdelaziz, H., Rim, B. and Helmi, H. (2020), "The interactional relationships between credit risk, liquidity risk and bank profitability in MENA region", Global Business Review, https://doi.org/10.1177/0972150919879304

Acharya, V., and Naqvi, H. (2019), "On reaching for yield and the coexistence of bubbles and negative bubbles, Journal of Financial Intermediation", Vol. 38, pp 1-10.

Alam, Md.S., Hasan, M.M., Alam, N., and Islam, Md.S. (2024), "Managerial Ability and Debt Choice", ABACUS, Early View Online Version of Record before inclusion in an issue, https://doi.org/10.1111/abac.12334.

Alton, R.G., and Hazen, J.H. (2001), "As economy flounders, do we see a rise in problem loans", Federal Reserve Bank of St. Louis, Vol. 11 No. 4, pp. 45–65.

Asyrafi, F and Lestari, H.S. (2022), "Managerial ability impact on lending and bank credit quality: SFA approach", Economics, Business, Accounting & Society Review, Vol. 1 No. 3, pp. 142–151.

Baik, B., Farber, D., & Lee, S. (2011). CEO ability and management earnings forecasts. Contemporary Accounting Research, Vol. 28 No. 5, pp. 1645–1668.

Bamber, L., Jiang, J., and Wang, I. (2010), "What's my style? The influence of top managers on voluntary corporate financial disclosure", The Accounting Review, Vol. 85 No. 4, pp.1131–1162.

Beatty, A., and Liao, S. (2011), "Do delays in expected loss recognition affect banks' willingness to lend?", Journal of Accounting and Economics, Vol. 52 No. 1, pp.1–20.

Ben Abdesslem, R., Chkir, I., and Dabbou, H. (2022), "Is managerial ability a moderator? The effect of credit risk and liquidity risk on the likelihood of bank default", International Review of Financial Analysis, Vol. 80.

Bebchuk, L.A., Grinstein, Y., and Peyer, U. (2010), "Lucky CEOs and Lucky Directors", The Journal of Finance, Vol. 65 No. 6, pp. 2363-2401.

Bonsall, S., Holzman, E., and Miller, B. (2016), "Managerial ability and credit risk assessment", Management Science, Vol. 63, No. 5, pp.1425–1449.

Brewer, N.T., Weinstein, N.D., Cuite, C.L., and Herrington, J.E. (2004), "Risk perceptions and their relation to risk behavior", Ann Behav Med, Vol. 27 No. 2, pp. 125-130.

Choi, W., Han, S., Jung, S., and Kang, T. (2015), "CEO's operating ability and the association between accruals and future cash flows", Journal of Business Finance and Accounting, Vol. 42 No. 5–6, pp.619–634.

Cottarelli, C., Dell'Ariccia, G., and Vladkova-Hollar, I. (2005), "Early birds, late risers, and sleeping beauties: Bank credit growth to the private sector in Central and Eastern Europe and in the Balkans", Journal of Banking & Finance, Vol. 29 No. 1, pp. 83-104,

Demerjian, P., Lev, B., Lewis, M., and McVay, S. (2013), "Managerial ability and earnings quality", The Accounting Review, Vol. 88 No. 2, pp.463–498.

Demerjian, P., Lev, B., and McVay, S. (2012), "Quantifying managerial ability: A new measure and validity tests", Management science, Vol. 58 No. 7, pp. 1229–1248.

Fahlenbrach, R., and Stulz, R.M. (2011), "Bank CEO incentives and the credit crisis," Journal of Financial Economics, Vol. 99 No. 1, pp. 11-26.

Foos, D., Norden, L., and Weber, M. (2010), "Loan growth and riskiness of banks", Journal of Banking and Finance, Vol. 34, pp. 2929–2940.

Francis, B.B., Ren, N., Sun, X., and Wu, Qiang. (2024), "Do Better Managers Get Better Loan Contracts?", ABACUS, Vol. 60 No. 3, pp. 539-577.

Francis, B., Sun, X., Weng, C.-H., Wu, Q. (2013), "Managerial ability and tax aggressiveness", SPGMI: Compustat Fundamental, https://api. semanticscholar.org/CorpusID:168301633.

Francis, J., A. H. Huang, S. Rajgopal, and A. Y. Zang (2008), "CEO Reputation and Earnings Quality", Contemporary Accounting Research, Vol. 25 No. 1, pp. 109–47.

Gray, S., Karam, P. and Turk, R. (2014), "Are Banks Really Lazy? Evidence from Middle East and North Africa", International Monetary Fund, Washington, DC.

Hakimi, A., Boussaada, R. and Karmani, M. (2020), "Is the relationship between corruption, government stability and non-performing loans non-linear? A threshold analysis for the MENA region", International Journal of Finance and Economics, pp. 1-16.

Hambrick, D. (2007), "Upper echelons theory: An update", Academy of Management Review, Vol. 32 No. 2, pp.334–343.

Hambrick, D., and Mason, P. (1984), "Upper echelons: The organization as a reflection of its top managers", The Academy of Management Review, Vol. 9 No. 2, pp.193–206.

Hess, K., Grimes, A., and Holmes, M. (2009), "Credit Losses in Australasian Banking", ECONOMIC RECORD, Vol. 85 No. 70, pp. 331-343

Ho, P., Huang, C., Lin, C., and Yen, J. (2016), "CEO overconfidence and financial crisis: Evidence from bank lending and leverage", Journal of Financial Economics, Vol. 120 No. 1, pp.194–209.

Issa, A. and Fang, H.-X. (2019), "The impact of board gender diversity on corporate social responsibility in the Arab Gulf states", Gender in Management, Vol. 34 No. 7, pp. 577-605, doi: 10.1108/GM-07-2018-0087.

Issa, A., Yousef, H., Bakry, A., Hanaysha, J.R. and Sahyouni, A. (2021), "Does the board diversity impact bank performance in the MENA countries? A multilevel study", Corporate Governance: The International Journal of Business in Society, Vol. 21 No. 5, pp. 865-891, doi: 10.1108/CG-06- 2020-0222.

Jabbouri, I. and Naili, M. (2019), "Determinants of nonperforming loans in emerging markets: evidence from the MENA region", Review of Pacific Basin Financial Markets and Policies, Vol. 22, doi: 10. 1142/S0219091519500267.

Kashif, M., Iftikhar, S.F. and Iftikhar, K. (2016), "Loan growth and bank solvency: evidence from the Pakistani banking sector" Finance Innov, Vol. 2 No. 22, https://doi.org/10.1186/s40854-016-0043-8.

Kraft, E., and Jankov, L. (2005), "Does speed kill? Lending booms and their consequences in Croatia," Journal of Banking & Finance, Vol. 29 No. 1, pp.105-121.

Koester, A., Shevlin, T., and Wangerin, D. (2017), "The role of managerial ability in corporate tax avoidance" Management Science, Vol. 63 No. 10, pp. 3285–3310.

Li, T. and Yu, W. (2015). "CEO Stock-Based Incentive Compensation and Firm Performance: A Quantile Regression Approach", Journal of International Financial Management & Accounting, Vol. 26 No. 1, pp. 1-25.

Lima, P.de, Meza, D.R., Meza, J.L.R. and Schweiger, H. (2016), "What's Holding Back the Private Sector in MENA?", Lessons from the Enterprise Survey, World Bank, Washington, DC.

Mdaghri, A. (2022), "How does bank liquidity creation affect non-performing loans in the MENA region?", International Journal of Emerging Markets, Vol. 17, No. 7, pp.1635-1658.

Mehran, H., and Rosenberg, J.V. (2007), "The Effect of Employee Stock Options on Bank Investment Choice, Borrowing, and Capital", FRB of New York Staff Report No. 305, SSRN: https://ssrn.com/abstract=1022972.

Murphy, K.J. (2003), "Stock based pay in new economy firms", Journal of Accounting and Economics, Vol. 34, pp. 129-147.

Nguyen, D., Nguyen, H. and Nguyen, K.S. (2018), "Ownership feature and firm performance via corporate innovation performance: Does it really matter for Vietnamese SMEs?", Journal of Asian Business and Economic Studies, Vol. 25 No. 2, pp. 239-250.

Nguyen, D., Diaz-Rainey, I., Roberts, H., and Le, M. (2021), "Loans from my neighbours: East Asian commercial banks, financial integration, and bank default risk", International Review of Financial Analysis, Vol. 74, https://doi.org/ 10.1016/j.irfa.2021.101659.

Ghosh, A. (2015). Banking-Industry Specific and Regional Economic Determinants of Non-Performing Loans: Evidence from US States. Journal of Financial Stability, Vol. 20, pp. 93-104.

Sarhan, A.A. and Ntim, C.G. (2018), "Firm- and country-level antecedents of corporate governance compliance and disclosure in MENA countries", Managerial Auditing Journal, Vol. 33 Nos 6-7, pp. 558-585, doi: 10.1108/MAJ-10-2017-1688.

Saunders, A., Strock, E., and Travlos, N.G. (1990), "Ownership structure, deregulation, and bank risk taking", The J. Finance, Vol. 45 No. 2, pp. 643–654.

Tang, K. (2024), "The influence of managerial ability on corporate financialization", International Review of Economics & Finance, Vol. 93, pp. 1229-1245,

Tang, Y., Wang, L., Shu, H. and Li, T. (2024), "Does managerial ability affect bank loan pricing?", Finance Research Letters, Vol. 62 No. B, https://doi.org/10.1016/j.frl.2024.105175.

Vo, X.V. (2020), "The role of bank funding diversity: evidence from Vietnam", International Review of Finance Vol. 20 No. 2, pp. 529–536. https://doi.org/10.1111/irfi.12215.

Vo, X.V., Nguyen, H.H. (2018), "Bank restructuring and bank efficiency—the case of Vietnam", Cogent Economics & Finance, Vol. 6 No. 1.

Vo, X.V., Pham, T.H.A., Doan, T.N., and Luu, H.N. (2021), "Managerial Ability and Bank Lending Behavior", Finance Research Letters, Vol. 39, ISSN 1544-6123.

Wang, Z., Chen, M., Chin, C., and Zheng, Q. (2017), "Managerial ability, political connections, and fraudulent financial reporting in China", Journal of Accounting and Public Policy, Vol. 36 No. 2, pp.141–162.

Yung, K., and Chen, C. (2018), "Managerial ability and firm risk-taking behavior", Review of Quantitative Finance and Accounting, Vol. 51 No. 4, pp. 1005–1032.

Zaiane, S., Dabbou, H. and Gallali, M.I. (2023), "The non-uniform relationship between CEO stock options and strategic risk-taking: the moderating role of firm performance", EuroMed Journal of Business, Vol. 18 No. 4, pp. 511-531.

Zhai, W. (2023), "Pricing of Non-financial Assets Considering Bank Credit Risk", Frontiers in Business, Economics and Management, Vol. 8 No. 2, pp. 178-184.

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