Lassoued *et al. Financial Innovation* (2023) 9:115
https://doi.org/10.1186/s40854-023-00521-2

Financial Innovation

RESEARCH Open Access

Bank efficiency in Middle East and North African countries: Does political connection type matter?

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Abstract

This study examines the effects of the political connections of chief executive officers (CEOs) or directors on technical, allocative, and cost bank efficiencies examining a panel of 144 banks operating in 12 Middle Eastern and North African (MENA) countries observed over the 2008–2021 period. Using random effect tobit regressions, we find that the three types of political connections explored (aggregate, CEO, and board of directors) have negative effects on banks' technical and cost efficiencies. In addition, CEO political connections exhibit superior explanatory power. These findings remain robust when we consider the sample in terms of monarchist and republican countries. Further evidence reveals that the effect of political connections is observed more strongly during the pandemic period (2020–2021) than during the 2008–2009 financial crisis period. Our results indicate that banks in MENA countries must strategically regulate bank political connections during crises and consistently thereafter. Our findings have implications for regulators investors and authorities in MENA countries.

Introduction

The past two decades have witnessed increased interest in the scope of firm political connections (Prasetyo and Nasution 2022); however, limited research has attempted to explore the political connections that occur in the banking industry. Specifically, political connections can allow banks to enjoy preferential treatment through postponed sanctions and the implementation of more flexible regulations. In return, banks provide support in the form of contributions and support for election campaigns, lobbying, or future employment. Resulting political processes drive the design and implementation of banking regulations and are expected to impact bank efficiency (Brown and Dinç 2005; Kroszner and Strahan 1999).

Empirically, although previous research has examined political connections as a determinant of bank efficiency (La Porta et al. 2002; Sapienza 2004; Dinç 2005; Khwaja and Mian 2005; De Nicolò and Loukoianova 2007; Micco et al. 2007), these studies present four primary limitations. *First*, such studies only identify politically connected banks through state ownership, whereas the presence of politically connected board

members could serve as a substitute for state ownership (Carretta et al. 2012). *Second*, many of these studies are conducted using a single-country approach, such as in the United States market (Gropper et al. 2015; Goldman 2009), France (Bertrand et al. 2018), Italy (Carretta et al. 2012), Pakistan (Haris et al. 2019), and Indonesia (Setiadi and Aryani 2019). This limited focus makes the external validity of studies' findings questionable. Few studies have been conducted considering the global market (Faccio 2006). The findings of these studies arguably limit generalization to MENA countries because there are substantial financial, political, and regulatory differences and variations in economic topography between the MENA region and other developing countries (discussed below). *Third*, most studies that have focused on banks' political connections have primarily highlighted the effect of political ties on bank profitability; however, previous research on the effect of political connections on bank efficiency is extremely limited. This topic is highly relevant because having politically connected directors and/or chief executive officers (CEOs) could improve coordination between banks and the government (Huang et al. 2017). In contrast, politically connected banks could be less efficient because they operate under the influence of politicians who are pursuing their own objectives (La Porta et al. 2002). *Fourth*, previous studies have largely used an aggregated measure of political connection representing different executives and directors, covering a broad spectrum of possible political connections and practices; however, the impact of CEOs' political connections is expected to differ from that of directors because the motivations and incentives vary.

These shortcomings have arguably compromised the full understanding of the effects of political connections justifying further scrutiny. This study examines considerations identified regarding the shortcomings of previous studies by determining the impact of political ties on banks' efficiency in a sample of MENA countries. We also complement the previous literature by investigating how different forms of bank political connections can affect bank efficiency using a sample of 144 private banks operating in 12 MENA countries observed over the 2008–2021 period. Specifically, this study examines the impact of politically connected CEOs and/or the board of directors on cost efficiency (CE), technical efficiency (TE), and allocative efficiency (AE).

Our study extends the research in three relevant ways. *First*, we contribute to the literature regarding the determinants of bank efficiency. Early research on this topic focused on the role of baseline bank characteristics such as size, profitability, and credit risk (Batir et al. 2017; Ben Naceur et al. 2011). More recent studies have considered the effects of internal and external corporate governance mechanisms (Baral and Patnaik 2022; Andries et al. 2018). We extend this line of research by demonstrating that political connections also have significant explanatory power regarding differences in banks' efficiency. *Second*, by deconstructing the variables related to political connections, our study provides more comprehensive insights into banks' political networks, enabling us to assess which types of political connections generate (or do not) efficiency for banks and exhibit a higher explanatory power. This disaggregation allows us to assess political connection types as key drivers for improving (worsening) bank efficiency. *Third*, to the best of our knowledge, only Abdelsalam et al. (2017) have addressed the question of political connections in banks in MENA countries. Our contribution extends

this examination in at least two ways. (1) In addition to TE, which was considered as the measure of efficiency by Abdelsalam et al. (2017), we use CE and AE, allowing us to assess which political ties affect other types of bank efficiency. (2) Abdelsalam et al. (2017) focused on the 2008–2009 financial crisis period, whereas this study highlights the effect of political connections on bank efficiency during the 2020–2021 pandemic crisis using more recent data in addition to the financial crisis timeline.

The remainder of this paper is structured as follows. "Institutional background" section presents the institutional background. "Theoretical background and hypotheses development" section outlines the theoretical background and develops the research hypotheses. "Empirical analysis" section presents the empirical analysis. "Results and discussion" section reports and discusses the empirical findings, and "Robustness tests" section concludes the paper.

Institutional background

The MENA region's financial systems are largely dominated by government-owned banks (Ben Naceur and Omran 2011), and a high level of financial development is associated with more sound prudential regulation and supervision (Creane et al. 2004, Ben Rejeb Attia et al. 2019). Furthermore, the stock markets in MENA countries are small and less developed (Bitar et al. 2016).

To reduce this load, many MENA countries began launching economic reforms in 2000, initiating the liberalization of financial systems (Omran et al. 2008; Ben Rejeb Attia et al. 2018; Elfeituri and Vergos 2019; Khanchel and Bentaleb 2023). The primary aim of these reforms was to limit the role of the state by promoting private control. Several governments reduced barriers to entry that align with World Trade Organization entry requirements. For instance, in Egypt, many mergers and acquisitions have taken place since 2005, allowing the entry of foreign agents and diminishing the role of the state. Similarly, the Jordanian government privatized many state banks and further liberalized the nation's banking system in 1997 (Bdour and Al-Khoury 2008). Subsequently, a decrease in political influence on banks through the transfer of state ownership to private control could push banks or politicians to seek other influence through presence on bank boards (Carretta et al. 2012) or friendships with board members or CEOs. Therefore, although governments transferred bank ownership to private owners, political actors often try to maintain control over privatized banks through political connections, specifically through appointed politicians in key positions.

Furthermore, family-owned businesses managed by major shareholders are dominant in the MENA region, as several MENA countries have remained monarchies (Bahrain, Jordan, Kuwait, Morocco, Qatar, Saudi Arabia, the United Arab Emirates (U.A.E.), and Oman) and are governed by the same families that continue to dominate the business environment (OECD 2009), while the rest of the countries in the MENA region opted for republican regimes following independence. Regardless of whether it is a republic or a monarchy, the banking industry continues to be dominated by families (Ben Naceur and Omran 2011), which seems to contribute to increasing bank efficiency.

Another feature distinguishing MENA countries is political scenes that have been marked by instability following the Arab Spring. The consequences of the Arab Spring vary widely across nations. For instance, in Egypt and Tunisia, the previous regimes were overturned, whereas, in other countries, while protestors called for reforms, citizens' actions led to no change (e.g., Jordan and Bahrain). Several other governments, particularly monarchies (Jordan, Bahrain, and Morocco), have also undertaken gradual processes of political reform (O'Sullivan et al. 2011; Hertog 2012; Khanchel et al. 2023a). MENA economies were negatively affected following these recent political instabilities (Arayssi et al. 2019; Ben Rejeb Attia et al. 2013. Khanchel et al. 2023a); hence, banking efficiency most likely declined (Jelassi and Delhoumi 2021) since bank inefficiency seems to be more prevalent in troubled times (Shleifer and Vishny 2010).

In the context of instability, MENA banks seek to maintain political legitimacy and access government-controlled resources, pursuing strategic initiatives to establish social legitimacy and mitigate the negative effects of adverse political, economic, and legal environments. However, the banking sector in the MENA region remains vulnerable to diminished institutional quality (Ben Naceur et al. 2014). Consequently, establishing political connections remains a significant and effective legitimacy building strategy.

Theoretical background and hypotheses development

To explain why banks form links with governments, we draw on the insights of resource dependence, rent-seeking, and agency theories, establishing a conceptual framework that allows us to explore the effect of political ties on banks' efficiency.

Resource dependence theory offers a compelling rationale for this issue. Firms depend on external organizations (Pfeffer and Salancik 1978), which generates risk and uncertainty, which subsequently affects efficiency. A critical source of external interdependence and uncertainty for businesses is the government. Firms use political connections to navigate uncertainties generated by the government and obtain government-controlled resources to shield them against environmental fluctuations (Pfeffer 1972). Political connections have different benefits, including favorable regulatory conditions, access to credit markets and bank loans, preferential treatment for obtaining government contracts, and lighter taxation (Agrawal and Knoeber 2001; Faccio 2006). For banks, political connections increase capabilities, knowledge, and experience and can overcome bureaucratic obstacles, leading to more efficient and professionally managed banks.

Rent-seeking theory (Krueger 1974) suggests that market agents are willing to be involved in the political process to obtain benefits. Public interventions can establish practices in which resources are unproductively used to pursue benefits without creating additional value (Du and Mickiewicz 2016). In this regard, institutional weakness is an important factor impacting banks that seek access to resources via political connections (Du and Mickiewicz 2016). Rent-seeking activities open access to government subsidies, more external finance (Liu et al. 2018), and favorable taxation treatment (Chen et al. 2011). From this perspective, politically connected banks obtain benefits from rent-seeking activities that lead to competitive advantages (i.e., industry monopoly or easier access to funding) (Chen et al. 2014).

Another stream of research has demonstrated that political connections are harmful. Agency theory proposes that influential stakeholders may impose their interests on those of other stakeholders causing multiple agency conflicts, severely damaging firm performance (Faccio et al. 2006). Political connections may introduce governments or politicians as influential stakeholders. The government could engage in rent-seeking through political connections when politicians support banks and the banks must "pay them back," leading to rent extraction (Shleifer and Vishny 1994). Thus, politically connected banks could be less efficient than their counterparts (La Porta et al. 2002; Sapienza 2004).

Impact of political connections on bank efficiency

As the banking sector requires a higher level of political visibility, politically connected members must incorporate different types of policies and regulations that weaken bank efficiency (Carretta et al. 2012). The relational capital of politically connected members can be strong enough to allow the pursuit of individual goals. Political connections can also provide protection from regulators and authorities, leading to unproductive decisions. In addition, politically connected members (i.e., ruling family directors) are powerful enough to obtain private benefits at the expense of minority shareholders (Andrés and Vallelado 2008). Furthermore, the relationships between former and current ministers often overlap and are interdependent, establishing conflicts of interest. Current government members can leverage significant influence on banks' decisions and are heavily and significantly involved in controlling banks, and former government members are not willing to relinquish their influence, which exacerbates agency problems, negatively affecting bank efficiency.

As political ties have become essential strategic resources that help banks achieve competitive advantages in the MENA region, they should be more valuable; however, bank executives in the MENA region use political ties to achieve personal objectives rather than help banks navigate political uncertainty (Khanchel et al. 2023a). Political reforms have undergone several revisions in many MENA countries, persistently generating political uncertainty for banks. Furthermore, ruling family members hold offices in several banks through founding membership status, large equity and controlling interests, or appointment from a nominating committee (Hawkamah 2010). Therefore, it is socially accepted that such directors are not willing to have their activities held under scrutiny (Sidani and Al Ariss 2014). Therefore, building on the previous arguments and the specificity of the MENA region, we present our first hypothesis as follows:

H1 Political connections negatively affect bank efficiency.

Impact of politically connected CEOs on banking efficiency

Resource dependence theory suggests that politically connected CEOs help to secure resources and navigate challenging environments more effectively (Pfeffer and Salancik 2003). Therefore, connected CEOs are strategically important to obtain political

legitimacy and acquire access to government-controlled resources, leading to higher bank efficiency.

According to rent-seeking theory, politically connected CEOs provide disproportionate government resources (Li et al. 2008), such as preferential treatment in obtaining bank loans (Dinç 2005), tax benefits (Chen et al. 2011), government subsidies (Hung et al. 2017), and government support (Al-Hadi et al. 2016), which reduces uncertainty for banks. In a weak institutional setting, CEOs' political connections can provide banks with competitive advantages that are not available to competitors.

In contrast, according to agency theory, CEOs can take advantage of political resources to prevent dismissal based on political restrictions on the banking sector, leading strengthened entrenchment. CEOs may use political resources to advance personal interests rather than those of shareholders (Jensen and Meckling 1976), exacerbating owner-manager agency problems (Morck 2009).

The significance of CEO political connections in MENA countries is largely evident in a deficient market mechanism for allocating resources, given the poor market-supporting institutions of MENA countries. Moreover, as some MENA countries are highly corrupt and politically unstable, politically connected CEOs often seek to implement the ruling political party's agenda and to satisfy the private interests of powerful managers (Uddin et al. 2016).

Finally, these arguments lead us to conclude that CEOs' political connections in MENA countries may function as a component of managerial power and decrease bank efficiency. As a result, we propose the following hypothesis:

H2 The presence of politically connected CEOs negatively affects bank efficiency.

Impact of politically connected directors on bank efficiency

According to resource dependence theory, external resources holding board positions (e.g., politicians) increase a bank's lobbying and negotiation power and decrease political costs because of such members' skills, knowledge, networks, and reputation (Agrawal and Knoeber 2001). Politically connected directors positively affect efficiency by influencing: (1) stock value (Faccio 2006; Claessens et al. 2008); (2) legislators' actions in passing favorable regulation (Agrawal and Knoeber 2001); (3) the probability of financial bailouts (Faccio et al. 2006); (4) access to financial resources with more convenient conditions (Gomez and Jomo 1997; Claessens et al. 2008); (5) market power (Cingano and Pinotti 2009); (6) information transparency by matching highest value-added liabilities with the highest value-added loans (Leuz and Oberholzer-Gee 2006); and (7) banks' global network of connections and foreign market negotiations (Agrawal and Knoeber 2001).

In reference to rent-seeking theory, directors with political backgrounds can facilitate access to additional resources by influencing the social or political environment (for example, bending rules) (Faccio et al. 2006), which positively affects bank efficiency.

According to agency theory, politically connected directors can decrease bank efficiency when banks have lower managerial incentives or they inefficiently cater to politically connected directors' wishes, such as the pursuit of individual goals or the transfer of financial resources to supporters (Boubakri et al. 2008; Claessens et al. 2008; Yeh et al. 2013).

Politicians holding bank board positions in a country with poor regulatory control of corruption and political instability, as is the case of most MENA countries, are more motivated by the political benefits of the role than by advancing the inclusive development of the bank. Such misappropriation has drastically reduced the efficient role of the board of directors. As a result, we propose the following hypothesis:

H3 The presence of politically connected directors negatively affects bank

Empirical analysis

Sample and data sources

Our original sample includes banks in MENA countries. According to the World Bank (2021), MENA countries cover 21 countries/territories of Algeria, Bahrain, Djibouti, Egypt, Arab Rep. Iran, Islamic Rep. Iraq, Israel, Jordan, Kuwait, Lebanon, Libya, Malta, Morocco, Oman, Qatar, Saudi Arabia, Syrian Arab Republic, Tunisia, U.A.E., West Bank and Gaza, and Yemen. For geographic consideration, the United Nations Statistics Divisions adds Turkey to this list.

Our study applies filtering rules to ensure data availability and sample homogeneity. Consequently, we exclude Iraq, Yemen, Palestine, Libya, and Syria because of the ongoing conflicts and political instability ravaging these nations. We also exclude Israel from the sample because it is considered to be the only country with a common law system in the region, whereas the other countries primarily have civil law regimes. Previous studies have demonstrated that common law systems are

Table 1 Sample distribution

Country	No of banks	Observations	Percent of politically connected banks (%)
Bahrain	16	208	48.56
Egypt	16	192	31.77
Jordan	15	195	50.77
Kuwait	10	120	52.50
Lebanon	6	72	54.17
Morocco	6	72	38.89
Oman	8	104	36.54
Qatar	8	96	42.71
Saudi Arabia	12	156	42.95
Tunisia	11	132	42.42
Turkey	16	192	27.60
U.A.E	20	262	60.69
Total	144	1728	46.59

This table shows the number of our sampled banks, observations by country, and the percent of the politically connected banks by country

historically connected to strong protection of property rights against state action (Mahoney 2001) and have more stable and less corrupt judicial systems than civil law systems (Cross 2007). Therefore, the extent and consequences of political connections differ between common law and civil law countries.

We also exclude Algeria, Malta, and Iran because of data unavailability. Our final sample consists of a balanced panel of 144 private banks operating in 12 MENA countries observed from 2008 to 2021, including Bahrain, Egypt, Jordon, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Tunisia, Turkey, and the U.A.E. Table 1 presents our sample by country.

Political connection data are hand-collected from countries' annual reports and financial data are obtained from the Thomson Reuters Database. Country-specific variables, macroeconomic data, and the Worldwide Governance Indicator (Kaufmann and Kraay 2019) are obtained from the World Bank.

The annual political risk index score is obtained from the International Country Risk Guide (ICRG).[1] The annual world Economic Policy Uncertainty index score (Ahir et al. 2018) is extracted from the policy uncertainty website.[2]

Variables and measures

Dependent variables

Efficiency measures include more than one input and one output of a bank. Indeed, bank efficiency involves a surplus of profitability, larger amounts of incoming funds, affordable prices, and quality services for clients (Berger 1993). To measure bank efficiency, we use the frontier efficiency approach estimated using the nonparametric data envelope analysis (DEA) method based on mathematical programming. We use the DEA method because it is widely used and accepted, and it does not require particularly strong constraints (Pedraja-Chaparro et al. 1997).

Our first efficiency measure is TE, referencing Banker et al. (1984), who used input-oriented DEA with variable returns to scale to measure banks' TE. This method allows us to capture how bank management organizes staff, fixed assets, and other inputs to generate a certain output (Adesina 2019). Based on the linear programming model, we determine TE by solving the following equation (Coelli et al. 2005a, b):

$$
\begin{aligned}
&Min\theta = \theta^* \\
&\text{subject to}: \sum_{j=1}^{n} \lambda_j x_{ij} \leq \theta x_{i0} \quad i = 1, 2, \ldots, m; \\
&\sum_{j=1}^{n} \lambda_j y_{rj} \geq y_{r0} \quad r = 1, 2, \ldots, s; \\
&\sum_{j=1}^{n} \lambda_j = 1, \\
&\lambda_j \geq 0 \quad j = 1, 2, \ldots, n
\end{aligned}
\tag{1}
$$

[1] www.prsgroup.com

[2] www.policyuncertainty.com

With the following variable definitions: θ: A scalar indicating the TE of bank *j*, x_{i0}: The consumed amount of the *i*th output, x_{ij}: The produced amount of the i^{th} output, y_{r0}: The consumed amount of the r^{th} output, y_{rj}: The produced amount of the r^{th} output, λ_j: a vector of weights, *m*: number of inputs, *s*: number of outputs.

We employ the intermediation approach for inputs, which considers banks as intermediaries between depositors and borrowers. Following Yue et al. (2013), and Adesina (2019), we choose input variables, including total fund financing (measured by total deposits plus total borrowed funds), personnel overhead, fixed assets, and loan loss provisions.

We also select total loans, other earning assets, and off-balance sheet items as outputs. We include off-balance sheet items because they capture nontraditional activities (Hakimi et al. 2012). Indeed, although off-balance sheet items are not technically paid assets, they represent a growing source of bank income and should therefore be included in the modeling of bank cost characteristics to avoid undermining the total output. According to Isik and Hassan (2002), the exclusion of off-balance sheet items from production bank specifications leads to a significant deterioration in the efficiency scores and average productivity of the entire industry. Specifically, the extent of the bias is more pronounced among banks that are more involved in nontraditional activities, for which the deterioration in efficiency levels is higher.

CE measures the cost that banks incur to produce outputs, referring to the minimum cost charged by the best bank operating under the same conditions to produce these same outputs.

We estimate CE using the formula proposed by Coelli et al. (2005a, b) as follows:

$$
\begin{aligned}
&Min_{\lambda,x_0^*} \sum_{i=1}^{m} w_i x_0^* \\
&\text{subject to} : \sum_{j=1}^{n} \lambda_j x_{ij} \leq x_0^* \quad i = 1, 2, \ldots, m; \\
&\sum_{j=1}^{n} \lambda_j y_{rj} \geq y_{r0} \quad r = 1, 2, \ldots, s; \\
&\sum_{j=1}^{n} \lambda_j = 1, \\
&\lambda_j \geq 0 \quad j = 1, 2, \ldots, n
\end{aligned}
\tag{2}
$$

With the following variable definitions:w_i: A vector of input prices representing the cost-minimizing vector of input quantities for given input prices (w_i) and output levels (y_{r0}). x_0^* : the *i*th input that minimizes cost

According to Farrell (1957), efficiency involves both TE and AE. Notably, CE is a measure of the proportional decrease in costs that can occur when a bank is technically and allocatively efficient. Bank TE refers to the ability to avoid loss by producing as much output as the use of inputs allows or by using as few inputs as possible as the production of outputs

allows (Fried et al. 1993). A bank is technically inefficient if it uses excessive inputs compared to the output produced. AE implies that the bank minimizes total production costs and does so in a manner that is socially optimal by allocating an appropriate selling price or implementing an acceptable pricing policy. A bank is more allocative-efficient if it applies the right mix of inputs (given existing input prices) to produce a fixed quantity of output with lower costs.

To calculate AE, we use the following form:

$$AE = CE/TE \tag{3}$$

Dependent variables

We focus on identifying different dimensions for CEO and board directors' political connections, using the following three dummy variables:

Aggregate political connections (A_PC): A dummy variable that takes one if the bank is politically connected through the CEO and/or the board of directors.

CEO political connections (CEO_PC): A dummy variable that takes one if the CEO is politically connected.

Board of directors' political connections (BD_PC): A dummy variable that takes one if the board of directors (except when the CEO is the chairman) is politically connected.

Control variables

Following multiple studies, factors representing both bank- and country-specific characteristics that may affect bank efficiency are controlled for.

For bank-related control variables, we control for bank size (**SIZE**) (Mamatzakis et al. 2015; Elfeituri 2017), bank capital adequacy (**CAR**) (Chortareas et al. 2013), credit risk (**CRD_RQ**) (Ariff and Can 2008), profitability (**PROF**) (Ariff and Can 2008), banking sector concentration (**BAN_CON**) (Ben Naceur et al. 2011), and banking sector development (**DOM_CR**).

For country-related control variables, we consider countries' economic growth (**GDP_GR**) (Athanasoglou et al. 2006), the inflation rate (**INF**) (Grigorian and Manole 2002; Andries 2011), political risk (**POL_RISK**) (Athari and Irani 2022) economic uncertainty (**WEPU**) (Ahir et al. 2018; Memon et al. 2020), and the COVID-19 pandemic (**PAND_CRIS**). A detailed presentation of variables is presented in Table 10 in "Appendix".

Econometric specification

We use tobit regression to test our hypotheses, which is a statistical model used to estimate the relationship between a limited dependent variable (efficiency) and a vector of independent and control variables. The tobit model is warranted when the dependent variable is censored (i.e., when some values are observed above or below a certain threshold, but not in the remainder of the data). This model is also used for censored regression models for which the expected errors are not equal to zero. Therefore, estimation with an ordinary least squares (OLS) regression would lead to a biased parameter

estimate since OLS assumes a normal and homoscedastic distribution of disturbance and the dependent variable (Maddala 1983). This is not the case for the efficiency scores generated from DEA estimations with a left limit of zero and a right limit of one.

In this study, estimation is based on applying a random effects tobit regression model. We use random effects because of the importance of time-invariant regressors (political connections) in our model.

$$\begin{aligned}\text{BANK EFFICIENCY} =& \text{POLITICAL CONNECTIONS} + \text{Bank Control Variables} \\ &+ \text{Country Level Control Variables}\end{aligned} \tag{4}$$

The regression model is used separately for the three variables of bank efficiency (CE, TE, and AE) and the three variables of political connections (A_PC, CEO_PC, and BD_PC).

Results and discussion

Descriptive statistics

A summary of descriptive statistics is presented in Table 2. As shown in the first three lines, about half of our sample is politically connected. The mean of A_PC is 44.7%, and varies across countries. Notably, Turkish banks seem to be the least connected (27.6%), while U.A.E. banks exhibit the highest proportion of bank political connections (60.69%) (see Table 1).

Table 2 Descriptive statistics

Variable	Mean	Std. Dev	Min	Max
A_PC	0.447			
CEO_PC	0.216			
BD_PC	0.398			
CE	0.212	0.202	0	1
TE	0.288	0.151	0	1
AE	0.734	0.328	0	1
SIZE	12.087	2.52	6.38	18.887
CAR	0.111	0.158	−0.285	0.774
CRD_RQ	0.078	0.191	0.032	0.861
PROF	0.046	0.232	−0.05	0.814
BAN CON (%)	84.235	13.499	61.026	100
DOM_CR (%)	62.066	26.138	3.779	136.996
GDP_GR (%)	2.621	4.502	−25.908	23.592
INF	0.038	0.109	−0.057	23.534
POL_RISK	0.61	0.093	0.354	0.742
WEPU	0.155	0.163	0	1.105

This table presents descriptive analyses of all variables used in our baseline models, reporting only the mean for dummy variables. See variable definitions in Table 10 in "Appendix"

Table 3 Pairwise correlation

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) A_PC	1.000													
(2) CEO_PC	0.636*	1.000												
	(0.000)													
(3) BD_PC	0.604*	− 0.251*	1.000											
	(0.000)	(0.000)												
(4) SIZE	0.039	0.081*	− 0.074*	1.000										
	(0.179)	(0.004)	(0.009)											
(5) CAR	0.154*	0.107*	0.126*	− 0.145*	1.000									
	(0.000)	(0.000)	(0.000)	(0.000)										
(6) CRD_RQ	0.029	− 0.002	0.008	0.055*	− 0.246*	1.000								
	(0.374)	(0.950)	(0.803)	(0.042)	(0.000)									
(7) PROF	0.034	0.008	0.042	− 0.009	0.030	− 0.013	1.000							
	(0.259)	(0.779)	(0.156)	(0.710)	(0.235)	(0.636)								
(8) BAN_CON	0.018	− 0.110*	0.108*	− 0.067*	0.058*	− 0.013	0.007	1.000						
	(0.557)	(0.000)	(0.000)	(0.007)	(0.025)	(0.642)	(0.775)							
(9) DOM_CR	0.165*	0.142*	0.085*	− 0.087*	0.005	0.275*	0.041	− 0.037	1.000					
	(0.000)	(0.000)	(0.012)	(0.001)	(0.854)	(0.000)	(0.149)	(0.159)						
(10) GDP_GR	− 0.002	− 0.027	0.016	− 0.035	− 0.106*	0.039	− 0.047	− 0.002	− 0.304*	1.000				
	(0.946)	(0.338)	(0.566)	(0.127)	(0.000)	(0.156)	(0.054)	(0.940)	(0.000)					
(11) INF	− 0.120*	− 0.084*	− 0.063*	0.141*	− 0.048*	− 0.209*	0.015	− 0.047*	− 0.393*	− 0.286*	1.000			
	(0.000)	(0.003)	(0.027)	(0.000)	(0.046)	(0.000)	(0.525)	(0.036)	(0.000)	(0.000)				
(12) POL_RISK	0.136*	0.124*	0.032	− 0.228*	− 0.069*	0.263*	− 0.060*	0.125*	0.407*	− 0.038	− 0.285*	1.000		
	(0.000)	(0.000)	(0.281)	(0.000)	(0.006)	(0.000)	(0.017)	(0.000)	(0.000)	(0.100)	(0.000)			
(13) WEPU	− 0.018	− 0.008	− 0.003	0.007	− 0.030	0.085*	0.051*	− 0.046*	− 0.018	− 0.049*	− 0.001	–0.126*	1.000	
	(0.539)	(0.772)	(0.904)	(0.756)	(0.205)	(0.002)	(0.035)	(0.038)	(0.482)	(0.028)	(0.956)	(0.000)		
(14) PAND_CRIS	0.035	0.002	0.019	0.075*	0.053*	− 0.052	− 0.068*	0.027	0.093*	− 0.404*	0.139*	− 0.020	− 0.018	1.000
	(0.216)	(0.946)	(0.494)	(0.001)	(0.028)	(0.054)	(0.005)	(0.225)	(0.000)	(0.000)	(0.000)	(0.382)	(0.431)	

This table reports the correlation matrix of independent variables used in the regressions. * denotes $p < 5\%$

Regarding the type of political connection, the results indicate that 21.6% have politically connected CEOs (CEO_PC), whereas 39.8% have politically connected directors (BD_PC).

For efficiency scores, the mean TE score (0.288) is less than that of AE (0.734). Referencing Batir et al. (2017), TE indicates that banks do not use all factor inputs, whereas AE implies the choice of the proper input mix based on prices. We subsequently conclude that the primary source of cost inefficiency is TE.

Table 3 presents the correlation matrix for the study's independent variables. The correlation matrix reveals that all independent variables have low correlations, indicating that there are no serious multicollinearity issues in this study. However, there is high correlation between political connection variables; therefore, these variables are included in the estimations separately.

Main results

Before running our regressions, we use the Granger test to control for reverse causality. The results presented in Table 4 show that Fisher's statics are statistically significant in terms of Granger causality between all independent variables for the different measures of banking efficiency (CE, TE, and AE) in the panel banks. This suggests that historical information regarding the chosen independent variables could be used to predict future information on banking efficiency.

Table 4 Pre-analysis tests

	Granger causality test (f-statistics)			Stationarity tests		
	CE	TE	AE	Levin, Lim and Chu test	Im, Pesaran, and Shin test	Augmented Dickey–Fuller test
CE				12.20***	3.57***	80.93***
TE				10.62***	3.80***	74.03***
AE				17.62***	6.14***	60.88***
A_PC	3.01***	2.05**	2.33**	15.50***	7.36***	76.83***
CEO_PC	2.59***	2.20**	1.88*	9.35***	8.51***	54.56***
BD_PC	2.22**	1.89*	1.61	18.86***	3.48***	79.04***
SIZE	2.34**	1.99**	1.79*	13.97***	5.54***	68.85***
CAR	2.63***	2.24**	2.01*	16.32***	4.57***	60.38***
CRD_RQ	1.98**	1.68*	1.51	18.47***	3.41***	77.42***
PROF	1.78*	1.97**	1.36	13.68***	5.42***	67.44***
BAN_CON	1.91*	1.82*	1.46	15.98***	4.47***	59.15***
DOM_CR	2.23**	2.03**	1.71*	11.03***	6.42***	74.15***
GDP_GR	2.47**	2.10**	1.89*	8.09***	5.51***	81.49***
INF	4.67***	3.97***	2.47**	9.07***	9.07***	93.89***
POL_RISK	3.54***	3.01***	2.31**	6.14***	8.40***	74.04***
WEPU	2.21**	1.03	1.65*	15.82***	7.44***	78.21***

This table reports Granger causality and stationarity tests

We next test the stationarity of the panel data using three different methods to test the null hypothesis (H0) of the presence of a unit root. At level, the result in Table 4 indicates the absence of a unit root for most variables.

Table 5 presents the results of our main regression. Columns 1, 2, and 3 display the results of the models testing the effect of aggregated political connections (A_PC) on CE, TE, and AE (H1). Columns 4, 5, and 6 present the results of the models testing the effect of CEO _PC on CE, TE, and AE (H2), respectively, and the last three columns present the results of the models testing the effect of BD _PC on CE, TE, and AE, respectively (H3).

The coefficients of A_PC in Table 5 are negative and significant in model (1) ($\beta = -0.064$, $p < 1\%$), model (2) ($\beta = -0.072$, $p < 1\%$), and model (3) ($\beta = -0.063$, $p < 10\%$). This finding supports H1, suggesting that political connections decrease bank efficiency.

Table 5 Main results (tobit regressions)

Variables	CE (1)	TE (2)	AE (3)	CE (4)	TE (5)	AE (6)	CE (7)	TE (8)	AE (9)
A_PC	−0.064***	−0.072***	−0.063*						
	(−3.82)	(−2.88)	(−1.92)						
CEO_PC				−.0.044***	−0.032***	0.052			
				(−3.07)	(−2.57)	(1.17)			
BD_PC							−0.025*	−0.011*	−0.043*
							(−1.69)	(−1.77)	(−1.75)
SIZE	−0.058***	−0.057***	−0.045***	−0.057***	0.059***	−0.044***	−0.058***	−0.056***	−0.043***
	(−4.11)	(−4.98)	(−4.82)	(−4.61)	(−4.76)	(−3.82)	(−4.72)	(−3.22)	(−3.73)
CAR	−0.054**	−0.123***	0.005	−0.055**	−0.117***	0.005	−0.057**	−0.116***	0.008
	(−2.30)	(−6.33)	(0.04)	(−2.29)	(−6.32)	(0.04)	(−2.37)	(−4.16)	(0.08)
CRD_RQ	−0.041**	−0.062***	−0.255**	−0.043**	−0.055***	−0.247**	−0.042**	−0.058***	−0.258**
	(−2.10)	(−3.50)	(−2.35)	(−2.16)	(−3.19)	(−2.30)	(−2.15)	(−3.65)	(−2.41)
PROF	0.279***	0.002	0.394***	0.278***	0.002	0.393***	0.278***	0.001	0.390***
	(3.06)	(0.36)	(3.95)	(3.13)	(0.41)	(4.03)	(3.28)	(1.01)	(3.97)
BAN_CON	0.001	0.001**	−0.001	0.001	0.002**	−0.001	0.001	0.001**	−0.001
	(1.09)	(2.19)	−0.80	(1.02)	(2.45)	(−0.69)	(1.07)	(2.02)	(− 0.86)
DOM_CR	0.002	0.002***	0.001*	0.001*	0.001***	0.001*	0.001*	0.001***	0.001*
	(1.55)	(3.29)	(1.77)	(1.72)	(1.13)	(1.89)	(1.68)	(2.68)	(1.79)
GDP_GR	0.003**	0.001	0.015***	0.003***	0.001	0.015***	0.003***	0.001	0.015***
	(2.80)	(1.03)	(3.69)	(2.79)	(0.96)	(3.67)	(2.91)	(1.03)	(3.71)
INF	−0.187**	0.044	0.283	−0.194***	0.041	0.294	−0.201***	0.037	0.320
	(−2.53)	(0.99)	(0.96)	(− 2.69)	(0.96)	(1.01)	(− 2.71)	(1.56)	(1.11)
POL_RISK	−0.137*	−0.064	−0.634*	−0.136**	−0.077	−0.633*	−0.137**	−0.057	−0.69*
	(−1.98)	(−1.13)	(−1.71)	(−2.01)	(−1.36)	(−1.72)	(−2.04)	(−1.53)	(−1.89)
WEPU	−0.026**	0.007	−0.032	−0.027**	0.006	− 0.033	− 0.027**	0.007	− 0.026
	(−2.01)	(0.70)	(−0.61)	(−2.11)	(0.64)	(−0.63)	(−2.13)	(0.98)	(−0.51)
PAND_CRIS	−0.006*	−0.005**	−0.014	−0.007*	−0.006***	−0.009**	−0.006***	−0.005*	−0.013***
	(−1.75)	(−2.17)	(−0.44)	(−1.78)	(−2.88)	(−2.38)	(−2.78)	(−1.89)	(−2.88)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table reports random effect tobit regression results for the effect of political connections (A_PC, CEO_PC, and BD_PC) on bank efficiency (CE, TE, and AE) over the 2008–2021 period. t-values are in parentheses

***, **, and * denote 1%, 5%, and 10% significance levels, respectively. See variable definitions in Table 10 in "Appendix"

CEO political connections (CEO_PC) have a negative and significant coefficient, as shown in model (4) ($\beta = -0.044$, $p < 1\%$) and model (5) ($\beta = -0.032$, $p < 1\%$). This finding indicates that CEO political connections decrease bank CE and TE, supporting H2. This leads to our conclusion that when banks are managed by politically connected CEOs, they exhibit low efficiency.

A negative coefficient of directors' political connections (BD_PC) is also evident in models (7) ($\beta = -0.025$, $p < 10\%$), model (8) ($\beta = -0.011$, $p < 10\%$), and model (9) ($\beta = -0.043$, $p < 10\%$). These coefficients are statistically significant at the 10% level, supporting H3.

Discussion

Our main findings indicate that political connections decrease bank efficiency, supporting H1. Cost inefficiency appears to be induced by technical inefficiency (the coefficient of AE is marginally significant) resulting from the use of an excessive level of inputs compared with the level of output produced. This suggests that politically connected banks do not minimize costs due to insufficient managerial efforts, lack of profit-maximizing behavior, or wasteful expenditure. Furthermore, connected banks use resources to support political and social goals at the expense of efficiency.

In addition, CEO political connections decrease bank CE and TE, supporting H2. Therefore, CEOs' political connections facilitate the implementation of the ruling political party's agenda and personal benefits obtained from powerful managers (Ahmed et al. 2016). This finding supports agency theory, which predicts that agency problems are more severe when managers hold power over owners, such as the power gained through political connections. Moreover, the decisions of politically connected CEOs favor maintaining political reputation and opportunities for further promotion. Consequently, politically connected CEOs are keen to preserve their political reputations, which reduces incentives for enhancing bank efficiency.

Finally, our results demonstrate that politically connected board directors marginally affect bank efficiency, providing evidence to accept H3. The presence of politically connected directors decreases CE and TE by inefficiently catering to politicians' priorities such as the pursuit of individual goals, transferring financial resources to supporters (Shleifer 1998), or ensuring loans and lower interest rates for politically connected firms (Dinç 2005; Claessens et al. 2008), generating more nonperforming loans (El-Chaarani and Abraham 2022). Furthermore, politically connected directors globally assess political reputations and personal benefits. Although political reputation is an important concern when bank efficiency decreases, politically connected directors do not compromise to avoid decreased efficiency. A decrease in efficiency also raises opportunity costs when banks lose access to benefits induced by political connections.

Table 6 Additional test: Monarchies vs. Republican countries

Variables	CE (1)	TE (2)	AE (3)	CE (4)	TE (5)	AE (6)	CE (7)	TE (8)	AE (9)
Panel A: Monarchist countries									
A_PC	−0.017*	−0.042**	−0.035						
	(−1.78)	(−1.98)	(−1.32)						
CEO_PC				−0.008**	−0.021*	0.052			
				(−2.24)	(−1.93)	(0.66)			
BD_PC							0.006*	0.004**	0.081****
							(1.82)	(2.45)	(2.78)
SIZE	−0.065***	−0.072***	−0.032	−0.054***	−0.069***	−0.019	−0.045***	−0.068***	−0.019
	(−3.42)	(−6.12)	(−1.03)	(−5.98)	(−5.84)	(−0.88)	(−3.97)	(−4.87)	(−0.74)
CAR	−0.095**	−0.179***	0.101	−0.089**	−0.17***	0.105	−0.093**	−0.171***	0.101
	(−2.02)	(−5.84)	(0.57)	(−2.22)	(−5.39)	(0.57)	(−2.31)	(−5.35)	(0.55)
CRD_RQ	−0.034	−0.099***	−0.251	−0.032	−0.094***	−0.232	0.031	−0.098***	−0.266
	(−1.08)	(−0.94)	(−0.56)	(−0.92)	(−0.89)	(−0.51)	(1.11)	(1.07)	(−0.63)
PROF	0.289***	0.007	0.357***	0.29***	0.007	0.361***	0.295***	0.007	0.355***
	(3.96)	(0.86)	(9.58)	(3.22)	(0.94)	(9.69)	(3.14)	(0.86)	(6.59)
BAN_CON	−0.004	0.001	−0.001	−0.001	0.003	−0.001	0.002	0.001	−0.001
	(−0.07)	(1.31)	(−0.44)	(−0.25)	(1.21)	(−0.24)	(1.19)	(1.26)	(−0.47)
DOM_CR	0.001*	0.001***	0.002*	0.003*	0.001***	0.002*	0.002	0.001***	0.002*
	(1.73)	(3.72)	(1.82)	(1.73)	(3.58)	(1.84)	1.64	(3.71)	(1.82)
GDP_GR	0.001	0.002	0.012**	0.002	0.003	0.013**	0.002	0.001	0.013**
	(0.89)	(0.43)	(2.12)	(1.15)	(0.49)	(2.32)	(1.10)	(0.54)	(2.35)
INF	−0.392*	−0.296**	−0.865	−0.333*	−0.273**	−0.583	−0.314	−0.284**	−0.591
	(−1.89)	(−2.15)	(−1.07)	(−1.69)	(−2.06)	(−0.76)	(−1.59)	(−2.14)	(−0.78)
POL_RISK	−0.263**	−0.036	'−0.06	−0.28**	−0.001	−0.077	−0.284**	−0.017	−0.161
	(−2.25)	(−0.28)	(−1.18)	(−2.30)	(−0.01)	(−1.21)	(−2.33)	(−0.13)	(−1.31)

Table 6 (continued)

Variables	CE (1)	TE (2)	AE (3)	CE (4)	TE (5)	AE (6)	CE (7)	TE (8)	AE (9)
WEPU	−0.067***	−0.031*	0.028	−0.078***	−0.025*	0.032	−0.069***	−0.029*	0.053
	(−3.32)	(−1.68)	(0.35)	(−3.42)	(−1.66)	(0.43)	(−3.40)	(−1.78)	(0.63)
PAND_CRIS	−0.016**	−0.006***	−0.005**	−0.017**	−0.005**	−0.001***	−0.012**	−0.005**	−0.001***
	(−2.56)	(−2.36)	(−2.12)	(−2.25)	(−2.42)	(−3.11)	(−2.51)	(−2.39)	(−2.95)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: Republican countries									
A_PC	−0.018***	−0.003***	−0.011						
	(−3.15)	(−3.52)	(−1.31)						
CEO_PC				−0.018**	−0.002**	−0.053			
				(−2.24)	(−2.06)	(−1.59)			
BD_PC							−0.019***	−0.013**	0.001
							(*3.71)	(−2.45)	(0.11)
SIZE	−0.058***	−0.048***	−0.08***	−0.08***	−0.048***	−0.058***	−0.081***	−0.045***	−0.058***
	(−4.21)	(−3.88)	(−5.73)	(−5.88)	(−4.55)	(−5.11)	(−4.88)	(−5.39)	(−5.85)
CAR	−0.109*	−0.177***	−0.279**	−0.123*	−0.174***	−0.295**	−0.087	−0.171***	−0.296**
	(−1.97)	(−3.07)	(−2.11)	(−1.87)	(−3.98)	(−2.21)	(−1.94)	(−8.41)	(−1.98)
CRD_RQ	−0.158**	−0.231***	−0.725**	−0.159**	−0.232***	−0.763***	−0.115*	−0.254***	−0.684***
	(−2.22)	(−6.33)	(−3.98)	(−2.29)	(−7.02)	(−4.67)	(−1.72)	(− −7.96)	(−4.26)
PROF	0.293***	0.008	0.512***	0.291***	0.008	0.495***	0.282***	0.009*	0.511***
	(3.17)	(1.56)	(5.23)	(4.52)	(1.51)	(4.58)	(3.06)	(1.79)	(5.45)
BAN_CON	0.002	−0.003	0.005	0.002	−0.003	0.005	0.002	−0.004	0.005
	(0.93)	(−0.34)	(0.73)	(1.04)	(−0.20)	(0.76)	(1.10)	(−0.42)	(0.75)
DOM_CR	0.001**	0.002	0.001	0.001**	0.003	0.001	0.001**	−0.002	0.001
	(2.16)	(0.01)	(0.55)	(2.44)	(0.12)	(0.62)	(2.54)	(−0.24)	(0.61)

Table 6 (continued)

Variables	CE (1)	TE (2)	AE (3)	CE (4)	TE (5)	AE (6)	CE (7)	TE (8)	AE (9)
GDP_GR	0.004	0.002	0.018	0.003	0.002	0.017	0.003	0.002	0.017
	(0.68)	(0.99)	(1.32)	(0.54)	(0.90)	(1.26)	(0.51)	(1.27)	(1.29)
INF	−0.007	−0.006	0.328*	−0.014	−0.008	0.301*	−0.007	−0.009	0.327*
	(−0.12)	(−0.26)	(1.91)	−0.24	(−0.37)	(1.85)	(−0.13)	(−0.40)	(1.91)
POL_RISK	0.002	−0.004	−0.111	−0.004	−0.004	−0.121	−0.005	−0.003	−0.115
	(0.05)	(−0.31)	(−1.18)	(−0.12)	(−0.29)	(−1.30)	(−0.13)	(−0.26)	(−1.21)
WEPU	−0.033	−0.023**	−0.141*	−0.035	0.0270**	−0.143*	−0.034	−0.027**	−0.149*
	(−0.89)	(−2.46)	(−1.78)	(−0.95)	(2.31)	(−1.77)	(−0.92)	(−2.46)	(−1.92)
PAND_CRIS	−0.691***	−0.109**	0.105**	−0.641***	−0.103**	−0.34**	0.655***	−0.107**	0.802**
	(−3.64)	(−2.37)	(2.50)	(−3.88)	(−2.31)	(−2.41)	(−3.87)	(−2.45)	(−2.47)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table reports random effect tobit regression results for the effect of political connections (A_PC, CEO_PC, and BD_PC) on bank efficiency (CE, TE, and AE) over the 2008–2021 period. Panel A presents the results for monarchies (Bahrain, Jordan, Kuwait, Morocco; Oman; Qatar; Saudi Arabia, and U.A.E.) and Panel B reports those for republican countries (Egypt, Lebanon, Tunisia, and Turkey). t−values are in parentheses

***, **, and * denote 1%, 5%, and 10% significance levels, respectively. See variable definitions in Table 10 in "Appendix"

Consequently, there are some undesirable facets of such ties, such as politically connected directors not helping CEOs overcome the uncertainties regarding bank efficiency. Additionally, regarding the impact of each type of political connection, the effect of politically connected CEOs on bank efficiency is more significant than that of politically connected directors.

Overall, our findings support the agency costs perspective, which assumes a harmful role of political ties, as confirmed by the findings of Ghosh (2023) and Markgraf and Rosas (2019). The findings also support those of previous studies that revealed the negative effects of political connections on asset quality (Duong et al. 2022), capital structure (Ahmed and McMillan 2021), and bank performance in emerging countries (Haris et al. 2019; El Ammari 2022).

Our findings are also consistent with those of Abdessallem et al. (2017), who found that political connections decreased TE during the financial crisis. Political connections decrease CE and TE in a poor legal framework like that in the MENA region, and are conducive to bank expropriation because they facilitate off-books transactions in favor of politicians.

Additional tests

Monarchies versus republican countries

To deepen our analysis, we rerun the regression by distinguishing between republican countries and monarchies. As noted in "Institutional background" section, Egypt, Lebanon, Tunisia, and Turkey opted for republican regimes following their independence, while the rest of the countries remained monarchies governed by the same families that dominate the business environment. The results are presented in Table 6. In Panel A, we report the results for monarchies and republican countries are reported in Panel B.

Globally, we report similar evidence for the two subsamples for A_PC and CEO_PC; however, the effect of BD_PC is positive (negative) for monarchies (republics); therefore, as the political connections of directors in monarchies reflect the ruling families, they are more careful regarding their reputations than other types of politicians, leading to enhanced bank efficiency.

Crisis periods versus non crisis period

During our sample period ranging from 2008 to 2021, banking systems around the world experienced two major crises, the 2008–2009 global financial crisis and the COVID-19 pandemic (2020–2021). During a crisis, governments are confronted with several challenges, one of which is gaining the confidence of several parties—primarily banks. If banks resist and do not accept the government's rescue plan, the government will have difficulty with financing when needing immediate funds. The presence of politically connected individuals in hard times indicates that efficiency concerns outweigh redistributive ambitions. Political career concerns are one of the primary motivations of such individuals, who are motivated to demonstrate their ability to overcome the crisis through political connections and not (only) to implement policies

Table 7 Additional test: Crisis periods vs. noncrisis period

Variables	CE (1)	TE (2)	AE (3)	CE (4)	TE (5)	AE (6)	CE (7)	TE (8)	AE (9)
Panel A: 2008–2009 subperiod (financial crisis period)									
A_PC	−0.006	−0.006*	−0.024						
	(−1.42)	(−1.85)	(−1.08)						
CEO_PC				−0.006*	−0.015	−0.045			
				(−1.85)	(−0.86)	(−1.60)			
BD_PC							−0.033*	−0.004	−0.006
							(−1.86)	(−0.85)	(−0.34)
SIZE	0.064***	0.052***	0.113***	0.056***	0.049***	0.114***	0.054***	0.046***	0.114***
	(7.98)	(3.71)	(3.70)	(6.66)	(3.28)	(3.92)	(7.87)	(3.45)	(3.45)
CAR	−0.037***	−0.073	0.09	−0.037***	−0.068	0.095	−0.036***	−0.075	0.09
	(−5.49)	(−1.32)	(1.33)	(−5.52)	(−1.23)	(1.40)	(−5.35)	(−1.36)	(1.32)
CRD_RQ	0.019**	−0.063	−0.228***	0.019**	−0.063	−0.223***	0.02**	−0.066	−0.231***
	(1.97)	(−1.51)	(−2.62)	(1.97)	(−1.50)	(−2.58)	(2.05)	(−1.59)	(−2.62)
PROF	0.116*	−0.064	0.245*	0.127*	0.01	0.459**	0.12*	−0.095	0.25*
	(1.69)	(−0.17)	(1.91)	(1.84)	(0.03)	(2.21)	(1.71)	(−0.24)	(1.88)
BAN_CON	0.001	0.001	0.002	0.001	0.001	0.002	0.001	0.001	0.002
	(0.17)	(0.97)	(1.54)	(0.10)	(0.90)	(1.44)	(0.32)	(0.93)	(1.56)
DOM_CR	−0.002**	0.001	−0.001	−0.001**	0.001	−0.001	−0.002**	0.001	−0.001
	(−2.41)	(0.45)	(−1.06)	(−2.42)	(0.35)	(−1.27)	(−2.45)	(0.40)	(−1.12)
GDP_GR	−0.001	0.002	−0.002	−0.003	0.002	−0.002	−0.003	0.002	−0.002
	(−1.05)	(0.84)	(−0.84)	(−1.30)	(0.88)	(−0.89)	(−1.08)	(0.82)	(−0.88)
INF	−0.058*	−0.213	−0.872**	−0.057*	−0.217	−0.83**	−0.059*	−0.223	−0.872**
	(−1.86)	(−0.82)	(−2.50)	(−1.84)	(−0.91)	(−2.37)	(−1.95)	(−0.87)	(−2.50)
POL_RISK	0.002	0.153	0.423*	0.005	0.15	0.416*	0.005	0.165	0.455*
	(0.06)	(1.12)	(1.77)	(0.18)	(1.10)	(1.85)	(0.18)	(1.21)	(1.91)

Table 7 (continued)

Variables	CE (1)	TE (2)	AE (3)	CE (4)	TE (5)	AE (6)	CE (7)	TE (8)	AE (9)
WEPU	0.006	0.002	−0.036	0.006	0.004	−0.031	0.005	0.002	−0.041
	(1.28)	(0.06)	(−0.72)	(1.38)	(0.09)	(−0.63)	(1.16)	(0.05)	(−0.82)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel B: 2010–2019 subperiod (noncrisis period)									
A_PC	−0.005***	−0.009**	−0.054*						
	(−2.61)	(−2.36)	(−1.92)						
CEO_PC				−0.001***	−0.001***	0.049			
				(−3.15)	(−3.17)	(0.85)			
BD_PC							−0.016***	−0.003**	0.009
							(−2.71)	(−2.39)	(0.39)
SIZE	−0.069***	−0.068***	−0.041***	−0.069***	−0.068***	−0.041***	−0.069	−0.068***	−0.04***
	(−3.26)	(−3.14)	(−2.80)	(−3.69)	(−3.89)	(−2.86)	(−3.86)	(−3.08)	(−2.88)
CAR	−0.059	−0.14***	−0.084	−0.064*	−0.14***	−0.08	−0.064	−0.14***	−0.081
	(−1.51)	(−8.77)	(−0.69)	(−1.69)	(−9.01)	(−0.61)	(−1.74)	(−8.81)	(−0.69)
CRD_RQ	0.032	−0.058***	−0.339**	0.034	−0.059***	−0.312**	0.041	−0.048***	−0.335**
	(1.12)	(−3.51)	(−2.34)	(1.25)	(−3.46)	(−2.36)	(1.22)	(−3.47)	(−2.39)
PROF	0.273***	0.002	0.385***	0.263***	0.003	0.382***	0.284	0.005	0.385***
	(3.09)	(0.48)	(3.24)	(3.32)	(0.33)	(3.31)	(3.41)	(0.35)	(3.30)
BAN_CON	−0.003	−0.003	−0.001	−0.003	−0.003	−0.003	−0.005	−0.006	−0.007
	(−0.39)	(−0.26)	(−1.11)	(−0.59)	(−0.46)	(−0.81)	(−0.41)	(−0.19)	(−1.22)
DOM_CR	0.001	0.002***	0.001	0.002*	0.003***	0.002	0.002*	0.005***	0.002
	(1.59)	(4.56)	(0.58)	(1.75)	(4.48)	(0.52)	(1.75)	(4.46)	(0.56)
GDP_GR	0.008***	0.001	0.02***	0.008***	0.001	0.021***	0.008	0.001	0.021***

Table 7 (continued)

Variables	CE (1)	TE (2)	AE (3)	CE (4)	TE (5)	AE (6)	CE (7)	TE (8)	AE (9)
	(3.70)	(0.46)	(3.01)	(3.81)	(0.56)	(3.18)	(3.79)	(0.57)	(3.20)
INF	−0.355***	0.076***	0.359	−0.354***	0.07**	0.389	−0.362	0.07***	0.394
	(−3.29)	(2.73)	(0.97)	(−3.35)	(2.56)	(1.07)	(−3.40)	(2.58)	(1.08)
POL_RISK	−0.195**	0.014	−0.121	−0.193**	0.026	−0.203**	−0.191	0.026	−0.246**
	(−1.98)	(0.24)	(−2.15)	(−1.97)	(0.46)	(−2.35)	(−1.97)	(0.46)	(−2.44)
WEPU	−0.022	−0.023	0.031	−0.021	−0.028	0.029	−0.024	−0.001	0.04
	(−1.10)	(−0.92)	(0.46)	(−1.06)	(−0.07)	(0.44)	(−1.16)	(−0.11)	(0.46)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Panel C: 2020–2021 subperiod (pandemic crisis period)									
A_PC	−0.063***	−0.036***	−0.095***						
	(−5.15)	(−5.26)	(−3.41)						
CEO_PC				−0.029***	−0.021***	−0.025***			
				(−3.02)	(−2.79)	(−2.34)			
BD_PC							−0.025**	−0.029**	−0.016*
							(−2.11)	(−2.08)	(−1.88)
SIZE	0.061***	0.069***	−0.065***	0.067***	0.061***	0.059**	0.068***	0.062***	0.043**
	(5.23)	(4.12)	(−1.09)	(5.00)	(4.10)	(2.17)	(5.31)	(4.30)	(2.17)
CAR	−0.052***	−0.216***	−0.083	−0.052***	−0.236***	−0.613*	−0.056***	−0.211***	−0.511*
	(−3.30)	(−8.01)	(−1.37)	(−3.51)	(−8.15)	(−1.97)	(−3.24)	(−8.02)	(−1.86)
CRD_RQ	0.019	−0.217***	−0.254***	0.007	−0.215***	−0.619***	0.008	−0.211***	−0.611***
	(0.44)	(−6.36)	(−2.60)	(0.27)	(−6.41)	(−3.97)	(0.40)	(−6.49)	(−4.03)
PROF	0.335**	0.411**	0.324**	0.338**	0.433**	0.015	0.337**	0.395**	0.845
	(2.45)	(2.00)	(2.15)	(2.41)	(2.17)	(1.16)	(2.51)	(1.97)	(1.12)

Table 7 (continued)

Variables	CE (1)	TE (2)	AE (3)	CE (4)	TE (5)	AE (6)	CE (7)	TE (8)	AE (9)
BAN_CON	−0.003	−0.001***	−0.002	−0.005	−0.001***	−0.006**	0.001	−0.001***	−0.006***
	(−0.89)	(−3.21)	(−0.81)	(−0.69)	(−3.27)	(−2.41)	(−0.65)	(−3.12)	(−2.71)
DOM_CR	−0.0001	0.001*	−0.003	−0.0001	0.001	−0.002	−0.003	0.001*	−0.002
	(−0.84)	(1.77)	(−0.96)	(−0.73)	(1.56)	(−0.71)	(−0.53)	(1.81)	(−0.59)
GDP_GR	−0.001	0.003**	−0.008	−0.001	0.003*	−0.015	−0.001	0.003	−0.017
	(−0.986)	(2.19)	(−0.69)	(−0.77)	(1.77)	(−1.06)	(−0.67)	(2.11)	(−0.97)
INF	0.312	−0.578***	−0.701	0.165	−0.501***	−0.261	0.142	−0.623	−0.221
	(0.64)	(−3.44)	(−0.89)	(0.29)	(−3.29)	(−0.35)	(0.26)	(−3.74)	(−0.27)
POL_RISK	−0.221	−0.317	0.733	−0.252	−0.341*	0.559	−0.211	−0.368	0.641
	(−1.11)	(−1.56)	(0.47)	(−1.18)	(−1.69)	(0.42)	(−1.04)	(−1.51)	(0.48)
WEPU	0.078	−0.314***	−0.89	0.038	−0.3***	−0.175	.039	−0.328***	−0.137
	(0.69)	(−3.31)	(−0.71)	(0.31)	(−3.21)	(−0.63)	(0.32)	(−3.63)	(−0.52)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

This table reports the random effect tobit regression results for the effect of political connections (A_PC, CEO_PC, and BD_PC) on bank efficiency (CE, TE, and AE). Panel A presents the results for the 2008–2009 subperiod, Panel B for the 2010–2019 subperiod, and Panel C for the 2020–2021 subperiod. t-values are in parentheses

***, **, and * denote 1%, 5%, and 10% significance levels, respectively. See variable definitions in Table 10 in "Appendix"

that allow the government or the ruling political party to maximize their chances of winning the next elections (Alesina and Tabellini 2007). Moreover, in many cases, the presence of politically connected CEOs and/or director's acts as insurance that protects government interests. We posit that the presence of politically connected CEOs and/or directors is more effective in banks during crisis periods than during noncrisis periods.

To test whether our results hold during hard times, we split our period into three subperiods (the 2008–2009 global financial crisis period, the 2010–2019 post-global financial crisis period, and the 2020–2021 COVID-19 crisis period) and rerun Eq. (4) for each subperiod.

For the financial crisis period (Panel A of Table 7), the coefficients of political connection variables are marginally significant. The rationale for this result could be the resistance of the MENA region during the subprime crisis (Boukhris and Nabi 2013; Smolo and Mirakhor 2010) for two reasons. *First*, as the epicenter of this crisis was in the US, the eastern market was less affected. *Second*, the strong presence of Islamic banks in the region alleviated the repercussions of the financial crisis. Estimations for the 2010–2019 noncrisis period are reported in Panel B of Table 7, and the results are qualitatively similar to those reported in Table 5. Finally, Panel C presents the results during the pandemic crisis. The effect of political connections on bank efficiency is evident during COVID-19. We explain our findings based on the costs supported by the government. The first type of cost was generated by the disruption of some activities. The second type of cost relates to repairing (or generally bailing out) the financial sector. These costs are more pronounced during the COVID-19 crisis because this crisis differed considerably from other previous crises (the global financial crisis in our study) for many reasons. *First*, the pandemic has a multifaceted nature with health, economic, and social dimensions (Khanchel et al. 2023b; Khanchel and Lassoued 2022). *Second,* an unprecedented lockdown and severe measures were imposed (Khanchel and Lassoued 2022). Most economic activities were suspended during general lockdown, which was accompanied by an overall drop in demand in general (Khanchel et al. 2023b). *Third*, firms exerted more pressure on banks when seeking external funds, particularly bank loans to meet the dried-up liquidity needs that arose from the health crisis (Halling et al. 2020). *Fourth*, within a short period, many companies were facing bankruptcy, while others hoped to find financial assistance to continue day-to-day business.

Robustness tests

To ensure the robustness of our main results, we apply different sensitivity tests. *First*, to control for sample selection problems, we use Heckman's (1979) two-stage model. In the first stage, a probit model is estimated to predict the likelihood that a firm has political connections. More specifically, a dummy variable representing bank political connections is regressed against the same independent variables used in model (1) along with one instrumental variable representing the bank's political connections. The instrumental variable must economically correlate with political connections but not with bank efficiency. Referencing Saeed et al. (2015) and Boubakri et al. (2012), we use bank location as an instrumental variable, which is a dummy variable taking one if the bank

is located in the two largest cities of the country. In the second stage, we regress bank efficiency on political connections after controlling for bank-specific variables and the inverse Mills ratio obtained from the first regression to control for selection bias. We find consistent results after introducing the inverse Mills ratio in the second stage of the Heckman model.

As shown in Table 8, the coefficients of the inverse Mills ratio are significant in all columns, indicating the reliability of controlling for the endogeneity of political connections; however, our results are similar to the main findings in these models, indicating that our findings are robust to sample selection problems.

Table 8 Robustness test: Heckman's (1979) two-stage model

Variables	CE	TE	AE	CE	TE	AE	CE	TE	AE
A_PC	−0.069***	−0.063***	−0.324***						
	(−3.23)	(−3.11)	(−3.07)						
CEO_PC				−0.216***	−0.481***	−0.332***			
				(−2.76)	(−2.69)	(−2.86)			
BD_PC							−0.105**	−0.306**	0.151
							(−2.26)	(−2.28)	(0.41)
SIZE	−0.058***	−0.056***	−0.083***	−0.058***	−0.082***	−0.059***	−0.058***	−0.057***	−0.081***
	(−5.73)	(−5.62)	(−3.01)	(−6.52)	(−3.22)	(−9.31)	(−4.44)	(−4.51)	(−5.82)
CAR	−0.058**	−0.121***	0.091	−0.081	0.088	−0.137**	−0.056**	−0.124**	0.096
	(−2.37)	(−6.11)	(0.99)	(−1.34)	(0.66)	(−2.08)	(−2.18)	(−2.35)	(1.02)
CRD_RQ	0.032*	−0.073***	−0.163	0.029	−0.151	−0.081	0.030	−0.085**	−0.162*
	(1.71)	(−4.63)	(−1.60)	(1.03)	(−1.45)	(−1.51)	(1.44)	(−2.08)	(−1.79)
PROF	0.272***	−0.008	−0.377***	0.275***	−0.383***	−0.007	0.275***	−0.007	−0.353***
	(8.13)	(−0.96)	(−9.21)	(4.15)	(−3.01)	(−0.81)	(6.23)	(−0.41)	(−9.16)
BAN_CON	0.001	0.001	−0.003**	0.001	−0.003***	0.001	0.001	−0.001	−0.003***
	(0.42)	(0.81)	(−2.36)	(0.18)	(−2.81)	(0.038)	(0.31)	(−0.17)	(−3.08)
DOM_CR	0.001**	0.001***	−0.001	0.0001	−0.001	0.001*	0.001**	0.001**	−0.002
	(2.05)	(6.42)	(−0.65)	(1.21)	(−0.86)	(1.84)	(1.97)	(2.36)	(−0.61)
GDP_GR	0.003**	0.002**	−0.001	0.003	−0.002	0.002	0.003**	0.002	−0.002
	(2.06)	(1.98)	(−0.19)	(0.97)	(−0.37)	(0. 97)	(2.19)	(0.96)	(−0.80)
INF	0.172**	0.031	0.491	0.168	0.566	0.061	0.177**	0.045	0.599
	(2.24)	(0.60)	(1.15)	(1.11)	(1.31)	(0.35)	(2.13)	(0.32)	(1.43)
POL_RISK	−0.106	−0.063	0.106	−0.103	0.183	−0.029	−0.114	−0.021	0.319
	(−1.49)	(−1.07)	(0.27	(−0.75)	(0.47)	(−0.15)	(−1.54)	(−0.15)	(0.89)
WEPU	−0.024*	0.003	−0.015	−0.023	−0.008	0.006	−0.025*	0.003	−0.023
	(−1.87)	(0.26)	(−0.22)	(−0.89)	(−0.11)	(0.17)	(−1.74)	(0.11)	(−0.32)
PAND_CRIS	−0.005***	−0.003**	−0.061***	−0.005**	−0.059***	−0.004**	−0.006***	−0.003**	−0.058***
	(−2.67)	(−2.18)	(−3.01)	(−1.98)	(−2.99)	(−2.22)	(−2.65)	(−2.11)	(−3.01)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Inverse Mills ratio	−0.062	−0.081	0.202	−0.089	−0.078	0.255	−0.126	−0.305	0.325
	(−0.77)	(−0.89)	(1.46)	(−0.97)	(−1.18)	(1.37)	(−0.57)	(−0.84)	(0.96)
Wald χ^2	(501.81)***	(908.12)***	(55.31)***	(388.67)***	(899.4)***	(79.83)***	(493.34)***	(747.09)***	(51.76)***

This table reports the Heckman two-step regression results for the effect of political connections (A_PC, CEO_PC, and BD_PC) on bank efficiency (CE, TE, and AE) for the 2008–2021 period. t-values are in parentheses

***, **, and * denote 1%, 5%, and 10% significance levels, respectively. See variable definitions in Table 10 in "Appendix"

Table 9 Robustness test: generalized method of moments model

	CE	TE	AE	CE	TE	AE	CE	TE	AE
A_PC	−0.042***	−0.053***	−0.166*						
	(−3.43)	(−3.82)	(−1.74)						
CEO_PC				−0.022***	−0.024***	−0.290**			
				(−3.26)	(−3.21)	(−2.41)			
BD_PC							−0.006***	−0.002***	−0.085***
							(−3.12)	(−3.08)	(−3.53)
SIZE	−0.062**	−0.034**	−0.097***	−0.065**	−0.035**	−0.094***	−0.065**	−0.037**	−0.094***
	(−2.45)	(−2.53)	(−3.80)	(−2.44)	(−2.30)	(−3.77)	(−2.43)	(−2.44)	(−3.77)
CAR	−0.139	−0.053	0.271	−0.113	−0.049	0.199	−0.109	−0.05	0.104
	(−0.98)	(−0.70)	(0.65)	(−0.87)	(−0.61)	(0.52)	(−0.85)	(−0.65)	(0.27)
CRD_RQ	−0.001	−0.033***	0.037	−0.003	−0.032***	−0.003	−0.002	−0.028***	0.016
	(−0.05)	(−3.48)	(0.83)	(−0.24)	(−3.21)	(−0.24)	(−0.18)	(−2.77)	(0.33)
PROF	0.122**	−0.021	−0.115	0.107***	−0.0198	−0.151	0.106**	−0.023	−0.134
	(2.48)	(−0.67)	(−0.94)	(2.58)	(−0.61)	(−1.23)	(2.56)	(−0.72)	(−1.12)
BAN_CON	0.002	0.001	0.003	0.004	0.001	0.002	0.003	0.001	0.002
	(−0.20)	(0.71)	(1.18)	(−0.09)	(0.62)	(0.77)	(−0.17)	(0.64)	(0.98)
DOM_CR	0.001	0.001	0.001*	0.001*	0.001	0.0017*	0.001	0.001	0.001*
	(0.18)	(0.47)	(1.77)	(1.61)	(0.41)	(1.81)	(0.10)	(0.49)	(1.77)
GDP_GR	0.004	−0.002	−0.019*	0.004	−0.002	−0.021*	0.004	−0.002	−0.021*
	(0.96)	(−0.93)	(−1.73)	(1.10)	(−0.80)	(−1.87)	(1.07)	(−0.94)	(−1.89)
INF	0.158	0.084	−0.75	0.079	0.098	−0.147	0.113	0.104	−0.346
	(0.69)	(0.90)	(−1.04)	(0.33)	(0.89)	(−0.21)	(0.44)	(1.07)	(−0.46)
POL_RISK	0.134	0.303	0.227	0.035	0.206	0.677	0.058	0.259	0.542
	(.30)	(1.07)	(0.93)	(0.08)	(0.74)	(1.27)	(0.13)	(0.94)	(1.18)
WEPU	−0.013	−0.003	−0.125	−0.031	−0.009	−0.053	−0.03	−0.005	−0.041
	(−0.22)	(−0.11)	(−0.74)	(−0.59)	(−0.31)	(−0.33)	(−0.55)	(−0.16)	(−0.25)
PAND_CRIS	−0.297***	−0.078***	−0.393***	−0.295***	−0.071***	−0.296***	−0.298***	−0.075***	−0.386***
	(−3.25)	(−3.63)	(−3.41)	(−3.49)	(−3.18)	(−3.49)	(−3.62)	(−3.31)	(−3.03)
L.CE	0.0421***			0.047***			0.055***		
	(4.47)			(5.54)			(4.66)		
L.TE		0.095***			0.188***			0.114***	
		(4.31)			(4.62)			(4.307)	
L.AE			0.172***			0.162***			0.185***
			(3.61)			(3.51)			(3.71)
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Country dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
p-value AR(1)	0.1550	0.1904	0.2768	0.1455	0.2031	0.1509	0.1076	0.1820	0.1254
p-value AR(2)	0.9491	0.7894	0.1054	0.8616	0.5962	0.2888	0.9951	0.6474	0.2844
p-value (Hansen test)	0.6842	0.3264	0.6487	0.7901	0.1438	0.7441	0.6223	0.1177	0.8164

This table reports the generalized method of moments results for the effect of political connections (A_PC, CEO_PC, and BD_PC) on bank efficiency (CE, TE, and AE) for the 2008–2021 period. t-values are in parentheses

***, **, and * denote 1%, 5%, and 10% significance levels, respectively. See variable definitions in Table 10 in "Appendix"

Second, to address the potential endogeneity concerns caused by unobserved heterogeneity, simultaneity, and reverse causality, we use the generalized method of moments (GMM). Previous empirical studies have generally recognized the dynamic nature of bank efficiency (Adesina 2019; Otero et al. 2020). Indeed, bank efficiency tends to persist over time. To capture the level of persistence, we use lagged dependent variable coefficients (L.CE, L.TE, and L.AE). Furthermore, bank efficiency is also potentially endogenous in the case of omitted variables or causality between exogenous and endogenous variables. For instance, García-Herrero et al. (2009) emphasized that efficient banks can easily increase their size, tangible assets, and advertising activities, which could make them more efficient. Given the dynamic nature of bank efficiency, and to address endogeneity problems, we test our model using the two-step dynamic GMM of Arellano and Bover (1995) and Blundell and Bond (1998), following Arellano and Bond's (1991) recommendation for panels with small T, large N (like our sample N = 144 and T = 14). The GMM model treats the independent variables as endogenous by orthogonally employing past values as instruments, which allows us to control for possible biases generated by bank-specific unobserved heterogeneity and endogeneity problems. The GMM results are presented in Table 9.

Table 9 indicates that the model is well-fitted with the standard thresholds because the tests for both second-order autocorrelation in second differences (AR2) and Hansen-J statistics are statistically insignificant, demonstrating the absence of second-order autocorrelation and the validity of the instrumental variables.

The results obtained from the dynamic GMM confirm those obtained by our baseline model using tobit regression, confirming that the three forms of political connection negatively affect the three bank efficiency scores. Consequently, our main findings do not appear to be induced by any potential endogeneity or sample selection bias.

Conclusion

The aim of this study is to examine the effect of political connections on bank efficiency in a sample of MENA countries. Specifically, we test whether politically connected directors and/or CEOs affect bank efficiency (CE, TE, and AE). A random effect tobit model estimates the unbalanced panel data of 144 private banks operating in 12 MENA countries observed over the 2008–2021 period.

Our findings indicate that the three measures of political connections (aggregate, CEO, and board of directors' political connections) decrease CE and TE, supporting H1, H2, and H3. These findings imply that cost inefficiency is induced by TE. Specifically, the technical inefficiency of politically connected banks compared to nonconnected banks is due to the use of an excessive level of inputs compared with the level of output produced. This result reveals that political connections facilitate rent-seeking from banks. As regulatory oversight in MENA countries is poor, politically connected CEOs and/or directors expect banks to "pay them back," leading to rent extraction at the expense of bank efficiency. Furthermore, comparing the effect of each type of political connection, CEO political connections exhibit superior explanatory power.

Two additional tests are performed, and our estimations reveal interesting results. *First*, although the effect of aggregate and CEO political connections is the same for banks in monarchist and republican countries, the effect of politically connected directors is positive in banks in monarchies, whereas the effect is negative in banks operating in republican countries. *Second*, examining the effect of two crises on the political connection–bank efficiency relationship, our results indicate that the negative effect was more acute during the COVID-19 crisis than the financial crisis.

Our findings have four relevant implications. *First,* to establish a fair and competitive banking environment, governments of the MENA countries must increase regulatory control over banks. *Second*, our findings have implications for regulators in MENA countries that are currently conducting governance reforms through the implementation of new models of best practice and disclosure that are consistent with the sustainability approach (Khanchel et al. 2023b). From this perspective, regulators must reinforce the effectiveness of internal banking governance mechanisms to deter the power and influence issued from political ties, particularly during crises. *Third*, our results provide additional evidence for investors emphasizing that when banks are politically connected, it is important to separate the different channels (CEO, directors) through which banks are connected. *Finally*, authorities should monitor and oversee the decisions/strategies of politically connected banks to strengthen efficiency and achieve economic growth. In this regard, it will be valuable to supervise lending activities during election periods to limit preferential loans at a lower interest, which later become nonperforming loans, causing bank inefficiency.

Although our results are shown to be robust across several robustness tests, this study has some limitations that could pave the way for future research. *First*, our analysis does not consider the presence or influence of other actors who may be politically connected beyond the CEO and board members (i.e., loan officers), which may be a topic for future research. *Second*, the coalition between firms and banks with the same political connections is not controlled for in this study, although it may affect banks' efficiency. *Third*, the political scene in the MENA countries is marked by considerable political instability; therefore, it will be interesting for subsequent research to test the effect of political ties on bank efficiency over time (e.g., before and after new elections). *Finally*, we use the DEA method to estimate the efficiency score, and other multicriteria approaches such as Technique for Order Preference by Similarity to Ideal Solution (TOPSIS) models could be used to provide additional insights. In addition, empirical findings could control for consistency by applying the VIKOR method developed by Kou et al. (2021a) or by ranking banks based on optimal computing budget allocation, which is considered to be a reliable approach to optimal selection by Xiao et al. (2023) and Kou et al. (2021b).

Appendix

See Table 10.

Table 10 Variable definitions

Variables	Notation	Description
Dependent variables		
Cost efficiency	**CE**	The cost efficiency score is determined by solving Eq. (2)
Technical efficiency	**TE**	The technical efficiency score is determined by solving Eq. (1)
Allocative efficiency	**AE**	The allocative efficiency score is calculated by solving Eq. (3)
Independent variables		
Aggregate political connections	**A_PC**	A dummy variable that takes one if the bank is politically connected through the CEO and/or the board of directors
CEO political connections	**CEO_PC**	A dummy variable that takes one if the CEO is politically connected
Board of directors' political connections	**BD_PC**	A dummy variable that takes one if the board of directors (except when the CEO is the chairman) is politically connected
Control variables		
Bank-Specific variables		
Bank size	**SIZE**	The natural logarithm of total assets
Bank capital adequacy	**CAR**	Total equity to total assets ratio
Credit risk	**CRD_RQ**	The ratio of nonperforming loans to total assets
Bank profitability	**PROF**	Net income to total assets
Industry-specific variables		
Banking sector concentration	**BAN_CON**	The proportion of total commercial banking assets controlled by the five biggest commercial banks in a country
Banking sector development	**DOM_CR**	Domestic credit to the private sector divided by GDP
Country-Specific variable		
Economic growth	**GDP_GR**	The annual growth rate of GDP
Inflation rate	**INF**	Annual inflation rate
Political risk	**POL_RISK**	An index including government stability, socioeconomic conditions, investment profile, internal conflict, external conflict, corruption, military in politics, religious tensions, law and order, ethnic tensions, democratic accountability, and bureaucratic quality
World policy uncertainty index	**WEPU**	The economic index of uncertainty is measured by the frequency of the word "uncertainty" in the Economist Intelligence Unit's country reports
Pandemic period	**PAND_CRIS**	A dummy variable that takes one if the observation is from 2020 or 2021 and 0 otherwise

Abbreviations

CEO	Chief Executive Officer
MENA	Middle Eastern and North African
U.A.E.	United Arab Emirates
ICRG	International Country Risk Guide
GMM	Generalized method of moments
TOPSIS	Technique for Order Preference by Similarity to Ideal Solution
OCBA	Optimal computing budget allocation

Acknowledgements

The authors are grateful to the journal's associate editor and anonymous referees for their extremely useful suggestions to improve the quality of the article.

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Funding
The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article.

Availability of data and materials
Data sharing is not applicable to this article as no new data were created or analyzed in this study.

Declarations

Competing interest
The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Received: 4 August 2022 Accepted: 25 May 2023
Published online: 21 October 2023

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