Political connection and bank in(efficiency)

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Abstract

Does political connection affect bank efficiency during both financial and political crises? This study addresses this question by adopting a two-stage approach that uses a quantile regression analysis of a unique dataset of listed banks in the Middle East and North Africa region. Our results show that political connection is a driving force behind bank inefficiency in the region. We find that the least efficient banks have the most significant association with political connections, thus supporting the bailout theory. We also find that political connections influenced the efficiency of banks during the 2008-9 global financial crisis but not during the 2011-13 regional political crisis. Our results provide new evidence on the applicability of established political connection theories in developing countries during political regime turmoil. We therefore recommend that global banking regulators and market participants scrutinize the political connections of banks more thoroughly.

Keywords: Banks; Efficiency; MENA countries; Political connections, Data Envelopment Analysis, Quantile regression

JEL classification: D24; G21; G28; O16

[1] The authors acknowledge financial support for this project from the EIBF research Centre and research assistance by Marwa Elnahass, Antonios Chantziaras and Ioanna Baltira. **Correspondence**: sabur.mollah@swansea.ac.uk

1. Introduction

The recent political crisis in the MENA region emphasized the importance of political connections in MENA banks. In addition, the unique institutional and political environment of the region, where banks are considered political institutions, motivated the following two research questions: Does political connection affect bank efficiency in the MENA region? Does this impact persist during periods of crises?

Previous literature offers two alternative theories on why banks increasingly have politically connected boards. From a resource dependency perspective (e.g. Disli et al. 2013; Pfeffer and Salancik, 1978), politically connected banks try to extract the benefits that these connections generate such as lighter taxation, help them to enjoy higher access to deposits at lower cost, preferential treatment in competition for government contracts, as well as relaxed regulatory oversight of the bank in question. Thus, connected banks can extract resources at a lower cost, through their political connections. This will in turn help them to be more efficient than their non-connected peers. On the other hand, from a moral hazard perspective, politically connected banks have fewer incentives to be efficient because they expect their political connections to be used to collect deposits under two different deposit insurance regimes (blanket guarantee and limited guarantee) or these banks should be bailed out due to their political connections in the event of difficulty (e.g. Nys et al. 2015). These banks might attempt to maximize the value extracted from the financial safety net and shift risk onto the financial system through their connections. Politicians might use connected banks, especially state-owned banks, to further their own political goals. These banks tend to exploit moral hazards, which might eventually cause them to be inefficient. In this study, we explore the impact of political connections on the efficiency of listed banks in the Middle East and North Africa (MENA) region before and during the 2008 global financial crisis as well as during the political turmoil, which the MENA region has witnessed since 2011.

The MENA region's emerging stock markets are weak and relatively inefficient. Therefore, banks not only play a significant role by being a major source of finance but they also help to stabilize the political and financial systems in these countries. The weak legal enforcement systems allow the monarchies and authoritarian regimes in the MENA countries to adopt discretionary practices in allocating economic resources. The banks in the region are highly connected politically and have ties with the state and the controlling families.

The MENA region has witnessed significant political turmoil since 2011. This provides a unique opportunity for testing the applicability of both the resource dependency and the

bailout theories, during a political crisis period. In addition, the distinct political, institutional and cultural setting of the region motivates a study on their impact on the efficiency of listed banks. To the best of our knowledge, this study is the first to address the impact of the Political turmoil (2011–2013) on bank efficiency in the MENA. In addition, we use a distinct database that comprises different facets of political connections (direct, indirect, and extended) of both the board of directors and the management of MENA listed banks. The dataset also contains comprehensive bank ownership (e.g., foreign, state, corporate and public), bank type (e.g., religiously adhered banks [2] and conventional banks), and domicile (e.g., GCC[3] and non-GCC; Political turmoil countries and non-political turmoil countries). The data set contains 851 bank-year observations over the period from 2007 to 2013.

Our study complements the literature by testing not only the impact of political connections on MENA bank's efficiency, but also by extending the analysis to assess whether this impact persisted during periods of crises. In addition, due to the unique institutional and environmental characteristics of the region, we incorporate an "extended" type of political connection that is less visible and goes beyond the direct and indirect connections that the research frequently covers. Moreover, we examine the impact of each type of political connection separately, which facilitates further insights into the applicability of the relevant theories.

By using the bias-corrected Data Envelopment Analysis (DEA) estimator of Kneip et al. (2008) in combination with the quantile regression of Koenker (2001), we find that political connection is a relevant driving force behind bank inefficiency in the MENA region. The results also indicate that the effect of political connections on bank efficiency in the MENA region varies depending on the conditional distribution of the inefficiency. In particular, the effect is stronger and more significant for those banks with poorer efficiency. The results reveal that the least efficient banks are the ones with the most significant association with political connections, thus providing strong support for the bailout argument. In addition, the results show that political connections are a powerful instrument that influenced bank efficiency during the global financial crisis. However, during the 2011 political turmoil, the efficiency of politically connected banks was not significantly different from their non-connected peers. This therefore suggests the possible loss of power or advantages from their political connections as a result of regime change. We also show that government banks consistently perform poorly, and that they only survive due to strong government support.

[2] The MENA region contains the highest concentration of religiously adhered banks in the world (Thomson Reuters Zawya, www.zawya.com and Bureau VAN DIJK Bankscope databases)
[3] Oil exporting Gulf Cooperation Council (GCC) countries. This includes Bahrain, Kuwait, Oman, Qatar, Saudi Arabia and UAE.

This study makes several contributions: Firstly, the study extends the extant literature on political connections (e.g. Fisman, 2001; Faccio, 2006; Goldman et al., 2009; Boubakri et al. 2012) to banks in the MENA region. This is of particular importance in a region, which is characterized by a high concentration of political connections in banks, political instability and high corruption levels, in addition to a mix of monarchies and authoritarian regimes. The study confirms the findings of Hymer (1976), La Porta et al. (2002), Lensink et al. (2008), and Mian (2006) that the institutional environment and the laws and politics of a country largely influence the banks' efficiency and their performance globally. It also fuels the ongoing debate on political connections in banks (Blau et al., 2013; Dinç, 2005).

Secondly, our study extends the research on the resource dependence role of board members and key executives, especially in regulated industries such as banks. Pfeffer (1972) affirms that board members and key executives enable firms to minimize the uncertainty of, and their dependence on, the external environment and gain vital resources through managing their relative power in the market (Ulrich and Barney, 1984; Hillman et al., 2009). Pfeffer (1972) also concludes that the board's composition is not a random choice but is rather a rational organizational response to the conditions in their external environment (Hillman et al., 2009).

Thirdly, this study complements the wider literature on religiously adhered banking [4] performance as the MENA region has a high concentration of religiously adhered banks (e.g., Mollah and Zaman, 2015; Johnes et al., 2014; Beck et al., 2013; Abedifar et al., 2013). Religiously adhered banks apply a constrained model of finance to the operation of banks that restricts their investment activities. The constraints of the religiously adhered banking model are expected to reduce their efficiency. The results for the effect of bank type confirms Johnes et al., (2014) who finds that religiously adhered banks are typically equal to their conventional peers in terms of overall efficiency. However, our quantile regression results provide further insights into their findings on net efficiency.

Finally, this study contributes to the methodology in the bank efficiency literature. By using a two-stage testing procedure, we have been able to overcome some problems highlighted in previous research (see, e.g., Simar and Wilson, 2007, 2011; Bădin et al., 2014). We follow the suggestions of Badunenko et al. (2012) who propose comparing the

[4] Based on 10 years (2003-2012) data collected from the Bureau VAN DIJK Bankscope database, the MENA region's religiously adhered banks represent 50% (US$2,766,510) of the total assets of these banks ($5,533,020) in the 22 countries that have a dual banking system (conventional and religiously adhered banks).

performance of the nonparametric kernel stochastic frontier (KSF) analysis estimator (Fan et al., 1996) with that of the nonparametric bias-corrected DEA estimator of Kneip et al. (2008) (KSW). These two estimators of technical efficiency provide remarkable advantages over previously used methods in a cross-sectional case.

The implications of our paper are relevant for the global banking industry and international investors as well as future efficiency research. The uniquely designed "extended" type of political connection is applicable to other regions and should be carefully considered by future research and market participants. In addition, we recommend the consideration of our robust combination of estimators to be used in future efficiency research.

The rest of the paper is organized as follows: Section 2 presents the related literature and hypotheses development; Section 3 presents the econometric method; we describe the data in Section 4; Section 5 reports the empirical results, and the concluding remarks are contained in Section 6.

2. Related literature and hypotheses development

In spite of the growing interest in the role of political connections on a firm's performance, the banking literature does not thoroughly address its impact (Blau et al., 2013; Dinç, 2005; Faccio, 2006) on banks' efficiency. Among the studies, Kane (1996), Brown and Dinç (2005) and Kroszner and Strahan (1999) postulate that political processes drive the design and implementation of banking regulations and as such are expected to impact banks efficiency.

The number of politically connected firms is sizable in emerging markets. Faccio et al. (2006) report that politically connected firms represent 8% of the world market capitalization. However, this ratio is much higher in emerging markets, that is, Russian politically connected firms represent 86.75% of its market capitalization. Similarly, MENA politically connected banks represent 54% of the total number of listed banks in the region.

Although political connections are a common phenomenon in many countries, their impact is more profound in countries with higher levels of corruption, weaker institutions, less stringent regulations, and poor legal protection such as emerging markets (Faccio, 2006; Li et al., 2008) like the MENA region.

Regardless of a government's structure, political connections play a vital role in the MENA region and corruption is deeply rooted in the political and business infrastructure.[5] The majority of countries in this region are characterized by a lack of accountability, a lack of freedom of the press, and limited access to civil as well as political rights. The sociopolitical setting and the ownership structure of the banks in the region allow politicians and royal families to be involved in the banks' management and board of directors.

In spite of broadly capturing performance, efficiency, and risk-taking in the banking literature that covers the MENA region (e.g., Ben Khediri and Ben-Khedhiri, 2009; Ben Naceur and Goaied, 2008; Farazi et al., 2011; Olson and Zoubi, 2011; Omran, 2007; Isik et al., 2004; Kobeissi and Sun, 2010; Sufian et al., 2008; Srairi, 2010, 2013; Turk Ariss, 2008), to the best of our knowledge, the banking literature makes no attempt to examine the impact of political connections on bank efficiency in the region.

2.1. Political connections and bank efficiency

The argument on the relationship between political connections and bank efficiency is that connected banks make use of their political ties to gain cheaper access to key resources. This access gives these banks a competitive advantage through higher efficiency over their non-politically connected peers (You and Du, 2012). The research shows that connections are a profitable tool for corporations generally and banks specifically, especially during times of financial crisis (Agrawal and Knoeber, 2001; Blau et al., 2013; Faccio et al., 2006). Political connections lead to higher corporate value and better performance for the stock prices of connected firms (e.g., Shleifer and Vishny, 1994). On the other hand, another argument is that politically connected banks have an expectation of being bailed out by the government during periods of financial distress. These banks are therefore under relatively less pressure to be efficient in comparison to their non-connected counterparts (Faccio et al., 2006; De Soto, 1990; Shleifer and Vishny, 1994). Faccio (2006) demonstrates that politically connected firms are more likely to be bailed out than their non-connected peers during financial distress periods. Some studies also report that among bailed out firms, those that are politically connected exhibit significantly worse financial performance than their non-connected peers at the time of, and following, the bailout (see Faccio et al., 2006; De Soto, 1990; Shleifer and Vishny, 1994). In the same vein, La Porta et al. (2002) also find that politicians use state-owned banks to further their own political goals, which in turn makes these banks inefficient. From the above discussion, we propose the following hypothesis:

[5] Transparency International's Corruption Perceptions Index (CPI) consistently ranks below the world median in MENA countries (Source: Transparency International).

***Hypothesis H1*:** *There is an association between political connections and bank efficiency in the MENA region.*

2.2. Political connections and bank efficiency during crises periods

The 2008 global financial crisis has significantly impacted both the banking system and the economy of many developed countries. This crisis also impacted the MENA region but at a lower magnitude in comparison to developed countries (Moriyama, 2010). This lower impact might be due to the low level of integration between MENA banks and the global banking market. It might also be a result of the high concentration of religiously adhered banks that prohibits many conventional structured financial products that led to the crisis.

The effect of the global slowdown on the economic activity of the MENA region had different implications for different countries. Broadly, the financial impact was distinct between oil exporting and non-oil exporting countries. The impact of the global financial crisis was profoundly negative on the non-oil exporting MENA countries, especially in the tourism sector and foreign remittance. (Habibi, 2009; Drine, 2009). However, despite the devastating shortage of capital in some of the Gulf regional banking sectors, the strong economic growth in oil producing Gulf cooperation (GCC) countries prior to the crisis afforded them a cushion against the subsequent contraction during the global financial crisis.[6]

In addition to the global financial crisis, the MENA region witnessed regional political turmoil from 2011 to 2013. The Political turmoil generated political instability and regime changes in countries such as Egypt, Tunisia and Syria. This political turmoil also brought the economic, financial, and social issues of the MENA countries to the forefront. The MENA countries shifted from stability to chaos as a result of the political turmoil (Fisman, 2001; and Sun et al., 2010). The deeply rooted national challenges that promulgated the ongoing struggle in the region catalyzed synergies across the region towards a new era. From the perspective of the financial sector, domestic banking's balance sheets deteriorated, thus reflecting the adverse impact of the downturn on the quality of loan portfolios and on the regional stock market.

[6] Although the World development report (2010) indicates that global financial crisis heavily impacted the Gulf real estate market, especially Dubai, Abu Dhabi, and Qatar, the economic implications of the crisis were not considerable for oil producing GCC countries.

The impact of political connections on bank efficiency may vary depending on the type of political change in two ways. First, the firms with political connections suffer when their patrons have a setback (Leuz and Oberholzer-Gee, 2006; Siegel, 2007). Fisman (2001) stresses that regime changes are particularly damaging to politically connected firms because of the loss of access (Getz and Oetzel, 2009). For example, the collapse of the Gaddafi regime seriously affected a Turkish multinational construction firm (Darendeli and Hill, 2013). Second, if the regime survives a popular revolt or if the regime change is superficial (top of the regime only), then the political connection, which is deeply rooted in the institutions of the country, will continue to have an impact. Thus, we propose the following hypothesis about political connections and bank efficiency during crises:

Hypothesis H2**:** *The political connections of MENA banks had an impact on their efficiency during the Political turmoil of 2011–2013.*

2.3. Control variables

Because the economic impact of political connections on bank efficiency could vary between countries in the region according to their economic and political stability, we differentiate between GCC and non-GCC countries[7], and politically stable and relatively unstable countries. Heterogeneous bank efficiency across different ownership types has received a great deal of attention in the banking literature (e.g., Altunbas and Chakravarty, 1998; Bonin et al., 2005; Fukuyama et al., 1999; García-Cestona and Surroca, 2008; Kumbhakar and Sarkar, 2003). In particular, Claessens et al. (2001) indicate that the entry of foreign banks can make the national banking markets more competitive and efficient. In addition, Goldberg et al. (2000) find that diversity in ownership contributes to greater stability in credit during a crisis. Ashcraft (2008) on the other hand argues that banks affiliated with a bank holding company (BHC) are safer than a standalone bank in times of crisis. In addition, regimes can use state-owned banks to support their agenda. As a result, these banks could become subject to the expropriation of their assets during political unrest to support the survival of the regime and hence dedicate their lending and other banking activities to achieving political objectives. La Porta et al. (2002) find that politicians use state-owned banks to further their own political goals. These banks tend to exploit moral hazard which eventually causes inefficiency. Micco et al. (2007) argue that politics drives the difference in performance between state-owned and non-state-owned banks. Mian (2006) supports a

[7] We consider banks from Bahrain, Qatar, Kuwait, Oman, UAE, and Saudi Arabia as GCC and the rest of the MENA countries as non-GCC.

comparable hypothesis that state-owned banks perform uniformly poorly and that they only survive due to strong government support. However, Sapienza (2004) asserts that electoral results affect state-owned Italian banks due to party affiliations. Likewise, Khwaja and Mian (2005) demonstrate that state-owned banks tend to favor firms with politically connected directors by lending them more and allowing for higher default rates. Dinç (2005) and Micco et al. (2007) also find that during election years, the state-owned banks in emerging markets significantly increase lending, which leads to a drop in their profitability and efficiency.

3. Method

3.1. Measuring bank efficiency in the MENA region

Several questions confront the literature[8] on the measurement of bank efficiency and productivity. First, what do banks produce? Second, what technique should be used to measure efficiency? Several possibilities confront the research that has traditionally classified the technique into parametric and nonparametric methods (although the possibilities today are broader). Among the latter, the most popular choice has been the Stochastic Frontier Analysis, SFA (Aigner et al., 1977; Meeusen and Van den Broeck, 1977), whereas among the former, the Data Envelopment Analysis (DEA) (Charnes et al., 1978) has dominated.

The issue of comparing efficiency measurement techniques in banking received a great deal of attention from the end of the 1980s to the beginning of the 2000s (see, e.g., Ferrier and Lovell, 1990; Bauer et al., 1998; Weill, 2004; Drake and Weyman-Jones, 1996; Resti, 1997; Eisenbeis et al., 1999; Cummins and Zi, 1998).[9] However, Berger and Humphrey (1997) suggest that when inquiring whether a "best" frontier method exists, "the lack of agreement among researchers regarding a preferred frontier model at present boils down to a difference of opinion regarding the lesser of evils." On the one hand, the parametric approaches become "sinners" when imposing a particular functional form that presupposes the shape of the frontier—hence, if the functional form is mis-specified, then the measured efficiency can become mixed up with the specification errors. On the other hand, nonparametric methods impose less structure on the frontier, but become "sinners" because of a lack of allowance for random error (such as those that occur due to luck or measurement errors).

Today, although the SFA and DEA are still the most popular choices, several other proposals have arisen in both the parametric and nonparametric fields. In a recent review,

[8] There are three survey papers on the topic (Berger et al., 1993; Berger and Humphrey, 1997; Fethi and Pasiouras, 2010, among others), several monographs (Molyneux et al., 1996; Harker and Zenios, 2000; Pasiouras, 2013), and several contributions to relevant books (Goddard et al., 2001; Hughes and Mester, 2009).

[9] In case we do not constrain the scope of the analysis to works focusing on financial institutions only, we find additional relevant contributions comparing both types of techniques, such as Banker et al. (1986), De Borger and Kerstens (1996), Hjalmarsson et al. (1996), or Resti (2000).

Badunenko et al. (2012) compare two flexible and promising estimators of technical efficiency in a cross-sectional setting, namely, the bias-corrected DEA estimator of Kneip et al. (2008) (KSW) and the nonparametric kernel SFA estimator of Fan et al. (1996) (FLW), to uncover which measure performs best in a given situation. This study uses the DEA estimator because the FLW estimator is more problematic in the case of multi-input, multi-output firms, which is our case.

3.2. Bias-corrected estimation in nonparametric frontier model

One of the problems of the DEA estimator (as well as its nonconvex variant, free disposal hull) is that it produces a biased estimate of the frontier. To overcome this problem, Kneip et al. (2008) propose using bootstrap procedures. Specifically, the bootstraps enable the estimation of the bias and confidence intervals for the individual (bank) estimated efficiencies because the known distribution of the difference between the estimated and the bootstrapped scores mimics the unknown distribution of the differences between the true and estimated efficiencies.

Under the DEA, there is no specification of the production process. Rather, we observe that, for a given technology T, a given set of p inputs, x, enters the production process to produce q outputs, y, such that $\mathrm{T} = \{(x, y)|x \text{ can produce } y\}$. This process enables the measurement of technical efficiency θ_i for a given input-output combination (x_i, y_i) to obtain a DEA estimator by linear programming techniques such that (Farrell, 1957; Charnes et al., 1978)

$$F_j^0(x_i y_i) = sup\{\theta_i|(x_i y_i/\theta_i) \in \mathrm{T}\} \qquad (1)$$

for the output-oriented case (the exposition for the input-oriented case is equivalent).

Kneip et al. (2008), who consider that both $\underset{i}{T}$ and $F_j^0(x_i y_i)$ are in practice unknown, derive the asymptotic distribution of the DEA estimator by proposing a bootstrap method to perform the statistical inference for the estimator in Equation (1). Specifically, for a consistent bootstrap estimator$\left(\widehat{F^{0*}}\right)$, if the estimator $\left(\widehat{F^0}\right)$ comes from a known data generating process $\hat{P}(x, y)$ and the true score F_j^0comes from an unknown data generating process (P), then the following holds true:

$$\left(\hat{F}^{0*}/\hat{F}^0 - 1\right)|\hat{P}(x, y) \quad \underset{\sim}{approximately} \left(\widehat{F^0}/F^0 - 1\right)|P. \qquad (2)$$

Further, Kneip et al. (2008) provide a consistent bootstrap (subsample) procedure that is implemented in two steps that ultimately yields the bias-corrected DEA efficiency score:

$$\widehat{\widehat{F^0}} = \widehat{F^0} - \widehat{bias_B} \quad (3)$$

where the bias is adjusted by using an m subsample

$$\widehat{bias_B} = \frac{m^{2/(p+q+1)}}{n}\left[\frac{1}{B}\sum_{b=1}^{B}\hat{F}^{0*}/\hat{F}^{0}\right] \ldots\ldots (4)$$

where B is the number of repetitions.

3.3. Analyzing the determinants of bank efficiency using regression quantiles

As indicated in the introduction, a two-stage method where the efficiency scores obtained in the first stage enter the analysis as the dependent variables in the second stage, can be problematic. Specifically, the combination of nonparametric methods, such as DEA, in the first stage with parametric methods in the second stage, such as an OLS or a Tobit regression, is troublesome because by construction, the efficiency scores obtained from using linear programming techniques in the first stage are dependent in the statistical sense. Simar and Wilson (2007) and Balaguer-Coll et al. (2007) raise this point almost simultaneously and, later on, Banker and Natarajan (2008), McDonald (2009), Ramalho et al. (2010), and Daraio and Simar (2006, 2005) do so also. However, despite the severity of the issue, several studies have carried on combining OLS or Tobit methods when searching for the determinants of efficiency with scores obtained by using the DEA. Simar and Wilson (2011) are the most recent example.

Under these specific circumstances we use a quantile regression (Koenker, 2001, 2005) because it offers a better alternative for a variety of reasons. First, this regression is more robust to the violation of some assumptions (for instance, departures from normality) than either the OLS or Tobit models, and social phenomena and data are often non-normal or heteroskedastic.[10]

Second, compared to the conditional-mean framework of the OLS, the quantile regression offers a more comprehensive view because it factors into the analysis the effect of the explanatory variables on the location, scale, and shape of the distribution of the response variable—in our case efficiency scores. Ultimately this advantage means that instead of focusing the analysis on the average effect of political connections on bank efficiency, this

[10] For instance, financial or management data (such as the dispersion of the annual compensation of chief executive officers) usually increases with a firm's size—an indicator of heteroskedasticity—and data on per capita income are seldom normal— rather, they are bi-modal, as shown by Quah (1996). More relevant examples include innovation and growth in high-tech sectors Coad and Rao (2008), changes in wage distribution (Machado and Mata, 2005; Melly, 2005), location patterns of bank branches (Alamá and Tortosa-Ausina, 2012), or educational attainment and wage distribution (Lemieux, 2006). Fitzenberger et al. (2002) provides a compendium of interesting applications in the field.

regression can ascertain whether the impact is the same over the entire conditional distribution of efficiency or, in contrast, if the impact varies for the upper and lower tails of the efficiency distribution (i.e., for the least inefficient and most inefficient banks).

Actually, the analysis does not focus on the upper or lower tails of the conditional distribution of efficiency but it can consider any particular quantile of the distribution. Therefore, the regression quantiles specify the τ^{th} quantile of the conditional distribution of the KSW efficiency scores, which we call θ_i but actually corresponds to $\widehat{\widehat{F^0}}$ that is the variable containing the performance of the bank given $\boldsymbol{z}$ as a linear function of the covariates. Following Koenker and Bassett (1978) we carry out the estimation by minimizing the following equation:

$$\min_{\beta \epsilon R^k} \sum_{i \epsilon \{i:\widehat{\theta_i} \geq z'\beta\}} \tau |\widehat{\theta_i} - z'\beta| + \sum_{i \epsilon \{i:\widehat{\theta_i} < z'\beta\}} (1-\tau) |\widehat{\theta_i} - z'\beta| \qquad (5)$$

where k is the number of explanatory variables, $\boldsymbol{\tau}$ represents the vector containing each quantile (and the vector of coefficients to be estimated), and $\boldsymbol{\beta}$ differs depending on the particular quantile.

Some other relatively recent contributions on this particular issue are those by Badin et al. (2010, 2012), Badin and Simar (2011) and, more particularly, Badin et al. (2014). In this last study, the authors offer a state-of-the-art review of the literature evaluating how external or environmental factors which are not under control of the decision making units (in our case, banking firms) affect their performance. From an operations research point of view, this is the most updated survey of this literature, although some contributions have been published even more recently if we do not constrain the analysis to the specific case of the impact of environmental factors on efficiency and productivity. See, for instance, the study by Simar and Wilson (2015), in which the authors provide a "guided tour" on the development of various nonparametric approaches to measure efficiency.

However, none of the studies considered in the above and preceding paragraphs have considered the *joint* use of a relatively new and scarcely used estimator of efficiency such as the one considered here and described in section 3.2. (Kneip et al., 2008), together with quantile regression in the second stage of the analysis, as suggested in this section.[11]

[11] An exception would be the study by Abdelsalam et al. (2014), although this was focused, although it was based on the case of the mutual fund industry and the efficiency estimator considered was not the one proposed by Kneip et al. (2008).

4. Data and variables

4.1 Data Sources

The constituents of our dataset were drawn from the complete list of all the banks listed (158 banks) as domiciled in MENA countries. Data availability resulted in the sample of banks being drawn from Bahrain, Egypt, Jordon, Kuwait, Lebanon, Morocco, Oman, Qatar, Saudi Arabia, Syria, Tunisia and the United Arab Emirates. This list of banks was drawn from the Bankscope, Bureau Van Dijk, the Financial Times Banker databases and the Thomson Reuters Zawya. 128 of the banks on this list have at least two years of complete financial records for the 2007 to 2013 period for our unbalanced panel. Overall, we analysed 851 bank-year observations. Whilst some banks were not listed and have no financial reports from which to draw information, our sample encompasses over 80% of banks in the region.

In order to identify the political connection, we followed Faccio (2006), Boubakri et al. (2008), Bertrand et al. (2002) and Ferguson and Voth (2008). We extended the definition of political connectedness to individuals of political standing that are directly or indirectly connected to banks. As such, directly politically connected individuals included: i) members of the royal families (having the HH/Prince title on their names); ii) former /current (prime) ministers and members of the country's cabinet in general; iii) ambassadors; and, iv) members of the parliament of the country. For indirectly connected individuals, we included: i) members of the Shura council; ii) are relatives of individuals falling under all aforementioned categories; iii) are described by Forbes, or Fortune as influential individuals in the country and/or having connection with a head of state, government minister, or member of parliament. Due to the unique environment in the MENA region, we extend the definition of political connection to include individuals who hold/held substantial positions in politically sensitive governmental organizations, in ministries, such as former/current secretary of the (prime) minister and head of the King's office. This extended category is tested separately in our analysis to provide more insight into the unique institutional environment in the MENA region.

The political connection of the board were hand collected by obtaining the biographies of the board members from a number of sources including annual reports, corporate websites, Bureau Van Dijk 'ORBIS' and Thompson Reuters 'Zawya'. Consolidated bank balance sheet and income statement data (in US dollars) were obtained from the Bureau Van Dijk 'Bankscope' and Financial Times 'Banker' databases. Country-level variables and macroeconomic data are collected from the World Bank and United Nations websites. We trimmed data at the 1st and 99th percentiles within each country and each test variable in order to eliminate outliers or extreme values.

The political connection of the boards of directors of banks in the MENA region is well documented. Indeed our hand collected dataset of political connection for the set of banks domiciled in the MENA region indicates that 70 out of the 128 banks have had political connection at some stage in our sample (we found that 16 also suffered disconnections at some point during the 2007 to 2013 period). The number of political connection compares well to a total of 450 firms overall in the dataset constructed by Faccio et al (2006) out of the thousands of candidates available from all the listed firms for 35 countries worldwide. Political connection in the MENA region often arise institutionally from the specific governance structure of these countries, which are commonly, unitary constitutional monarchies (e.g. Bahrain, Jordon, UAE, Oman and Kuwait), unitary republics (e.g. Syria) or early stage development of parliamentary republics (e.g. Tunisia and Egypt). State-owned-banks inevitably play an important role in capital allocation under such governance types and indeed a substantial proportion of our sample (15%) contained institutions with government ownership in excess of 50%.

4.2 Definition of inputs and outputs

Apart from the methodology chosen, the other source of disagreement when evaluating bank efficiency is the choice of inputs and outputs. According to the seminal contributions by Fixler and Zieschang (1992) and Berger and Humphrey (1992), bank activities can be modeled by considering either the production or the intermediation approach. Because of data constraints, most studies have considered the latter, since the former usually requires not only data on the volume of loans and deposits but actual information on the number. However, even after choosing the intermediation approach, there are further problems relating to the definition of bank outputs.

In this sense, as indicated by Tortosa-Ausina (2002), the researcher is confronted with three approaches to define banks' output, i.e. the asset approach, the value added and the user cost. The choice, again, is generally constrained by the available statistical information, which in most cases is scarce. This has implied that most studies have ultimately disregarded the user cost approach and, in most cases, the value added approach, for similar reasons. For instance, statistical agencies (which usually have information that cannot be accessed to by other researchers, or focus on aggregate data for the entire sector) consider the user cost approach, according to which banks bundle the payment for services with the interest rates charged on loans and paid for deposits instead of charging explicit fees for many of the services they provide[12].

[12] This approach has revived due to recent work by Colangelo and Inklaar (2012), Basu et al. (2011) and Diewert et al.

Since our database has the same limitations as other typical databases (such as Bankscope-IBCA) in terms of the level of detail of the available data, we will finally consider the asset approach. This will also facilitate comparisons with previous literature. However, we will also consider some contributions that highlight the importance of nontraditional output and nontraditional activities and, following Tortosa-Ausina (2003), we could refer to our model as an unrestricted variant of the asset approach (see also Lozano-Vivas and Pasiouras, 2010).

Under this theoretical framework we will finally consider four outputs, namely: (i) loans (y_1); (ii) securities (y_2); (iii) other earning assets (y_3); (iv) non-traditional output (y_4). With regard to the choice of inputs, under the intermediation approach this issue is less prone to controversy and the different contributions in the literature are more coincidental. In our case we have considered as relevant inputs: (i) labor (x_1); (ii) funding (x_2); (iii) physical capital (x_3). The corresponding definitions are provided in Table 2.

5. Results

5.1 Bank efficiency in MENA countries: 2007–2013

Tables 3, 4, and 5 show the results on bank efficiency. Each table is divided into three panels: Panel A is the full sample period, Panel B is the global crisis period, and Panel C is the Political turmoil. Table 4 has the variables for GCC and non-GCC countries, Political turmoil and non-Political turmoil, and religiously adhered banks and conventional. The results in Table 3 show considerable differences between the banks based in GCC and non-GCC countries and between banks in countries that experienced the Political turmoil versus no turmoil. For bank types (conventional versus religiously adhered banks), the differences are modest. Our results confirm the studies, such as Johnes at al. (2014) that find that religiously adhered banks are typically on par with their conventional peers in as far as gross efficiency is concerned.

Concerning ownership, Table 4 contains five different classifications (high and low state ownership, domestic, BHC, and foreign). The first two of these classifications are dummies that represent the percentage of shares held by the state (>25% and >50%). The other three variables are dummies that represent bank holding companies versus subsidiaries, which are

(2012), since the recent international financial crisis suggests there could be some mis-measurements in the banking sector.

then classified into local and foreign-owned categories. The classifications are: domestically owned subsidiaries, BHC, and foreign-owned subsidiaries.[13] The results show that, on average, banks with higher percentages of state ownership are less efficient than those with lower state ownership. The results are consistent for the whole period (Panel A) and the sub-periods (Panels B and C). Therefore, our results confirm previous research which concluded that state ownership is frequently related to low levels of financial development (Barth et al., 1999), low levels of economic growth (La Porta et al., 2002), inefficiency (Shleifer and Vishny, 1994), and a higher probability of banking crises (Caprio Jr and Peria, 2002).

The gap is considerably larger when evaluating efficiency, this is dependent on whether subsidiaries are domestically owned or not. The non-domestically owned subsidiaries notably outperform their domestically owned counterparts. This gap is not only consistent over time, but widens during the Political turmoil. The primary explanation could be that regimes used domestically owned banks in the MENA region for financial backing during the political crisis. Hence, political motives drove the banks' investment activities, such as the survival of the regimes against the popular revolt, and subsequently, the banks underperformed. Our results confirm the argument that politicians might use state-owned banks, to further their own political goals. These banks tend to exploit moral hazard, which can eventually cause them to become inefficient. In addition, our results show that non-BHCs outperform the BHCs, which is consistent with the literature that claims diversification is, on average, associated with lower production efficiency in BHCs (Elyasiani and Wang, 2012). The directors of BHCs are likely to demonstrate inferior efficiency as a result of being entrenched in pursuing costly empire building strategies (Hughes et al., 2003).

Table 5 gives the statistics for the relationship between political connections and bank efficiency. The results indicate that politically connected banks underperform compared to their non-politically connected counterparts. The results are consistent across proxies of the political connection variables and across periods. These results provide further evidence for the prevalence of the bailout perspective in MENA connected banks. However, comparing Panels B and C, we find that, on average, the performance gap shrinks due to an improvement in the efficiency of the politically connected banks during the Political turmoil. This finding indicates that politically connected banks improve their efficiency during political turmoil. Our interpretation is that changes in political regimes, during the turmoil, led connected banks to realize that political connections might not work as they had previously. Therefore these banks become more cautious, which is reflected in their improved efficiency. This finding

[13] Provided by the Financial Times' Banker database

provides empirical evidence that the bailout perspective might not prevail during political crises, particularly after regime changes.

5.2. Analyzing the determinants of bank inefficiency for MENA countries

The results in the previous subsection are based on a descriptive analysis of efficiencies. These results provide the reasoning behind the role of the institutional and ownership variables. However, we are unable to establish from the preceding analysis whether either of these sets of covariates are significant.

We provide results for the determinants of banks' inefficiency in Tables 6 through 9. Because there might be interactions among the four proxies that measure political connections, we run separate regressions for each proxy, and the results are split into the four tables. We include time effects in all of these regression models. In each of these tables, the first six rows correspond to the institutional and ownership variables and the bottom row corresponds to each of the political connection variables. As for the columns, the first one reports the effect of the covariates for the least inefficient (most efficient) banks and the last columns reflect the impact on the most inefficient banks. The standard errors are reported in parentheses. The results for all of the political connection proxies show consistency in terms of the magnitude of the coefficient and level of significance. We find the magnitude of the effect of political connections on inefficiency is larger for the highest quantiles (most inefficient banks), which corroborates that politically connected banks are particularly inefficient.

In the case of the highest quantile ($\tau = 0.90$), the effect exists for all four political connections' proxies, (PC_1, PC_2, PC_3 and PC_4) of direct, indirect, extended, and total political connection respectively. In particular, the coefficients for PC_2 and PC_4 are relatively higher (0.120 and 0.128) than PC_1 and PC_3 (0.107 and 0.102). However, the coefficients corresponding to PC_1, PC_3, and PC_4 are significant at a higher level (5%) than PC_2 (slightly lower than 10%). These coefficients indicate a consistent impact of all types of political connection on the most inefficient banks in the MENA region, after controlling for the banks' domicile, type, and ownership structure. Furthermore, at the other extreme (lowest quantile, $\tau = 0.10$) representing the least inefficient banks, the effect of political connections vanishes almost entirely, both in terms of magnitude and significance. However, for the rest of the quantiles ($\tau = 0.25$, $\tau = 0.50$, and $\tau = 0.75$), the effect varies across variables and quantiles. Our results nonetheless show that there is a pattern because for all four political connection proxies the magnitude of the coefficient increases

monotonically, with no exceptions. This finding shows that both the effect (coefficient) and the significance levels are higher for the highest quantiles (most inefficient banks). The results show that the most inefficient banks are the ones with the most significant association with political connections. This finding provides strong support for the bailout perspective for politically connected banks and confirms the results of Faccio et al. (2006). These results also strongly corroborate the descriptive analysis (subsection 5.1) that shows a strong relationship between political connection and bank inefficiency in the MENA region. This corroboration provides empirical support for hypothesis H1. The results indicate that the effect of political connections on bank efficiency in the MENA region varies depending on the conditional distribution of the inefficiency. Specifically, the effect is stronger and more significant for those banks with poorer performance, provides no support for the resource dependency perspective, and indicates a strong association between political connection and bank inefficiency, due to their bailout expectation (Blau et al., 2013).

Regarding the type of ownership categories (tables 6–9), we only find significance in some of the quantiles. For the government ownership variable (*GOV*), the effect is generally negative and significant for the lowest quantiles ($\tau = 0.10$ and $\tau = 0.25$). These quantiles correspond to the most inefficient banks, which corroborates Mian (2006) that government banks uniformly perform poorly and only survive due to strong government support. For the domestically owned subsidiary variable (*DOS*), we find that the effect generally is positive throughout—that is, a negative association exists between a domestically owned subsidiary and bank efficiency. The effect is stronger for the most inefficient banks and weaker for the least inefficient banks, which contradicts Farazi et al. (2011) who state that domestically owned banks perform better in the MENA region. Furthermore, the results for BHCs show that even though there is a positive impact on inefficiency, the coefficients are not significant. This lack of significance supports Ashcraft (2008) in the sense that banks affiliated with a BHC are safer than a standalone bank in times of distress.

6. Conclusions

In this study, we examine the impact of political connections on the efficiency of banks in the MENA region. For this purpose, we use a two-stage approach in which we measure efficiency in the first stage of the analysis and we assess the impact of political connections in the second one. Specifically, by implementing a nonparametric estimator of bank efficiency in the first stage, we find that politically connected banks are less efficient than

their non-politically connected counterparts. We also find differences in banks' efficiency according to their ownership structure and political instability. Regarding the impact of banks' ownership and efficiency, our results show that both nongovernment and foreign-owned banks are more efficient than their government-owned and domestically bank holding companies.

In the second stage of the analysis we conduct a quantile regression analysis that is not only more robust to the violation of some statistical assumptions but also discloses whether the effects vary for different tails of the inefficiency distribution. Our findings have multiple interpretations. First, the four political connection proxies show a notable degree of consistency in terms of both the magnitude of the coefficients and their levels of significance, which corroborates some of the results obtained in the first stage of the analysis. Specifically, the magnitude of the estimated coefficients increases almost monotonically with the quantile (i.e., with inefficiency), and the results are usually significant for the highest quantiles (most inefficient banks). Because these quantiles are associated with the highest levels of inefficiency, they should indicate a strong link between inefficiency and the banks' political connections. On the other hand, the association does not hold for the lowest quantiles (most efficient banks). In contrast, in terms of the results for all of the other control variables, although the results are not as clear-cut as those for the political connections, they offer some degree of richness. For instance, for the government ownership variable, the effect is both negative and significant for the lowest quantiles. Owing to the fact that these quantiles correspond to the least inefficient banks, this finding indicates a negative association between government ownership and bank efficiency.

This research has several implications globally, and for the MENA region in particular. First, the politician-bank networks for financial institutions in emerging economies should come under scrutiny to prevent politically connected banks from engaging more in inefficient activities with the expectation of being bailed out. Particularly, the scrutiny should be even stronger for government-owned banks and BHCs because they have a better ability to shift risk onto the financial system. Second, the regulator should monitor the efficiency of government-owned banks and ensure national banking markets are more competitive and efficient and thus enhance bank efficiency in general. Third, our results indicate that the effect of the political connections on inefficiency highlights the methodological advantage of using a quantile regression. The analysis suggests that the strong association between the least inefficient banks and political connections supports the moral hazard and the bailout expectation (Blau et al., 2013). Fourth, the decline in the inefficiency of banks during the Political turmoil suggests that the resource dependence theory might not be applicable during

political crisis periods. The results for the effect of bank type confirms Johnes et al., (2014) who find that religiously adhered banks are typically equal to their conventional peers in terms of overall efficiency. However, our quantile regression results provide further insights into their findings on net efficiency.

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Table 1 Sample Distribution

Country	No. of banks	Total bank-year observations	No. of Political connected obs	No. of Non-Political connected obs
Bahrain	11	70	61	9
Egypt	13	85	29	56
Jordan	15	98	66	32
Kuwait	9	62	54	8
Lebanon	6	42	34	8
Morocco	6	42	12	30
Oman	7	45	44	1
Qatar	8	54	54	0
Saudi Arabia	11	77	37	40
Syria	12	69	34	35
Tunisia	11	75	19	56
UAE	19	132	122	10
Total	**128**	**851**	**566**	**285**

Table 2 Definition of bank inputs and outputs

Variable	Variable name	Definition
Inputs		
x_1	Labor	Total number of employees of the bank
x_2	Funding	Total customer deposits + deposits from banks + repos and cash collateral + other deposits and short-term borrowings
x_3	Physical capital	Fixed assets (property, plant, equipment, computers, land, buildings, fixtures, fittings)
Outputs		
y_1	Loans	Net loans (gross loans – reserves for impaired loans (nonperforming loans)
y_2	Securities	Total securities and investment
y_3	Other earning assets	Earnings assets other than loans and securities[a]
y_4	Non-traditional output	Total non-interest operating income[b]

[a] Reverse repos and cash collateral, trading securities and FV through income, derivatives, and securities available for sale, securities held to maturity, at-equity investments in associates, other securities, investments in property, insurable assets, other assets.

[b] Includes net gains (losses) on trading and derivatives + net gains (losses) on other securities + net gains (losses) on assets and FV through income statement + net insurance income + net fees and commissions + other operating income.

Table 3 Descriptive statistics for bank efficiency, environmental and institutional variables, and KSW estimator

Panel A: **2007–2013 (full period)**					
Classification	Mean	1st Quartile	Median	3rd Quartile	Std.dev.
GCC	1.3469	1.1811	1.2906	1.4583	0.2515
Non-GCC	1.3387	1.1757	1.2869	1.4341	0.2504
Religiously adhered banks	1.3421	1.1799	1.2903	1.4391	0.2462
Conventional banks	1.3473	1.1792	1.2844	1.4476	0.2688
Political turmoil	1.3206	1.1636	1.2882	1.4287	0.2193
Non-Political turmoil	1.3500	1.1845	1.2900	1.4480	0.2594
Total	1.3432	1.1795	1.2896	1.4395	0.2508
Panel B: 2007–2009 (global crisis)					
Classification	Mean	1st Quartile	Median	3rd Quartile	Std.dev.
GCC	1.3374	1.1796	1.3015	1.4704	0.2200
Non-GCC	1.3513	1.1882	1.2980	1.4345	0.2640
Religiously adhered banks	1.3428	1.1695	1.3005	1.4517	0.2466
Conventional banks	1.3483	1.2000	1.2954	1.4676	0.2163
Political turmoil	1.3323	1.1569	1.2898	1.4225	0.2445
Non-Political turmoil	1.3474	1.1850	1.3017	1.4639	0.2403
Total	1.3438	1.1805	1.3000	1.4562	0.2410
Panel C:2011–2013 (political crisis)					
Classification	Mean	1st Quartile	Median	3rd Quartile	Std.dev.
GCC	1.3236	1.1775	1.2625	1.3959	0.2288
Non-GCC	1.3346	1.1747	1.2810	1.4292	0.2214
Religiously adhered banks	1.3303	1.1822	1.2708	1.4149	0.2234
Conventional	1.3226	1.1635	1.2755	1.3833	0.2328
Political turmoil	1.3293	1.1871	1.3003	1.4310	0.2037
Non-Political turmoil	1.3283	1.1743	1.2665	1.3980	0.2314
Total	1.3286	1.1770	1.2709	1.4133	0.2252

This table reports descriptive statistics corresponding to the efficiency scores of the banks in our sample. The results have been presented following different classifications. The three panels in the table (panels A, B and C) report the efficiency scores for three selected periods (full period, global crisis or political crisis period). Then each of these panels also reports results for banks with different characteristics depending on whether their home country is GCC or non-GCC (environmental variable, i.e., beyond each bank's control), whether they are religiously adhered banks or conventional banks (type of institution, or institutional, variable), or whether they are in a country which underwent a political turmoil or not (environmental variable). The efficiencies were estimated using the Kneip, Simar and Wilson (2008) estimator, which have been obtained adopting an output orientation and, therefore, their values are above 1. The higher the values in the table, the higher the inefficiency, and a value=1 should be interpreted as efficient.

Table 4 Descriptive statistics for bank efficiency, ownership variables, and KSW estimator

Panel A: 2007–2013 (full period)					
Classification	Mean	1st Quartile	Median	3rd Quartile	Std.dev
Shares held by government>25%	1.3555	1.1770	1.2960	1.4652	0.2629
Shares held by government<25%	1.3365	1.1817	1.2872	1.4344	0.2441
Shares held by government>50%	1.3499	1.1792	1.2966	1.4335	0.2586
Shares held by government<50%	1.3418	1.1797	1.2888	1.4403	0.2494
Domestically owned subsidiary	1.5612	1.3273	1.4708	1.6979	0.3278
Not domestically owned subsidiary	1.3501	1.1821	1.2954	1.4443	0.2601
Bank holding company	1.3473	1.1783	1.2871	1.4447	0.2671
Not bank holding company	1.3834	1.2290	1.3226	1.4541	0.2384
Foreign-owned subsidiary	1.3648	1.2239	1.3164	1.4415	0.2213
Not foreign-owned subsidiary	1.3515	1.1794	1.2902	1.4519	0.2697
Panel B: 2007–2009 (global crisis)					
Classification	Mean	1st Quartile	Median	3rd Quartile	Std.dev
Shares held by government>25%	1.3425	1.1659	1.3211	1.4655	0.2361
Shares held by government<25%	1.3446	1.1903	1.2956	1.4493	0.2444
Shares held by government>50%	1.3337	1.1588	1.3156	1.4281	0.2315
Shares held by government<50%	1.3464	1.1839	1.2997	1.4586	0.2437
Domestically owned subsidiary	1.5802	1.3303	1.4708	1.6560	0.4066
Not domestically owned subsidiary	1.3515	1.1815	1.3055	1.4614	0.2445
Bank holding company	1.3394	1.1702	1.3007	1.4603	0.2415
Not bank holding company	1.4486	1.2733	1.4034	1.4981	0.2821
Foreign-owned subsidiary	1.4239	1.2615	1.3655	1.4851	0.2537
Not foreign-owned subsidiary	1.3467	1.1773	1.3028	1.4619	0.2500
PanelC:2011–2013 (political crisis)					
Classification	Mean	1st Quartile	Median	3rd Quartile	Std.dev

Shares held by government>25%	1.3489	1.1827	1.2626	1.4548	0.2446
Shares held by government<25%	1.3185	1.1743	1.2717	1.3910	0.2149
Shares held by government>50%	1.3443	1.2069	1.2525	1.4529	0.2278
Shares held by government<50%	1.3260	1.1737	1.2714	1.4043	0.2251
Domestically owned subsidiary	1.7576	1.7576	1.7576	1.7576	NA
Not domestically owned subsidiary	1.3336	1.1783	1.2712	1.4226	0.2322
Bank holding company	1.3262	1.1739	1.2647	1.4001	0.2383
Not bank holding company	1.3792	1.2422	1.3356	1.4391	0.2030
Foreign-owned subsidiary	1.3706	1.2402	1.3329	1.4390	0.1969
Not foreign-owned subsidiary	1.3282	1.1741	1.2647	1.4028	0.2395

This table reports descriptive statistics corresponding to the efficiency scores of the banks in our sample. The results have been presented following different classifications. The three panels in the table (panels A, B and C) report the efficiency scores for three selected periods (full period, global crisis or political crisis period). Then each of these panels also reports results for banks with different characteristics based on ownership, considering five different classifications: (i) banks whose shares held by the government>25% of their total shares vs. banks whose shares held by the government<25% of their total shares; (ii) banks whose shares held by the government>25% of their total shares vs. banks whose shares held by the government<25% of their total shares; (iii) banks which are domestically owned subsidiaries vs. banks which are not domestically owned subsidiaries; (iv) banks which are bank holding companies vs. banks which are not bank holding companies; (v) banks which are foreign-owned subsidiaries vs. banks which are not foreign owned subsidiaries. The efficiencies were estimated using the Kneip, Simar and Wilson (2008) estimator, which have been obtained adopting an output orientation and, therefore, their values are above 1. The higher the values in the table, the higher the inefficiency, and a value=1 should be interpreted as efficient.

Table 5 Descriptive statistics for bank efficiency and political connections' variables, KSW estimator

Panel A: 2007–2013 (full period)					
Classification	Mean	1st Quartile	Median	3rd Quartile	Std.dev
PC_1 =1	1.3575	1.1855	1.2939	1.4612	0.2611
PC_1 =0	1.3284	1.1697	1.2866	1.4256	0.2393
PC_2 =1	1.3743	1.1780	1.3090	1.4843	0.2826
PC_2 =0	1.3381	1.1810	1.2869	1.4347	0.2451
PC_3 =1	1.3563	1.1850	1.2966	1.4606	0.2606
PC_3 =0	1.3292	1.1698	1.2856	1.4258	0.2395
PC_4 =1	1.3819	1.1819	1.3112	1.4834	0.2996
PC_4 =0	1.3272	1.1778	1.2810	1.4291	0.2262
Panel B: 2007–2009 (global Financial crisis)					
Classification	Mean	1st Quartile	Median	3rd Quartile	Std.dev
PC_1 =1	1.3596	1.1891	1.3134	1.4722	0.2468
PC_1 =0	1.3261	1.1674	1.2898	1.4350	0.2339
PC_2 =1	1.4028	1.1803	1.3424	1.4800	0.2899
PC_2 =0	1.3328	1.1806	1.2906	1.4483	0.2297
PC_3 =1	1.3589	1.1895	1.3169	1.4717	0.2454
PC_3 =0	1.3257	1.1664	1.2869	1.4358	0.2352
PC_4 =1	1.3769	1.1796	1.3267	1.4910	0.2879
PC_4 =0	1.3307	1.1808	1.2923	1.4465	0.2190
Panel C: 2011–2013 (political crisis)					
Classification	Mean	1st Quartile	Median	3rd Quartile	Std.dev
PC_1 =1	1.3374	1.1762	1.2684	1.4038	0.2508
PC_1 =0	1.3199	1.1824	1.2717	1.4196	0.1973
PC_2 =1	1.3382	1.1784	1.2772	1.4522	0.2314
PC_2 =0	1.3272	1.1762	1.2700	1.4058	0.2247
PC_3 =1	1.3374	1.1762	1.2684	1.4038	0.2508
PC_3 =0	1.3199	1.1824	1.2717	1.4196	0.1973
PC_4 =1	1.3543	1.1833	1.2872	1.4778	0.2297
PC_4 =0	1.3173	1.1726	1.2656	1.3960	0.2228

This table reports descriptive statistics corresponding to the efficiency scores of the banks in our sample. The results have been presented following different classifications. The three panels in the table (panels A, B and C) report the efficiency scores for three selected periods (full period, global crisis or political crisis period). Then each of these panels also reports results for banks with different characteristics based on political connections, considering four different classifications: (i) banks whose board of directors (BoD) or chairman has either direct or indirect political connection (PC_1=1) vs. Banks whose board of directors (BoD) or chairman has no direct or indirect political connection (PC_1=0); (ii) banks whose management or CEO/MD/GM/president has either direct or indirect political connection (PC_2=1) vs. banks whose management or CEO/MD/GM/president has no direct or indirect political connection (PC_2=0); (iii) banks whose BoD, chairman, management or CEO/MD/GM/president has either direct or indirect political connection (PC_3=1) vs. banks whose BoD, chairman, management or CEO/MD/GM/president has either direct or indirect political connection (PC_3=0); and (iv) banks whose BoD, chairman, management or CEO/MD/GM/president has extended political connection (PC_4=1) vs. banks whose BoD, chairman, management or CEO/MD/GM/president has no extended political connection (PC_4=0). The efficiencies were estimated using the Kneip, Simar and Wilson (2008) estimator, which have been obtained adopting an output orientation and, therefore, their values are above 1. The higher the values in the table, the higher the inefficiency, and a value=1 should be interpreted as efficient.

Table 6 Board of directors (BoD) or chairman with either direct or indirect political connection (PC_1), KSW estimator, and regression quantiles

	Quantile (τ)				
Covariates	0.10 (Least Inefficient)	0.25	0.50	0.75	0.90 (Most Inefficient)
(Intercept)	1.105	1.143	1.205	1.315	1.512
(s.e.)	(0.016)	(0.031)	(0.031)	(0.062)	(0.077)
GCC Countries	0.008	0.020	0.025	0.007	-0.096
(s.e.)	(0.016)	(0.018)	(0.022)	(0.048)	(0.055)
Religiously adhered banks	-0.025	-0.029	-0.030	0.015	0.059
(s.e.)	(0.014)	(0.018)	(0.027)	(0.037)	(0.047)
Political turmoil	0.007	0.001	0.007	0.019	-0.069
(s.e.)	(0.017)	(0.025)	(0.032)	(0.051)	(0.079)
Government ownership	-0.045	-0.036	-0.020	-0.007	0.070
(s.e.)	(0.019)	(0.035)	(0.038)	(0.077)	(0.109)
Domestically owned subsidiary	0.131	0.099	0.113	0.215	0.052
(s.e.)	(0.031)	(0.087)	(0.191)	(0.062)	(0.570)
Bank Holding Companies	-0.031	-0.038	-0.020	-0.021	-0.040
(s.e.)	(0.014)	(0.025	(0.024)	(0.043)	(0.062)
PC_1	0.015	0.014	0.027	0.055	0.107
(s.e.)	(0.011)	(0.015)	(0.018)	(0.027)	(0.039)

This table reports regression results corresponding to equation (5), where a quantile regression is considered to disentangle the effects of selected covariates on efficiency. The results in this table correspond to the model in which only the political connection variable corresponding to whether the board of directors or chairman has either direct or indirect political connection (PC_1) is included, along with the rest of control variables. The columns on the left correspond to the effects of these variables on the least inefficient banks, whereas the columns on the right correspond to the effects on the most inefficient banks. The central column corresponds to the median effect (τ=0.50). We report both regression coefficients as well as the standard errors. The t-statistics are obtained by dividing each coefficient by its corresponding standard error, which indicates that for the political connection variable (PC1) the link is particularly strong, both in terms of magnitude of the coefficient and significance, for the upper quantiles (corresponding to the most inefficient banks).

Table 7 Management or CEO/MD/GM/president with either direct or indirect political connections (PC_2), KSW estimator, and regression quantiles

	Quantile (τ)				
Covariates	0.1 (Least Inefficient)	0.25	0.5	0.75	0.9 (Most Inefficiency)
(Intercept)	1.111	1.160	1.209	1.348	1.565
(s.e.)	(0.016)	(0.031)	(0.027)	(0.066)	(0.107)
GCC Countries	0.010	0.019	0.022	-0.019	-0.077
(s.e.)	(0.018)	(0.018)	(0.021)	(0.046)	(0.070)
Religiously adhered banks	-0.020	-0.032	-0.030	0.029	0.111
(s.e.)	(0.012)	(0.019)	(0.024)	(0.040)	(0.055)
Political turmoil	-0.005	-0.001	-0.001	-0.004	-0.100
(s.e.)	(0.016)	(0.025)	(0.029)	(0.052)	(0.082)
Government ownership	-0.039	-0.065	-0.019	0.038	−0.016
(s.e.)	(0.022)	(0.032)	(0.037)	(0.071)	(0.125)
Domestically owned subsidiary	0.106	0.100	0.105	0.194	-0.036
(s.e.)	(0.046)	(0.093)	(0.180)	(0.075)	(0.676)
Bank Holding Companies	-0.031	-0.035	-0.018	-0.018	-0.076
(s.e.)	(0.016)	(0.024)	(0.020)	(0.052)	(0.058)
PC_2	-0.003	-0.016	0.019	0.082	0.120
(s.e.)	(0.022)	(0.024)	(0.029)	(0.052)	(0.083)

This table reports regression results corresponding to equation (5), where a quantile regression is considered to disentangle the effects of selected covariates on efficiency. The results in this table correspond to the model in which only the political connection variable corresponding to whether the management or CEO/MD/GM/president has either direct or indirect political connection (PC_2) is included, along with the rest of control variables. The columns on the left correspond to the effects of these variables on the least inefficient banks, whereas the columns on the right correspond to the effects on the most inefficient banks. The central column corresponds to the median effect (τ=0.50). We report both regression coefficients as well as the standard errors. The t-statistics are obtained by dividing each coefficient by its corresponding standard error, which indicates that for the political connection variable (PC_2) the link is particularly strong, both in terms of magnitude of the coefficient and significance, for the upper quantiles (corresponding to the most inefficient banks).

Table 8: BoD, chairman, management, or CEO/MD/GM/president with either direct or indirect political connections (PC_3), KSW estimator, and regression quantiles

	Quantile (τ)				
Covariates	0.10 (Least Inefficient)	0.25	0.50	0.75	0.90 (Most Inefficient)
(Intercept)	1.109	1.150	1.205	1.312	1.508
(s.e.)	(0.014)	(0.031)	(0.030)	(0.063)	(0.078)
GCC Countries	0.004	0.020	0.024	-0.005	-0.098
(s.e.)	(0.015)	(0.019)	(0.022)	(0.048)	(0.068)
Religiously adhered banks	-0.021	-0.025	-0.032	0.008	0.064
(s.e.)	(0.012)	(0.017)	(0.026)	(0.038)	(0.042)
Political turmoil	-0.001	0.000	0.006	0.013	-0.070
(s.e.)	(0.016)	(0.025)	(0.032)	(0.051)	(0.083)
Government ownership	-0.045	-0.044	-0.015	0.000	0.074
(s.e.)	(0.020)	(0.035)	(0.038)	(0.074)	(0.116)
Domestically owned subsidiary	0.131	0.100	0.113	0.223	0.056
(s.e.)	(0.030)	(0.086)	(0.189)	(0.060)	(0.563)
Bank Holding Companies	-0.031	-0.040	-0.020	-0.018	-0.041
(s.e.)	(0.011)	(0.025)	(0.023)	(0.043)	(0.062)
PC_3	0.010	0.011	0.026	0.064	0.102
(s.e.)	(0.011)	(0.015)	(0.018)	(0.027)	(0.042)

This table reports regression results corresponding to equation (5), where a quantile regression is considered to disentangle the effects of selected covariates on efficiency. The results in this table correspond to the model in which only the political connection variable corresponding to whether the BoD, management or CEO/MD/GM/president has either direct or indirect political connections (PC_3) is included, along with the rest of control variables. The columns on the left correspond to the effects of these variables on the least inefficient banks, whereas the columns on the right correspond to the effects on the most inefficient banks. The central column corresponds to the median effect (τ=0.50). We report both regression coefficients as well as the standard errors. The t-statistics are obtained by dividing each coefficient by its corresponding standard error, which indicates that for the political connection variable (PC_2) the link is particularly strong, both in terms of magnitude of the coefficient and significance, for the upper quantiles (corresponding to the most inefficient banks).

Table 9: BoD, chairman, management, or CEO/MD/GM/president with extended political connection (PC_4), KSW estimator, and regression quantiles

	Quantile (τ)				
Covariates	0.10 (Least Inefficient)	0.25	0.50	0.75	0.90 (Most Efficient)
(Intercept)	1.121	1.180	1.214	1.326	1.574
(s.e.)	(0.017)	(0.031)	(0.028)	(0.064)	(0.092)
GCC *Countries*	0.004	0.014	0.025	0.025	-0.048
(s.e.)	(0.015)	(0.018)	(0.020)	(0.045)	(0.076)
Religiously adhered banks	-0.020	-0.030	-0.023	0.010	0.034
(s.e.)	(0.009)	(0.019)	(0.024)	(0.047)	(0.051)
Political turmoil	-0.007	-0.012	0.004	0.011	-0.058
(s.e.)	(0.016)	(0.023)	(0.032)	(0.052)	(0.080)
Government ownership	-0.048	-0.045	-0.058	-0.049	-0.032
(s.e.)	(0.022)	(0.028)	(0.038)	(0.080)	(0.076)
Domestically owned subsidiary	0.106	0.068	0.149	0.177	-0.027
(s.e.)	(0.038)	(0.088)	(0.173)	(0.068)	(0.669)
Bank Holding Companies	-0.032	-0.053	-0.026	-0.020	-0.081
(s.e.)	(0.014)	(0.023)	(0.021)	(0.051)	(0.053)
PC_4	0.007	0.028	0.037	0.050	0.128
(s.e.)	(0.013)	(0.017)	(0.020)	(0.046)	(0.051)

This table reports regression results corresponding to equation (5), where a quantile regression is considered to disentangle the effects of selected covariates on efficiency. The results in this table correspond to the model in which only the political connection variable corresponding to whether the BoD, chairman, management or CEO/MD/GM/president has either extended political connections (PC_4) is included, along with the rest of control variables. The columns on the left correspond to the effects of these variables on the least inefficient banks, whereas the columns on the right correspond to the effects on the most inefficient banks. The central column corresponds to the median effect (τ=0.50). We report both regression coefficients as well as the standard errors. The t-statistics are obtained by dividing each coefficient by its corresponding standard error, which indicates that for the political connection variable (PC_2) the link is particularly strong, both in terms of magnitude of the coefficient and significance, for the upper quantiles (corresponding to the most inefficient banks).