# Creditor rights and bank capital decisions: Conventional vs. Islamic banking

Mohammad Bitar[1†], Amine Tarazi[2]

[1] Department of Finance, John Molson School of Business, Concordia University, 1455 Blvd. de Maisonneuve West, Montréal, Canada

[2] Université de Limoges, LAPE, 5 rue Félix Eboué, 87031 Limoges Cedex, France; Senior Fellow at the Institut Universitaire de France

## Abstract

Using a sample of banks operating in 24 countries, we provide robust evidence that stronger creditor rights are associated with higher capital adequacy ratios for conventional banks but not for Islamic banks. Such results suggest that, under stronger creditor protection, only the managers of conventional banks increase equity, presumably as a means of signalling better monitoring efforts and of avoiding loss of control. A possible reason for the finding that Islamic banks do not generally increase equity is that, under the profit loss sharing (PLS) principle, depositors share profits and losses with the bank. The role of creditor protection is hence irrelevant in an Islamic banking context. However, we show that in predominantly non-Muslim countries with less competitive markets, Islamic banks show a similar association between creditor rights and capital ratios as conventional banks.

***JEL* classification:** G21, G28, G32, K22

**Keywords:** Creditor rights, market power, religion, bank capital ratios, Islamic banks

[†] Corresponding author.

E-mail addresses: mohammad.bitar@concordia.ca (M. Bitar), amine.tarazi@unilim.fr (A.Tarazi)

# Creditor rights and bank capital decisions: Conventional vs. Islamic banking

**Abstract**

Using a sample of banks operating in 24 countries, we provide robust evidence that stronger creditor rights are associated with higher capital adequacy ratios for conventional banks but not for Islamic banks. Such results suggest that, under stronger creditor protection, only the managers of conventional banks increase equity, presumably as a means of signalling better monitoring efforts and of avoiding loss of control. A possible reason for the finding that Islamic banks do not generally increase equity is that, under the profit loss sharing (PLS) principle, depositors share profits and losses with the bank. The role of creditor protection is hence irrelevant in an Islamic banking context. However, we show that in predominantly non-Muslim countries with less competitive markets, Islamic banks show a similar association between creditor rights and capital ratios as conventional banks.

***JEL* classification:** G21, G28, G32, K22

**Keywords:** Creditor rights, market power, religion, bank capital ratios, Islamic banks

## 1. Introduction

This study focuses on the following questions: Are bank capital decisions associated with creditor rights? Is the relationship between creditor rights and capital decisions identical for conventional banks and Islamic banks? The literature has focused on the link between creditor rights and bank lending decisions such as loan spreads and maturities (Qian and Strahan, 2007; Bae and Goyal, 2009; González, 2016), ownership structure of international syndicated loans (Esty and Megginson, 2003), and multiple lending decisions (Djankov et al. 2006; Bennardo et al. 2015). However, research on whether creditor rights are associated with bank financing (capital) decisions is still scarce.

Better protection of creditors is expected to reduce firm leverage because, under such circumstances, shareholders worry more about loss of control in case of distress (Acharya et al. 2011; Cho et al. 2014). There is limited evidence to suggest that such findings also hold for banks. For example, Houston et al. (2010) show that to attract depositors in environments where creditor rights are stronger, banks set higher capital ratios. However, their study mainly focuses on developed countries and examines the effect of creditor rights on bank risk-taking while only referring to capital ratios in their robustness tests. Furthermore, the question as to whether or not Islamic banks behave similarly to conventional banks from this perspective remains open.

In this paper, we investigate whether creditor rights are significantly associated with the capital ratios of conventional and Islamic banks across a sample of (mainly) developing countries. Specifically, we focus on the differences between the two bank types. For conventional banks, in the presence of a highly protective environment for creditors, bank managers are expected to avoid excessive reliance on deposit-debt financing and by extension any corresponding increase in leverage. In contrast, under the profit and loss sharing principle (PLS) imposed by *Sharia'a* law, the depositors of Islamic banks are not expected to be concerned about creditor rights. Such depositors, referred to as investment account holders (IAHs), share potential losses with shareholders, and thus their capital is not at stake. Under these circumstances, we predict that creditor rights will have a limited effect on Islamic banks' capital decisions while the opposite should be observed for conventional banks.

To empirically assess the impact of creditor rights on conventional and Islamic banks' capital decisions, we use a sample of 680 conventional banks and 113 Islamic banks operating in 24 countries from 1999 to 2013. We find that creditor rights are positively associated with the capital ratios of conventional banks but not with those of Islamic banks.

A deeper investigation shows that, consistent with the view that core capital[1] is a better signalling mechanism than the capital adequacy ratio (Demirgüç-Kunt et al., 2013; Anginer et al., 2014; Bitar et al. 2016), such a relationship essentially holds for conventional banks' core capital but remains insignificant for the core capital of Islamic banks. Moreover, a detailed breakdown of the components of creditor rights shows that giving secured creditors priority over other creditors as well as giving them the authority to replace the existing management in case of distress play an important role in banks' decisions to hold more capital. Further, the results show that the positive association between creditor rights and capital for conventional banks is stronger after the global financial crisis of 2007-2009. This association is also more pronounced for mature banks, for banks in common law countries, for banks in countries with a higher income, for banks in countries with a strong institutional environment and a sound governance. However, a link between creditor rights and bank capital is always absent for Islamic banks.

Our study also examines whether Islamic banks react differently to creditor rights depending on (a) the competitiveness of the banking market and (b) the proportion of Muslim borrowers within the given country. Islamic banks with stronger market power might charge higher rates[2] to Muslim clients (borrowers) for offering *Sharia'a* compliant products (Weill, 2011). These clients might be willing to pay more than less religious Muslim clients to make sure that the products they receive are compliant with Islamic law (Weill, 2011; Abedifar et al., 2013). In addition, religious IAHs, are expected to be willing to share profits and losses with the bank and thus do not require any protection of their deposits. In contrast, clients who are not religious Muslims might not be willing to pay more to borrow from Islamic banks than from conventional banks, which could weaken the demand for Islamic banks' products and reduce their attractiveness. In addition, more costly loans lead to riskier investments and more volatile returns (Turk-Ariss, 2010a) and IAHs who are not religious Muslims are expected to be more sensitive to return rates and default risk than more religious ones. Hence, they might behave similarly to depositors of

[1] Core capital is the bank's Tier1 capital and represents a bank's financial strength from a regulatory perspective. Core capital is primarily composed of common stock, retained earnings and non-cumulative preferred stocks.

[2] Under Islamic law, Islamic banks are prohibited from charging interest rates on their *Sharia'a* compliant products. Instead they use markups or fee based financing techniques. For instance, in a *Murabaha* contract, Islamic banks arrange for the products to be purchased and then sell them to clients with a pre-agreed profit margin (or rates). Bitar et al. (2017) highlight that *Murabaha* contracts constitute 80% of Islamic banks' financing activities.

conventional banks. Consequently, stronger protection of creditors might put pressure on Islamic banks to hold higher capital ratios to protect IAHs who are not religious Muslims, preserve their confidence and thus reduce the withdrawal risk. We find compelling evidence that supports this view.

Our study contributes to the literature on both conventional and Islamic banking in at least three important ways. First, we highlight the existence of a strong positive influence of creditor rights on the capital decisions of conventional banks but not on those of Islamic banks. Nevertheless, we also find that Islamic banks behave similarly to conventional banks in predominantly non-Muslim countries with less competitive banking markets. This could provide regulators and policy makers with an additional tool to create more favorable corporate and institutional conditions to implement the Basel III accords on bank prudential regulation in a successful way. Second, we show that other factors such as the country's income, the country's legal origins, bank age, and the country's economic fluctuations have a significant influence on conventional banks' capital decisions but not on those of Islamic banks. Third, we add to the comparative literature on conventional and Islamic banks (Beck et al. 2013; Abedifar et al. 2013; Mollah and Zaman, 2015, Bitar et al., 2017), by exploring the determinants of bank capital decisions, and we find compelling evidence of dissimilarities between the two bank types.

Overall, our results are robust to alternative estimation techniques, including additional control variables, an instrumental variables approach (IV) and a Heckman estimation technique to control for endogeneity and selection bias, and a propensity score matching (PSM) technique to reduce bias in the sample size.

The rest of the paper is organized as follows. Section 2 briefly reviews the literature and describes the research focus. Section 3 describes the sample, the variables and the empirical model. Section 4 presents the main results. Section 5 examines the impact of bank market power and religion. Section 6 reports the robustness tests and some further investigations. Section 8 concludes.

## 2. Related literature and research focus

While the literature provides abundant evidence on the importance of creditor rights in influencing bank and firm risk taking (Houston et al. 2010; Acharya et al. 2011; Jayaraman and Thakor, 2013) and lending decisions (Djankov et al. 2006; Qian and Strahan, 2007; González, 2016), few empirical studies investigate the impact of creditor rights on capital ratios.

In the corporate finance literature, Acharya et al. (2011) and Cho et al. (2014) show that firms in countries with stronger creditor rights tend to rely less on leverage (especially long-term debt), suggesting

that firm managers and shareholders are less willing to substitute safe capital (such as equity) with risky capital (such as long term debt). Qian and Strahan (2007) find that better protection of creditors facilitates firm access to longer maturity borrowing and at lower interest rates. Thus, lenders are more confident that they will be able to confiscate the assets, or at least threaten to do so, in case of failure. Daher (2017) also finds that the existence of strong legal enforcement and creditor protection reduces the negative effect of covenant violation on firms' debt issuance.

In the banking literature, Houston et al. (2010) show that stronger creditor rights are associated with higher capital ratios for conventional banks in developed countries, indicating that to attract depositors in the presence of a high protective environment for creditors, banks issue more equity capital. To increase their investments, banks need to attract more depositors by signalling a credible monitoring incentive. According to the authors, one way of indicating credible bank monitoring and less risky behavior is through holding more equity capital. By holding higher capital buffers, banks are committing to a certain level of leverage without using depositors' money. Such behavior reflects the "more skin in the game" policy documented by Demirgüç-Kunt et al. (2013).

In contrast to conventional banks, the funding structure of Islamic banks – which has to be *Sharia'a* compliant – is based on three main sources: capital, demand deposits and profit-loss sharing investment accounts. Islamic banks' depositors are considered more like IAHs than depositors. Through the use of restricted and unrestricted investment accounts, depositors of Islamic banks are expected to accept risks and to share profits and losses with bank shareholders. Their deposit returns are dependent on the outcome of the bank's investments and therefore deposit insurance and other forms of creditors' protection are prohibited because they contradict the PLS concept. Accordingly, for Islamic banks, we would not expect a link between creditor rights and bank capital.

However, the above argument is based on an idealized conceptualization of the Islamic banking sector. In practice, there may be some association between creditor rights and Islamic banks' capital ratios, depending on banks' market power and the size of the Muslim population in the given country. Weill (2011) argues that religious Muslim borrowers might exhibit a more inelastic demand than other borrowers, as they are driven by loyalty and respect for *Sharia'a* law. El-Gamal (2007) explains that additional charges for offering *Sharia'a* products are considered as the "cost of being Muslim" and Abedifar et al. (2013) refer to the additional cost as the price of offering *Sharia'a* compliant products. On the depositors' side, in predominantly Muslim countries, IAHs accept the risk of losses and tend to be loyal to their banks. This could reduce the risk of withdrawal (Abedifar et al., 2013), regardless of the

return rate on their deposits. Therefore, the role of capital as a monitoring mechanism is expected to be ineffective because creditors are treated as pure investors. As a result, creditor rights are expected to have a limited effect on Islamic banks' capital ratios in predominantly Muslim countries, especially if those countries have banking sectors with strong market power.

In contrast, clients who are not religious Muslims might be more sensitive to borrowing costs. In this case, the competitiveness of *Sharia'a* compliant products could be lower. One important feature of Islamic banks is their reliance on debt-like financing techniques such as *Murabaha* and *Ijara*. For instance, Beck et al. (2013) find that Islamic banks have a larger involvement in traditional intermediation activities. Turk-Ariss (2010a) also finds that Islamic banks with higher market power allocate a greater share of their assets to finance loans compared to conventional banks, yielding a greater exposure to credit risk. IAHs who are not religious Muslims are expected to be more sensitive to return rates and credit risk. Accordingly, they might react similarly to depositors of conventional banks. Thus, stronger creditor protection might put pressure on Islamic banks to hold higher capital ratios, as a signalling mechanism to preserve the confidence of IAHs who are not religious Muslims and reduce the withdrawal risk. As a result, creditor rights are expected to have a positive effect on Islamic banks' capital ratios in predominately non-Muslim countries, especially if those countries have banking sectors with strong market power.

## 3. Sample and methodology

### *3.1. Sample construction and data sources*

The data used to construct our capital ratios and other bank-level characteristics are collected from the BankScope database. For each bank in the sample, we retrieve annual data from 1999 to 2013. Our initial sample includes banks from 33 countries.

The key independent variable in our investigation is the creditor rights' index of Djankov et al. (2007). Following Cho et al. (2014), we define the index as the sum of four legal measures, i.e. *no automatic stay, secured creditor paid first, restrictions on reorganization, and no management stay*, each of which receives a value of one if a country's regulations provide that specific type of protection, and zero otherwise. More specifically, *no automatic stay* equals one if secured creditors are able to gain possession of assets after the petition for reorganization is approved. *Secured creditor paid first* equals one if secured creditors are given absolute priority to claims during bankruptcy over other creditors such as government or workers. *Restrictions on reorganization* equals one if debtors cannot file for a

reorganization plan without the creditors' consent. Finally, *no management stay* equals one if either the creditors or the court can change the incumbent management during the reorganization, and zero if the management during reorganization has the power to remain in charge. The aggregate creditor rights' index therefore ranges from zero to four with a higher value indicating stronger creditor protection.

We exclude countries such as Bahrain, Brunei, Cayman Islands, Gambia, Iraq, Palestinian territories, Philippines, Qatar, and Sudan because they have no available data on the creditor rights' index. We also exclude banks if they do not have at least 3 continuous observations and banks with negative capital ratios. Our final sample consists of 793 banks (including 113 Islamic banks) operating in 24 countries.

Macroeconomic data such as GDP growth, inflation, and oil and mineral rents are obtained from the World Bank's World Development Indicators (WDI). Financial development and institutional variables are obtained from various sources, such as the World Bank's Worldwide Governance Indicators (WGI), Djankov et al. (2007), the CIA's World Fact Book, and the World Values Surveys (WVS).

*3.2. Variables and empirical model*

We follow Mollah and Zaman (2015) and use random-effect, Generalized Least Squares (GLS) regressions. We use the GLS technique for two reasons. First, regression models such as OLS ignore the panel structure of our data. Second, the creditor rights' index and the Islamic bank dummy are time-invariant and cannot be estimated using a fixed-effects methodology. Accordingly, we employ the following regression models:

$$\mathrm{CAP_{ijt}} = \alpha + \beta_1 \times \mathrm{CR_j} + \beta_2 \times \mathrm{Bank\_deter_{ijt-1}} + \beta_3 \times \mathrm{Macro\_deter_{jt}} + \sum_{T=1}^{T} \beta_t \times \mathrm{YFE_t} + \varepsilon_{it} \qquad (1)$$

$$\mathrm{CAP_{ijt}} = \alpha + \beta_1 \times \mathrm{CR_j} + \beta_2 \times \mathrm{Islamic_i} + \beta_3 \times \mathrm{CR_j} \times \mathrm{Islamic_i} + \beta_4 \times \mathrm{Bank\_deter_{ijt-1}} + \beta_5 \times \mathrm{Macro\_deter_{jt}} + \sum_{T=1}^{T} \beta_t \times \mathrm{YFE_t} + \varepsilon_{it} \qquad (2)$$

where $CAP_{ijt}$ is the bank capital adequacy ratio (*CAP*) for bank i in country j during year t. It is defined as the sum of Tier 1 plus Tier 2 capital divided by risk weighted assets and off-balance sheet exposures. We also use core capital ratio defined as Tier1 capital divided by risk weighted assets and off-balance sheet exposures. $\mathrm{CR_{jt}}$ is the aforementioned index of creditor rights (*CR*) and measures the powers of secured creditors in cases of default.

$Bank\_deter_{ijt-1}$ represents the bank-level determinants of capital ratios identified by the traditional banking and corporate finance literature, i.e. logarithm of total assets (*size*), return on average assets (*profitability*), loans to assets (*diversification*), liquid assets to deposits and short term funding (*liquidity*), and fixed assets to assets (*tangibility*). Bank-level independent variables are lagged by one year for two reasons. First, lagged independent variables might reduce endogeneity. Second, these variables might take more than one year to show any pronounced effect. All bank-level variables are winsorized at the 1% and the 99% levels to mitigate the effect of outliers.

$Macro\_deter_{jt}$ controls for differences in economic conditions and captures the impact of macroeconomic variables on bank capital ratios. It includes GDP growth rate *(GDP growth)*, inflation rate *(inflation)*, and natural resources, i.e. oil rent *(oil)* and mineral rent *(mineral)*. We also use The World Bank's World Governance Indicators (*WGI*) to capture the role of the institutional environment in shaping the financial development in each country.

$YFE_t$ are the year fixed effects and $\varepsilon_{it}$ is a white-noise error term assumed to be normally distributed with zero mean and constant variance, $\varepsilon_{it} \sim iid\ N(0, \sigma^2)$.

An Islamic bank dummy (*Islamic*) and an interaction term between the Islamic bank dummy and the creditor rights' index (*Islamic* × *creditor rights*) are included in Eq. (2). *Islamic* equals one if the bank is an Islamic bank and zero otherwise.

Finally, we follow Beck et al. (2013) and Anginer and Demirgüç-Kunt (2014) and cluster at the bank level, instead of the country level, for two reasons. First, some countries have a much larger number of observations than other countries in the sample. Second, we have twenty-four countries. Therefore, clustering at the country level might create biased results.

Table 1 presents summary statistics for the 24 countries for the capital adequacy ratio, the core capital ratio (Tier 1 capital), the creditor rights' index, the bank-level variables, and the country-level control variables. The numbers suggest a large cross-country variation in capital ratios. For instance, the capital adequacy ratio ranges from a minimum of 11.84% in Bangladesh to a maximum of 29.74% in Yemen. Creditor rights' scores also vary substantially across countries. We find that Kenya, Lebanon and the United Kingdom rank at the top of the creditor rights' index whereas Senegal, Tunisia, and Yemen rank at the bottom. The macroeconomic control variables, namely GDP growth, inflation, oil and mineral rents, also vary widely across countries, indicating that it is likely to be important to control for these variables in our regressions. Finally, Table A.1 in Appendix A presents the number of conventional and

Islamic banks in each country while Table A.2 presents the correlation matrix of the variables that enter our regressions. The sample is dominated by banks from the United Kingdom for conventional banks and Malaysia for Islamic banks. We also notice that for the studied period, the average value of the percentage of available observations (N obs. %) is rather low, at just 59.4% for conventional banks and 57.1% for Islamic ones. As for the correlation matrix, it does not show any major multicollinearity problems between our exogenous variables. With the exception of the high correlation between the two capital ratio measures, the correlation coefficients between the exogenous variables are less than the critical threshold of 0.6.[3] VIF values range between 1 and 1.5, considerably below the critical value of 10 (Bennouri et al. 2018).[4]

[Insert Table 1 around here]

## 4. Main findings

We begin by illustrating the unconditional association between creditor rights and bank regulatory capital ratios, i.e. capital adequacy ratio and core capital ratio, in Table 2. Fig. 1 plots the mean regulatory capital ratios for five groups of countries classified by creditor rights' scores (0 to 4), as reported in Table 2. The graph shows that regulatory capital ratios exhibit an increasing pattern as a function of increasing creditor rights. The univariate analysis of variance (F) test in Table 2 shows that the variation between groups defined by creditors' rights index is significant.

[Insert Figure 1 around here]

[Insert Table 2 around here]

We now report the impact of creditor rights on bank capital adequacy ratios for the sample of conventional banks, the sample of Islamic banks and for the full sample. Results are reported in Table 3. The Wald Chi2 tests are highly significant for all models and the R-squared values are relatively high and similar to previous literature (Houston et al. 2010; Cho et al. 2014). Creditor rights are positively

[3] The Pearson correlation matrix yields relatively low coefficients between creditor rights and capital ratios. This low correlation is probably due to the fact that Pearson's correlation performs better with continuous variables than categorical variables. To overcome this issue, we also generate a Spearman correlation matrix and indeed, we notice an increase in the correlation coefficients between the two variables. Research in corporate finance provides many examples of a very weak correlation between categorical and continuous variables when the Pearson method is used (see for example Gonzalez, 2016; Bennouri et al., 2018).

[4] Value inflation factors or VIFs are used to indicate whether multicollinearity exists between different regressors. High VIFs are considered as a sign of a multicollinearity problem in a regression.

associated with the capital ratios of conventional banks (β1 is positive and significant in Models 1 and 2) but not with those of Islamic banks (Model 6). In Model 2, we observe that a one-standard deviation increase in creditor rights (1.16) is associated with an increase in conventional banks' capital adequacy of 0.484 (=0.417*1.16) or 2.41% (=0.484/20.07; statistically significant at p < 5%). Moreover, our findings for the full sample in Models 9 and 10 confirm both the positive impact of creditor rights on the capital adequacy ratios of conventional banks (β1 is positive and significant) and the lack of an association for Islamic banks ((β1+β3), shown in Panel B, is, in general, not statistically significant). Overall, our results indicate that, in the presence of stronger creditor rights, conventional banks need to hold more capital (Models 1 and 2), which we hypothesize is due to the desire to gain the confidence of depositors. This does not apply to Islamic banks. Given that depositors of Islamic banks agree to share profits and bear losses when they occur, any form of creditor protection to gain depositors' confidence should be irrelevant under *Sharia'a* law.

Next, we ask whether the positive impact of creditor rights on capital is the same for bank core capital ratios. Depositors and regulators view core capital as the most reliable component in the capital adequacy ratio (Arnold et al. 2012; Bitar et al. 2018). In addition, market participants refer to Tier 1 capital as the component that is available to absorb losses in situations of financial distress (Demirgüç-Kunt et al. 2013; Anginer et al. 2014). The results, also reported in Table 3, confirm our expectations for conventional banks both in the separate sample (Models 3 and 4) and the full sample (Models 11 and 12). In Model 4, we observe that a one-standard deviation increase in creditor rights (1.16) is associated with an increase in conventional banks' core capital of 0.63 (=0.547*1.16) or 3.84% (=0.547/16.54; statistically significant at p < 1%). For the full sample (Model 12), the equivalent increase in the core capital of conventional banks is 0.654 (=0.564*1.16) or 3.81% (=0.654/17.18; statistically significant at p < 1%). Thus in an institutional environment that is characterised by stronger creditor protection, banks tend to hold higher capital ratios in the form of core capital. More capital may lead to stronger bank monitoring incentives and this, in turn, improves depositors' and regulators' confidence in bank solvency. Although Islamic banks rely more on core capital[5] than do their conventional counterparts, the results when using core capital as the dependent variable remain insignificant (Panel A, Models 7 and 8, and Panel B, Models 11 and 12).

[Insert Table 3 around here]

[5] Islamic banks are less capable of raising Tier 2 capital because *Sharia'a* law prohibits dealing with debt instruments such as hybrid capital and subordinated debt (e.g. junior security and subordinated loans) as they require interest payments.

With regards to bank-level control variables, we find a negative and significant association between size and capital ratios for the two bank types, possibly reflecting the argument of Beck et al. (2013) and Abedifar et al. (2013) that larger banks are more experienced and have a superior reputation than smaller ones. In addition, large banks benefit from diversification and economy of scales, have lower bankruptcy costs and better access to capital markets. Finally, large Islamic banks have a more privileged position with regard to accessing *Sharia'a* compliant debt instruments and levering the use of investment accounts; thus, they rely less on capital. As for profitability, we find a positive and significant relationship with capital ratios, possibly because banks in developing countries rely more on their retained earnings, especially if the economic and financial environment is not well developed. As a result, banks in these countries are more prone to information asymmetry and transaction costs and hence raising either debt or equity might be more expensive. The coefficient estimate of the loans-to-assets ratio shows a negative association with capital ratios but only for conventional banks, suggesting that banks with important loan portfolios are less exposed to credit risk, and thus there is no need for them to hold high capital buffers. Finally, the coefficient estimate for tangibility shows a positive and significant effect on bank capital ratios although the results are not significant in all models. This finding could reflect the fact that a higher proportion of tangible assets in the bank balance sheet reduces moral hazard problems by allowing banks to have a clearer view of the allocation of their resources. This implies that the cost of issuing equity is expected to be lower than the cost of raising debt when information asymmetry is neglected.

As for country-level control variables, we find that the governance indicator has a positive impact on bank capital adequacy and core capital for both bank types. Therefore, in the presence of a strong institutional environment in terms of rule of law, regulatory quality, and control of corruption, banks are more capable of raising equity than debt. We also find that inflation is negatively associated with capital ratios for both bank types, possibly reflecting the tax shield benefit of debt and its positive association with bank leverage. Finally, we show that banks operating in countries with higher oil and mineral rents have higher capital ratios. Such results indicate that banks can benefit from the prices of natural resources to increase their equity base in the form of retained earnings and/or reserves to protect against future changes in economic conditions (political instability, oil price volatility, etc.).

## 5. The impact of bank market power and religion

We now investigate how bank market power and religion influence the link between creditor rights and capital ratios for conventional and Islamic banks. The literature often refers to the competition-stability hypothesis and the competition-fragility hypothesis to examine the impact of market power on

bank stability.[6] As for the impact of market power on bank capital ratios, the literature is not conclusive. Turk-Ariss (2010a, b) and Forssbaeck (2015) provide evidence that market power increases bank stability by making banks hold higher capital ratios. In contrast, Allen et al. (2011) and Schaeck and Cihák (2012, 2014) find that competition improves bank stability by incentivising banks to hold higher capital ratios. Both sides of the literature conclude that holding a sufficient level of bank capital is an important tool for maintaining bank incentives to monitor by internalising the cost of defaulting. These results concur with the findings of Demirguc-Kunt et al. (2013) on the important role of bank capital.

In this section, we look at the effect of the interaction between market power and creditor rights on bank capital ratios in a dual market where conventional and Islamic banks compete, an issue that has not been addressed in the comparative literature between the two bank types. In conventional banking, the presence of strong creditor rights appears to be driving banks to hold higher capital ratios as a way of gaining depositors' confidence. We now ask whether strong market power can influence bank managers' capital decisions in countries with dual banking systems.

To do this, we introduce the Lerner index to Eqs. (1)–(2) as well as the interaction term between creditor rights and the Lerner index (Creditor rights×Lerner). The Lerner index is commonly used in the banking literature (Turk-Ariss 2010a, b; Weill, 2011; Meslier et al. 2017). It is defined as the difference between the price of financial products and their marginal cost, divided by the price. Banks are usually able to set a price that is higher than the marginal cost in less competitive markets. As a result, a higher value of the Lerner index indicates higher market power and less competitive conditions (see Appendix B for a more detailed presentation of the calculation of the Lerner index).

Results are presented in Table 4 for the capital adequacy ratio and the core capital ratio. Panel A examines the effect of the interaction term between the Lerner index and creditor rights on capital ratios for the two bank types. Panel B examines the relationship between bank capital and creditor rights in countries with strong market power at different values of the Lerner index ($25^{th}$, $50^{th}$, $75^{th}$, and $90^{th}$ percentiles).[7]

[Insert Table 4 around here]

[6] For more details on the two hypotheses, see Turk-Ariss (2010b).

[7] We performed an F-test (Wald) for the degree of significance between the $(\beta_1 + \beta_3)$ coefficients of creditor rights×Lerner index for the different quantiles. Significant differences were observed between the lower and the upper quantiles of the interaction coefficients for Islamic banks while these differences appeared to be marginal or insignificant for conventional banks.

The results in Panel A show that the market power has no influence on the link between creditor rights and the capital ratios of conventional banks (Models 1 to 4). The results in Panel B suggest that the association between creditor rights and capital ratios remains positive in countries with strong market power ((β1+β3) is statistically significant).

As for Islamic banks, the interaction term between creditor rights and the Lerner index shows a positive and significant impact at the 1% level on both the capital adequacy ratio and the core capital ratio (Panel A, Models 5 to 9). In Panel B, the results show that high market power alters the relationship between creditor rights and capital ratios (which was insignificant in the baseline model), resulting in a positive effect on capital ratios of Islamic banks ($(\beta_1 + \beta_3)$ is statistically significant). In other words, in an environment with strong market power, a more protective environment for creditor rights seems to put pressure on Islamic banks to hold higher capital ratios.

Our results so far suggest that creditor rights are positively associated with the capital ratios of Islamic and conventional banks in countries with strong market power. We now ask whether this finding holds across countries with different proportions of Muslim inhabitants. In predominantly non-Muslim countries, we expect IAHs (who are less likely to be religious Muslims) to react in a similar way to depositors of conventional banks. In these countries, regulatory authorities such as the Islamic Financial Services Board (IFSB) and the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) might put more pressure on Islamic banks to support IAHs and treat their accounts as *Sharia'a* compliant substitutes for conventional banks' deposits (IFSB, 2011). In doing so, IAHs would no longer be treated like investors but more like depositors. As a result, Islamic banks might tend to hold higher capital ratios as a signalling and monitoring mechanism to preserve the confidence of IAHs who are not religious Muslims and reduce withdrawal risk.

Accordingly, we examine whether the effect of the interaction between creditor rights and Lerner index on capital ratios differs according to the size of the Muslim population. We follow Mollah et al. (2016) and split our sample between predominantly Muslim countries (Muslim population > the upper quantile of the total population across all countries) and predominantly non-Muslim countries (Muslim population ≤ the upper quantile of the total population across all countries). The results are presented in Table 5 Panel A.1 for predominantly Muslim countries and Panel B.1 for predominantly non-Muslim ones. In Panels A.2 and B.2 we also compute, for different values of the Lerner index, the effect of creditor rights on bank capital ratios. Our findings indicate that the positive and significant impact of creditor rights on capital ratios becomes even stronger with higher values of the Lerner index (Panel B.2

Models 5 to 8). We observe that a one-standard deviation increase in creditor rights (1.16) is associated with an increase in Islamic banks' capital adequacy of 3.142 (=2.709*1.16) or 13.85% (=3.142/22.69; statistically significant at $p < 5\%$) at the 90$^{th}$ percentile of the Lerner index in predominantly non-Muslim countries (Panel B.2 Model 6). These results provide additional support that increased market power in predominantly non-Muslim countries may effectively lead Islamic banks to hold more capital when creditor rights are higher.

[Insert Table 5 around here]

## 6. Further investigations and robustness checks

### *6.1. Components of creditor rights*

To shed more light on the possible impact of creditor protection on bank capital decisions, we run principal component analysis (PCA) on the four elements of the creditor rights' index – *restrictions on reorganization*, *no automatic stay*, *secured creditor paid first*, and *no management stay* – to examine which elements play the most important role. The PCA findings shows that the first component loads *restrictions on reorganization* and *no automatic stay* (CR_PCA1) while the second component combines *secured creditor paid first* and *no management stay* (CR_PCA2). We then use the two components in Eq. (3) as follows:

$$\mathrm{CAP_{ijt}} = \alpha + \beta_1 \times \mathrm{CR\_PCA_j} + \beta_2 \times \mathrm{Islamic_i} + \beta_3 \times \mathrm{CR\_PCA_j} \times \mathrm{Islamic_i} + \beta_4 \times \mathrm{Bank\_deter_{ijt-1}} + \beta_5 \times \mathrm{Macro\_deter_{jt}} + \sum_{T=1}^{T} \beta_t \times \mathrm{YFE_t} + \varepsilon_{it} \qquad (3)$$

In Eq. (3), $\mathrm{CAP_{ijt}}$ represents bank i's capital adequacy ratio or core capital ratio while $\mathrm{CR\_PCA_j}$ represents each of the two components extracted from PCA as mentioned above. The results, presented in Table 6 Panel A, show that *restrictions on reorganization* and *no automatic stay* are the factors that put more pressure on conventional banks to increase their capital ratios. We also notice that the impact is stronger on the core capital ratio than on the capital adequacy ratio. For the sample of Islamic banks, the results remain insignificant (Panel B Models 9 to 11).

The findings for conventional banks suggest that allowing automatic liquidations of insolvent banks by secured creditors might prevent managers and shareholders from controlling the bank, thus giving greater bargaining power to creditors as opposed to managers. In addition, imposing restrictions on bank

management such that they cannot file for a reorganisation plan without creditors' consent again prioritizes creditors' rights above those of managers and shareholders.

[Insert Table 6 around here]

*6.2. Additional control variables*

First, we consider bank internal governance structure and examine whether the inclusion of board of directors' characteristics and those of *Sharia'a* supervisory boards affects the association between creditor rights and bank capital decisions. The existing literature on the association between internal governance and capital decisions is scarce (Anginer et al., 2016; Kieschnick and Moussawi, 2018). One view is that a small board may not be very efficient as it might be overwhelmed with decision-making. Regarding large boards, arguments have been put forward in either direction, i.e., such boards may be either better or worse at representing shareholders' interests, resulting in either lower or higher capital ratios. We argue that a board that favors shareholders' interests at the expense of those of creditors would cancel out or at least weaken the effect of creditor rights, while negatively affecting bank capital ratios. Anginer et al. (2016) argue that shareholder interests may be served by low capitalization, since that bank risk can be shifted to the creditors (or IAHs in the case of Islamic banks). As for the effect of *Sharia'a* supervisory boards, Mollah and Zaman (2015) find a positive effect of *Sharia'a* boards on the performance of Islamic banks. The *Sharia'a* board ensures the compliance of bank investments and profits with Islamic principles while promoting the interests of bank shareholders. By prohibiting interest, speculation and doubtful investments, this supervisory role of the *Sharia'a* board suggests that Islamic banks are less prone to risk and other financial difficulties that may be experienced by conventional banks. This may in turn result in a less important role of bank capital. We use as proxies for effectiveness of the board of directors (*Board size*) and the *Sharia'a* supervisory board (*Sharia'a board*) the number of members on each board. We manually collect the data from bank websites.

The results presented in Table 7 show that, after controlling for internal governance, the coefficients of the creditor rights variable remain positive but with lower significance levels for conventional banks and the full sample. In addition, board size is negatively associated with capital ratios for the two bank types implying that a larger board would promote the interest of bank owners at the expense of bank creditors. Finally, the *Sharia'a* board size variable enters the core capital regression with negative coefficients (Models 7 and 8). A negative association with bank capital can be attributed to the strong role of the *Sharia'a* supervisory board in advising the bank management and hence in avoiding risky and

speculative activities. However, no significant association is found with the capital adequacy ratio (Models 5 and 6). Hence, our results cannot unambiguously establish how *Sharia'a* board size affects bank capitalization.

[Insert Table 7 around here]

Second, we distinguish between fully-fledged Islamic banks and conventional banks with Islamic windows by including a dummy variable (*Window*) that takes on a value of one if the bank is a conventional bank with an Islamic window and zero otherwise. The results for the effect of creditor rights on bank capital ratios are presented in Table 8 and remain highly robust.

Finally, while during our sample period banks were essentially required to follow the Basel II standards, we also control for potential heterogeneity in regulatory capital guidelines due to anticipation of Basel III. Basel III capital standards were scheduled to be implemented as of 2013. To avoid having mixed regulatory standards, we include a dummy variable (*Basel III*) that takes on a value of one if a country drafted (defined), published or put into force the Basel III capital adequacy guidelines before 2014 and zero otherwise. The Basel III dummy takes the value of one either in 2013 or in both 2012 and 2013, depending on the date of implementation or the date of issuance of instructions.[8] Information on the presence of Basel III guidelines is collected from the 2014 Financial Stability Institute (FSI) survey from the BIS, the Regulatory Consistency Assessment Programme (RCAP), and central bank websites for the different countries of the sample. The results for the effect of creditor rights on bank capital ratios are reported in Table 8 and remain highly robust. As for the coefficient of the Basel III dummy itself, we find a negative association with bank capital ratios. As banks are moving forward in implementing Basel III, they are required to enhance the risk-weighted capital framework that proved to be miscalibrated during the financial crisis. Therefore, with the new reform in place banks are now required to adjust their capital ratios, which could explain the negative sign of Basel III. Alternatively, this negative link could be explained by the fact that the countries that took action earlier than others (in 2012 and 2013) could be the ones where capital ratios were, in general, lower than in other countries.

[Insert Table 8 around here]

[8] For instance, regulatory authorities in countries such as Egypt (in 2012), Jordan (in 2013), Kenya (in 2013), Malaysia (in 2013) and Pakistan (in 2013) either drafted new regulations regarding the implementation of Basel III's minimum capital requirements or issued instructions asking their banks to provide them with impact studies to draft and publish new guidelines to apply Basel III. In other countries such as Lebanon, regulators defined and published their new Basel III capital requirements in 2012. Banks in Lebanon were expected to comply with these capital standards as of 2012.

*6.3. Alternative measures of market power and religion*

In the previous sections, we computed the Lerner index for each country and year without separating conventional and Islamic banks. We now compute the Lerner index for each year and for each bank category[9] to check the robustness of the results. Then, we calculate the Lerner index for all banks (Lerner market, Lerner_MKT) as the sum of the Lerner index for conventional banks and the Lerner index for Islamic banks. We use Eqs. (1)–(2) to develop our model. We present the results in Table 9 Panel A.1 for the effect of creditor rights×Lerner_MKT on conventional and Islamic banks' capital ratios. As for the impact of religion, we replace the ratio reflecting the proportion of the population that is Muslim with a variable that captures the importance of religion in each country, computed using data from the World Values Surveys (WVS).

Table 9 Panels B.1 and C.1 present the effect of creditor rights×Lerner_MKT on conventional and Islamic banks' capital ratios after splitting the sample between countries where religion is considered very important versus countries where religion is considered less important.[10] Finally, Table 9 Panels A.2, B.2 and C.2 report the impact of creditor rights on bank capital ratios when market power is high computed at different values of Lerner index ($25^{th}$, $50^{th}$, $75^{th}$, and $90^{th}$ percentiles).

[Insert Table 9 around here]

Table 9, Panels A.2 and C.2 further confirm the baseline results. We find that for the full sample and for countries in which religion is less important, when market power is high, conventional banks continue to hold high capital ratios in the presence of stronger creditor rights. We also find that Islamic banks tend to hold high capital ratios, suggesting that they too feel the need to provide a better signalling mechanism to preserve the confidence of IAHs. In countries where religion is not very important, the results across quantiles further suggest that increased market power may effectively lead Islamic banks to protect their IAHs to a greater extent and to treat them in a similar way to conventional depositors, albeit depositors who are *Sharia'a* compliant.

We also replace the Lerner index by the n-bank concentration ratio, in particular the C3 and C5 ratios (concentration ratios of the biggest three and five banks, according to their share of total assets and

[9] Islamic banks might also compete with each other in a segmented market. Accordingly, computing the Lerner index for each country without separating conventional and Islamic banks might bias the results. Therefore, we re-estimate the Lerner index for each bank category separately to examine whether the between-bank competition for each bank type could affect our findings.
[10] Here we split the sample of banks according to the importance of religion in each country. Specifically, we split the sample into countries where the importance of religion is above the 75th percentile of the populations of the surveyed countries and countries where the importance of religion is below or equal to the 75th percentile of the populations of the surveyed countries.

total customer deposits).[11] Table 10, Panel A presents the results for the effect of creditor rights×C3 on conventional and Islamic banks' capital ratios at different values of C3 (25th, 50th, 75th, and 90th percentiles). Once again, we find that when bank concentration is high, the two bank types tend to hold high capital ratios. The alternative measure of bank competition is also tested in when splitting the sample between predominantly Muslim and predominantly non-Muslim countries. Table 10 Panels B.1 and B.2 report the results. We find that increased bank concentration in predominantly non-Muslim countries may require Islamic banks to protect their depositors by holding higher capital ratios, thus confirming our previous findings.

[Insert Table 10 around here]

*6.4. Sample composition*

We further investigate whether our baseline findings are driven by other factors such as the countries' income and legal origins, bank age, and periods of economic fluctuations.

We first investigate whether the baseline results are robust across countries with different income levels. Djankov et al. (2007) find that wealthier countries might have a more efficient bankruptcy system and thus the legal enforcement for creditor protection is more important. Accordingly, we expect a stronger effect of creditor rights on bank capital ratios in high-income countries. To test this, we use Eq. (4) below and interact creditor rights with two dummy variables ($\mathrm{INC_{jt}}$): (1) *Poor* (equals 1 if country GDP per capita < median and 0 otherwise) and (2) *Rich* (equals 1 if country GDP per capita >= median and 0 otherwise). The results, in Table 11 Panel A, show that operating in a rich country strengthens the positive association between creditor rights and capital ratios for conventional banks, while the findings are not significant for Islamic banks.

$$\mathrm{CAP_{ijt}} = \alpha + \sum_{\mathrm{INC}=1}^{\mathrm{INC}} \beta_{\mathrm{INC}} \times \mathrm{CR_{jt}} \times \mathrm{INC_{jt}} + \sum_{\mathrm{INC}=1}^{\mathrm{INC}} \beta_{\mathrm{R}} \times \mathrm{CR_{jt}} \times \mathrm{INC_{jt}} \times \mathrm{Islamic_i} + \beta_2 \times \mathrm{Bank\_deter_{ijt-1}} + \beta_3 \times \mathrm{Macro\_deter_{jt}} + \sum_{\mathrm{T}=1}^{\mathrm{T}} \beta_{\mathrm{t}} \times \mathrm{YFE_t} + \varepsilon_{\mathrm{it}} \quad (4)$$

[11] We are grateful to the referee for bringing our attention to the use of concentration ratios, i.e. C3 and C5, as alternative measures of bank competition. For brevity, we only report the C3 results and only for total assets. The results for C3 and C5 according to the share of total customer deposits are available from the authors upon request.

Second, we refer to the law and finance literature and examine whether legal origins can affect the association between creditor rights and bank capital decisions. According to Djankov et al. (2007) there are five main legal origins: English, French, German, Nordic, and Socialist. Because our study only concentrates on countries where conventional and Islamic banks operate, we count the existence of the first three legal origins: (i) The English legal origin (*English*), which refers to the common law in England, and colonies to which it spread, such as the KSA, the UAE and Iran; (ii) The French legal origin (*French*), which refers to the civil law of France and its former colonies, such as Algeria, Indonesia, and Turkey; and (iii) The German legal origin (*German*), which refers to the laws of the Germanic countries in central Europe such as Bosnia. We also use Eq. (4) and interact creditor rights with the three legal dummy variables, namely *English*, *French*, and *German*.[12] Table 11 Panel B suggests that operating in a common law country strengthens the positive association between creditor protection and capital ratios, more so than in other legal systems. However, again, Islamic banks are not affected.

[Insert Table 11 around here]

Third, we test whether a bank's decision to hold higher capital ratios in the presence of a more protective environment for creditors is affected by the level of experience of the two bank types. We also use Eq. (4) and interact creditor rights with three dummy variables that represent bank experience.[13] Table 12 Panel A consistently shows that when conventional banks are mature, the positive association between creditor rights and capital ratios is strengthened. Interestingly, the results show that in the presence of strong creditor rights, young Islamic banks are also inclined to hold high capital ratios compared to their young conventional counterparts and compared to more established Islamic banks. The F-test (Wald) for the degree of significance between creditor rights' coefficients of Islamic and conventional banks confirm these findings. The significant positive association between creditor rights and young Islamic banks' capital implies that less experienced banks with a less established reputation

[12] English legal origin takes on a value of one if the country applies common law in its legal system, and zero otherwise. French legal origin takes on a value of one if the country applies civil law in its legal system, and zero otherwise. German legal origin takes on a value of one if the country applies Germanic law in its legal system, and zero otherwise.

[13] We proxy for experience using bank age. Banks that have been operating for a period less than ten years are categorized as *young* banks (*Young* equals one if young, zero otherwise), while those which have been operating for a period ranging between ten and twenty years are considered *middle-aged* banks (*Middle* equals one if middle-aged, zero otherwise). Finally, banks which have been operating for more than twenty years are considered *mature* banks (*Mature* equals one if mature, zero otherwise).

might effectively need to hold high capital ratios to gain the confidence of customers and attract new depositors.

Finally, we examine whether the association between creditor protection and capital ratios varies for different periods of an economic cycle – that is, periods of growth versus financial distress. Because the sample includes the subprime crisis period, Table 12 Panel B examines the period *before* (1999–2006), *during* (2007–2009), and *after* (2010–2013) the financial crisis. We use Eq. (4) and interact creditor rights with three dummy variables that represent periods (cycles) *before*, *during*, and *after* the subprime crisis. We find that for conventional banks, the positive association between creditor rights and capital ratios is stronger in the post crisis period. Such results could reflect the strict policies in terms of new banking regulatory guidelines and a more protective institutional environment in the period that followed the subprime crisis.

[Insert Table 12 around here]

*6.5. Endogeneity and self-selection bias*

Current literature on Islamic and conventional banks is largely silent about endogeneity and lacks specific instruments that can be used when examining the association between creditor rights and bank capital. In this study, we use an instrumental variables approach (IV). We refer to Meslier et al. (2017) and include the two-year lagged value of the profitability ratio and the lagged value of the profitability ratio of the banking industry, as well as the bank- and the country-level control variables. The Kleibergen-Paap F-statistics indicate that our instruments are valid. In addition, the non-significant value of the Hansen J-statistics (an over-identification test) shows that our instruments are not correlated with the error term. The results of the first-stage regressions are reported in Table 13 Panel A, Models (1), (6), and (11). They show that the two instruments are positively associated with conventional and Islamic banks' capital adequacy ratio. The results of the second-stage regressions are reported in Table 13 Panel A, Models (2) and (3) for conventional banks, Models (7) and (8) for Islamic banks, and (12) and (13) for the entire sample. We use two estimation techniques: (1) Two-Stage Least Squares regression (2SLS) and (3) Generalized Method of Moments (GMM). The second stage regression results show clear evidence of a positive and significant association at the 1% level between creditor rights and capital ratios for conventional banks and the entire sample, thus providing additional support for our earlier findings and suggesting that the results are not driven by endogeneity. Table 13 Panels B and C report the results when

considering the effect of the interaction between creditor rights and bank market power on capital adequacy ratio. The findings continue to show that both bank types hold higher capital ratios when market power is stronger.

[Insert Table 13 around here]

Second, we use a Heckman (1979) selection approach to correct for a potential self-selection bias in the sample choice between highly capitalized banks and less capitalized ones. In a first step, we estimate a probit model that regresses a dummy variable – which takes on a value of one if a bank's capital adequacy ratio has a value greater than or equal to the median and zero otherwise – on the two instruments used before (lagged values of the profitability ratio and the profitability ratio of the banking industry). The regression also includes bank- and country-level control variables and year fixed effects. In the second-stage regression, we use the capital adequacy ratio as the dependent variable and the creditor rights' index as the independent variable, along with the same control variables and a self-selection parameter (measured as the inverse Mills ratio) estimated from the first-stage regression. The results of the first-stage regressions are reported in Table 13, Panel A, Models (4), (9), and (14) and show that the two instruments are positively associated with the capital adequacy ratios. The results of the second-stage regressions are reported in Table 13, Panel A, Models (5), (10), and (15) and continue to suggest that conventional banks are more capitalized in countries with a higher creditor rights' index while the results are insignificant for Islamic banks. Table 13 Panels B and C report very similar results when considering the effect of the interaction between creditor rights and bank market power. Therefore, our results remain robust even after correcting for a potential self-selection bias.[14]

## 7. Concluding remarks

The aim of this paper is to investigate whether capital decisions for Islamic banks and conventional banks are associated with creditor rights. Our findings consistently indicate that only conventional banks tend to hold higher capital ratios in the presence of stronger creditor protection, presumably to secure depositors' confidence. As regards Islamic banks, presumably because the PLS principle imposed by *Sharia'a* law considers depositors as investors who agree to share profits and losses with shareholders, the extent of creditor protection does not influence these banks' decision to hold more or less capital.

[14] For brevity, we only report the results for capital adequacy ratio. The results for core capital ratio are very similar and available from the authors upon request. In further unreported results, we control for additional omitted variables, use a propensity score matching (PSM) technique, and use four alternative estimation methods. The results remain unchanged and are available from the authors upon request.

Nevertheless, a deeper investigation shows that in predominantly non-Muslim countries with strong market power, managers of Islamic banks tend to hold more capital in the presence of stronger creditor protection. Thus, these managers might feel pressure to protect their depositors by holding more capital to reduce the withdrawal risk and maintain their market share of deposits. Under such conditions, *Sharia'a* compliant deposits might in fact closely resemble conventional deposits.

Our work sheds light on the differences in the factors associated with capital ratios for conventional and Islamic banks. It also has important policy implications for dual banking systems where the two types of bank operate under the authority of a single regulator. Regulators and supervisors need to account for such differences in their monitoring process and in deciding upon the additional amount of regulatory capital required for each bank (pillar two of Basel III).

## References


Abedifar, P., Molyneux, P., and Tarazi, A. (2013) Risk in Islamic banking. *Review of Finance* **17**, 2035–2096.

Acharya, V.V., Amihud, Y., and Litov, L. (2011) Creditor rights and corporate risk-taking, *Journal of* Financial Economics 102, 150-166.

Anginer, D., and Demirgüç-Kunt, A. (2014) Bank capital and systemic stability. Policy Research Working Paper No. 6948, The World Bank, Washington, DC.

Anginer, D., Demirgüç-Kunt, A., and Zhu, M. (2014) How does bank competition affect bank systemic risk? *Journal of Financial Intermediation* **23**, 1–26.

Anginer, D., Demirguc-Kunt, A., Huizinga, H., and Ma, K. (2016) Corporate governance and bank capitalization strategies, *Journal of Financial Intermediation* 26, 1–27.

Arnold, B., Borio, C., Ellis, L., and Moshirian, F. (2012) Systemic risk, macroprudential policy framework, monitoring financial systems and the evolution of capital adequacy, *Journal of Banking & Finance* **36**, 3125–3132.

Bae, K-H., Goyal, V.K. (2009) Creditor rights, enforcement, and bank loans, *The Journal of Finance* **64**, 823–860.

Beck, T., Demirgüç-Kunt, A., and Merrouche, O. (2013) Islamic vs. conventional banking: Business model, efficiency and stability, *Journal of Banking & Finance* **37**, 433–447.

Bennardo, A., Pagano, M., and Piccolo, S. (2015) Multiple bank lending, creditor rights, and information sharing, *Review of Finance* **19**, 519–570.

Bennouri, M., Chtioui, T, Nagati, H., and Nekhili, M. (2018) Female board directorship and firm performance: What really matters? *Journal of Banking & Finance* **88**, 267–291.

Bitar, M., Hassan, M.K., and Walker, T. (2017) Political systems and the financial soundness of Islamic banks, *Journal of Financial Stability* **31**, 18–44.

Bitar, M., Hassan, M.K., Pukthuanthong, K., and Walker, T. (2018) The performance of Islamic vs. conventional banks: Evidence on the suitability of capital ratios, *Open Economies Review*, forthcoming, 1–36.

Bitar, M., Madiès, P. (2017) Les banques islamiques sont-elles si islamiques que cela ? Conséquences en matière de fonds propres réglementaires, *Revue d'Economie Financière* **125**, 287–312.

Bitar, M., Saad, W., and Benlemlih, M. (2016) Bank risk and performance in the MENA region: The importance of capital requirements, *Economic Systems* **40**, 398–421.

Cho, S. S., El-Ghoul, S., Guedhami, O., and Suh, J. (2014) Creditor rights and capital structure: Evidence from international data, *Journal of Corporate Finance* **25**, 40–60.

Daher, M. (2017) Creditor control rights, capital structure, and legal enforcement, *Journal of Corporate Finance* **44**, 308–330.

Demirgüç-Kunt, A., Detragiache, E., and Merrouche, O. (2013) Bank capital: Lessons from the financial crisis, *Journal of Money, Credit and Banking* **45**, 1147–1164.

Djankov, S., McLiesh, C. and Shleifer, A. (2007) Private credit in 129 countries, *Journal of Financial Economics* **84**, 299-329.

El-Gamal, M. (2007) Incoherence of contract-based Islamic financial jurisprudence in the age of financial engineering, Rice University, mimeo.

Esty, B.C., and Megginson, W.L. (2003) Creditor rights, enforcement, and debt ownership structure: Evidence from the global syndicated loan market, *The Journal of Financial and Quantitative Analysis* **38**, 37–59.

Ghosh, S. (2016) Political transition and bank performance: how important was the Arab Spring? *Journal of Comparative Economics* **44**, 372–382.

González, F. (2016) Creditor rights, bank competition, and corporate investment during the global financial crisis, *Journal of Corporate Finance* **37**, 249–270.

Holmstrom, B., and Tirole, J. (1997) Financial Intermediation, Loanable Funds, and the Real Sector, *Quarterly Journal of Economics* **112**, 663–91.

Houston, J.F., Lin, C., Lin, P., and Ma, Y. (2010) Creditor rights, information sharing, and bank risk taking, *Journal of Financial Economics* **96**, 485–512.

Islamic Financial Services Board (IFSB) (2005) Capital adequacy standard for institutions (other than insurance institutions) offering only Islamic financial services, Islamic Financial Services Board, Malaysia.

Islamic Financial Services Board (IFSB) (2010) Guidance note on the practice of smoothing the profits payout to investment accounts holders, Islamic Financial Services Board, Malaysia.

Islamic Financial Services Board (IFSB). (2011) Guidance note in connection with the IFSB capital adequacy standard: The determination of Alfa in the capital adequacy ratio for institutions offering only financial Islamic services, Islamic Financial Services Board, Malaysia.

Jayaraman, S. and Thakor, A.V. (2013) The effect of creditor rights on bank monitoring, capital structure and risk-taking, Finance working paper 387, European Corporate Governance Institute.

Kaufmann, D., Kraay, A., Mastruzzi, M. (2013) The worldwide governance indicators: Methodology and Analytical Issues: 1996–2013. World Bank.

Kieschnick, R. and Moussawi, R. (2018) Firm age, corporate governance, and capital structure choices, *Journal of Corporate Finance* **48**, 597–614.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R.W. (1997) Legal determinants of external finance, *The Journal of Finance* **52**, 1131–1150.

La Porta, R., Lopez-de-Silanes, F., Shleifer, A., and Vishny, R.W. (1998) Law and finance, *Journal of Political Economy* **106**, 1113–1155.

Meslier, C., Risfandy, T., and Tarazi, A. (2017) Dual market competition and deposit rate setting in Islamic and conventional banks, *Economic Modelling* **63**, 318 – 333.

Mollah, S. and Zaman, M. (2015) Shari'ah supervision, corporate governance, and performance: Conventional vs. Islamic banks, *Journal of Banking & Finance* **58**, 418–435.

Mollah, S., Hassan, K., Al-Farooque, O., and Mobarek, A. (2016) The governance, risk-taking, and performance of Islamic banks, *Journal of Financial Services Research*, Forthcoming (In press).

Qian, J. and Strahan, P. E. (2007) How laws and institutions shape financial contracts: The case of bank loans, *The Journal of Finance* **62**, 2803–2834

Rajan, R.G., and Zingales, L. (1995) What do we know about capital structure? Some evidence from international data. *The Journal of Finance* **50**, 1421–1460.

Turk-Ariss, R. (2010a) Competitive conditions in Islamic and conventional banking: A global perspective, *Review of Financial Economics* **19**, 101–108.

Turk-Ariss, R. (2010b) On the implications of market power in banking: Evidence from developing countries, *Journal of Banking & Finance* **34**, 765–775.

Weill, L. (2011) Do Islamic Banks Have Greater Market Power? *Comparative Economics Studies* **53**, 291–306.

# Tables

**Table 1**
Summary statistics

| | Capital adequacy | Core capital | Size | Profitably | Risk | Liquidity | Tangibility | Lerner | Lerner_MKT | Governance | Creditor rights | GDP growth | Inflation | Oil | Minerals |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Panel A. Descriptive statistics by country* | | | | | | | | | | | | | | | |
| Albania | 19.78 | 13.99 | 12.61 | 0.49 | 52.05 | 45.67 | 2.33 | 0.13 | 0.07 | -0.39 | 3.00 | 5.03 | 3.15 | 2.11 | 0.24 |
| Algeria | 17.99 | 14.64 | 14.09 | 1.50 | 61.20 | 54.73 | 2.60 | 0.47 | 0.42 | -0.87 | 1.00 | 3.61 | 9.00 | 22.99 | 0.12 |
| Bangladesh | 11.84 | 9.60 | 13.28 | 0.83 | 62.93 | 27.60 | 1.56 | 0.22 | 0.21 | -0.89 | 2.00 | 5.82 | 5.43 | 0.11 | 0.00 |
| Bosnia | 21.51 | 23.62 | 12.15 | 0.42 | 73.64 | 49.35 | 5.49 | 0.16 | 0.16 | -0.40 | 3.00 | 3.89 | 5.21 | 0.00 | 0.55 |
| Egypt | 16.67 | 13.34 | 14.53 | 0.85 | 41.42 | 37.78 | 1.20 | 0.16 | 0.22 | -0.53 | 2.00 | 4.41 | 8.14 | 8.22 | 0.20 |
| Indonesia | 22.60 | 17.44 | 13.59 | 1.18 | 53.43 | 42.66 | 1.60 | 0.18 | 0.20 | -0.63 | 2.00 | 5.11 | 10.67 | 4.14 | 1.65 |
| Iran | 19.48 | 17.30 | 16.03 | 1.47 | 60.22 | 30.33 | 3.59 | 0.26 | 0.27 | -1.62 | 2.00 | 3.96 | 18.04 | 25.87 | 0.65 |
| Jordan | 16.95 | 14.06 | 14.64 | 1.13 | 44.89 | 42.18 | 1.63 | 0.29 | 0.32 | -0.02 | 1.00 | 5.26 | 4.76 | 0.00 | 1.26 |
| Kenya | 24.43 | 22.41 | 11.97 | 1.58 | 66.21 | 41.86 | 2.91 | 0.23 | 0.24 | -0.72 | 4.00 | 4.18 | 6.44 | 0.00 | 0.07 |
| Kuwait | 20.91 | 18.92 | 15.63 | 1.27 | 45.96 | 39.58 | 2.69 | 0.33 | 0.36 | 0.20 | 3.00 | 4.63 | 10.10 | 49.39 | 0.00 |
| Lebanon | 19.75 | 17.44 | 13.82 | 0.69 | 26.89 | 41.73 | 2.65 | 0.20 | 0.14 | -0.55 | 4.00 | 4.34 | 2.14 | 0.00 | 0.00 |
| Malaysia | 20.66 | 17.75 | 15.14 | 0.89 | 50.31 | 45.16 | 0.49 | 0.25 | 0.26 | 0.35 | 3.00 | 5.13 | 3.48 | 6.63 | 0.11 |
| Mauritania | 18.45 | . | 11.49 | 1.28 | 50.58 | 50.03 | 5.56 | 0.33 | 0.10 | -0.55 | 1.00 | 4.37 | 6.14 | 4.35 | 25.22 |
| Pakistan | 15.06 | 12.07 | 13.22 | 0.24 | 40.99 | 28.13 | 2.88 | 0.11 | 0.16 | -1.01 | 1.00 | 4.05 | 10.94 | 0.83 | 0.05 |
| Saudi Arabia | 19.74 | 17.96 | 16.60 | 2.13 | 53.46 | 33.07 | 1.36 | 0.45 | 0.44 | -0.22 | 3.00 | 5.10 | 6.58 | 43.80 | 0.02 |
| Senegal | 15.06 | 13.25 | 12.36 | 1.05 | 68.97 | 25.80 | 3.01 | 0.17 | 0.17 | 1.49 | 0.00 | 3.94 | 2.29 | 0.00 | 0.86 |
| Singapore | 28.51 | 21.18 | 15.31 | 1.04 | 46.52 | 35.23 | 0.41 | 0.25 | 0.25 | 0.33 | 3.00 | 5.77 | 0.87 | 0.00 | 0.00 |
| South Africa | 17.97 | 14.96 | 13.99 | 1.16 | 75.59 | 27.46 | 1.05 | 0.22 | 0.19 | -1.52 | 3.00 | 3.34 | 7.10 | 0.12 | 2.18 |
| Syria | 29.59 | 26.87 | 13.45 | 0.46 | 35.27 | 79.44 | 3.94 | 0.39 | 0.41 | -0.09 | 3.00 | 3.05 | 7.01 | 22.11 | 0.00 |
| Tunisia | 16.3 | 13.56 | 13.71 | 0.61 | 61.01 | 43.77 | 1.89 | 0.29 | 0.27 | -0.12 | 0.00 | 4.11 | 3.54 | 3.76 | 0.65 |
| Turkey | 18.89 | 16.43 | 15.17 | 1.50 | 48.52 | 43.13 | 1.98 | 0.16 | 0.22 | 0.51 | 2.00 | 3.90 | 19.76 | 0.16 | 0.14 |
| UAE | 21.39 | 18.64 | 15.41 | 1.98 | 61.55 | 33.29 | 1.44 | 0.42 | 0.42 | 1.47 | 2.00 | 4.55 | 7.96 | 20.59 | 0.00 |
| UK | 15.57 | 18 | 14.32 | 0.37 | 37.45 | 70.65 | 0.86 | 0.10 | 0.19 | -0.92 | 4.00 | 1.90 | 2.20 | 1.02 | 0.00 |
| Yemen | 29.74 | 13.52 | 12.34 | 0.62 | 24.06 | 51.44 | 2.45 | 0.09 | 0.24 | -1.12 | 0.00 | 2.70 | 13.36 | 28.59 | 0.00 |
| *Panel B. Descriptive statistics for conventional banks* | | | | | | | | | | | | | | | |
| N | 3,633 | 2,529 | 6,257 | 6,227 | 6,211 | 5,820 | 6,094 | 4,957 | | | | | | | |
| Mean | 19.63 | 16.51 | 14.01 | 1.00 | 49.83 | 45.79 | 1.80 | 0.21 | | | | | | | |
| Min | 10.05 | 7.51 | 9.69 | -9.54 | 3.06 | 2.16 | 0.01 | 0.05 | | | | | | | |
| Q1 | 13.40 | 11.3 | 12.54 | 0.40 | 33.03 | 20.52 | 0.50 | 0.11 | | | | | | | |
| Median | 16.50 | 14.64 | 13.86 | 1.01 | 52.24 | 34.27 | 1.12 | 0.23 | | | | | | | |
| Q3 | 21.77 | 18.1 | 15.31 | 1.75 | 67.24 | 57.84 | 2.21 | 0.34 | | | | | | | |
| Max | 49.01 | 42.25 | 19.89 | 8.23 | 88.74 | 314.97 | 13.43 | 0.91 | | | | | | | |
| SD | 9.77 | 8.3 | 2.09 | 2.00 | 22.75 | 42.55 | 2.20 | 0.73 | | | | | | | |
| *Panel C. Descriptive statistics for Islamic banks* | | | | | | | | | | | | | | | |
| N | 612 | 530 | 926 | 923 | 916 | 876 | 909 | 761 | | | | | | | |
| Mean | 21.29 | 18.38 | 14.10 | 0.59 | 53.73 | 46.91 | 2.43 | 0.22 | | | | | | | |
| Min | 9.43 | 7.70 | 10.76 | -20.14 | 0.03 | 1.46 | 0.00 | 0.01 | | | | | | | |
| Q1 | 13.01 | 11.08 | 12.64 | 0.31 | 41.51 | 19.00 | 0.59 | 0.11 | | | | | | | |
| Median | 16.01 | 13.97 | 14.28 | 0.84 | 58.85 | 28.89 | 1.56 | 0.27 | | | | | | | |
| Q3 | 21.05 | 17.94 | 15.50 | 1.54 | 69.58 | 48.82 | 2.95 | 0.37 | | | | | | | |
| Max | 86.00 | 79.80 | 16.93 | 14.58 | 98.86 | 546.19 | 17.23 | 0.85 | | | | | | | |
| SD | 16.76 | 15 | 1.79 | 3.13 | 22.94 | 68.97 | 3.05 | 0.27 | | | | | | | |

*Notes:* This table presents descriptive statistics by country for the full sample (Panel A), for the sample of conventional banks (Panel B), and for the sample of Islamic banks (Panel C). The reported values in Panel A are the means of the respective variables for each country. The sample consists of 793 conventional and Islamic banks operating in 24 countries over the period 1999–2013.

**Table 2**
Bank regulatory capital ratios as a function of countries' creditor rights

| Value of creditor rights' index | Capital adequacy (%) | Core capital (%) |
|---|---|---|
| 0 | 15.6 | 13.52 |
| 1 | 16.31 | 1323 |
| 2 | 19.08 | 15.01 |
| 3 | 21.21 | 18.74 |
| 4 | 21.39 | 19.37 |
| F-value* (Chi2) | 21.91*** | 41.01*** |

This table presents the pattern of regulatory capital ratios, i.e. capital adequacy and core capital, as a function of the creditor rights' index. *Analysis of Variance F-test for regulatory capital ratios' mean difference conditioned on different values of the creditor rights' index.

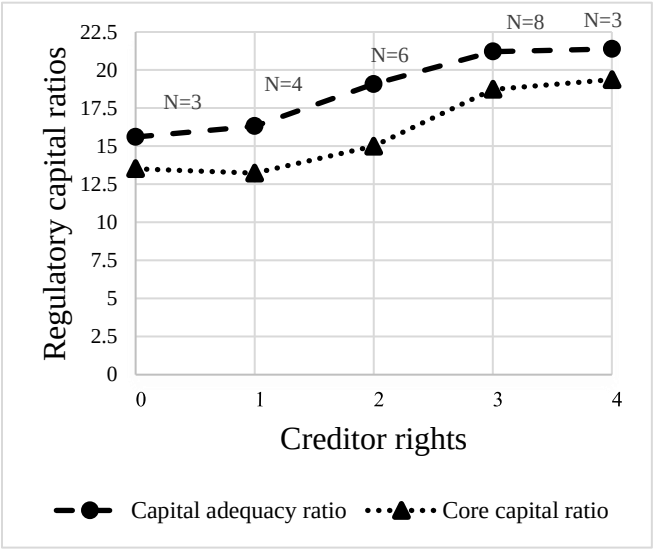


**Fig. 1.** Mean capital adequacy ratio and core capital ratio for groups of countries classified by creditor rights. The mean regulatory capital ratio for each value of the creditor rights' index is calculated by a two-step approach. First, we compute the mean regulatory capital ratios for all bank-years of each country for the 1999-2013 period. Second, we calculate the mean of these countries' means for a group defined by a given creditor rights' index. N is the number of countries that belong to each of the five creditor rights' groups.

**Table 3**
The effect of creditor rights on bank capital ratios

| Panel A. The impact of creditor rights on bank capital ratios | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conventional banks | | | | Islamic banks | | | | Full sample | | | |
| | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | |
| Model # | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Creditor rights ($\beta_1$) | 0.354** | 0.417** | 0.539*** | 0.547*** | 0.918* | 0.46 | 0.786 | 0.247 | 0.364** | 0.440** | 0.567*** | 0.564*** |
| | (0.171) | (0.174) | (0.175) | (0.188) | (0.505) | (0.555) | (0.515) | (0.604) | (0.171) | (0.171) | (0.172) | (0.182) |
| Size | -0.688*** | -0.709*** | -0.938*** | -0.942*** | -1.287*** | -1.681*** | -1.666*** | -2.096*** | -0.713*** | -0.75*** | -0.972*** | -0.992*** |
| | (0.089) | (0.088) | (0.083) | (0.085) | (0.327) | (0.308) | (0.378) | (0.344) | (0.085) | (0.085) | (0.082) | (0.084) |
| Profitability | 0.090** | 0.082* | 0.189*** | 0.188*** | 0.219*** | 0.192*** | 0.414*** | 0.365*** | 0.096** | 0.083** | 0.21*** | 0.201*** |
| | (0.044) | (0.045) | (0.058) | (0.059) | (0.077) | (0.067) | (0.078) | (0.073) | (0.039) | (0.039) | (0.049) | (0.049) |
| Risk | -0.041*** | -0.043*** | -0.041*** | -0.043*** | -0.005 | 0.003 | -0.021 | -0.013 | -0.036*** | -0.038*** | -0.036*** | -0.037*** |
| | (0.009) | (0.008) | (0.010) | (0.011) | (0.009) | (0.010) | (0.014) | (0.016) | (0.007) | (0.007) | (0.008) | (0.008) |
| Liquidity | 0.004 | 0.005 | -0.001 | -0.001 | 0.004 | 0.006* | -0.001 | -0.000 | 0.004* | 0.006** | 0.001 | 0.002 |
| | (0.004) | (0.004) | (0.008) | (0.009) | (0.003) | (0.004) | (0.004) | (0.004) | (0.002) | (0.003) | (0.004) | (0.005) |
| Tangibility | 0.132* | 0.109 | 0.051 | 0.009 | 0.427*** | 0.253 | 0.605*** | 0.437** | 0.168*** | 0.137** | 0.145* | 0.104 |
| | (0.068) | (0.071) | (0.076) | (0.078) | (0.157) | (0.156) | (0.174) | (0.178) | (0.063) | (0.065) | (0.076) | (0.079) |
| Governance | 1.244*** | 1.167*** | 1.653*** | 1.672*** | 1.7*** | 1.674*** | 1.828*** | 1.726*** | 1.267*** | 1.164*** | 1.61*** | 1.513*** |
| | (0.271) | (0.272) | (0.231) | (0.249) | (0.530) | (0.534) | (0.552) | (0.591) | (0.242) | (0.241) | (0.210) | (0.218) |
| GDP growth | | -0.022 | | -0.06 | | -0.053 | | -0.034 | | -0.027 | | -0.021 |
| | | (0.025) | | (0.021) | | (0.056) | | (0.073) | | (0.023) | | (0.021) |
| Inflation | | -0.025* | | -0.008 | | -0.062** | | -0.049** | | -0.026** | | -0.014 |
| | | (0.013) | | (0.011) | | (0.026) | | (0.024) | | (0.011) | | (0.010) |
| Oil | | 0.048*** | | 0.019 | | 0.144*** | | 0.146*** | | 0.062*** | | 0.048*** |
| | | (0.012) | | (0.014) | | (0.025) | | (0.023) | | (0.012) | | (0.013) |
| Mineral | | 0.159** | | 0.206** | | 0.247* | | 0.189 | | 0.157** | | 0.2** |
| | | (0.069) | | (0.099) | | (0.146) | | (0.116) | | (0.067) | | (0.085) |
| Islamic | | | | | | | | | -1.450 | -1.211 | 0.565 | 0.782 |
| | | | | | | | | | (1.227) | (1.234) | (1.250) | (1.250) |
| Islamic × | | | | | | | | | 0.453 | 0.099 | -0.119 | -0.425 |
| Creditor rights ($\beta_3$) | | | | | | | | | (0.496) | (0.495) | (0.532) | (0.532) |
| Constant | 28.44*** | 28.71*** | 29.81*** | 29.88*** | 33.26*** | 38.60*** | 38.23*** | 44.00*** | 28.48*** | 28.85*** | 29.76*** | 29.87*** |
| | (1.498) | (1.480) | (1.598) | (1.659) | (5.080) | (4.808) | (5.816) | (5.035) | (1.406) | (1.379) | (1.414) | (1.435) |
| N | 3,129 | 3,020 | 2,276 | 2,194 | 445 | 423 | 390 | 369 | 3,574 | 3,443 | 2,666 | 2,563 |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R2 | 0.179 | 0.22 | 0.239 | 0.271 | 0.246 | 0.382 | 0.25 | 0.38 | 0.185 | 0.232 | 0.233 | 0.282 |
| Chi2 | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** |
| Panel B. Impact of creditor rights on capital ratios of Islamic banks ($\beta_1 + \beta_3$) compared to conventional banks ($\beta_1$) | | | | | | | | | | | | |
| | | | | | | | | | 0.817* | 0.539 | 0.448 | 0.139 |
| | | | | | | | | | (0.461) | (0.465) | (0.502) | (0.503) |

*Notes:* Standard errors are clustered at the bank level and are reported in parentheses below their coefficient estimates.
* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

**Table 4**
The effect of market power on the association between creditor rights and bank capital ratios

| Panel A. Controlling for market power | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conventional banks | | | | Islamic banks | | | | Entire sample | | | |
| | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | |
| Model # | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Creditor | 0.460** | 0.514** | 0.671*** | 0.677*** | 0.29 | 0.043 | 0.369 | 0.061 | 0.466** | 0.517** | 0.649*** | 0.602*** |
| rights ($\beta_1$) | (0.225) | (0.222) | (0.228) | (0.245) | (0.537) | (0.587) | (0.553) | (0.668) | (0.207) | (0.207) | (0.213) | (0.227) |
| Lerner | 1.608 | 1.608 | 0.503 | 0.375 | -4.854*** | -4.456** | -5.149*** | -5.385** | 1.026 | 0.856 | 0.071 | -0.086 |
| | (1.017) | (1.017) | (0.728) | (0.776) | (1.643) | (2.050) | (1.703) | (2.316) | (0.850) | (0.856) | (0.579) | (0.622) |
| Creditor rights | -0.627* | -0.601* | -0.253 | -0.24 | 2.915*** | 2.265** | 3.001*** | 2.605*** | -0.424 | -0.411 | -0.103 | -0.077 |
| × Lerner ($\beta_3$) | (0.336) | (0.332) | (0.243) | (0.258) | (0.704) | (1.119) | (0.622) | (0.954) | (0.281) | (0.281) | (0.193) | (0.209) |
| Size | -0.59*** | -0.636*** | -0.892*** | -0.892*** | -1.165*** | -1.515*** | -1.583*** | -1.917*** | -0.616*** | -0.659*** | -0.93*** | -0.932*** |
| | (0.116) | (0.112) | (0.114) | (0.114) | (0.359) | (0.333) | (0.362) | (0.315) | (0.109) | (0.107) | (0.105) | (0.107) |
| Profitability | 0.095* | 0.095* | 0.173** | 0.183*** | 0.297** | 0.26** | 0.462*** | 0.448*** | 0.127*** | 0.124** | 0.225*** | 0.228*** |
| | (0.053) | (0.054) | (0.068) | (0.070) | (0.116) | (0.110) | (0.083) | (0.086) | (0.049) | (0.049) | (0.060) | (0.060) |
| Risk | -0.043*** | -0.045*** | -0.037*** | -0.039*** | -0.005 | 0.008 | -0.017 | -0.016 | -0.038*** | -0.04*** | -0.033*** | -0.034*** |
| | (0.0106) | (0.011) | (0.012) | (0.013) | (0.014) | (0.018) | (0.019) | (0.026) | (0.009) | (0.009) | (0.010) | (0.010) |
| Liquidity | 0.003 | 0.003 | -0.004 | -0.003 | 0.008 | 0.01* | 0.001 | 0.001 | 0.003 | 0.004 | -0.002 | -0.001 |
| | (0.005) | (0.005) | (0.009) | (0.010) | (0.006) | (0.006) | (0.005) | (0.006) | (0.003) | (0.003) | (0.005) | (0.006) |
| Tangibility | 0.183** | 0.143* | 0.067 | 0.026 | 0.532** | 0.225 | 0.648** | 0.391 | 0.201*** | 0.155** | 0.132 | 0.087 |
| | (0.082) | (0.084) | (0.094) | (0.090) | (0.260) | (0.267) | (0.262) | (0.259) | (0.075) | (0.077) | (0.091) | (0.089) |
| Governance | 1.104*** | 0.987*** | 1.383*** | 1.326*** | 1.866*** | 1.879*** | 2.232*** | 2.085*** | 1.153*** | 0.964*** | 1.451*** | 1.215*** |
| | (0.324) | (0.332) | (0.274) | (0.289) | (0.643) | (0.617) | (0.562) | (0.602) | (0.283) | (0.290) | (0.236) | (0.243) |
| GDP growth | | -0.05 | | 0.002 | | -0.112* | | -0.114 | | -0.061* | | -0.021 |
| | | (0.036) | | (0.029) | | (0.067) | | (0.118) | | (0.032) | | (0.031) |
| Inflation | | -0.033** | | -0.021* | | -0.038 | | -0.0136 | | -0.026* | | -0.018 |
| | | (0.017) | | (0.013) | | (0.044) | | (0.038) | | (0.015) | | (0.013) |
| Oil | | 0.059*** | | 0.042*** | | 0.127*** | | 0.131*** | | 0.065*** | | 0.062*** |
| | | (0.015) | | (0.015) | | (0.031) | | (0.028) | | (0.013) | | (0.014) |
| Mineral | | 0.161** | | 0.250** | | 0.747* | | 0.742 | | 0.179** | | 0.265*** |
| | | (0.0735) | | (0.100) | | (0.396) | | (0.486) | | (0.078) | | (0.093) |
| Constant | 26.76*** | 27.50*** | 28.6*** | 28.43*** | 32.03*** | 36.47*** | 36.75*** | 41.51*** | 26.85*** | 26.85*** | 28.88*** | 28.55*** |
| | (1.977) | (1.939) | (2.068) | (2.094) | (5.611) | (5.050) | (5.578) | (4.608) | (1.800) | (1.800) | (1.785) | (1.806) |
| N | 2,019 | 1,937 | 1,528 | 1,464 | 313 | 291 | 280 | 259 | 2,332 | 2,228 | 1,808 | 1,723 |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R2 | 0.181 | 0.232 | 0.184 | 0.252 | 0.368 | 0.476 | 0.388 | 0.533 | 0.191 | 0.244 | 0.194 | 0.275 |
| Panel B. Impact of creditor rights when market power is high ($\beta_1 + \beta_3$) on conventional banks' (Models 1 to 4), Islamic banks' (Models 5 to 8) and the entire sample's (Models 9 to 12) capital ratios computed at different values of the Lerner index | | | | | | | | | | | | |
| 25$^{th}$percentile | 0.394* | 0.451** | 0.644*** | 0.651*** | 0.597 | 0.282 | 0.686 | 0.337 | 0.421** | 0.474** | 0.638*** | 0.593*** |
| | (0.214) | (0.212) | (0.222) | (0.238) | (0.551) | (0.605) | (0.576) | (0.697) | (0.200) | (0.200) | (0.209) | (0.222) |
| 50$^{th}$percentile | 0.313 | 0.373* | 0.611*** | 0.62*** | 0.975* | 0.576 | 1.075* | 0.674 | 0.366* | 0.421** | 0.624*** | 0.584*** |
| | (0.209) | (0.207) | (0.218) | (0.233) | (0.580) | (0.656) | (0.613) | (0.749) | (0.197) | (0.198) | (0.208) | (0.220) |
| 75$^{th}$percentile | 0.244 | 0.306 | 0.583*** | 0.593** | 1.297** | 0.826 | 1.407** | 0.962 | 0.319 | 0.375* | 0.613*** | 0.575*** |
| | (0.212) | (0.211) | (0.219) | (0.234) | (0.615) | (0.719) | (0.651) | (0.806) | (0.199) | (0.202) | (0.209) | (0.221) |
| 90$^{th}$percentile | 0.169 | 0.235 | 0.553** | 0.565** | 1.646** | 1.097 | 1.766** | 1.273 | 0.268 | 0.326 | 0.601*** | 0.566** |
| | (0.221) | (0.221) | (0.224) | (0.236) | (0.661) | (0.805) | (0.697) | (0.878) | (0.208) | (0.211) | (0.212) | (0.224) |

*Notes:* Standard errors are clustered at the bank level and are reported in parentheses below their coefficient estimates.
* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

**Table 5**
The effect of market power on the association between creditor rights and bank capital ratios: Predominantly Muslim vs. predominantly non-Muslim countries

| | Conventional banks | | | | Islamic banks | | | | Entire sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | |
| Model # | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Panel A.1. Predominantly Muslim countries | | | | | | | | | | | | |
| Creditor | -0.825 | -1.176 | -0.556 | -0.818 | -1.691* | -1.600** | -2.276* | -1.259 | -0.481 | -0.904 | -0.111 | -0.942 |
| rights ($\beta_1$) | (0.986) | (1.025) | (0.930) | (1.270) | (1.002) | (0.784) | (1.185) | (1.241) | (0.879) | (0.917) | (0.864) | (0.997) |
| Lerner | -0.500 | -0.335 | -2.277 | -2.354 | -5.163** | -3.536 | -3.648 | -3.117 | -1.105 | -0.343 | -1.838 | -1.423 |
| | (1.389) | (1.338) | (1.505) | (1.592) | (2.601) | (2.512) | (2.461) | (3.515) | (1.277) | (1.257) | (1.271) | (1.326) |
| Creditor rights | 0.602 | 0.226 | 2.026 | 2.048 | 6.471*** | 1.513 | 6.245*** | 3.293 | 1.098 | 0.222 | 1.843 | 1.350 |
| × Lerner ($\beta_3$) | (1.366) | (1.316) | (1.371) | (1.451) | (1.501) | (2.234) | (1.592) | (3.266) | (1.295) | (1.273) | (1.213) | (1.304) |
| N | 329 | 329 | 277 | 277 | 78 | 78 | 67 | 67 | 407 | 407 | 344 | 344 |
| Bank & country control | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R2 | 0.209 | 0.29 | 0.244 | 0.256 | 0.556 | 0.691 | 0.583 | 0.642 | 0.161 | 0.222 | 0.181 | 0.228 |
| Panel A.2. Impact of creditor rights when market power is high ($\beta_1 + \beta_3$) on conventional banks' (Models 1 to 4), Islamic banks' (Models 5 to 8) and the entire sample's (Models 9 to 12) capital ratios computed at different values of the Lerner index, in predominantly Muslim countries | | | | | | | | | | | | |
| 25$^{th}$percentile | -0.755 | -1.15 | -0.319 | -0.578 | -0.934 | -1.423* | -1.545 | -0.873 | -0.352 | -0.878 | 0.104 | -0.784 |
| | (0.869) | (0.929) | (0.826) | (1.185) | (0.882) | (0.770) | (1.061) | (1.268) | (0.783) | (0.858) | (0.782) | (0.987) |
| 50$^{th}$percentile | -0.659 | -1.114 | 0.002 | -0.253 | 0.092 | -1.183 | -0.554 | -0.351 | -0.178 | -0.843 | 0.397 | -0.57 |
| | (0.735) | (0.828) | (0.719) | (1.102) | (0.756) | (0.884) | (0.926) | (1.471) | (0.687) | (0.816) | (0.703) | (1.012) |
| 75$^{th}$percentile | -0.588 | -1.087 | 0.241 | -0.011 | 0.855 | -1.005 | 0.182 | 0.037 | -0.048 | -0.817 | 0.614 | -0.411 |
| | (0.665) | (0.781) | (0.676) | (1.068) | (0.702) | (1.042) | (0.862) | (1.711) | (0.650) | (0.816) | (0.674) | (1.056) |
| 90$^{th}$percentile | -0.515 | -1.06 | 0.487 | 0.236 | 1.639** | -0.821 | 0.938 | 0.436 | 0.084 | -0.79 | 0.837 | -0.247 |
| | (0.628) | (0.764) | (0.669) | (1.061) | (0.690) | (1.241) | (0.835) | (2.005) | (0.647) | (0.845) | (0.675) | (1.122) |
| Panel B.1. Predominantly non-Muslim countries | | | | | | | | | | | | |
| Creditor | 0.969*** | 1.605*** | 1.163*** | 1.825*** | 1.177 | 0.560 | 1.475 | 1.001 | 1.080*** | 1.671*** | 1.269*** | 1.850*** |
| rights ($\beta_1$) | (0.299) | (0.292) | (0.301) | (0.304) | (1.257) | (1.331) | (1.199) | (1.460) | (0.289) | (0.282) | (0.286) | (0.292) |
| Lerner | 3.730** | 3.808** | 1.573 | 1.987 | -10.88 | -10.76 | -11.62 | -11.00 | 3.361** | 3.685** | 1.349 | 1.926 |
| | (1.764) | (1.818) | (1.328) | (1.431) | (7.598) | (7.564) | (7.229) | (7.371) | (1.675) | (1.724) | (1.267) | (1.386) |
| Creditor rights | -1.331** | -1.397** | -0.608 | -0.763 | 5.040* | 4.826* | 5.143** | 4.691* | -1.202** | -1.341** | -0.528 | -0.734 |
| × Lerner ($\beta_3$) | (0.584) | (0.601) | (0.442) | (0.477) | (2.665) | (2.705) | (2.486) | (2.522) | (0.554) | (0.568) | (0.422) | (0.462) |
| N | 1,690 | 1,608 | 1,251 | 1,187 | 235 | 213 | 213 | 192 | 1,925 | 1,821 | 1,464 | 1,379 |
| Bank & country control | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R2 | 0.204 | 0.344 | 0.239 | 0.412 | 0.553 | 0.558 | 0.538 | 0.592 | 0.231 | 0.364 | 0.267 | 0.412 |
| Panel B.2. Impact of creditor rights when market power is high ($\beta_1 + \beta_3$) on conventional banks' (Models 1 to 4), Islamic banks' (Models 5 to 8), and the entire sample's (Models 9 to 12) capital ratios computed at different values of the Lerner index, in predominantly non-Muslim countries | | | | | | | | | | | | |
| 25$^{th}$percentile | 0.832*** | 1.461*** | 1.1*** | 1.746*** | 1.697 | 1.059 | 2.006* | 1.486 | 0.956*** | 1.533*** | 1.215*** | 1.774*** |
| | (0.290) | (0.279) | (0.292) | (0.289) | (1.101) | (1.168) | (1.067) | (1.302) | (0.280) | (0.269) | (0.277) | (0.278) |
| 50$^{th}$percentile | 0.67** | 1.291*** | 1.026*** | 1.653*** | 2.31** | 1.646 | 2.632*** | 2.056* | 0.81*** | 1.37*** | 1.15*** | 1.685*** |
| | (0.295) | (0.279) | (0.290) | (0.283) | (0.987) | (1.009) | (0.973) | (1.166) | (0.284) | (0.270) | (0.275) | (0.271) |
| 75$^{th}$percentile | 0.53* | 1.144*** | 0.962*** | 1.573*** | 2.84*** | 2.153** | 3.172*** | 2.549** | 0.683** | 1.229*** | 1.095*** | 1.607*** |
| | (0.313) | (0.299) | (0.296) | (0.286) | (0.968) | (1.009) | (0.973) | (1.105) | (0.299) | (0.285) | (0.282) | (0.274) |
| 90$^{th}$percentile | 0.376 | 0.983*** | 0.892*** | 1.485*** | 3.42*** | 2.709** | 3.765*** | 3.089*** | 0.545* | 1.074*** | 1.034*** | 1.523*** |
| | (0.344) | (0.330) | (0.311) | (0.300) | (1.038) | (1.064) | (1.045) | (1.108) | (0.328) | (0.314) | (0.296) | (0.287) |

*Notes:* In all panels, we only report the coefficient estimates of the creditor rights' index, the Lerner index, and their interactions to save space. Standard errors are clustered at the bank level and are reported in parentheses below their coefficient estimates.
* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

**Table 6**
The effect of creditor rights' variables extracted from principal components analysis on bank capital ratios

| Panel A. The impact of creditor rights' components on bank capital ratios | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conventional banks | | | | Islamic banks | | | | Entire sample | | | |
| | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | |
| Model # | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| CR_PCA1 | 0.333** | | 0.46*** | | 0.212 | | 0.036 | | 0.339** | | 0.439*** | |
| | (0.141) | | (0.150) | | (0.451) | | (0.524) | | (0.138) | | (0.144) | |
| CR_PCA2 | | 0.083 | | 0.006 | | 0.36 | | 0.281 | | 0.14 | | 0.073 |
| | | (0.176) | | (0.179) | | (0.498) | | (0.501) | | (0.168) | | (0.176) |
| Size | -0.727*** | -0.683*** | -0.971*** | -0.909*** | -1.677*** | -1.648*** | -2.084*** | -2.057*** | -0.767*** | -0.72*** | -1.014*** | -0.953*** |
| | (0.090) | (0.086) | (0.088) | (0.083) | (0.317) | (0.316) | (0.357) | (0.339) | (0.087) | (0.083) | (0.087) | (0.082) |
| Profitability | 0.08* | 0.08* | 0.184*** | 0.179*** | 0.19*** | 0.186*** | 0.36*** | 0.36*** | 0.082** | 0.08** | 0.198*** | 0.195*** |
| | (0.044) | (0.045) | (0.059) | (0.059) | (0.068) | (0.068) | (0.077) | (0.074) | (0.039) | (0.039) | (0.049) | (0.049) |
| Risk | -0.042*** | -0.044*** | -0.042*** | -0.043*** | 0.005 | 0.002 | -0.012 | -0.014 | -0.036** | -0.038*** | -0.036*** | -0.038*** |
| | (0.008) | (0.008) | (0.011) | (0.011) | (0.010) | (0.011) | (0.015) | (0.016) | (0.007) | (0.007) | (0.008) | (0.008) |
| Liquidity | 0.005 | 0.005 | -0.001 | 0.000 | 0.007* | 0.006* | -0.000 | -0.001 | 0.006** | 0.006** | 0.003 | 0.003 |
| | (0.004) | (0.004) | (0.009) | (0.009) | (0.004) | (0.004) | (0.004) | (0.004) | (0.003) | (0.003) | (0.005) | (0.005) |
| Tangibility | 0.108 | 0.111 | 0.003 | -0.004 | 0.244 | 0.243 | 0.427** | 0.435** | 0.136** | 0.136** | 0.1 | 0.094 |
| | (0.071) | (0.071) | (0.078) | (0.079) | (0.152) | (0.155) | (0.177) | (0.175) | (0.065) | (0.065) | (0.079) | (0.079) |
| Governance | 0.926*** | 1.155*** | 1.343*** | 1.551*** | 1.555** | 2.044*** | 1.741** | 1.975*** | 0.913*** | 1.235*** | 1.229*** | 1.49*** |
| | (0.272) | (0.335) | (0.240) | (0.310) | (0.716) | (0.652) | (0.819) | (0.642) | (0.251) | (0.298) | (0.223) | (0.278) |
| GDP growth | -0.019 | -0.025 | -0.01 | -0.019 | -0.049 | -0.056 | -0.032 | -0.037 | -0.023 | -0.03 | -0.017 | -0.026 |
| | (0.025) | (0.026) | (0.021) | (0.021) | (0.056) | (0.057) | (0.073) | (0.073) | (0.023) | (0.024) | (0.021) | (0.021) |
| Inflation | -0.026** | -0.029** | -0.009 | -0.011 | -0.064** | -0.065** | -0.051** | -0.05** | -0.027** | -0.029*** | -0.016 | -0.017* |
| | (0.013) | (0.013) | (0.011) | (0.011) | (0.025) | (0.025) | (0.024) | (0.024) | (0.011) | (0.011) | (0.010) | (0.010) |
| Oil | 0.043*** | 0.048*** | 0.013 | 0.02 | 0.143*** | 0.15*** | 0.147*** | 0.150*** | 0.057*** | 0.063*** | 0.043*** | 0.049*** |
| | (0.013) | (0.012) | (0.014) | (0.014) | (0.027) | (0.024) | (0.025) | (0.023) | (0.012) | (0.012) | (0.013) | (0.013) |
| Mineral | 0.156** | 0.14** | 0.219** | 0.176* | 0.251* | 0.239 | 0.191 | 0.186 | 0.154** | 0.140** | 0.211** | 0.173** |
| | (0.073) | (0.065) | (0.101) | (0.095) | (0.149) | (0.146) | (0.116) | (0.114) | (0.071) | (0.064) | (0.086) | (0.082) |
| Islamic | | | | | | | | | -1.098*** | -1.104** | -0.33 | -0.245 |
| | | | | | | | | | (0.407) | (0.499) | (0.443) | (0.574) |
| Islamic × CR_PCA1 | | | | | | | | | 0.035 | | -0.301 | |
| | | | | | | | | | (0.304) | | (0.310) | |
| Islamic × CR_PCA2 | | | | | | | | | | 0.031 | | 0.122 |
| | | | | | | | | | | (0.371) | | (0.408) |
| Constant | 29.97*** | 29.44*** | 31.63*** | 30.75*** | 39.43*** | 39.44*** | 44.3*** | 44.25*** | 30.12*** | 29.61*** | 31.55*** | 30.77*** |
| | (1.518) | (1.463) | (1.757) | (1.686) | (4.704) | (4.554) | (5.295) | (5.013) | (1.412) | (1.361) | (1.499) | (1.436) |
| N | 3,020 | 3,020 | 2,194 | 2,194 | 423 | 423 | 369 | 369 | 3,443 | 3,443 | 2,563 | 2,563 |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R2 | 0.217 | 0.207 | 0.27 | 0.249 | 0.383 | 0.376 | 0.381 | 0.373 | 0.23 | 0.221 | 0.2815 | 0.264 |
| Wald Chi2 | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** |
| Panel B. Impact of creditor rights' variables extracted from principal components analysis on capital ratios of Islamic banks ($\beta_1 + \beta_3$) | | | | | | | | | | | | |
| | | | | | | | | | 0.374 | 0.171 | 0.138 | 0.195 |
| | | | | | | | | | (0.293) | (0.381) | (0.300) | (0.411) |

*Notes:* Standard errors are clustered at the bank level and are reported in parentheses below their coefficient estimates.
* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

**Table 7**
The effect of creditor rights on bank capital ratios: Controlling for the internal governance structure

| Panel A. The impact of creditor rights on bank capital ratios | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conventional banks | | | | Islamic banks | | | | Full sample | | | |
| | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | |
| Model # | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Creditor | 0.242 | 0.27 | 0.545** | 0.473* | 0.899 | 0.705 | 0.217 | -0.003 | 0.348* | 0.363* | 0.493** | 0.407* |
| rights ($\beta_1$) | (0.228) | (0.231) | (0.241) | (0.256) | (0.581) | (0.633) | (0.582) | (0.476) | (0.209) | (0.211) | (0.217) | (0.231) |
| Size | -0.622*** | -0.617*** | -0.905*** | -0.864*** | -0.376* | -0.859*** | -0.487* | -1.113*** | -0.594*** | -0.652*** | -0.86*** | -0.891*** |
| | (0.114) | (0.110) | (0.107) | (0.108) | (0.225) | (0.255) | (0.286) | (0.233) | (0.103) | (0.101) | (0.100) | (0.102) |
| Profitability | 0.091 | 0.094 | 0.207*** | 0.214*** | 0.314** | 0.266** | 0.418*** | 0.328** | 0.118** | 0.109** | 0.237*** | 0.23*** |
| | (0.061) | (0.061) | (0.068) | (0.069) | (0.131) | (0.127) | (0.117) | (0.128) | (0.056) | (0.055) | (0.058) | (0.057) |
| Risk | -0.017* | -0.02** | -0.022** | -0.023** | -0.021 | -0.021 | 0.001 | 0.003 | -0.019** | -0.021** | -0.024*** | -0.025*** |
| | (0.009) | (0.010) | (0.009) | (0.009) | (0.021) | (0.022) | (0.025) | (0.024) | (0.009) | (0.009) | (0.008) | (0.009) |
| Liquidity | 0.011** | 0.014** | 0.009 | 0.013* | 0.001 | 0.002 | 0.002 | 0.00172 | 0.007* | 0.01** | 0.005 | 0.006 |
| | (0.005) | (0.005) | (0.006) | (0.007) | (0.003) | (0.004) | (0.004) | (0.00324) | (0.004) | (0.004) | (0.004) | (0.004) |
| Tangibility | 0.304*** | 0.304*** | 0.194* | 0.197* | 0.326** | 0.175 | 0.414** | 0.167 | 0.275*** | 0.256** | 0.202** | 0.163* |
| | (0.111) | (0.115) | (0.111) | (0.113) | (0.160) | (0.178) | (0.186) | (0.172) | (0.097) | (0.104) | (0.093) | (0.095) |
| Governance | 1.686*** | 1.527*** | 1.854*** | 1.754*** | 0.571 | 0.611 | 0.706 | 0.542 | 1.615*** | 1.463*** | 1.744*** | 1.574*** |
| | (0.321) | (0.319) | (0.271) | (0.289) | (0.564) | (0.524) | (0.648) | (0.534) | (0.288) | (0.285) | (0.235) | (0.244) |
| Board size | -0.072 | -0.07 | -0.088** | -0.089** | -0.28*** | -0.251*** | -0.263*** | -0.22*** | -0.11*** | -0.098** | -0.113*** | -0.109*** |
| | (0.047) | (0.047) | (0.041) | (0.041) | (0.073) | (0.075) | (0.065) | (0.065) | (0.042) | (0.042) | (0.036) | (0.036) |
| Sharia'a board | | | | | -0.131 | -0.102 | -0.276* | -0.294* | | | | |
| | | | | | (0.115) | (0.117) | (0.160) | (0.156) | | | | |
| GDP growth | | -0.021 | | -0.023 | | -0.14*** | | -0.084* | | -0.039 | | -0.029 |
| | | (0.031) | | (0.028) | | (0.044) | | (0.049) | | (0.028) | | (0.026) |
| Inflation | | -0.018 | | -0.005 | | 0.005 | | 0.006 | | -0.015 | | -0.006 |
| | | (0.017) | | (0.014) | | (0.022) | | (0.024) | | (0.013) | | (0.012) |
| Oil | | 0.039*** | | 0.018 | | 0.104*** | | 0.133*** | | 0.058*** | | 0.046*** |
| | | (0.012) | | (0.015) | | (0.025) | | (0.020) | | (0.013) | | (0.014) |
| Mineral | | 0.174 | | 0.135 | | -0.082 | | 0.878 | | 0.173 | | 0.153* |
| | | (0.132) | | (0.095) | | (0.514) | | (0.561) | | (0.128) | | (0.092) |
| Islamic | | | | | | | | | 0.188 | 0.048 | 0.538 | 0.557 |
| | | | | | | | | | (0.490) | (0.474) | (0.526) | (0.505) |
| Creditor rights | | | | | | | | | -0.172 | -0.401** | -0.064 | -0.293 |
| × Lerner ($\beta_3$) | | | | | | | | | (0.202) | (0.182) | (0.214) | (0.192) |
| Constant | 26.61*** | 26.36*** | 28.38*** | 27.59*** | 23.75*** | 30.85*** | 24.30*** | 33.04*** | 26.51*** | 27.17*** | 28.17*** | 28.6*** |
| | (2.040) | (1.977) | (1.919) | (1.911) | (4.369) | (4.771) | (5.184) | (3.972) | (1.826) | (1.782) | (1.785) | (1.772) |
| N | 1,881 | 1,806 | 1,459 | 1,402 | 296 | 280 | 263 | 249 | 2,184 | 2,093 | 1,727 | 1,656 |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R2 | 0.203 | 0.241 | 0.282 | 0.309 | 0.258 | 0.348 | 0.256 | 0.463 | 0.212 | 0.259 | 0.27 | 0.319 |
| Chi2 | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** |
| Panel B. Impact of creditor rights on capital ratios of Islamic banks ($\beta_1 + \beta_3$) compared to conventional banks ($\beta_1$) | | | | | | | | | | | | |
| | | | | | | | | | 0.176 | -0.039 | 0.428 | 0.114 |
| | | | | | | | | | (0.286) | (0.275) | (0.308) | (0.297) |

*Notes:* Standard errors are clustered at the bank level and are reported in parentheses below their coefficient estimates.
* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

**Table 8**
The effect of creditor rights on bank capital ratios: Controlling for Islamic bank windows and the Basel III capital standards

Panel A. The impact of creditor rights on bank capital ratios

| | Conventional banks | | | | Islamic banks | | | | Full sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | |
| Model # | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Creditor | 0.337** | 0.398** | 0.579*** | 0.564*** | 0.831* | 0.299 | 0.614 | -0.199 | 0.349** | 0.426** | 0.638*** | 0.614*** |
| rights ($\beta_1$) | (0.170) | (0.170) | (0.177) | (0.188) | (0.497) | (0.526) | (0.530) | (0.570) | (0.169) | (0.167) | (0.178) | (0.185) |
| Size | -0.616*** | -0.647*** | -0.797*** | -0.799*** | -1.298*** | -1.672*** | -1.738*** | -2.154*** | -0.636*** | -0.681*** | -0.859*** | -0.874*** |
| | (0.095) | (40.09) | (0.087) | (0.090) | (0.356) | (0.329) | (0.409) | (0.353) | (0.092) | (0.091) | (0.089) | (0.091) |
| Profitability | 0.109** | 0.102** | 0.203*** | 0.202*** | 0.233*** | 0.198*** | 0.383*** | 0.334*** | 0.112*** | 0.099** | 0.219*** | 0.21*** |
| | (0.046) | (0.046) | (0.057) | (0.058) | (0.081) | (0.068) | (0.074) | (0.071) | (0.042) | (0.041) | (0.049) | (0.049) |
| Risk | -0.043*** | -0.047*** | -0.033*** | -0.036*** | -0.008 | 0.001 | -0.019 | -0.006 | -0.039*** | -0.041*** | -0.032*** | -0.033*** |
| | (0.009) | (0.009) | (0.010) | (0.010) | (0.010) | (0.012) | (0.014) | (0.016) | (0.008) | (0.008) | (0.008) | (0.008) |
| Liquidity | 0.004 | 0.005 | 0.006 | 0.007 | 0.003 | 0.006 | -0.0008 | 0.001 | 0.004* | 0.005** | 0.004 | 0.006* |
| | (0.004) | (0.004) | (0.005) | (0.005) | (0.003) | (0.004) | (0.004) | (0.004) | (0.002) | (0.002) | (0.003) | (0.003) |
| Tangibility | 0.137** | 0.109 | 0.056 | 0.008 | 0.427** | 0.225 | 0.521*** | 0.339* | 0.173*** | 0.136** | 0.137* | 0.089 |
| | (0.068) | (0.070) | (0.077) | (0.078) | (0.170) | (0.167) | (0.177) | (0.178) | (0.063) | (0.065) | (0.074) | (0.075) |
| Governance | 0.866*** | 0.820*** | 1.275*** | 1.291*** | 1.8*** | 1.773*** | 2.218*** | 2.181*** | 0.938*** | 0.844*** | 1.377*** | 1.284*** |
| | (0.287) | (0.290) | (0.237) | (0.255) | (0.554) | (0.517) | (0.603) | (0.621) | (0.255) | (0.255) | (0.220) | (0.230) |
| Basel III | -1.988*** | -2.064*** | -0.38 | -0.429 | -0.932** | -1.21** | -1.309** | -1.308* | -1.845*** | -1.937*** | -0.574** | -0.625** |
| | (0.382) | (0.401) | (0.315) | (0.317) | (0.429) | (0.480) | (0.565) | (0.668) | (0.336) | (0.349) | (0.289) | (0.299) |
| Window | | | | | 0.371 | 0.694 | -0.723 | -0.036 | 1.478** | 1.731*** | 0.085 | 0.453 |
| | | | | | (1.166) | (0.978) | (1.214) | (1.073) | (0.668) | (0.619) | (0.677) | (0.644) |
| GDP growth | | -0.044* | | -0.019 | | -0.046 | | -0.022 | | -0.044* | | -0.025 |
| | | (0.025) | | (0.021) | | (0.055) | | (0.071) | | (0.023) | | (0.022) |
| Inflation | | -0.02 | | -0.008 | | -0.061** | | -0.057** | | -0.02* | | -0.014 |
| | | (0.013) | | (0.011) | | (0.028) | | (0.025) | | (0.011) | | (0.010) |
| Oil | | 0.05*** | | 0.02 | | 0.143*** | | 0.152*** | | 0.063*** | | 0.046*** |
| | | (0.012) | | (0.014) | | (0.025) | | (0.025) | | (0.012) | | (0.014) |
| Mineral | | 0.178** | | 0.211** | | 0.282** | | 0.214* | | 0.181** | | 0.211** |
| | | (0.077) | | (0.102) | | (0.140) | | (0.117) | | (0.076) | | (0.088) |
| Islamic | | | | | | | | | -1.246 | -0.964 | 1.015 | 1.353 |
| | | | | | | | | | (1.222) | (1.240) | (1.258) | (1.239) |
| Creditor rights | | | | | | | | | 0.336 | -0.036 | -0.354 | -0.743 |
| × Lerner ($\beta_3$) | | | | | | | | | (0.493) | (0.494) | (0.541) | (0.526) |
| Constant | 28.04*** | 28.58*** | 26.87*** | 26.96*** | 34.15*** | 39.47*** | 40.28*** | 46.11*** | 28.01*** | 28.59*** | 27.62*** | 27.72*** |
| | (1.630) | (1.598) | (1.614) | (1.669) | (5.518) | (5.070) | (6.295) | (5.207) | (1.534) | (1.503) | (1.559) | (1.589) |
| N | 2,915 | 2,806 | 3,342 | 3,211 | 427 | 405 | 382 | 361 | 3,342 | 3,211 | 2,489 | 2,386 |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R2 | 0.18 | 0.23 | 0.226 | 0.268 | 0.24 | 0.4 | 0.224 | 0.401 | 0.19 | 0.249 | 0.222 | 0.284 |
| Chi2 | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** |
| Panel B. Impact of creditor rights on capital ratios of Islamic banks ($\beta_1 + \beta_3$) compared to conventional banks ($\beta_1$) | | | | | | | | | | | | |
| | | | | | | | | | 0.685 | 0.39 | 0.284 | -0.129 |
| | | | | | | | | | (0.459) | (0.467) | (0.512) | (0.498) |

*Notes:* Standard errors are clustered at the bank level and are reported in parentheses below their coefficient estimates.
* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

**Table 9**
Adjusted Lerner index and alternative proxy for religion

| | Conventional banks | | | | Islamic banks | | | | Entire sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | |
| Model # | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| Panel A.1. The effect of market power on the association between creditor rights and bank capital ratios | | | | | | | | | | | | |
| Creditor rights ($\beta_1$) | 0.458** | 0.524** | 0.690*** | 0.700*** | 0.151 | -0.0894 | 0.214 | -0.0879 | 0.487** | 0.544*** | 0.682*** | 0.638*** |
| | (0.220) | (0.219) | (0.227) | (0.242) | (0.562) | (0.600) | (0.566) | (0.694) | (0.206) | (0.207) | (0.213) | (0.226) |
| Lerner_MKT | 1.319 | 1.236 | 0.724 | 0.662 | -3.917*** | -4.270** | -5.456*** | -5.793*** | 1.055 | 0.967 | 0.431 | 0.329 |
| | (0.820) | (0.833) | (0.722) | (0.759) | (1.459) | (1.782) | (1.364) | (1.965) | (0.743) | (0.756) | (0.609) | (0.638) |
| Creditor rights | -0.566** | -0.605** | -0.361 | -0.381 | 2.81*** | 2.368** | 3.161*** | 2.723** | -0.463* | -0.491** | -0.253 | -0.255 |
| × Lerner_MKT ($\beta_3$) | (0.271) | (0.276) | (0.242) | (0.258) | (0.809) | (1.157) | (0.701) | (1.085) | (0.246) | (0.250) | (0.204) | (0.219) |
| N | 2,082 | 2,000 | 1,557 | 1,493 | 316 | 294 | 282 | 261 | 2,398 | 2,294 | 1,839 | 1,754 |
| Bank & country control | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R2 | 0.179 | 0.23 | 0.186 | 0.252 | 0.372 | 0.474 | 0.393 | 0.525 | 0.189 | 0.241 | 0.196 | 0.274 |
| Panel A.2. Impact of creditor rights when market power is high ($\beta_1 + \beta_3$) on conventional banks' (Models 1 to 4), Islamic banks' (Models 5 to 8), and the entire sample's (Models 9 to 12) capital ratios computed at different values of the adjusted Lerner index | | | | | | | | | | | | |
| 25$^{th}$percentile | 0.385* | 0.445** | 0.643*** | 0.651*** | 0.514 | 0.218 | 0.622 | 0.264 | 0.427** | 0.481** | 0.649*** | 0.605*** |
| | (0.209) | (0.209) | (0.219) | (0.233) | (0.552) | (0.591) | (0.581) | (0.701) | (0.197) | (0.199) | (0.208) | (0.220) |
| 50$^{th}$percentile | 0.319 | 0.375 | 0.602*** | 0.607*** | 0.839 | 0.491 | 0.988 | 0.579 | 0.374* | 0.424** | 0.62*** | 0.576*** |
| | (0.205) | (0.205) | (0.215) | (0.229) | (0.560) | (0.615) | (0.606) | (0.730) | (0.194) | (0.197) | (0.206) | (0.218) |
| 75$^{th}$percentile | 0.257 | 0.309 | 0.562*** | 0.565** | 1.147** | 0.75 | 1.334** | 0.877 | 0.323* | 0.37* | 0.592*** | 0.548** |
| | (0.205) | (0.206) | (0.216) | (0.229) | (0.582) | (0.661) | (0.639) | (0.776) | (0.195) | (0.198) | (0.206) | (0.219) |
| 90$^{th}$percentile | 0.19 | 0.238 | 0.519** | 0.52** | 1.479** | 1.03 | 1.708** | 1.199 | 0.268 | 0.312 | 0.562*** | 0.512** |
| | (0.210) | (0.212) | (0.219) | (0.233) | (0.619) | (0.733) | (0.682) | (0.842) | (0.199) | (0.204) | (0.210) | (0.222) |
| Panel B.1. The effect of market power on the association between creditor rights and bank capital ratios: subsample of banks located in countries where religion is very important | | | | | | | | | | | | |
| Creditor rights ($\beta_1$) | -0.456 | -0.957 | 0.357 | 0.103 | 2.422 | -1.780** | -1.745 | -0.791 | 0.0132 | -0.669 | 0.732 | -0.434 |
| | (0.844) | (0.900) | (0.759) | (1.095) | (1.550) | (0.805) | (1.620) | (1.305) | (0.853) | (0.881) | (0.872) | (1.093) |
| Lerner | 0.699 | 0.646 | 0.188 | 0.141 | -3.899* | -4.727** | -5.654* | -3.921 | 0.670 | 0.904 | 0.606 | 0.630 |
| | (0.954) | (0.876) | (1.045) | (1.060) | (2.244) | (2.397) | (3.051) | (3.755) | (1.133) | (1.011) | (1.140) | (1.053) |
| Creditor rights | -0.306 | -0.398 | 0.0939 | 0.110 | 1.113 | 2.155 | 6.041*** | 1.930 | -0.316 | -0.642 | -0.191 | -0.303 |
| × Lerner_MKT ($\beta_3$) | (0.773) | (0.694) | (0.666) | (0.681) | (2.074) | (2.061) | (2.243) | (3.499) | (1.007) | (0.867) | (0.865) | (0.809) |
| N | 349 | 349 | 287 | 287 | 85 | 85 | 75 | 75 | 434 | 434 | 362 | 362 |
| Bank & country control | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R2 | 0.202 | 0.286 | 0.232 | 0.248 | 0.373 | 0.703 | 0.546 | 0.646 | 0.135 | 0.214 | 0.136 | 0.213 |
| Panel B.2. Impact of creditor rights when market power is high ($\beta_1 + \beta_3$) on conventional banks' (Models 1 to 4), Islamic banks' (Models 5 to 8), and the entire sample's (Models 9 to 12) capital ratios computed at different values of the adjusted Lerner index, in countries where religion is very important | | | | | | | | | | | | |
| 25$^{th}$percentile | -0.506 | -1.022 | 0.373 | 0.121 | 2.606* | -1.201 | -0.748 | -0.472 | -0.039 | -0.775 | 0.701 | -0.484 |
| | (0.763) | (0.843) | (0.707) | (1.074) | (1.384) | (0.721) | (1.346) | (1.311) | (0.754) | (0.836) | (0.792) | (1.085) |
| 50$^{th}$percentile | -0.54 | -1.066 | 0.383 | 0.133 | 2.728** | -1.186 | -0.081 | -0.259 | -0.074 | -0.846 | 0.68 | -0.517 |
| | (0.716) | (0.812) | (0.681) | (1.066) | (1.312) | (0.751) | (1.193) | (1.450) | (0.703) | (0.818) | (0.749) | (1.089) |
| 75$^{th}$percentile | -0.572 | -1.108 | 0.393 | 0.144 | 2.846** | -0.959 | 0.556 | -0.055 | -0.107 | -0.914 | 0.66 | -0.549 |
| | (0.679) | (0.788) | (0.663) | (1.063) | (1.277) | (0.837) | (1.079) | (1.657) | (0.668) | (0.812) | (0.718) | (1.100) |
| 90$^{th}$percentile | -0.614 | -1.163 | 0.406 | 0.159 | 2.998** | -0.663 | 1.384 | 0.209 | -0.15 | -1.002 | 0.633 | -0.591 |
| | (0.643) | (0.767) | (0.649) | (1.067) | (1.288) | (1.011) | (0.999) | (1.998) | (0.646) | (0.819) | (0.694) | (1.125) |
| Panel C.1. The effect of market power on the association between creditor rights and bank capital ratios: subsample of banks located in countries where religion is not very important | | | | | | | | | | | | |
| Creditor rights ($\beta_1$) | 0.824*** | 1.37*** | 1.036*** | 1.572*** | 1.613 | 1.076 | 1.369 | 0.812 | 0.953*** | 1.451*** | 1.160*** | 1.629*** |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | (0.281) | (0.277) | (0.282) | (0.287) | (1.178) | (1.284) | (1.141) | (1.477) | (0.272) | (0.268) | (0.269) | (0.275) |
| Lerner | 1.944 | 1.879 | 0.792 | 0.871 | -5.004 | -4.492 | -13.01* | -13.75* | 1.868 | 1.963 | 0.599 | 0.795 |
| | (1.430) | (1.448) | (0.985) | (1.033) | (8.193) | (8.645) | (7.162) | (7.442) | (1.398) | (1.418) | (0.944) | (1.003) |
| Creditor rights | -0.773 | -0.809* | -0.382 | -0.440 | 3.194 | 2.850 | 5.698** | 5.664** | -0.735 | -0.813* | -0.310 | -0.401 |
| × Lerner_MKT ($\beta_3$) | (0.471) | (0.473) | (0.329) | (0.348) | (2.990) | (3.210) | (2.568) | (2.698) | (0.460) | (0.463) | (0.316) | (0.338) |
| N | 1,733 | 1,651 | 1,270 | 1,206 | 231 | 209 | 207 | 186 | 1,964 | 1,860 | 1,477 | 1,392 |
| Bank & country control | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R2 | 0.2 | 0.327 | 0.236 | 0.392 | 0.561 | 0.562 | 0.545 | 0.582 | 0.227 | 0.347 | 0.264 | 0.397 |
| Panel C.2. Impact of creditor rights when market power is high ($\beta_1 + \beta_3$) on conventional banks' (Models 1 to 4), Islamic banks' (Models 5 to 8), and the entire sample's (Models 9 to 12) capital ratios computed at different values of the adjusted Lerner index, in countries where religion is not very important | | | | | | | | | | | | |
| 25$^{th}$percentile | 0.728*** | 1.269*** | 0.988*** | 1.518*** | 2.009** | 1.429 | 2.076** | 1.514 | 0.862*** | 1.35*** | 1.122*** | 1.579*** |
| | (0.273) | (0.268) | (0.277) | (0.279) | (0.986) | (1.068) | (0.996) | (1.281) | (0.264) | (0.258) | (0.263) | (0.266) |
| 50$^{th}$percentile | 0.643** | 1.18*** | 0.946*** | 1.469*** | 2.361** | 1.743* | 2.703*** | 2.138* | 0.781*** | 1.26*** | 1.088*** | 1.535*** |
| | (0.277) | (0.271) | (0.277) | (0.277) | (0.912) | (0.977) | (0.942) | (1.162) | (0.267) | (0.259) | (0.264) | (0.264) |
| 75$^{th}$percentile | 0.558* | 1.09*** | 0.904*** | 1.42*** | 2.715*** | 2.059** | 3.336*** | 2.767** | 0.7** | 1.17*** | 1.053*** | 1.491*** |
| | (0.291) | (0.284) | (0.282) | (0.280) | (0.954) | (1.010) | (0.942) | (1.111) | (0.279) | (0.271) | (0.268) | (0.267) |
| 90$^{th}$percentile | 0.47 | 0.999*** | 0.86*** | 1.37*** | 3.077*** | 2.381** | 3.98*** | 3.407*** | 0.616** | 1.078*** | 1.018*** | 1.445*** |
| | (0.313) | (0.306) | (0.292) | (0.289) | (1.103) | (1.161) | (1.082) | (1.141) | (0.300) | (0.292) | (0.278) | (0.275) |

*(Continued)*

*Notes:* In all panels, we only report the coefficient estimates of the creditor rights' index, the Lerner index, and their interactions to save space. Standard errors are clustered at the bank level and are reported in parentheses below their coefficient estimates.

* Statistical significance at the 10% level.

** Statistical significance at the 5% level.

*** Statistical significance at the 1% level.

**Table 10**
Three-bank ($C_3$) concentration ratio as an alternative measure of competition

Panel A. Impact of creditor rights in highly concentrated markets ($\beta_1 + \beta_3$) on conventional banks' (Models 1 to 4), Islamic banks' (Models 5 to 8), and the entire sample's (Models 9 to 12) capital ratios computed at different values of the three-bank ($C_3$) concentration ratio

| | Conventional banks | | | | Islamic banks | | | | Entire sample | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | | Capital adequacy ratio | | Core capital ratio | |
| Model # | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) |
| 25th percentile | 0.397** | 0.417** | 0.58*** | 0.54*** | 0.627 | -0.196 | 0.551 | -0.382 | 0.445** | 0.439** | 0.532*** | 0.443** |
| | (0.191) | (0.192) | (0.183) | (0.192) | (0.595) | (0.517) | (0.666) | (0.642) | (0.179) | (0.182) | (0.175) | (0.181) |
| 50th percentile | 0.382** | 0.435** | 0.544*** | 0.51*** | 0.772 | 0.116 | 0.66 | -0.094 | 0.462*** | 0.501*** | 0.528*** | 0.486*** |
| | (0.170) | (0.173) | (0.169) | (0.182) | (0.529) | (0.498) | (0.585) | (0.596) | (0.159) | (0.163) | (0.159) | (0.169) |
| 75th percentile | 0.351* | 0.471** | 0.471** | 0.491** | 1.06** | 0.738 | 0.879* | 0.482 | 0.496*** | 0.625*** | 0.522*** | 0.572*** |
| | (0.195) | (0.194) | (0.195) | (0.204) | (0.469) | (0.513) | (0.491) | (0.558) | (0.178) | (0.181) | (0.176) | (0.185) |
| 90th percentile | 0.304 | 0.524 | 0.364 | 0.488* | 1.485** | 1.655** | 1.202** | 1.331** | 0.545* | 0.807*** | 0.513* | 0.698** |
| | (0.330) | (0.319) | (0.316) | (0.541) | (0.593) | (0.643) | (0.579) | (0.645) | (0.302) | (0.297) | (0.284) | (0.275) |
| N | 3,127 | 3,018 | 2,271 | 2,189 | 445 | 423 | 390 | 369 | 3,572 | 3,441 | 2,661 | 2,558 |
| R2 | 0.196 | 0.235 | 0.275 | 0.307 | 0.348 | 0.435 | 0.354 | 0.442 | 0.204 | 0.242 | 0.273 | 0.314 |
| Panel B.1. Impact of creditor rights in highly concentrated markets ($\beta_1 + \beta_3$) on conventional banks' (Models 1 to 4), Islamic banks' (Models 5 to 8), and the entire sample's (Models 9 to 12) capital ratios computed at different values of the three-bank ($C_3$) concentration ratio, in predominately Muslim countries | | | | | | | | | | | | |
| 25th percentile | 0.346 | 0.322 | 0.455 | 0.496* | 0.378 | -0.761 | -0.069 | -2.035** | 0.338 | 0.349 | 0.222 | 0.207 |
| | (0.331) | (0.357) | (0.283) | (0.291) | (0.839) | (0.863) | (0.805) | (0.915) | (0.303) | (0.325) | (0.278) | (0.282) |
| 50th percentile | 0.03 | 0.085 | 0.15 | 0.274 | 0.564 | 0.199 | 0.053 | -1.231 | 0.143 | 0.249 | 0.062 | 0.121 |
| | (0.263) | (0.275) | (0.243) | (0.259) | (0.688) | (0.904) | (0.705) | (0.772) | (0.252) | (0.266) | (0.237) | (0.251) |
| 75th percentile | -0.323 | -0.178 | -0.19 | 0.026 | 0.771 | 1.272 | 0.19 | -0.334 | -0.074 | 0.138 | -0.117 | 0.026 |
| | (0.283) | (0.274) | (0.285) | (0.294) | (0.659) | (1.128) | (0.668) | (0.883) | (0.278) | (0.282) | (0.267) | (0.276) |
| 90th percentile | -0.649* | -0.421 | 0.505 | -0.203 | 0.963 | 2.262 | 0.317 | 0495 | -0.275 | 0.035 | -0.282 | -0.062 |
| | (0.378) | (0.359) | (0.379) | (0.377) | (0.779) | (1.432) | (0.712) | (1.172) | (0.363) | (0.363) | (0.349) | (0.343) |
| N | 1,453 | 1,392 | 878 | 823 | 177 | 160 | 137 | 120 | 1,630 | 1,552 | 1,015 | 943 |
| R2 | 0.134 | 0.136 | 0.222 | 0.223 | 0.399 | 0.424 | 0.469 | 0.509 | 0.145 | 0.144 | 0.234 | 0.235 |
| Panel B.2. Impact of creditor rights in highly concentrated markets ($\beta_1 + \beta_3$) on conventional banks' (Models 1 to 4), Islamic banks' (Models 5 to 8), and the entire sample's (Models 9 to 12) capital ratios computed at different values of the three-bank ($C_3$) concentration ratio, in predominantly non-Muslim countries | | | | | | | | | | | | |
| 25th percentile | 0.666*** | 0.616** | 0.782*** | 0.659** | 1.912** | 1.097 | 1.168 | -0.114 | 0.789*** | 0.703*** | 0.899*** | 0.675*** |
| | (0.255) | (0.272) | (0.263) | (0.279) | (0.777) | (0.845) | (0.886) | (1.252) | (0.238) | (0.252) | (0.245) | (0.257) |
| 50th percentile | 0.771*** | 0.749*** | 0.862*** | 0.757*** | 2.422*** | 1.607* | 1.539* | 0.232 | 0.922*** | 0.865*** | 1.016*** | 0.81*** |
| | (0.251) | (0.267) | (0.259) | (0.276) | (0.788) | (0.891) | (0.869) | (1.242) | (0.234) | (0.248) | (0.242) | (0.255) |
| 75th percentile | 1.042*** | 1.098*** | 1.07*** | 1.012*** | 3.751*** | 2.938*** | 2.507** | 1.137 | 1.27*** | 1.285*** | 1.323*** | 1.163*** |
| | (0.284) | (0.298) | (0.291) | (0.306) | (0.968) | (1.118) | (0.986) | (1.335) | (0.268) | (0.281) | (0.277) | (0.289) |
| 90th percentile | 1.461*** | 1.635*** | 1.391*** | 1.406*** | 5.802*** | 4.991*** | 3.999*** | 2.532 | 1.807*** | 1.934*** | 1.795*** | 1.707*** |
| | (0.417) | (0.431) | (0.413) | (0.727) | (1.479) | (1.626) | (1.465) | (1.732) | (0.403) | (0.413) | (0.406) | (0.416) |
| N | 1,641 | 1,593 | 1,376 | 1,349 | 265 | 260 | 251 | 247 | 1,906 | 1,853 | 1,627 | 1,596 |
| R2 | 0.269 | 0.335 | 0.301 | 0.383 | 0.441 | 0.509 | 0.407 | 0.543 | 0.285 | 0.349 | 0.31 | 0.409 |

*Notes:* Standard errors are clustered at the bank level and are reported in parentheses below their coefficient estimates.
* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

**Table 11**
The effect of creditor rights on capital ratios: Controlling for countries' income and legal origins

| | Conventional banks | | Islamic banks | | Entire sample | |
|---|---|---|---|---|---|---|
| | Capital adequacy | Core capital | Capital adequacy | Core capital | Capital adequacy | Core capital |
| Model # | (1) | (2) | (3) | (4) | (5) | (6) |
| Panel A. The impact of income level | | | | | | |
| Creditor rights ×Poor ($\beta_1$) | 0.214 | 0.391 | 0.099 | -0.694 | 0.281 | 0.294 |
| | (0.223) | (0.252) | (0.682) | (0.707) | (0.209) | (0.231) |
| Creditor rights × Rich ($\beta_2$) | 0.384** | 0.529*** | 0.438 | 0.168 | 0.468*** | 0.494*** |
| | (0.175) | (0.189) | (0.558) | (0.594) | (0.164) | (0.173) |
| Creditor rights × Poor × Islamic ($\beta'_1$) | | | | | -0.515 | -0.155 |
| | | | | | (0.362) | (0.382) |
| Creditor rights × Rich × Islamic ($\beta'_2$) | | | | | -0.347* | -0.148 |
| | | | | | (0.192) | (0.209) |
| Constant | 29.15*** | 30.3*** | 38.83*** | 44.5*** | 29.09*** | 30.58*** |
| | (1.522) | (1.773) | (4.846) | (5.142) | (1.424) | (1.513) |
| N | 3,020 | 2,194 | 423 | 369 | 3,443 | 2,563 |
| Bank & country control | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes |
| F-Stat. H0: $(\beta_1) = (\beta_2)$ | 2.04 | 0.89 | 0.95 | 5.14** | 2.61 | 1.98 |
| F-Stat. H0: $(\beta'_1) = (\beta'_2)$ | | | | | 2.16 | 0.01 |
| F-Stat. H0: $(\beta_1) = \ldots = (\beta'_2)$ | | | | | 16.94*** | 8.99** |
| R2 | 0.2222 | 0.2738 | 0.3966 | 0.4252 | 0.2385 | 0.2884 |
| Wald Chi2 | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** |
| Panel B. The impact of legal origins | | | | | | |
| Creditor rights × English ($\beta_1$) | 0.478*** | 0.537*** | 0.486 | 0.263 | 0.584*** | 0.532*** |
| | (0.171) | (0.188) | (0.561) | (0.604) | (0.161) | (0.170) |
| Creditor rights × French ($\beta_2$) | 0.153 | 0.450* | 0.369 | 0.52 | 0.285 | 0.446** |
| | (0.206) | (0.249) | (0.674) | (0.686) | (0.192) | (0.226) |
| Creditor rights × German ($\beta_3$) | 0.134 | 0.766** | 0.139 | dropped | 0.163 | 0.598* |
| | (0.269) | (0.380) | (0.541) | | (0.255) | (0.323) |
| Creditor rights × English × Islamic ($\beta'_1$) | | | | | -0.533*** | -0.239 |
| | | | | | (0.204) | (0.221) |
| Creditor rights × French × Islamic ($\beta'_2$) | | | | | -0.172 | 0.281 |
| | | | | | (0.292) | (0.346) |
| Creditor rights × German × Islamic ($\beta'_3$) | | | | | 0.529*** | dropped |
| | | | | | (0.195) | |
| Constant | 29.63*** | 30.06*** | 38.91*** | 43.80*** | 29.37*** | 30.17*** |
| | (1.547) | (1.713) | (4.985) | (5.025) | (1.449) | (1.470) |
| N | 3,020 | 2,194 | 423 | 369 | 3,443 | 2,563 |
| Bank & country control | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes |
| F-Stat. H0: $(\beta_1) = (\beta_2) = (\beta_3)$ | 7.75** | 0.91 | 0.67 | 0.78 | 7.7** | 0.48 |
| F-Stat. H0: $(\beta'_1) = (\beta'_2) = (\beta'_3)$ | | | | | 15.07*** | 1.93 |
| F-Stat. H0: $(\beta_1) = \ldots = (\beta'_3)$ | | | | | 27.13*** | 12.31** |
| R2 | 0.2096 | 0.2679 | 0.3786 | 0.3856 | 0.2254 | 0.2807 |
| Wald Chi2 | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** |

*Notes:* We only report the coefficient estimates of interaction terms between the creditor rights' index and different dummy variables representing the countries' income level (Panel A) and legal origins (Panel B) to save space. Standard errors are clustered at the bank level and are reported in parentheses below their coefficient estimates.
* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

**Table 12**
The effect of creditor rights on capital ratios: Controlling for bank experience and economic fluctuations

| | Conventional banks | | Islamic banks | | Entire sample | |
|---|---|---|---|---|---|---|
| | Capital adequacy | Core capital | Capital adequacy | Core capital | Capital adequacy | Core capital |
| Model # | (1) | (2) | (3) | (4) | (5) | (6) |
| Panel A. The impact of bank experience | | | | | | |
| Creditor rights × Young ($\beta_1$) | 0.02 | 0.118 | 1.173 | 1.043 | 0.073 | -0.004 |
| | (0.263) | (0.307) | (0.765) | (0.868) | (0.265) | (0.284) |
| Creditor rights × Middle ($\beta_2$) | 0.16 | 0.019 | 0.816 | 0.936 | 0.234 | -0.01 |
| | (0.266) | (0.292) | (0.842) | (1.074) | (0.263) | (0.291) |
| Creditor rights × Mature ($\beta_3$) | 0.46*** | 0.612*** | 0.137 | 0.063 | 0.536*** | 0.594*** |
| | (0.178) | (0.189) | (0.679) | (0.855) | (0.171) | (0.182) |
| Creditor rights × Young × Islamic ($\beta'_1$) | | | | | 0.892** | 1.137** |
| | | | | | (0.442) | (0.510) |
| Creditor rights × Middle × Islamic ($\beta'_2$) | | | | | 0.382 | 1.117* |
| | | | | | (0.436) | (0.607) |
| Creditor rights × Mature × Islamic ($\beta'_3$) | | | | | -0.752*** | -0.419 |
| | | | | | (0.251) | (0.280) |
| Constant | 29.59*** | 30.94*** | 42.05*** | 49.68*** | 29.7*** | 31.72*** |
| | (1.544) | (1.682) | (7.093) | (8.520) | (1.553) | (1.692) |
| N | 2,869 | 2,099 | 419 | 365 | 3,288 | 2,464 |
| Bank & country control | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes |
| F-Stat. H0: $(\beta_1) = (\beta_2) = (\beta_3)$ | 5.96* | 10.41*** | 5.59* | 3.42 | 5.62* | 11.62*** |
| F-Stat. H0: $(\beta'_1) = (\beta'_2) = (\beta'_3)$ | | | | | 12.01*** | 9.48*** |
| F-Stat. H0: $(\beta_1) = \ldots = (\beta'_3)$ | | | | | 2975*** | 24.17*** |
| R2 | 0.2438 | 0.3020 | 0.4136 | 0.4094 | 0.2523 | 0.2982 |
| Wald Chi2 | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** |
| Panel B. The impact of economic fluctuations | | | | | | |
| Creditor rights ×Before ($\beta_1$) | 0.29* | 0.017 | -0.095 | 0.371 | 0.369** | 0.197 |
| | (0.172) | (0.573) | (0.629) | (0.861) | (0.161) | (0.170) |
| Creditor rights × During ($\beta_2$) | 0.263 | 0.181 | -0.008 | 0.361 | 0.346** | 0.254 |
| | (0.173) | (0.564) | (0.613) | (0.865) | (0.161) | (0.170) |
| Creditor rights × After ($\beta_3$) | 0.359* | 0.637*** | 0.655 | 0.423 | 0.449*** | 0.615*** |
| | (0.184) | (0.188) | (0.540) | (0.622) | (0.172) | (0.173) |
| Creditor rights × Before × Islamic ($\beta'_1$) | | | | | -0.468* | 0.117 |
| | | | | | (0.273) | (0.332) |
| Creditor rights × During × Islamic ($\beta'_2$) | | | | | -0.365* | 0.009 |
| | | | | | (0.211) | (0.230) |
| Creditor rights × After × Islamic ($\beta'_3$) | | | | | -0.261 | -0.184 |
| | | | | | (0.177) | (0.195) |
| Constant | 26.87*** | 29.64*** | 33.99*** | 37.24*** | 26.84*** | 29.11*** |
| | (1.484) | (1.741) | (4.630) | (5.399) | (1.382) | (1.455) |
| N | 3,020 | 2,194 | 423 | 369 | 3,443 | 2,563 |
| Bank & country control | Yes | Yes | Yes | Yes | Yes | Yes |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes |
| F-Stat. H0: $(\beta_1) = (\beta_2) = (\beta_3)$ | 1.41 | 29.62*** | 6.24** | 4.39 | 1.64 | 32.49*** |
| F-Stat. H0: $(\beta'_1) = (\beta'_2) = (\beta'_3)$ | | | | | 0.75 | 1.34 |
| F-Stat. H0: $(\beta_1) = \ldots = (\beta'_3)$ | | | | | 11.14** | 34.07*** |
| R2 | 0.2161 | 0.2527 | 0.3676 | 0.3629 | 0.2316 | 0.2703 |
| Wald Chi2 | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** | 0.000*** |

*Notes:* We only report the coefficient estimates of interaction terms between the creditor rights' index and different variables representing bank age (Panel A) and economic fluctuations (Panel B) to save space. Standard errors are clustered at the bank level and are reported in parentheses below their coefficient estimates.
* Statistical significance at the 10% level.
** Statistical significance at the 5% level.
*** Statistical significance at the 1% level.

**Table 13**
Credtior rights and bank capital adequacy ratio: Adressing endogeneity and self-selection bias

| Panel A. Baseline results | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Conventional banks | | | | | Islamic banks | | | | | Entire sample | | | | |
| | IV approach | | | Heckman | | IV approach | | | Heckman | | IV approach | | | Heckman | |
| | First stage | 2SLS | GMM | Selection equation | Outcome equation | First stage | 2SLS | GMM | Selection equation | Outcome equation | First stage | 2SLS | GMM | Selection equation | Outcome equation |
| Model # | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | (15) |
| Profitability | | 0.894*** | 0.886*** | | 0.332*** | | 0.391* | 0.36* | | 0.139 | | 0.746*** | 0.735*** | | 0.261*** |
| | | (0.130) | (0.125) | | (0.0914) | | (0.202) | (0.200) | | (0.134) | | (0.102) | (0.099) | | (0.088) |
| Profitability (-2) | 0.362*** | | | 0.243*** | | 0.346*** | | | 0.131*** | | 0.398*** | | | 0.222*** | |
| | (0.035) | | | (0.017) | | (0.124) | | | (0.037) | | (0.041) | | | (0.015) | |
| ROA industry (-1) | 0.303*** | | | 0.237*** | | 0.251** | | | 0.272*** | | 0.299*** | | | 0.245*** | |
| | (0.041) | | | (0.025) | | (0.127) | | | (0.082) | | (0.039) | | | (0.023) | |
| Creditor rights | -0.019 | 0.6*** | 0.596*** | -0.118*** | 0.674*** | -0.565*** | 0.681* | 0.645* | -0.241** | 0.494 | -0.035 | 0.759*** | 0.754*** | -0.11*** | 0.735*** |
| | (0.036) | (0.107) | (0.106) | (0.027) | (0.217) | (0.186) | (0.347) | (0.346) | (0.107) | (0.571) | (0.033) | (0.106) | (0.105) | (0.025) | (0.201) |
| Size | -0.002 | -0.549*** | -0.596*** | 0.058*** | -0.589*** | 0.584** | -1.786*** | -1.766*** | 0.345*** | -1.612*** | 0.02 | -0.73*** | -0.731*** | 0.072*** | -0.618*** |
| | (0.015) | (0.047) | (0.106) | (0.015) | (0.092) | (0.228) | (0.269) | (0.269) | (0.089) | (0.394) | (0.018) | (0.045) | (0.045) | (0.015) | (0.090) |
| Risk | 0.006*** | -0.058*** | -0.058*** | 0.004*** | -0.056*** | 0.006 | -0.05*** | -0.05*** | 0.015*** | -0.048** | 0.004 | -0.061*** | -0.061*** | 0.006*** | -0.06*** |
| | (0.002) | (0.005) | (0.005) | (0.001) | (0.009) | (0.013) | (0.015) | (0.015) | (0.005) | (0.022) | (0.003) | (0.006) | (0.006) | (0.001) | (0.00816) |
| Liquidity | 0.006*** | 0.02*** | 0.02*** | -0.000 | 0.0237*** | 0.002 | 0.011** | 0.01** | 0.001 | 0.011** | 0.002 | 0.013** | 0.013** | -0.000 | 0.021*** |
| | (0.001) | (0.005) | (0.005) | (0.001) | (0.006) | (0.007) | (0.005) | (0.005) | (0.002) | (0.005) | (0.003) | (0.006) | (0.006) | (0.001) | (0.004) |
| Tangibility | -0.086*** | 0.242*** | 0.241*** | -0.061*** | 0.229** | -0.244 | 0.284* | 0.275 | -0.024 | 0.195 | -0.086** | 0.362*** | 0.362*** | -0.063*** | 0.259*** |
| | (0.031) | (0.062) | (0.062) | (0.016) | (0.100) | (0.178) | (0.168) | (0.168) | (0.046) | (0.291) | (0.034) | (0.060) | (0.060) | (0.015) | (0.091) |
| Governance | -0.001 | 1.344*** | 1.343*** | 0.193*** | 1.277*** | -0.304 | 2.334*** | 2.298*** | -0.016 | 2.231*** | -0.02 | 1.736*** | 1.735*** | 0.182*** | 1.286*** |
| | (0.049) | (0.126) | (0.126) | (0.045) | (0.240) | (0.212) | (0.343) | (0.341) | (0.134) | (0.636) | (0.049) | (0.116) | (0.116) | (0.040) | (0.221) |
| GDP growth | 0.025*** | -0.17*** | -0.17*** | 0.076*** | -0.198*** | 0.001 | -0.015 | -0.013 | 0.043 | -0.015 | 0.018* | -0.11*** | -0.11*** | 0.072*** | -0.188*** |
| | (0.008) | (0.029) | (0.029) | (0.009) | (0.037) | (0.051) | (0.075) | (0.075) | (0.030) | (0.067) | (0.010) | (0.031) | (0.031) | (0.009) | (0.034) |
| Inflation | -0.006 | 0.01 | 0.009 | 0.018*** | -0.0017 | -0.044 | -0.061 | -0.068 | 0.001 | -0.071 | -0.006 | -0.019 | -0.02 | 0.018*** | -0.004 |
| | (0.009) | (0.018) | (0.018) | (0.005) | (0.022) | (0.033) | (0.042) | (0.042) | (0.015) | (0.043) | (0.009) | (0.016) | (0.016) | (0.004) | (0.020) |
| Oil | 0.009*** | 0.03*** | 0.03*** | 0.009*** | 0.034*** | 0.015 | 0.136*** | 0.136*** | -0.017*** | 0.145*** | 0.008*** | 0.055*** | 0.056*** | 0.002 | 0.044*** |
| | (0.002) | (0.006) | (0.006) | (0.003) | (0.011) | (0.013) | (0.018) | (0.018) | (0.007) | (0.027) | (0.002) | (0.006) | (0.006) | (0.002) | (0.010) |
| Mineral | 0.016** | 0.245*** | 0.244*** | 0.005 | 0.254* | 0.06 | 0.939*** | 0.891*** | 0.206 | 0.982*** | 0.022** | 0.832*** | 0.832*** | 0.008 | 0.275* |
| | (0.008) | (0.073) | (0.073) | (0.009) | (0.143) | (0.102) | (0.281) | (0.278) | (0.126) | (0.242) | (0.009) | (0.085) | (0.085) | (0.008) | (0.156) |
| Inverse Mills | | | | | -0.921*** | | | | | -0.133 | | | | | -0.981*** |
| | | | | | (0.282) | | | | | (0.622) | | | | | (0.261) |
| Constant | -0.39 | 25.43*** | 25.45*** | -1.882*** | 26.76*** | -7.93*** | 41.18*** | 40.98*** | -6;409*** | 40.37*** | -0.539 | 25.29*** | 25.34*** | -2.176*** | 27.08*** |
| | (0.307) | (0.969) | (0.964) | (0.297) | (1.676) | (2.961) | (3.664) | (3.661) | (1.335) | (5.897) | (0.393) | (0.968) | (0.961) | (0.277) | (1.576) |
| N | 2,482 | 2,482 | 2,482 | 3,308 | 2,482 | 312 | 312 | 312 | 384 | 312 | 2,794 | 2,121 | 2,121 | 3,690 | 2,793 |
| Year dummy | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes | Yes |
| R2 | | 0.252 | 0.253 | | 0.28 | | 0.461 | 0.465 | | 0.477 | | 0.352 | 0.353 | | 0.285 |
| Chi2 | | | | 0.00*** | | | | | 0.00*** | | | | | 0.00*** | |
| Han. J stat. (Chi2) | | 0.058 | 0.053 | | | | 1.462 | 1.462 | | | | 0.173 | 0.173 | | |
| Han. J stat. (p-value) | | 0.818 | 0.818 | | | | 0.227 | 0.227 | | | | 0.678 | 0.678 | | |
| Kleibergen-Paap Wald F test | | 103.01*** | 103.01*** | | | | 5.51*** | 5.51*** | | | | 71.84*** | 71.88*** | | |
| Panel B. The effect of market power on the association between creditor rights and bank capital adequacy ratio: Addressing endogeneity and self-selection bias | | | | | | | | | | | | | | | |
| Creditor rights ($\beta_1$) | | 0.53*** | 0.538*** | | 0.683*** | | 0.18 | 0.25 | | 0.109 | | 0.592*** | 0.608*** | | 0.682*** |
| | | (0.168) | (0.167) | | (0.260) | | (0.334) | (0.156) | | (0.523) | | (0.137) | (0.136) | | (0.232) |
| Lerner | | -1.761 | -1.779 | | -0.62 | | -6.49*** | -6.426*** | | -6.484** | | -1.954* | -1.951* | | -1.363 |
| | | (1.479) | (1.479) | | (1.567) | | (1.855) | (1.853) | | (2.456) | | (1.029) | (1.029) | | (1.258) |
| Creditor rights × Lerner ($\beta_3$) | | 0.415 | 0.421 | | 0.043 | | 3.401*** | 3.338*** | | 3.394*** | | 0.502 | 0.5 | | 0.313 |
| | | (0.492) | (0.492) | | (0.519) | | (0.712) | (0.709) | | (0.951) | | (0.343) | (0.343) | | (0.419) |
| N | | 1,611 | 1,611 | | 1,611 | | 229 | 229 | | 229 | | 1,840 | 1,840 | | 1,840 |
| Bank & country control | | Yes | Yes | | Yes | | Yes | Yes | | Yes | | Yes | Yes | | Yes |
| Year dummy | | Yes | Yes | | Yes | | Yes | Yes | | Yes | | Yes | Yes | | Yes |
| R2 | | 0.264 | 0.262 | | 0.306 | | 0.574 | 0.573 | | 0.574 | | 0.292 | 0.29 | | 0.318 |
| Han. J stat. (Chi2) | | 0.141 | 0.141 | | | | 0.994 | 0.994 | | | | 0.727 | 0.727 | | |
| Han. J stat. (p-value) | | 0.707 | 0.707 | | | | 0.319 | 0.319 | | | | 0.394 | 0.394 | | |
| Kleibergen-Paap Wald F test | | 106.95*** | 106.98*** | | | | 10.03*** | 10.03*** | | | | 117.76*** | 117.76*** | | |
| Panel C. Impact of creditor rights when market power is high ($\beta_1 + \beta_3$) on conventional banks' (Models 2, 3 and 5), Islamic banks' (Models 7, 8 and 10) and the entire sample's (Models 12, 13 and 15) capital adequacy ratio computed at different values of the Lerner index | | | | | | | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 25th percentile | 0.574*** | 0.583*** | 0.687*** | 0.529 | 0.518 | 0.492 | 0.645*** | 0.661*** | 0.715*** |
| | (0.146) | (0.144) | (0.253) | (0.341) | (0.341) | (0.563) | (0.129) | (0.127) | (0.232) |
| 50th percentile | 0.628*** | 0.637*** | 0.693*** | 0.98*** | 0.951** | 1.022 | 0.71** | 0.726*** | 0.756*** |
| | (0.142) | (0.140) | (0.260) | (0.371) | (0.370) | (0.645) | (0.132) | (0.130) | (0.244) |
| 75th percentile | 0.674*** | 0.684*** | 0.698** | 1.355*** | 1.319*** | 1.356* | 0.765*** | 0.781*** | 0.79*** |
| | (0.160) | (0.158) | (0.280) | (0.412) | (0.410) | (0.707) | (0.145) | (0.144) | (0.262) |
| 90th percentile | 0.723*** | 0.734*** | 0.703** | 1.762*** | 1.718*** | 1.758** | 0.825*** | 0.841*** | 0.828*** |
| | (0.195) | (0.193) | (0.312) | (0.467) | (0.465) | (0.791) | (0.168) | (0.167) | (0.290) |

*Notes:* In all panels, the dependent variable is capital adequacy ratio. In panel B, we only report the coefficient estimates of the creditor rights' index, the Lerner index, and their interactions to save space. Standard errors are clustered at the bank level and are reported in parentheses below their coefficient estimates.

* Statistical significance at the 10% level.

** Statistical significance at the 5% level.

*** Statistical significance at the 1% level.

.

# Appendix A

**Table A.1**
Number of banks and percentage of reported observations in each country. CB = conventional bank. IB = Islamic bank.

| Country | CBs. | N obs. (%) | IBs. | N obs. (%) | Country | CBs. | N obs. (%) | IBs. | N obs. (%) |
|---|---|---|---|---|---|---|---|---|---|
| Albania | 11 | 54.4 | 1 | 33.3 | Pakistan | 28 | 30 | 8 | 30 |
| Algeria | 16 | 67.5 | 2 | 66.7 | Saudi Arabia | 8 | 100 | 4 | 66.7 |
| Bangladesh | 32 | 88.1 | 7 | 94.3 | Senegal | 12 | 70.5 | 1 | 66.7 |
| Egypt | 31 | 71.4 | 3 | 73.3 | Singapore | 22 | 36.4 | 1 | 46.7 |
| Indonesia | 81 | 65.1 | 10 | 37.3 | South Africa | 26 | 37.9 | 1 | 66.7 |
| Iran | . | . | 15 | 60.9 | Syria | 11 | 40 | 2 | 40 |
| Jordan | 11 | 86.7 | 3 | 73.3 | Tunisia | 16 | 69.6 | 2 | 60 |
| Kenya | 39 | 62 | 2 | 30 | Turkey | 41 | 47.6 | 4 | 43.3 |
| Kuwait | 6 | 83.3 | 7 | 51.4 | UAE | 19 | 78.2 | 9 | 53.3 |
| Lebanon | 53 | 52.3 | 4 | 30 | UK | 167 | 52 | 4 | 51.7 |
| Malaysia | 35 | 73.5 | 18 | 49.2 | Yemen | 6 | 40 | 4 | 68.3 |
| Mauritania | 9 | 60.7 | 1 | 100 | | | | | |

**Table A.2**
Pearson correlation matrix for the variables used in our analysis

| | | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) | VIF |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Capital adequacy ratio | (1) | | | | | | | | | | | | | | | |
| Core capital ratio | (2) | 0.919* | | | | | | | | | | | | | | |
| Creditor rights | (3) | 0.059* | 0.034* | | | | | | | | | | | | | 1.21 |
| Lerner index | (4) | -0.014 | -0.008 | -0.033* | | | | | | | | | | | | 1.03 |
| Size | (5) | -0.237* | -0.261* | 0.049* | 0.04* | | | | | | | | | | | 1.4 |
| Profitability | (6) | 0.173* | 0.188* | -0.064* | 0.04* | 0.073* | | | | | | | | | | 1.12 |
| Risk | (7) | -0.267* | -0.254* | -0.199* | 0.036* | 0.064* | 0.1* | | | | | | | | | 1.36 |
| Liquidity | (8) | 0.307* | 0.289* | 0.162* | -0.029 | -0.257* | -0.051* | -0.414* | | | | | | | | 1.42 |
| Tangibility | (9) | 0.108* | 0.11* | -0.095* | -0.02 | -0.328* | -0.132* | 0.045* | 0.027* | | | | | | | 1.18 |
| Governance | (10) | 0.144* | 0.219* | -0.253* | 0.072* | 0.159* | 0.09* | 0.107* | -0.07* | -0.028* | | | | | | 1.35 |
| GDP growth | (11) | -0.057* | -0.025 | -0.185* | 0.037* | -0.007 | 0.162* | 0.085* | -0.094* | -0.002* | 0.151* | | | | | 1.14 |
| Inflation | (12) | -0.001 | 0.045 | -0.318* | 0.003 | 0.003 | 0.053* | 0.024 | -0.053* | 0.112* | 0.042* | 0.082* | | | | 1.26 |
| Oil rent | (13) | 0.131* | 0.195* | -0.211* | 0.092* | 0.269* | 0.114* | 0.035* | -0.064* | 0.029* | 0.177* | 0.086* | 0.204* | | | 1.39 |
| Mineral rent | (14) | 0.073* | 0.075* | -0.196* | 0.017 | -0.125* | 0.019 | 0.034* | -0.003 | 0.17* | -0.062* | 0.029* | 0.028* | -0.014 | | 1.10 |

This table presents correlations and VIF scores of the different variables used in our analysis.
* Represents significance at the 1% level

## Appendix B

To compute the Lerner index, we follow Weill (2011) and Meslier et al. (2017) and use a three-input cost-function specification to estimate bank marginal cost:

$$ln(TC) = \alpha + \beta_1\, ln(TA) + \frac{1}{2}\beta_2 (lnTA)^2 + \sum_{j=1}^{3} \beta_j \ln(w_j)$$

$$+ \sum_{j=1}^{3}\sum_{k=1}^{3} \beta_{jk}\, ln(w_j)\, ln(w_k) + \sum_{j=1}^{3} \delta_j\, ln(TA)\, ln(w_j) + \varepsilon$$

TC represents total costs (sum of total interest expenses and total non-interest expenses) and TA is total assets. We employ three input prices: price of labor, $w_1$; price of capital, $w_2$; and price of funds, $w_3$. The price of labor is computed by dividing personal expenses by total assets. The price of capital is computed by dividing other operating expenses by total assets. Finally, the price of funds is the ratio of interest expenses to total customer deposits. Using all the coefficients from the cost-function equation, we can compute the marginal cost by employing the following equation:

$$MC = \frac{TC}{TA}\left(\beta_1 + \beta_1\, ln(TA) + \sum_{j=1}^{3} \delta_j ln(w_j)\right)$$

The country-level Lerner index is thus computed as follows:

$$Lerner_{i,t} = \frac{Price_{i,t} - MC_{i,t}}{Price_{i,t}}$$

Price is measured using total revenue (sum of total interest income and total non-interest operating income). The Lerner index varies between 0 (highly competitive market/weak market power) and 1 (less competitive market/strong market power).