Economic development and Islamic bank capital decisions:

Evidence from the law and finance literature

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Abstract.

Using a sample of more than 100 Islamic banks operating in 28 countries over the 1999-2013 period, we find that Islamic banks increase their capital ratios in countries with better economic and financial conditions. We also find that the interaction between economic development and free media, private ownership of press, the existence of private credit registries and a democratic and durable political system have a strong positive effect on Islamic banks' capital decisions. We conclude that Islamic banks tend to increase their retained earnings and equity base in countries where economic conditions are more favorable to growth to compete with conventional banks or to protect against any potential losses in cases of financial distress.

1. Introduction

The focal point of this paper is to examine whether economic and financial development can explain Islamic banks' decisions to hold higher capital ratios. It demonstrates that better institutional environment it term of rule of law, efficient regulation and opened markets increases Islamic banks' capital ratios. Due to their special character of relying on profit sharing

investment accounts (PSIA), Islamic banks tend to increase their retained earnings and equity base in countries where economic conditions are more favorable to growth to protect against any potential losses in cases of financial distress. The study also borrows from the law and finance literature and shows that the relationship between economic development and Islamic banks' capital ratios is stronger in countries that have higher freedom of press, rely more on private information sharing, and have a democratic political system, suggesting an important role for media and private sector in facilitating information sharing, reducing information asymmetry, promoting better economic conditions and thus Islamic banks' decisions to increase their capital buffers.

The standard corporate finance literature departs from Modigliani and Miller (1958) irrelevant proposition to explain firms' capital structure decisions. Both authors explain that in perfect capital markets the value of firms is independent of the equity and debt mix and thus their value should be independent of their financing choices. In practice, however, capital markets are imperfect due to many frictions such as information asymmetries, moral hazard, tax shield, regulatory intervention and agency costs. As a result, firms will seek to increase or decrease their financing mix to maximise their value. We start looking at bank capital structure from the standard corporate finance point of view by briefly presenting the trade-off and the pecking order theories before explaining the specificities of Islamic banks and the reasons why they prefer to hold higher capital ratios.

The trade-off theory (Kraus and Litzenberger, 1973) states that the optimal capital structure of a bank results from a trade-off between debt and equity where banks tend to use debt instead of equity to a certain extent to maximise their value. This is because banks can benefit from the tax shield advantage to boost their leverage. In addition, the high dependency on leverage in a context of information asymmetry can discipline managers and mitigate agency problems with shareholders since debt must be repaid to avoid bankruptcy (Frank and Goyal, 2009). While the trade-off theory does not fix any predefined financial hierarchy of bank financing choices, the pecking order theory of Myers (1984) and Myers and Majluf (1984) dedicate an important role to information asymmetry and suggests that firms follow a pecking order by prioritize retained earnings as the best source of funds. If internal funding is not available, debt or convertible

bonds will be used. Equity is considered as the last resort because managers expect that the issuance of equity will be underpriced by the market.

In both theories, debt play a key important role. However, since banks have historically had a high share of leverage compared to the rest of industries, the tax shield might have a drawback because too much leverage would be directly associated with financial distress costs. This could explain why capital decisions of banking institutions are affected by a number of unique conditions that are only relevant to the banking industry. Because of financial distress, regulatory authorities created a deposit insurance scheme to avoid depositors' withdrawal of funds from banks. In addition, banks in a difficult financial position can benefit of Central Bank help as a lender of last resort which could also limit depositors' incentives for a bank run. However, in an unregulated environment, banks tend to take more risk if depositors' money is insured by a deposit insurance scheme. All things being equal, banks know that if losses occur, depositors' money will always be repaid. The same pattern goes with systemic banks where the idea of *"too big to fail"* produces a moral hazard behavior leading to excessive risk taking by exploiting deposit insurance and lenders of last resort. For this reason, regulators require banks to hold a minimum level of capital that reduces the moral hazard incentives. Such requirements force bank shareholders to absorb a large part of losses when they occur, by holding a capital ratio that varies with the amount of risk taken, thereby reducing the value of the deposit insurance put option (Rime, 2001). In this regard, Anginer and Demirguc-Kunt (2014) argue of a *"more skin in the game"* policy where banks' managers and shareholders will have greater incentives to ameliorate their risk management.

In contrast to conventional banks, the funding structure of Islamic banks does not guarantee several types of deposits. Islamic banks finance the growth of their balance sheet through three funding sources: capital, demand deposits and profit sharing investment accounts (Turk-Ariss and Sarieddine, 2007; Beck et al., 2013; Saeed and Izzeldin, 2014). The latter contain restricted and unrestricted investment accounts that are not guaranteed by the bank because investment account holders (IAHs) are considered as investors. Hence, profit and initial capital invested by this category of depositors are related to the success of the investment and therefore deposit insurance is not required. Accordingly, exploitation of deposit insurance is a non-issue for Islamic banks. Hamza and Saadaoui (2013) argue that an increase in PSIA on the

liability side of an Islamic bank's balance sheet will not jeopardize shareholders' wealth, suggesting that in cases where banks seek to maximize shareholders' value, they will tend to rely more on PSIA by attracting more IAH (at the expense of bank capital) by boosting leverage, especially in a context of moral hazard and information asymmetry (Khan and Ahmad, 2001; Sundararajan and Errico, 2002; Abedifar et al., 2013). Nevertheless, higher leverage can discipline Islamic banks' managers because they know that if losses occur, the IAHs will withdraw their money (Khan and Ahmed, 2001). Moreover, poor return rates for IAHs lead to higher withdrawal risk, which in turn can lead to liquidity problems, and at a later stage, to solvency problems (Abedifar et al., 2013).

In practice, however, the return rate on PSIA depends on the level of competition between banks in a country (IFSB, 2005). Higher interest rates proposed by conventional banks compared to profit rates proposed by Islamic banks may lead investors to withdraw their funds from Islamic banks. To maintain an acceptable level of profits, Islamic banks tend to increase their Displaced Commercial Risk (DCR) by distributing retained earnings from IRRs and PERs and thus smoothing IAHs profits.[1] Nevertheless, reliance on smoothing mechanisms create moral hazard problems because Islamic bank managers can manipulate and hide information about the real return on assets financed by the PSIA (Hamza and Saadaoui, 2013). As a result, bank managers might have *"incentive misalignment"* by engaging in risky investments which lead to higher risk and a lower level of bank capitalization[2] (IFSB, 2010; Abedifar et al., 2013; Saeed and Izzeldin, 2014).

Therefore, in a context of moral hazard and information asymmetry, Islamic banks tend to boost their leverage and maximize their shareholders value at the expense of depositors and bank capital. As results, they always hold higher capital buffers that include different reserves of retained earnings to protect against DCR. In the following sections, we examine whether

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[1] To avoid withdrawal risk, (i.e. unexpected losses when a bank is not able to ensure a competitive level with other banks) DCR (Displaced Commercial Risk) exists when transferring funds from IRRs (Investment Risk Reserve) and PERs (Profit Equalization Reserve) to smooth profit returns of IAH and thereby minimize the probability of withdrawal risk.

[2] Islamic banks sometimes do not have enough money to cover DCR. In such cases, Islamic banks may adjust their equity base to preserve IAH confidence (Hamza and Saadaoui, 2013).

institutional environment in term of better economic and financial conditions can affect Islamic banks' capital decisions. We choose economic and financial development because Islamic banks have significant reserves of retained earnings in their capital buffers. Retained earnings depends largely on economic conditions and tend to increase rapidly in countries with good economic and financial development. In addition, retained earnings are used to build IRRs and PERs buffers to smooth profit returns of IAH and thereby minimize the probability of withdrawal risk, in cases of default or bad economic conditions. Moreover, the decision of increasing bank capital is subject to a conflict of interest between shareholders and stakeholders. From the shareholders point of view, earnings should be distributed in the form of dividend and thus increasing the bank return on equity. However, from both regulators and depositors point of view, retained earnings is more appreciated because it helps building up buffers to absorb unexpected losses (Admeti et al. 2010). It should be noted, though, that depositors in theory would have little incentive to worry about the financial strength, and potential moral hazard of their bank since their deposits are covered by the deposit insurance scheme. In Islamic banking, returns' on PSIA need to be competitive with interest rates of conventional banks, regulatory authorities such as the IFSB allows Islamic banks to channel funds from the profit smoothing reserves to cover for any expected losses, avoid DCR and preserve IAHs confidence. Therefore, the conflict of interest between shareholders and stakeholders should be limited.

The rest of the paper is organized as follows. Section 2 describes our sample, variables and empirical model. Section 3 reports the results of the effect of economic development on Islamic banks' capital ratios. Section 4 provides further evidence from the law and finance literature. Section 5 presents a battery of robustness checks. The last section concludes.

2. Data and Methodology

2.1. Sample construction

We use Bankscope as a primary source of data for this study (Abedifar et al., 2013; Anginer and Demirgüç-Kunt, 2014; Mollah and Zaman, 2015). For each bank in the sample, we retrieve annual data from 1999 to 2013. Our initial sample includes more than 149 Islamic banks from 33 countries. Macroeconomic data such as inflation and GDP growth rates are obtained from the World Bank's World Development Indicators, whereas financial development and

institutional variables are obtained from various sources, such as the Heritage Foundation, The Fraser Institute, the Freedom House, Djankov et al. (2007), Committee to Protect Journalists' website, and the CIA's World Fact Book. We exclude countries such as Brunei, Cayman Islands, Gambia, Palestine, and Philippines because they have no available data on the economic freedom index. We also exclude Islamic banks with negative capital ratios. Our final sample consists of more than 100 Islamic banks operating in 28 countries. All variables are winsorized at the 1% and 99% levels to mitigate the effect of outliers.

2.2. Econometric specification and variables

To allow a more robust investigation of the impact of the determinants of Islamic banks' capitalization strategies, we employ simultaneously OLS and random-effect, GLS regressions. We use the following baseline regressions model:

$$\text{CAP\_Islamic}_{ijt} = \alpha + \beta_1 \times \text{Economic\_dev}_{jt-1} + \beta_2 \times \text{Bank\_Trad}_{ijt-1} + \sum_{T=1}^{T} \beta_3 \times \text{YFE}_t + \varepsilon_{it} \quad (1)$$

$CAP\_Islamic_{ijt}$ is vector of Islamic banks capital ratios. We follow Demirgüç-Kunt et al. (2013) and Anginer and Demirgüç-Kunt (2014) and simultaneously use two definitions of capital ratios. The first measure is Tier 1 divided by risk-weighted assets and off-balance sheet exposures (Tier 1 capital/rwa). Tier 1 capital is the sum of shareholders' funds and perpetual, noncumulative preference shares, and retained earnings. This ratio must be at least 6% under the Basel III rules. The second measure is bank common equity divided by total assets (common equity/ta). Common equity includes common shares, retained earnings, reserves for general banking risks and statutory reserves. We alternate between risk-weighted assets and total assets to avoid any untruthful assessment related to the calculation of risk-weighted assets (Cathcart et al. 2015; Dermine, 2015; Bitar et al. 2016).

$Bank\_Trad_{ijt-1}$ is a vector of bank determinants of capital structure suggested by the traditional banking and corporate finance literature (Gropp and Heider, 2010; Octavia and Brown, 2010; Cho et al., 2014; Belkhir e al., 2016; Schepens, 2016; Bitar et al. 2016). First, we use bank size (defined as the natural logarithm of total assets) and expect a negative association with capital ratios because large Islamic banks are more experienced, more reputable, have a better risk management, and benefit of economy of scales as well as the information accessibility advantages

(Beck et al. 2013, Abedifar et al. 2013). Second, we use profitability (proxied by net income to total assets) and expect a positive impact on Islamic banks' capital ratios. In a pecking order context, banks prefer internal funds over external ones and thus their need for the latter is lower. In addition, Islamic banks are less capable of raising debt because of the constraints imposed by the Islamic law on the use of debt instruments and because of their underdeveloped Islamic financial markets. Third, we control for liquidity (proxied by the ratio of liquid assets to deposits and short term funding) and argue about two opposite views: the trade-off hypothesis where regulatory constraints on capital could severely harm the liquidity position of a bank (Horváth et al., 2013) and the pecking order theory where more liquid assets imply less information asymmetry and, therefore, a better capacity of raising equity (Belkhir et al., 2016). However, in Islamic banking, liquidity is considered a major challenge (i.e. weak interbank money market and short term liquidity instruments, and lack of harmonized regulatory standards). Therefore, whether more liquidity leads to more or less capital is an empirical question which we leave to the empirical estimations to explore. Fourth, we control for bank tangibility (defined as the ratio of fixed assets to total assets) because according to the pecking order theory, banks with more available tangible assets are less sensitive to information asymmetry. This implies that the cost of issuing equity is expected to be lower than the cost of debt. In addition, Islamic banking transactions need to be backed by assets in real economy due to *Sharia'a* obligations. Thus, we expect a positive effect of tangible assets on Islamic banks' capital ratios. Finally, we control for credit risk (proxied by the ratio of net loans to assets). Due to the complexity of their facilities and contracts, Islamic banks could face moral hazard problems especially with market imperfections and information asymmetries (Abedifar et al. 2013; Abdul-Karim et al., 2014). Islamic banks also have a less experienced risk management and are more prone to non-*Sharia'a* compliance risk, which could harm their reputation and investors' confidence. Whether more risk leads to more or less capital is thus an empirical question which we leave to the empirical estimations to explore.

$\text{Economic\_dev}_{jt-1}$ is a measure of economic and financial development in a country and includes four sub-measures.[3] First, the rule of law reflects the capacity of a country's government

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[3] We argue that although economic and development index cannot capture all the needed elements, we expect that such indicator can at least play the needed role in capturing some of the critical dimensions of financial and institutional development.

and legal system to recognize and ensure the protection of property rights and freedom from corruption. Corporate finance literature reports mixed evidence on the association between rule of law and capital. While some authors argue of a positive link between rule of law and leverage (Belkhir et al., 2016) others suggest the opposite (Antoniou et al., 2008; De Jong et al., 2008; Gungoraydinoglu and Öztekin, 2011). Despite the fact that Islamic banks are bound by the *Sharia'a* law, they operate in an environment where bankruptcy laws and property rights' protection are weak (Bitar et al., 2016; Belkhir et al., 2016). Therefore, whether the rule of law can lead to higher or lower capital ratios for Islamic banks is an empirical issue which we leave to the empirical model to uncover. Second, governmental intervention proxies for a country's fiscal freedom and government spending. While an extensive body of research shows a positive link between tax cuts and leverage (Frank and Goyal, 2009; Gungoraydinoglu and Öztekin, 2011, Fan et al. 2012; Öztekin, 2015), Schepens (2016) provide the first empirical evidence that reducing tax discrimination of equity funding vis-a-vis debt funding increases the use of equity because banks can no longer benefit from the tax shield. The literature also asks about the opportunity costs that arise from resource allocation by governments instead of handling the same resources by firms or banks from the private sector. In fact, government spending tend to be temporary, inefficient and often increases the debt burden of future generations. As a results, we expect that higher fiscal freedom and a limited governmental intervention in the economy to be positively associated with Islamic banks' capital ratios. Third, regulatory efficiency comprises three measures of business freedom, labor freedom, and monetary, thus reflecting the country's level of facilities related to the creation of new businesses, the freedom to sign contracts without government and union interventions and the policies used to reduce inflation and maintain a stable currency. Thus, we expect that a sound economic conditions in terms of the creation of new businesses, a strong exchange between employers and employees in a free labor market, as well as a monetary policy that stands against inflation and volatile currency exchange prices, to be positively related to Islamic banks' capital ratios. The last measure is market openness and constituted as the sum of freedom of trade, freedom of investments, and financial freedom. Overall the three measures reflects the free movement of capital, efficient allocation of resources, the accessibility and the efficiency of financial systems. Therefore, we expect that in financially free societies, where the transactions costs and information asymmetries are lower, Islamic banks' tend to hold higher capital buffers. For the four measures as well as the overall index of economic and financial

development we use the Heritage Foundation index of economic freedom. For each of the four measures, the scale ranges from 0 to 100 where higher values indicate a soundly based economy and financial system.

YFE_t are the year fixed effects, and ε_{it} is a white-noise error term assumed to be normally distributed with zero mean and constant variance, $\varepsilon_{it} \sim iid\ N(0, \sigma^2)$. All independent variables are lagged by one year because the right hand variables might take more than one year to show any pronounced effect. 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 only have twenty eight countries. Therefore, clustering at the country level might create biased results.

3. The effect of economic and financial development on Islamic banks' capital decisions

3.1. Baseline results

Table 2 reports the baseline results for the effect of economic and financial development on Islamic banks' capital ratios. The findings suggest that a 1% increase in the overall index is reflected in an increase of coefficient estimates of both common equity and Tier 1 capital ratios that equal 0.443 and 0.669, respectively. Our results confirm our expectation that Islamic banks' decisions of increasing capital ratios are strongly associated with better economic and financial conditions. When economic and financial conditions are favorable, Islamic banks tend to increase their retained earnings and maintain higher capital buffers to protect against losses in periods of economic distress. They use retained earnings to distribute profits to IAHs in periods of recessions or bad economic conditions to preserve depositors' confidence. Islamic banks also use smoothing reserves when competition is high and the return rate on investments is lower than the interest rates proposed by conventional banks.

[Insert Table 2 around here]

Now we test whether the effect of economic and financial development on Islamic banks' capital ratios is driven by small/large and less/more experienced Islamic banks. We first interact economic development index with two dummy variables: (i) Small – equals 1 if bank total assets < median and 0 otherwise – and (ii) large – equals 1 if bank total assets > median and 0

otherwise – Islamic banks. As we split the sample between small and large Islamic banks we no longer control for bank size in the regression model. Second, we proxy for bank experience using three dummy variables. Banks which have been operating for a period less than ten years old are categorized as young banks, and those which have been operating for a period ranging between ten and twenty years are considered middle-aged banks. Finally, other banks which have been operating for more than twenty years are considered mature banks. We use Eq. (2) to develop our regression model. Table 2 Panel A and Panel B report the results for bank size and experience, respectively.

$$CAP\_Islamic_{ijt} = \alpha + \beta_1 \times Economic\_dev_{jt} + \beta_2 \times Economic\_dev_{jt} \times (size/experience) + \beta_3$$

$$\times Bank\_Trad_{ijt} + \beta_4 \times Natural\_res_{jt} + \sum_{T=1}^{T} \beta_3 \times YFE_t + \varepsilon_{it} \quad (2)$$

In model 1 of Table 3, we only use variables from our baseline model. In model 2, we replace net loans to assets with loan loss reserves as an alternative risk measure. In model 3, in addition to bank-level control variables, we include a series of country-level control variables such as GDP growth, inflation rates, oil rents, gas rents, and mineral rents. The results in both panels and all models are consistently showing a positive and significant effect (at the 5% level or better) of economic development on Islamic banks' capital ratios for both small and large Islamic banks as well as young, middle-aged and matured Islamic banks. We also notice that economic development has a more pronounced effect on capital ratios for small and young Islamic banks.

With regards to bank-level control variables, we find a negative and significant association between bank size and capital ratios, suggesting that large Islamic banks are more experienced and more reputable that smaller ones (Abedifar et al., 2013; Beck et al., 2013). In addition, regulatory authorities are more flexible in term of capital with large banks because they are more profitable where profits can be used as retained earnings to protect the bank against default (Fiordelisi et al., 2011). The latter argument can also explain the positive and significant relation between profitability and capital ratios for Islamic banks. The findings also suggest that a 1% increase in liquidity in followed by an increase of coefficient estimates of both common equity

and Tier 1 capital ratios that equal 0.092 and 0.056, respectively. Islamic banks that hold higher liquid assets are less exposed to information asymmetry and, therefore, have a better capacity of raising equity than less liquid Islamic banks and conventional banks. Finally, the coefficient estimate for tangibility shows a positive and significant effect on bank capital ratios although the results do not hold their significance in all models. Thus, the reliance on asset-backed transactions and investments in real-estate lead to lower risk engagement and a clearer view of resource allocation which decreases bank total costs leading to higher retained profits in banks' capital buffers. As for the additional control variables in Model 3, we find that Islamic banks operating in countries with higher oil, mineral, gas rents as well as higher inflation rates have higher unregulated capital ratios. The results, however, are less pronounced for regulated capital ratios but continue to show a positive and significant association with the oil rent. If anything, our findings suggest that Islamic 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 prices' volatility, etc.).

3.2. *Differences across regions and economic cycles*

Evidence on the importance of cross-regional heterogeneity between Islamic banks and whether such differences could explain the conflicting results of the existing empirical research is scarce and requires further investigation (Rajhi, 2013; Beck et al. 2013; Faye et al. 2013). Therefore, we explore geographical differences by dividing our sample into five sub-regions. These regions are: (i) Middle East and North Africa (MENA); (ii) European Union (EU); (iii) South East Asia and Pacific (SEA); and (iv) Sub-Saharan Africa. Moreover, we decompose the MENA region into two sub-regions: The MENA (i.e. larger MENA mentioned above) and (v) the Gulf Cooperation Council (GCC) countries, because we believe that the six countries of the GCC are economically and institutionally different from the rest of the MENA countries (Bitar et al., 2016).

[Insert Table 3 around here]

We use Eq. (3) to develop our regression model. The results in Table 3 Panel A show important cross-regional variation in the effect of economic development on Islamic banks' capital ratios, demonstrating that some of our results in Tables 2 are driven by regional differences. A good example is the relation between economic development and capital ratios in the GCC countries; the results in Table 3 indicate that the positive impact is mainly driven by Islamic banks in the GCC countries, suggesting that better economic conditions are important determinants of Islamic banks' capital decisions in these countries. We also notice that in contrast to common equity ratio, the results for Tier1 capital show positive and significant relation in all regions, reflecting the fact that economic and financial development has a more pronounced effect on standardised regulatory capital ratios.

$$CAP\_Islamic_{ijt} = \alpha + \beta_1 \times Economic\_dev_{jt} + \beta_2 \times Economic\_dev_{jt} \times (regions/crisis) + \beta_3 \times Bank\_Trad_{ijt} + \beta_4 \times Natural\_res_{jt} + \varepsilon_{it} \quad (3)$$

In this section, we also control for the fluctuation of the economy between periods of growth and financial distress and examine whether the association between economic development and Islamic banks' capital ratios is the same during different periods of an economic cycle. Because our sample includes the subprime crisis period, Table 3 Panel B compares the financial soundness of Islamic and conventional banks for the periods before (1999–2006), during (2007–2009), and after (2010–2013) the crisis. To do this, we also use Eq. (3) and interact the economic freedom with three dummies that represent the periods (cycles) before, during, and after the subprime crisis and continue to find the same results.

[Insert Table 3 around here]

4. The effect of economic and financial development on Islamic banks' capital decisions: New insights from the law and finance literature

So far, our results consistently suggest that economic and financial development has a positive and significant effect on capital ratios of Islamic banks, suggesting that Islamic banks have preference to hold higher capital buffers when economic and financial conditions are

favorable. In this section, we seek more conclusive evidence by introducing new factors, including the role that can be played by press, information sharing as well as countries' political systems in reducing information asymmetry and moral hazard in countries with better economic and financial development. Furthermore, we now use tangible equity to tangible assets and capital adequacy ratios as two additional dependent variables. We also use the Fraser institute index of economic freedom in the world as a second proxy for economic development to check the robustness of results.

4.1. *The role of media and free press*

Because information asymmetry plays a crucial role in corporate finance and conventional banking financing choices, in this section we put attention on the role of media as a main source of information. By doing so, we provide new evidence on whether media can improve the effect of economic and financial development on Islamic banks' capital decisions.

We argue about two conflicting theories. The Pigouvian theory (also known as the public interest theory) suggests that government ownership of the media serves the welfare of societies. The most important reasoning for this theory is that private owned media tend to serve the governing classes. As a result, the role of public media is to expose and provide a more accurate, transparent, independent, and thus less biased information than those provided by the private sector. This theory, however, is more relevant to developed than for developing countries. Public media in the latter often serves and praises the governing regimes and compliment their own agenda rather than addressing real public interests. This leads, in contrast, to the public choice theory. This theory argues that the public interest theory distorts and manipulates information and could ultimately undermine the democracy, the markets, the economic development, and the social outcomes of countries. By supporting the private media, the public choice theory helps individuals (e.g. investors) to make their own choices independently and with confident about the circulated information. This theory also focuses on the importance of competition between media forces by ensuring different sources of information and thus more independent and less biased information.

$$\text{CAP\_Islamic}_{ijt} = \alpha + \beta_1 \times \text{Economic\_dev}_{jt-1} + \beta_2 \times \text{Media}_{jt-1} + \beta_3 \times \text{Media}_{jt-1}$$

$$\times \text{Economic\_dev}_{jt-1} + \beta_4 \times \text{Bank\_Trad}_{ijt-1} + \sum_{T=1}^{T} \beta_5 \times \text{YFE}_t + \varepsilon_{it} \quad (4)$$

We use Eq. (2) to develop our model. Table 4 reports the results; to save space, the table presents only the coefficients of the interaction between economic development (based on the Heritage foundation (Panel A) and the Fraser institute (Panel B)) and four measures of media and press (Media_{jt-1}), i.e. freedom of the press, state share in media, private sector share in media, and journalists jailed. Data are collected from the Fraser institute, Djankov et al. (2007), and Committee to Protect Journalists' website. All of the estimated coefficients in Panel A and Panel B for models 1 through 4 indicate that economic development in countries with higher private sector ownership and freedom of press has a more positive and significant effect on Islamic banks' capital ratios. In contrast, increased state ownership of media and journalists oppression can have an adverse effect leading to information asymmetries and thus lower capital ratios. The results support the public choices view where Islamic banks prefer to hold higher capital ratios in countries where information is transparent and available to the public as a part of the overall mechanism that embraces financial and economic development.

[Insert Table 4 around here]

4.2. *The role of information sharing institutions*

We continue to examine the role of information sharing in the link between economic and financial development and capital ratios. Specifically, we focus on public and private bureau of credit information sharing as a proxy for financial information sharing in debt markets (Cho et al. 2014). We follow the work of Djankov et al. (2007) and use two measures about the presence of public and private bureau of credit registries ($\text{Information\_sharing}_{jt-1}$). Managed by governmental agencies such as the Central Bank, the public bureau of credit registries collect information about borrowers in the financial system and make it available to actual and potential lenders. In contrast, private bureau of credit registries is a private firm or non-profit organisation that distribute data and offer services by facilitating exchange of information between banks and financial institutions. For each indicator, we use a dummy variable that equals one if a credit registry bureau (public or private) operates in the country and zero otherwise. As we mentioned

in the previous section, the public choice theory argue that the presence of private bureau of credit registry reduces information asymmetry while the presence of public bureau of credit registry increases information asymmetry, especially in developing nations.

$$\text{CAP\_Islamic}_{ijt} = \alpha + \beta_1 \times \text{Economic\_dev}_{jt-1} + \beta_2 \times \text{Information\_sharing}_{jt-1} + \beta_3$$
$$\times \text{Information\_sharing}_{jt-1} \times \text{Economic\_dev}_{jt-1} + \beta_4 \times \text{Bank\_Trad}_{ijt-1}$$
$$+ \sum_{T=1}^{T} \beta_5 \times \text{YFE}_t + \varepsilon_{it} \quad (5)$$

We use Eq. (5) and report the results in Table 5 Panels A and B. We continue to show a positive association between the interaction term of economic development and private credit, and capital ratios of Islamic banks while the opposite occurs for public bureau of credit registry. Altogether, our findings support the public choices theory and once again reinforce our expectation that Islamic banks prefer to hold higher capital ratios in countries with better economic conditions and information is transparent and available to the public.

[Insert Table 5 around here]

4.3. The role of countries' political systems

Another important factor that can play a key role in affecting the association between economic development and Islamic banks' capital decisions is the state structure is each country. In this section, we refer to two broad political systems: plural democracy and mass party-autocracy. A democratic political system is mainly characterised with the freedom of expression where all citizens have the right to express their opinion and choose their leaders. Djankov et al. (2003) explain that the symbol of modern democracy is the presence of private and competitive media that is considered "the fourth estate" along with the executive, the legislature, and the courts. In contrast, modern autocratic political system is characterised with a high degree of restriction or suppression of other political parties. It also exercises a high degree of directiveness over social and economic activities thus contradicting different factors of economic and financial development index. In addition, we use a polity index computed as the difference between democracy and autocracy scores with higher values indicate a more democratic system. Data is collected from the Political Regime Characteristics and Transitions of Polity IV project. Furthermore, we employ the checks index of the World Bank's Database of Political Institutions

(DPI) to capture potential obstacles to policy changes with higher values indicate less obstacles (Bove et al., 2016). Finally, we include three measure of political durability to capture the stability and the durability of political systems in different countries: (i) durability of a political system, (ii) Arab Spring, and (iii) major protests to control for political distress periods. For the first proxy, data is collected from the Political Regime Characteristics and Transitions of Polity IV project while for the second and the third proxies, data is collected manually based on the work of Gosh (2015) and Bitar et al. (2016). For durability, higher values indicate more durable political system. In contrast, Arab Spring and major protests indicate radical political changes that resulted in regime changes and civil wars. The results presented in Table 6 Panels A and B show strong association between economic development and regulated capital ratios in countries that have a democratic and soundly based political system while the opposite occurs in countries that have an autocratic political system and suffer from political instability. These results prove once again that the freedom of expression protected by democratic political regimes reduces information asymmetries and moral hazard and thus provide a better economic and financial conditions which support the choice of Islamic banks of increasing capital ratios.

[Insert Table 6 around here]

Finally, the corporate finance literature shows a clear evidence that legal origin is an important determinant of creditor rights private credit (Beck et al. 2003a, b; Djankov et al. 2007). 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 Islamic banks operate, we count the existence of the three first legal origins. The English legal origin refers to the common law on England, and colonies to which it spread, such as the KSA, the UAE, and Iran. The French legal origin refers to the civil law of France, and of their formal colonies, such as Algeria, Indonesia, and Turkey. The German legal origin refers to the laws of the Germanic countries in central Europe such as Bosnia. Tables 7 Panels A and B, show clear evidence that in English common law countries, economic and financial development has a positive impact on Islamic banks' capital ratios, while the opposite occurs for civil law and German legal systems.

[Insert Table 7 around here]

To summarize, in this section we rely on the law and finance literature and trace the factors that might play a key role in improving the association between economic development and the capital ratios of Islamic banks. We find that Islamic banks tend to hold higher capital ratios in English common law and democratic countries that have higher freedom of press, private credit information sharing and favorable economic conditions. In contrast to Djankov et al. (2007), our findings suggest that free media and information sharing through private credit registries encourage Islamic banks to increase their capital ratios in countries where economic and financial development are supported.

[Insert Table 7 around here]

5. Robustness checks

5.1.1. IV approach and other estimation techniques

We complement our analysis and perform several tests to address the issue of endogeneity which could bias our results. To mitigate concerns of endogeneity, we use an instrumental variable approach (IV). First, IV regresses economic and financial development index on instruments and regressors as reported in baseline models. Second, the predicted values of economic development index replace the index in baseline models. Current literature on Islamic banks' capital structure as well as other aspects of Islamic banking system is largely silent about endogeneity and lacks of specific instruments that can be used when examining the association between economic development index and bank capital structure. In this study, we use the creditor rights index which is the sum of four legal measures, i.e. no automatic stay, secured creditor paid first, restrictions on reorganization, and no management stay, with a value of one if a country's regulations provide that specific type of protection, and zero otherwise, a dummy that represents highly income countries and Allhouse measure which takes the value of one when the party of the chief executive controls the government legislation, and zero otherwise. We use these measures because they captures the institutional environment that plays a key role in shaping the financial development of economies. Moreover, we argue that it is less likely that the three measures would have a direct effect on the Islamic banks' capital ratios today. Instead, they might affect bank capital through their impact on economic development and financial development. We follow Barth et al. (2009) and Bitar et al. (2016) and conduct an F-test of the

excluded exogenous variables in the first-stage regressions. The null hypothesis of the test is that our instrument does not explain cross-sectional differences in economic and financial development. We reject the null hypothesis at the 1% level in all models. The results of the second-stage regressions are reported in Table 8. We use two estimation techniques for both capital ratios: (1) we use two least squares regression (2SLS) and (2) limited information maximum likelihood (LIML). Both the Sargan and Basmann tests of overidentifying restrictions are statistically insignificant, suggesting that the instruments are valid in both estimations. The results of the first stage regressions mainly shows that Islamic banks in high income countries with strong creditor rights and sound political systems are more capitalized. The second stage regression results show a clear evidence of a positive and significant association between economic and financial development index and Islamic banks capital ratios in all models and across different estimation techniques. These results provide additional support for our earlier findings and suggest that results are not driven by endogeneity.

[Insert Table 8 around here]

In a second step, we employ a propensity score matching (PSM) technique proposed by Rosenbaum and Rubin (1983) to verify the robustness of our results. In order to use the PSM, we first construct a dummy variable that takes the value of one if economic and financial development index ≥ the median, and zero otherwise. Second, we estimate a logit model were we regress the economic development dummy on all the control variables used in the baseline model and the year fixed effects. We use the scores estimated to match each observation with a dummy that equals one for countries with better economic and financial conditions and equals zero for countries with less favorable economic conditions. Additionally, we follow Bitar et al. (2016a) and employ three different matching methods: K-nearest neighbors with the nearest neighbor with n=2 and n=5, the Gaussian Kernel matching, and the radius matching. Matched samples results are reported in Table 8 Panel B and show that Islamic banks in countries with better economic and financial conditions have higher capital ratios compared to Islamic banks in countries were economic conditions are less favorable. We report the *T* statistics for the differences in economic development between the treated and the control groups for each of the methods. The differences in the percentage of economic development varies between 7.5 and 7.9% when using the common equity ratio and varies between 6.7 and 7.36% when using the Tier1 capital ratio. All these differences are statistically significant at the 1% level.

In a final step, we examine the robustness of our results using four alternative econometric specifications and standards errors. Table 8 Panel C reports the results from regressing economic development index on capital ratios. First, we use truncated regressions to address any bias related to the 10th and the 90th percentiles of observations for the dependent variables (Models1). We also correct for the heteroscedasticity of the standard errors using a White procedure. Second, we use a Newey–West test to correct autocorrelation among the residuals (Model 2). Third, we employ a random effect, GLS regressions and use the bootstrapping techniques with a random resample of 150 of the banks employed in our sample (Model 3). Finally, we use Fama and MacBeth (1973) estimation technique to check for cross sectional dependence (Model 4). Importantly, the estimated coefficients on economic and financial development load significantly positively on capital ratios in all these estimations and models, indicating that our main evidence on the positive relation between economic development and capital ratios of Islamic banks' is unaffected by the use of different estimation techniques.

5.1.2. Quantile regressions

We perform quantile regressions to highlight whether the effect of economic and financial development on capital ratios varies with different capital levels. One important feature of quantile regressions[4] is that they allow for heterogeneous solutions to economic development by conditioning on bank capital (less capitalized vs. highly capitalized). We expect that the positive effect on capital ratios should be more pronounced for highly capitalized Islamic banks than for low capitalized ones. The rationale is that banks with higher capital ratios tend to be riskier and thus tend to have higher retained earnings when economic conditions are favorable to cover for any expect default in cases of financial distress.

Table 9 reports the results for our sample of 28 countries. We report regression results for three capital quantiles from 0.25 to 0.75 and use both common equity and Tier1 capital ratios. Results in Panel A show that the estimated coefficients on the economic and financial freedom index are positive at all reported quantiles. More importantly, these coefficients become more

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[4] The quantile regression results are also robust to outliers and distributions with heavy tails. The quantile regression also avoids the restrictive assumption that the error terms are identically distributed at all points of the conditional distribution.

positive as we move from lower to upper quantile. While the economic development index coefficient is relatively small (at 0.204) at the lower capital quantile of 0.25, it almost double (at 0.406) at the upper quantile of 0.75, which suggest that at 1% increase in the economic development is associated with an increase of unregulated capital ratio of 0.22 at upper capital level. The Wald test suggests that the difference between lower and upper quantiles is statistically significant at the 1% level.

In Panel B, we study the effects of the four main factors of economic development and their subcomponents across different capital quantiles. To save space, we report results only for the coefficient estimates on the factors of capital ratios still controlling for the same set of control variables presented in Panel A. the findings show clear evidence that the coefficient estimates on the factors of the economic development tend to be more positive at the upper capital quantile than at lower capital quantile for six factors over ten when using unregulated capital ratio, and eight factors over ten when using regulated capital ratio. The positive association is more pronounced for *Business Freedom* when reporting the results for traditional capital ratio and for *Monetary Freedom* when reporting the results for Basel capital ratio. This suggest that the effect of factors of economic development index is not homogeneous across different definition of capital ratios, indicating that our dependent variables capture different aspects of Islamic banks' capital.

Finally, Panel C perform interquantile regressions and show that our results are still consistent across interquantiles. Overall, the quantile and interquantile regressions reveal that the effect of capital to economic freedom is indeed more positive for highly capitalised Islamic banks, thus confirming our expectation that riskier banks tend to hold more retained earnings in their capita buffers to protect against default and preserve IAHs confidence.

[Insert Table 8 around here]

6. Policy implication and concluding remarks

An increasing number of research in corporate finance has been highlighting the importance of studying the determinants of firms' capital structure. While the conventional banking literature shows evidence that most determinants of bank capital structure are identical to the findings of other studies in corporate finance, the literature on the determinants of Islamic

banks' capital decisions do not offer any empirical evidence on whether Islamic banks share common determinants of capital structure with their conventional counterparts and with the broader corporate finance literature. In this paper, we examine the state of Islamic banks' capital ratios and particularly focus on the following aspects: (1) whether economic and financial development and (2) interactions between economic development and factors from the law and finance literature can affect Islamic banks' financing choices.

Our findings provide evidence that economic and financial development has consistently positive and significant effect on the choice of Islamic banks to increase their capital ratios, suggesting that the rule of law along with efficient government and free markets are important determinants of Islamic banks' financing decisions. The findings are robust when we use additional bank- and country level control variables, alternative measures of capital and economic development, an instrumental variables approach, quantile regressions and other estimation techniques. In additional analyses, we rely on the law and finance literature and find that the association between economic development and Islamic banks' capital ratios is stronger in countries that have higher freedom of press, rely on private bureau of credit information sharing, and have a democratic political system.

The current paper have potential policy implications for the on-going debates on regulatory reform and the importance of the existence of sound and free economic systems. Our results are based on the analysis of bank behavior in determining two different types of capital suggest that the recent implementation of the Basel III capital ratio is supportive. However, our results also provide important evidence that the association between economic development and capital ratios is subject to other determinants such as free media, press ownership and democracy. These findings suggest that Islamic banks tend to increase their reserves of retained earnings and thus their capital ratios when economic and financial conditions are favorable to compete with conventional banks or to protect against default in periods of economic distress to preserve IAHs confidence.

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Tables

Table 1
Summary statistics for regression variables

	Common Equity	Tier 1 Capital	Economic Development	Size	Profit	Loans to assets	Liquidity	Tangibility	Risk	GDPG	Inflation	Legal	Oil Rent	Gas Rent	Mineral Rent
Panel A. Summary statistics by country															
Albania	23.39	.	60.11	10.91	-3.29	39.17	.	4.91	22.17	5.03	3.15	0	2.11	0.02	0.24
Algeria	22.63	.	55.67	13.16	1.54	83.15	51.15	3.9	2.45	3.61	9	1	22.99	13.35	0.12
Bahrain	50.1	37.59	74.63	13.14	1.29	35.19	106.9	2.23	8.42	4.96	6.88	1	17.65	9.89	0
Bangladesh	6.27	9.29	50	13.07	0	66.26	25.57	1.76	4.67	5.82	5.43	1	0.11	3.02	0
Bosnia	32.21	.	48.53	11.76	-0.8	75.63	102.2	4.91	3.56	3.89	5.21	0	0	0	0.55
Egypt	5.24	10.3	55.79	14.56	0.16	45.86	19.67	1.89	13.78	4.41	8.14	1	8.22	5.57	0.2
Indonesia	19.23	18.13	54.75	13.09	1.17	65.47	68.18	1.53	4.41	5.11	10.67	0	4.14	2.63	1.65
Iraq	37.85	.	16.8	12.42	3.73	11.96	147.8	6.57	24	6.27	10.14	1	53.09	0.31	0
Iran	13.01	17.3	42.15	16.03	1.47	60.22	30.33	3.59	3.85	3.96	18.04	2	25.87	6.83	0.65
Jordan	11.56	31.74	66.7	14	0.88	46.07	42.9	1.56	2.69	5.26	4.76	1	0	0.23	1.26
Kenya	21.72	24.77	58.23	11.61	-1.07	63.49	.	4.51	0.97	4.18	6.44	0	0	0	0.07
Kuwait	25.7	25.7	66.17	14.73	0.74	33.21	41.09	5.18	10.68	4.63	10.1	1	49.39	2.52	0
Lebanon	32.71	.	58.62	11.58	-0.53	17.68	116.1	7.1	18.4	4.34	2.14	1	0	0	0
Malaysia	11.96	17.41	63.71	14.72	0.24	54.49	39.4	0.42	3.43	5.13	3.48	1	6.63	5.62	0.11
Mauritania	25.5	.	53.19	11.44	1.5	51.33	58.98	7.27	0.52	4.37	6.14	1	4.35	0	25.22
Pakistan	15.19	23.47	55.48	12.09	1.14	27.53	51.77	2.98	3.71	4.05	10.94	1	0.83	4.11	0.05
Qatar	20.52	21.98	65.15	15.46	3.06	58.77	37.36	0.72	2.21	11.31	8.89	1	30.17	16.14	0
KSA	21.82	26.47	63.35	15.81	2.31	58.65	45.24	2.45	5.35	5.1	6.58	2	43.8	3.6	0.02
Senegal	10.69	.	57.45	11.7	1.09	74.84	.	1.98	.	3.94	2.29	0	0	0.03	0.86
Singapore	74.28	75.18	87.59	13.1	-2.12	54.75	93.85	0.23	14.51	5.77	0.87	0	0	0	0
South Africa	9	13.02	63.7	12.56	0.71	83.3	25.54	2.37	1	3.34	7.1	0	0.12	0.12	2.18
Sudan	15.32	35.97	43.4	12.5	2.05	30.19	65.06	4.95	6.33	3.56	15.96	1	14.51	0	0.52
Syria	18.34	48.43	44.8	13.17	0.44	25.36	111.3	3.04	6.97	3.05	7.01	1	22.11	3.48	0
Tunisia	20.6	22.33	58.95	12.73	1.07	48.42	51.98	2.77	6.15	4.11	3.54	1	3.76	1.25	0.65
Turkey	10.78	14.06	58.8	15.56	1.73	73.04	20.87	1.75	3.2	3.9	19.76	0	0.16	0.02	0.14
EUA	14.01	19.66	68.51	15.43	1.1	62.78	28.68	1.74	4.5	4.55	7.96	1	20.59	3.84	0
UK	45.16	47.72	77.51	12.82	-4.16	19.87	183.6	0.95	14.49	1.9	2.2	0	1.02	0.49	0
Yemen	13.29	14.59	51.5	12.3	0.22	28.06	52.38	1.62	7.11	2.7	13.36	1	28.59	1.1	0
Panel B. Descriptive statistics for the full sample															
N	1326	739	420	1327	1324	1280	1237	1292	925	420	420	28	420	420	420
Mean	20.94	24.17	59.85	13.77	0.99	47.92	57.55	2.79	6.26	4.65	9.4	0.96	15.38	4.26	0.46
Min	3.78	7.7	15.6	10.76	-20.1	0.03	1.46	0	0.52	-33.1	-24.22	0	0	0	0
Q1	7.47	12.16	53.2	12.33	0.37	28.49	20.56	0.67	1.91	3	3.37	1	2.72	0.26	0
Median	12.31	16.45	60.4	13.83	1.03	52.45	35.01	1.79	3.45	4.92	7.8	1	13.07	3.21	0.01
Q3	24.65	27	67.4	15.15	2.08	66.95	59.88	3.64	7.17	6.43	14.09	1	22.51	6.22	0.2
Max	82.42	79.8	88.9	16.93	14.58	98.86	546.19	17.23	28.97	54.16	54.18	2	68.84	23.91	44.64
SD	21.3	19.06	11.76	1.76	4.22	24.88	80.71	3.2	7.28	4.95	10.22	0.52	14.96	4.38	2.37

Table 1 (Continued)
Summary statistics for regression variables

	Public Registry	Private Registry	Free Press	State Press	Private Press	Jailed Journalists	Democracy	Autocracy	Polity	Durability
Panel A. Summary statistics by country										
Albania	0	0	48.51	.	.	0	8	0.2	7.8	9
Algeria	0	0	35.22	0.57	0.43	1.27	2.33	2	0.33	5
Bahrain	.	.	24.24	0	1	0.47	0.07	7.73	-7.67	21.33
Bangladesh	1	0	38.73	.	.	0.93	5.13	1.13	4	6.87
Bosnia	0	0.73	50.98	.	.	0	.	.	.	0
Egypt	1	0	33.42	0.94	0	1	0.43	4.71	-4.29	21.2
Indonesia	1	0	47.82	0	0.85	0.13	7.67	0.33	7.33	7
Iraq	.	.	24.04	.	.	0.8	2	5	-3	20.8
Iran	1	0	16.71	1	0	14.4	1.33	4.67	-3.33	4.33
Jordan	1	0	37.24	0.83	0.17	0.13	2	4.47	-2.47	17
Kenya	0	1	39.13	0	0.88	0	6.67	0.8	5.87	5
Kuwait	0	0.73	44.56	0	1	0.67	0	7	-7	42
Lebanon	1	0	40.02	.	.	0	6	0	6	2.4
Malaysia	1	1	32.89	0	0.6	0	4.8	0.6	4.2	20.2
Mauritania	1	0	41.8	.	.	0.07	0.27	3.93	-3.67	16.47
Pakistan	1	0.73	38.44	0	1	0.47	2.47	2.87	-0.4	2.87
Qatar	.	.	35.07	.	.	0	0	10	-10	35
KSA	1	0	15.93	0.51	0.49	0.53	0	10	-10	80
Senegal	1	0	54.69	0.51	0.49	0.07	7.13	0.2	6.93	7.47
Singapore	0	0.73	32.02	0	1	0.07	2	4	-2	41
South Africa	0	1	71.27	0	0.7	0	9	0	9	12
Sudan	.	.	17.53	.	.	0.53	0.15	5	-4.85	3.69
Syria	0	0	16.78	1	0	2.67	0	7.4	-7.4	36.47
Tunisia	1	0	25.09	0.23	0.5	1.07	1	4.75	-3.75	14
Turkey	1	0.73	46.11	0	1	10	8.2	0.8	7.4	23
EUA	1	0	26.6	.	.	0	0	8	-8	35
UK	0	1	80.56	0	1	0	10	0	10	126
Yemen	1	0	23.89	.	.	0.47	1.27	2.6	-1.33	10.47
Panel B. Descriptive statistics for the full sample										
N	1710	1710	420	1605	1605	420	2304	2304	2304	420
Mean	0.82	0.35	31.52	0.25	0.66	1.94	2.57	4.17	-1.61	20.15
Min	0	0	0	0	0	0	0	0	-10	0
Q1	1	0	21	0	0.49	0	0	1	-7	2
Median	1	0	31	0	0.85	0	0	4	-4	10
Q3	1	1	39	0.51	1	1	6	7	5	32
Max	1	1	82	1	1	49	10	10	10	133
SD	0.39	0.48	14.49	0.4	0.38	6.92	3.17	3.41	6.35	25.21

Table 2

The effect of economic and financial development on Islamic banks' capital

Panel A: Size of Islamic banks

Variables	Common equity to assets				Tier 1 capital to risk weighted assets			
	Baseline	[1]	[2]	[3]	Baseline	[1]	[2]	[3]
Economic development	0.443***				0.669***			
	(0.135)				(0.238)			
Size	-1.88***				-3.479***			
	(0.478)				(0.897)			
Economic development index × Small Islamic banks (β_1)		0.565***	0.512***	0.6***		0.717***	0.787***	0.826***
		(0.149)	(0.167)	(0.152)		(0.243)	(0.181)	(0.233)
Economic development index × Large Islamic banks (β_2)		0.427***	0.379***	0.441***		0.558**	0.597***	0.67***
		(0.125)	(0.136)	(0.130)		(0.220)	(0.159)	(0.202)
Earning to assets	0.655**	0.731***	0.736***	0.528**	0.869***	0.813***	0.948***	0.602***
	(0.260)	(0.239)	(0.239)	(0.231)	(0.271)	(0.239)	(0.275)	(0.195)
Net loans to assets	-0.001	0.001		0.004	-0.029	-0.042		-0.003
	(0.041)	(0.042)		(0.045)	(0.079)	(0.077)		(0.064)
Liquid assets to deposits and short term funding	0.092***	0.091***	0.089***	0.092***	0.056**	0.061**	0.059***	0.061**
	(0.015)	(0.016)	(0.016)	(0.016)	(0.022)	(0.023)	(0.019)	(0.024)
Fixed assets to assets	0.66**	0.686**	0.52	0.484	1.451**	1.347**	1.404**	0.847
	(0.325)	(0.301)	(0.357)	(0.318)	(0.642)	(0.636)	(0.605)	(0.547)
Loan loss reserves to gross loans			0.242*				-0.112	
			(0.143)				(0.150)	
GDP growth				-0.144				0.078
				(0.138)				(0.162)
Inflation rate				0.127**				-0.029
				(0.062)				(0.042)
Oil rent to GDP				0.082*				0.11**
				(0.043)				(0.047)
Mineral rent to GDP				0.17**				0.069
				(0.072)				(0.663)
Gas rent to GDP				0.45*				-0.205
				(0.236)				(0.186)
Constant	9.837	-18.76**	-20.93**	-23.59**	18.94	-23.06	-26.21**	-31.35**
	(8.939)	(9.232)	(9.247)	(9.096)	(18.17)	(17.21)	(10.64)	(15.40)
N	862	862	638	851	472	472	413	463
Year dummy	Yes	Yes	Yes	No	Yes	Yes	Yes	No
F–Stat. (Wald): H0: (β_1) = (β_2)	--	13.96***	9.54***	17.06***	--	10.61***	17.74***	12.59***
R2	0.429	0.45	0.4687	0.4809	0.461	0.4672	0.4688	0.5146

Panel B: Age of Islamic banks

Economic development index × Young Islamic banks (β_1)		0.464***	0.395***	0.485***		0.698***	0.692***	0.799***
		(0.136)	(0.139)	(0.138)		(0.219)	(0.187)	(0.216)
Economic development index × Middle aged Islamic banks (β_2)		0.4***	0.316**	0.412***		0.602***	0.627***	0.71***
		(0.133)	(0.133)	(0.130)		(0.215)	(0.182)	(0.205)
Overall economic freedom × Matured Islamic banks (β_3)		0.397***	0.343***	0.404***		0.618***	0.645***	0.727***
		(0.126)	(0.129)	(0.125)		(0.209)	(0.181)	(0.207)
Constant		10.23	9.713	16.38		21.55	22.88*	21.44*
		(8.337)	(8.309)	(9.947)		(18.52)	(13.06)	(11.65)
N		855	633	844		468	409	459
Year dummy		Yes	Yes	No		Yes	Yes	No
Bank control		Yes	Yes	No		Yes	Yes	No
Country control		No	No	Yes		No	No	Yes
F–Stat. (Wald): H0: (β_1) = (β_3)		2.08	1.43	3.24*		3.48*	1.94	4.48**
R2		0.4584	0.4934	0.4989		0.5056	0.8484	0.5586

This table examines the effect of economic and financial development on Islamic banks' capital ratios. Panel A reports the baseline results and investigates whether economic and financial development has the same effect on capital ratios for small and large banks. Panel B examines whether economic and financial development has the same effect on capital ratios for young, middle aged and matured Islamic banks. In panel B we no longer report the bank and the country level control variables 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 3

The effect of economic and financial development on Islamic banks' capital: Comparison across regions and economic cycles

Panel A: Comparison across regions

Variables	Common equity to assets			Tier 1 capital to risk-weighted assets		
	OLS [1]	OLS [2]	OLS [3]	OLS [1]	OLS [2]	OLS [3]
Economic development index × MENA (β_1)	0.273	0.249	0.362	0.723**	0.718***	0.899***
	(0.235)	(0.224)	(0.245)	(0.329)	(0.252)	(0.292)
Economic development index × GCC (β_2)	0.344*	0.313*	0.399**	0.684**	0.701***	0.834***
	(0.187)	(0.185)	(0.191)	(0.292)	(0.236)	(0.257)
Economic development index × EU (β_3)	0.317	0.290	0.449**	0.674**	0.696***	0.924***
	(0.204)	(0.208)	(0.216)	(0.297)	(0.240)	(0.261)
Economic development index × SEA (β_4)	0.208	0.228	0.322	0.651*	0.661**	0.892***
	(0.243)	(0.234)	(0.256)	(0.338)	(0.274)	(0.297)
Economic development index × SUB (β_5)	0.179	0.136	0.249	0.503*	0.502**	0.708***
	(0.252)	(0.235)	(0.268)	(0.261)	(0.227)	(0.234)
Constant	30.92*	24.69*	23.91	21.33	28.29	12.60
	(17.35)	(14.74)	(16.67)	(23.75)	(18.95)	(15.28)
N	862	638	851	472	413	463
Year dummy	Yes	Yes	No	Yes	Yes	No
Bank control	Yes	Yes	No	Yes	Yes	No
Country control	No	No	Yes	No	No	Yes
F–Stat. (Wald): H0: (β_1) = (β_5)	1.55	4.19**	2.71	4.69**	11.27***	7.29***
R2	0.4608	0.4656	0.4831	0.4719	0.4556	0.5284

Panel B: Comparison across time

Variables	Common equity to assets			Tier 1 capital to risk-weighted assets		
Economic development index × before crisis (β_1)	0.434***	0.375***	0.429***	0.631***	0.687***	0.781***
	(0.131)	(0.133)	(0.141)	(0.239)	(0.189)	(0.246)
Economic development index × during crisis (β_2)	0.468***	0.418***	0.473***	0.680***	0.725***	0.831***
	(0.136)	(0.142)	(0.150)	(0.238)	(0.193)	(0.256)
Economic development index × after crisis (β_3)	0.444***	0.406***	0.465***	0.675***	0.732***	0.798***
	(0.132)	(0.143)	(0.139)	(0.224)	(0.185)	(0.229)
Constant	9.636	10.44	17.69	21.42	21.43*	17.70
	(8.572)	(8.214)	(10.84)	(18.22)	(12.21)	(14.72)
N	862	638	851	472	413	463
Year dummy	No	No	No	No	No	No
Bank control	Yes	Yes	No	Yes	Yes	No
Country control	No	No	Yes	No	No	Yes
F–Stat. (Wald): H0: (β_1) = (β_3)	0.23	1.88	3.24	1.52	2.09	0.32
R2	0.4258	0.4365	0.4706	0.4462	0.4263	0.5246

This table examines the effect of economic and financial development on Islamic banks' capital ratios. Panel A investigates whether economic and financial development has the same effect on capital ratios of Islamic banks across five regions (Middle East and North Africa, MENA; Gulf Cooperation Council, GCC; European Union, EU; Southeast Asia, SEA; and Sub-Saharan Africa, SUB). Panel B examines whether economic and financial development has the same effect on capital ratios of Islamic banks in the period before (1999-2006), during (2007-2009) and after (2010-2013) the financial crisis. In panels A and B we no longer report the bank and the country level control variables 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 4

Further evidence: The role of free press and media ownership

Variables	Predicted effects	Common equity to assets			Tangible equity to tangible assets			Tier 1 capital to risk-weighted assets			Total regulatory capital to risk-weighted assets		
		[1]			[2]			[3]			[4]		
		Coef.	N	R2	Coef.	N	R2	Coef.	N	R2	Coef.	N	R2
Panel A. Using economic development I (Heritage Foundation)													
Economic development index × Freedom of press	+	0.235** (0.116)	764	0.4832	0.221* (0.119)	764	0.4785	0.46*** (0.162)	427	0.4972	0.268* (0.141)	481	0.4678
Economic development index × State share in media	+/-	-25.07*** (4.912)	573	0.5646	-21.07*** (7.505)	304	0.5208	-25.5*** (4.921)	573	0.5584	-13.08* (7.259)	342	0.4942
Economic development index × Private share in media	+/-	26.68*** (5.008)	573	0.573	22.3*** (8.071)	304	0.513	27.19*** (5.036)	573	0.5683	14.91* (7.540)	342	0.4919
Economic development index × Journalists jailed	-	-0.179** (0.0780)	764	0.4632	-0.181** (0.0780)	764	0.461	-0.717** (0.315)	427	0.4576	-0.255* (0.146)	481	0.4556
Panel B. Using Economic development II (Fraser institute)													
Economic freedom in the world × Freedom of press	+	0.235** (0.116)	764	0.4832	0.221* (0.119)	764	0.4785	0.46*** (0.162)	427	0.4972	0.268* (0.141)	481	0.4678
Economic freedom in the world × State share in media	+/-	-25.07*** (4.912)	573	0.5646	-21.07*** (7.505)	304	0.5208	-25.5*** (4.921)	573	0.5584	-13.08* (7.259)	342	0.4942
Economic freedom in the world × Private share in media	+/-	26.68*** (5.008)	573	0.573	22.30*** (8.071)	304	0.513	27.19*** (5.036)	573	0.5683	14.91* (7.540)	342	0.4919
Economic freedom in the world × Journalists jailed	-	-0.179** (0.0780)	764	0.4632	-0.181** (0.0780)	764	0.461	-0.717** (0.315)	427	0.4576	-0.255* (0.146)	481	0.4556

This table examines the effect of economic and financial development on Islamic banks' capital ratios taking into consideration the role of free press and media ownership. Panels A and B include interaction terms between economic and financial development and four proxies of press and media. In both panels we use Eq. (4) and only report the main findings 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 5

Further evidence: the role of information sharing institutions

Variables	Predicted effects	Common equity to assets			Tangible equity to tangible assets			Tier 1 capital to risk-weighted assets			Total regulatory capital to risk-weighted assets		
		[1]			[2]			[3]			[4]		
		Coef.	N	R2	Coef.	N	R2	Coef.	N	R2	Coef.	N	R2
Panel A. Using economic development I													
Economic development index × Public registries	+/-	-0.941** (0.424)	742	0.4241	0.104 (0.678)	390	0.5048	-0.961** (0.412)	742	0.4296	-0.134 (0.656)	445	0.4853
Economic development index × Private registries	+/-	1.061** (0.471)	742	0.4096	1.067** (0.493)	390	0.4656	1.051** (0.462)	742	0.4093	1.003** (0.448)	445	0.4866
Panel B. Using Economic development II													
Economic freedom in the world × Public registries	+/-	-9.273** (4.417)	675	0.3956	-0.364 (8.875)	358	0.5199	-9.618** (4.274)	675	0.4016	-2.031 (9.135)	412	0.4937
Economic freedom in the world × Private registries	+/-	13.50** (5.610)	675	0.3944	15.26** (5.884)	358	0.4862	13.43** (5.497)	675	0.3937	12.97** (5.852)	412	0.494

This table examines the effect of economic and financial development on Islamic banks' capital ratios taking into consideration the role of information sharing institutions. Panels A and B include interaction terms between economic and financial development and two proxies of information sharing. In both panels we use Eq. (5) and only report the main findings 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
Further evidence: the role of countries' political systems

Variables	Predicted effects	Common equity to assets [1]			Tangible equity to tangible assets [2]			Tier 1 capital to risk-weighted assets [3]			Total regulatory capital to risk-weighted assets [4]		
		Coef.	N	R2	Coef.	N	R2	Coef.	N	R2	Coef.	N	R2
Panel A. Using economic development I													
Economic development × Democracy	+	0.012 (0.031)	843	0.4275	0.007 (0.031)	843	0.4295	0.084** (0.032)	470	0.4782	0.059* (0.034)	521	0.455
Economic development × Autocracy	-	0.007 (0.023)	843	0.4332	0.014 (0.023)	843	0.437	-0.125*** (0.040)	470	0.5132	-0.098*** (0.035)	521	0.4798
Economic development × Polity	+	0.001 (0.014)	843	0.4308	-0.002 (0.014)	843	0.4338	0.054*** (0.019)	470	0.4967	0.041** (0.018)	521	0.467
Economic development × Checks	+	0.175 (0.108)	855	0.465	0.154 (0.109)	855	0.466	0.305** (0.128)	472	0.487	0.214** (0.103)	527	0.462
Economic development × Durability	+	0.242* (0.139)	862	0.4493	0.236* (0.140)	862	0.4469	-0.115 (0.163)	472	0.4861	-0.019 (0.157)	529	0.4608
Economic development × Arab Spring	-	0.144 (0.254)	862	0.424	0.214 (0.283)	862	0.424	-1.197*** (0.297)	472	0.478	-0.869*** (0.322)	529	0.457
Economic development × Major protests	-	0.117 (0.262)	862	0.424	0.189 (0.290)	862	0.424	-0.970*** (0.307)	472	0.468	-0.768** (0.308)	529	0.454
Panel B. Using Economic development II													
Economic freedom × Democracy	+	0.784 (0.524)	750	0.463	0.714 (0.532)	750	0.4611	1.641*** (0.605)	425	0.4808	1.152** (0.579)	474	0.465
Economic freedom × Autocracy	-	-0.671 (0.428)	750	0.4653	-0.595 (0.435)	750	0.4649	-1.978*** (0.643)	425	0.5084	-1.767*** (0.564)	474	0.4926
Economic freedom × Polity	+	0.391 (0.243)	750	0.4657	0.352 (0.247)	750	0.4644	0.964*** (0.328)	425	0.4971	0.775** (0.299)	474	0.4789
Economic freedom × Checks	+	2.959* (1.751)	758	0.485	2.696 (1.752)	758	0.483	5.930** (2.298)	427	0.492	4.871** (1.914)	479	0.479
Economic freedom × Durability	+	2.761 (2.176)	764	0.4492	2.599 (2.175)	764	0.4459	-1.658 (2.340)	427	0.47	-0.711 (2.346)	481	0.4627
Economic freedom × Arab Spring	-	2.150 (3.207)	764	0.439	2.996 (3.491)	764	0.437	-13.21*** (4.187)	427	0.472	-8.641* (4.846)	481	0.457
Economic freedom × Major protests	-	-0.190 (3.528)	764	0.438	0.625 (3.733)	764	0.437	-8.406* (4.474)	427	0.459	-6.764 (4.403)	481	0.454

This table examines the effect of economic and financial development on Islamic banks' capital ratios taking into consideration the role of countries' political systems. Panels A and B include interaction terms between economic and financial development and seven proxies of political systems. In both panels we only report the main findings 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 7
Further evidence: the role of countries' legal origins

Variables	Predicted effects	Common equity to assets			Tangible equity to tangible assets			Tier 1 capital to risk-weighted assets			Total regulatory capital to risk-weighted assets		
		Coef.	N	R2	Coef.	N	R2	Coef.	N	R2	Coef.	N	R2
Panel A. Using economic freedom index (Heritage Foundation)													
Overall economic freedom× English legal origin	+/-	0.339 (0.227)	862	0.4338	0.328 (0.223)	862	0.4343	0.644 (0.470)	472	0.4684	0.793* (0.448)	529	0.4755
Overall economic freedom× French legal origin	+/-	-0.243 (0.231)	862	0.4329	-0.240 (0.226)	862	0.4336	-0.644 (0.470)	472	0.4684	-0.821* (0.456)	529	0.4782
Overall economic freedom× German legal origin	+/-	-0.893*** (0.300)	862	0.4261	-0.858*** (0.315)	862	0.426	(dropped)	472	0.4395	-1.296*** (0.236)	529	0.4395
Panel B. Using Economic freedom in the world (Fraser institute)													
Overall economic freedom× English legal origin	+/-	6.372** (2.623)	764	0.4616	6.424** (2.613)	764	0.4601	7.843 (5.330)	427	0.4755	9.755** (4.247)	481	0.4891
Overall economic freedom× French legal origin	+/-	-6.284** (2.610)	764	0.4613	-6.346** (2.601)	764	0.4597	-7.843 (5.330)	427	0.4755	-9.993** (4.286)	481	0.492
Overall economic freedom× German legal origin	+/-	-27.75*** (3.187)	764	0.4388	-28.12*** (3.185)	764	0.4375	(dropped)	427	0.4435	-10.32** (4.823)	481	0.4486

This table examines the effect of economic and financial development on Islamic banks' capital ratios taking into consideration the role of countries' legal origins. Panels A and B include interaction terms between economic and financial development and three proxies of legal origins. In both panels we only report the main findings 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 8

Additional analysis: IV approach and other estimation techniques

Panel A: Instrumental variables to address endogeneity concerns

Variables	Common equity to assets			Tier 1 capital to risk weighted assets		
	First stage	Second stage		First stage	Second stage	
		2SLS	LIML		2SLS	LIML
	[1]	[2]	[3]	[1]	[2]	[3]
Economic development		0.919***	0.922***		1.523***	1.553***
		(0.128)	(0.129)		(0.247)	(0.256)
Creditor rights	1.778***			1.597***		
	(0.327)			(0.451)		
High income	13.859***			8.949***		
	(0.793)			(1.203)		
Allhouse	3.073***			1.996**		
	(0.673)			(0.781)		
Size	-1.297***	-2.251***	-2.252***		-6.316***	-6.394***
	(0.265)	(0.371)	(0.371)		(1.061)	(1.084)
Profitability	-0.329***	0.994**	0.997**		1.741***	1.775***
	(0.121)	(0.432)	(0.432)		(0.490)	(0.495)
Risk	-0.029**	0.0327	0.0328		-0.0540	-0.0517
	(0.0147)	(0.0295)	(0.0296)		(0.0532)	(0.0533)
Liquidity	-0.005	0.0669***	0.0669***		0.00410	0.00373
	(0.004)	(0.0188)	(0.0188)		(0.0209)	(0.0210)
Tangibility	-0.995***	1.517***	1.521***		3.146***	3.188***
	(0.152)	(0.301)	(0.301)		(0.680)	(0.687)
Constant	75.584***	-19.51**	-19.71**		11.98	11.06
	(3.340)	(8.115)	(8.146)		(11.30)	(11.41)
N	497	497	497	272	272	272
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Wald chi2		0.000***	0.000***		0.000***	0.000***
R2/R2 Adj.	0.553	0.233	0.232	0.507	0.359	0.35
F-test		128.42***	128.42***		21.971***	21.971***
Sargan		1.244	n.a.		3.694	n.a.
Basmann		1.194	0.596		3.456	1.716

Panel B: Propensity score matching

Variables	Common equity to assets				Tier 1 capital to risk weighted assets			
Methods	Treated	Controls	Difference	*T* stat	Treated	Controls	Difference	*T* stat
K-Nearest neighbors								
Nearest neighbors (*n* = 2)	17.228	9.311	7.917	5.38***	21.184	13.866	7.318	3.32***
Nearest neighbors (*n* = 5)	17.228	9.288	7.94	5.86***	21.184	13.818	7.366	3.77***
Kernel	17.228	9.322	7.906	5.66***	21.184	13.9	7.245	3.66***
Radius	17.228	9.688	7.54	8.66***	21.184	14.368	6.748	8.66***

Panel C: Alternative estimation techniques and standard errors

Variables	Common equity to assets				Tier 1 capital to risk weighted assets			
	Truncated	Newey-West	GLS + Bootstrap	Fama-MacBeth	Truncated	Newey-West	GLS + Bootstrap	Fama-MacBeth
	[1]	[2]	[3]	[4]	[1]	[2]	[3]	[4]
Economic development	1.696***	0.443***	0.293***	0.316***	1.118***	0.669***	0.542***	0.573***
	(0.463)	(0.056)	(0.075)	(0.056)	(0.260)	(0.126)	(0.109)	(0.093)
Size	-12.50***	-1.883***	-2.334***	-1.639***	-8.478***	-3.479***	-3.148***	-2.434***
	(2.375)	(0.244)	(0.592)	(0.295)	(2.568)	(0.542)	(0.724)	(0.512)
Profitability	5.819***	0.655***	0.352**	1.597***	2.418***	0.869***	0.454***	0.856***
	(1.040)	(0.252)	(0.141)	(0.495)	(0.845)	(0.248)	(0.164)	(0.262)
Risk	-0.065	-0.001	-0.008	0.031	-0.158	-0.029	-0.034	0.089
	(0.132)	(0.024)	(0.026)	(0.024)	(0.101)	(0.046)	(0.041)	(0.078)
Liquidity	0.187***	0.092***	0.04***	0.109***	0.018	0.056***	0.036*	0.169*
	(0.071)	(0.012)	(0.013)	(0.023)	(0.020)	(0.017)	(0.019)	(0.084)
Tangibility	4.238***	0.66***	0.263	0.893***	4.402***	1.451***	0.528	1.689***
	(0.956)	(0.186)	(0.268)	(0.233)	(1.532)	(0.461)	(0.634)	(0.399)
Constant	1.666	9.837**	29.73***	8.793	54.07*	18.94**	30.17**	2.823
	(28.50)	(4.753)	(10.01)	(5.629)	(29.60)	(9.234)	(12.58)	(10.08)
N	726	862	862	862	395	472	472	472
Year dummy	Yes	Yes	Yes	No	Yes	Yes	Yes	No
Chi2	0.000***	n.a.	0.000***	n.a.	0.000***	n.a.	0.000***	n.a.
R2	n.a.	0.429	0.388	0.587	n.a.	0.461	0.436	0.71

This table examines the effect of economic and financial development on Islamic banks' capital ratios. Panel A uses an instrumental variables approach to control for endogeneity. The F-test report the F statistics on whether the instruments are valid and explain cross-sectional differences in economic and financial development. The Sargan and Basmann tests of overidentifying restrictions examine whether the instruments are valid in the two least squares regression (2SLS) and the limited information maximum likelihood (LIML) estimations. Panel B reports the differences in capital measures between countries with favorable and less favorable economic and financial conditions, estimated using a propensity score matching with three different matching methods. Panel C employs truncated regressions with robust standard errors, a new-west estimation, a random effect generalised least squares regression with bootstrapped standard errors, and Fama MacBeth regressions. Standard errors 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

Additional analysis: Extreme cases

Panel A: Quantile regressions

Variables	Common equity to assets			Tier 1 capital to risk weighted assets		
	25th	50th	75th	25th	50th	75th
	[1]	[2]	[3]	[4]	[5]	[6]
Economic development	0.204***	0.297***	0.406***	0.403***	0.533***	0.7***
	(0.045)	(0.076)	(0.101)	(0.078)	(0.110)	(0.097)
Size	-0.57***	-1.008***	-1.99***	-1.211**	-2.056***	-3.182***
	(0.212)	(0.294)	(0.443)	(0.557)	(0.543)	(0.657)
Profitability	1.198***	1.084***	1.157***	0.871*	1.062***	1.002*
	(0.371)	(0.410)	(0.343)	(0.462)	(0.195)	(0.566)
Risk	0.018	0.025	-0.042	-0.034	-0.037	-0.019
	(0.036)	(0.028)	(0.056)	(0.026)	(0.03)	(0.05)
Liquidity	0.058	0.12***	0.127***	0.027***	0.053***	0.124***
	(0.048)	(0.014)	(0.009)	(0.009)	(0.016)	(0.014)
Tangibility	0.637**	0.960**	1.388***	0.780*	1.848**	2.316**
	(0.261)	(0.481)	(0.398)	(0.437)	(0.802)	(1.077)
Constant	-2.980	-2.625	14.44	5.207	6.557	8.042
	(6.205)	(6.266)	(13.76)	(6.331)	(6.817)	(11.38)
N	862	862	862	472	472	472
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes
Wald tests (p-value): (1) = (3)		18.98***			14.69***	
R2	0.3045	0.3881	0.4055	0.3921	0.4303	0.4277

Panel B: Economic and Financial development factors

Variables	Common equity to assets			Tier 1 capital to risk weighted assets		
	25th	50th	75th	25th	50th	75th
	[1]	[2]	[3]	[4]	[5]	[6]
Property rights	0.095***	0.138***	0.191***	0.211***	0.249***	0.417***
	(0.023)	(0.035)	(0.058)	(0.031)	(0.05)	(0.071)
Freedom from corruption	0.097***	0.142***	0.236***	0.16***	0.207***	0.329***
	(0.017)	(0.04)	(0.053)	(0.031)	(0.047)	(0.059)
1. Rule of Law	0.107***	0.153***	0.232***	0.202***	0.249***	0.404***
	(0.020)	(0.032)	(0.056)	(0.036)	(0.048)	(0.078)
Fiscal freedom	0.138***	0.150***	0.195***	0.223***	0.248***	0.335***
	(0.034)	(0.032)	(0.066)	(0.068)	(0.072)	(0.085)
Government spending	-0.106***	-0.147***	-0.148	-0.167***	-0.183***	-0.338**
	(0.024)	(0.032)	(0.09)	(0.037)	(0.054)	(0.131)
2. Government intervention	-0.061	0.033	0.14	0.001	-0.034	0.133
	(0.051)	(0.099)	(0.123)	(0.068)	(0.066)	(0.141)
Business freedom	0.156***	0.222***	0.350***	0.153***	0.198***	0.261***
	(0.03)	(0.042)	(0.106)	(0.051)	(0.051)	(0.093)
Labor freedom	0.081**	0.099*	0.099	0.101*	0.111**	0.132***
	(0.034)	(0.05)	(0.068)	(0.058)	(0.048)	(0.049)
Monetary freedom	0.149***	0.189***	0.196	0.198**	0.227***	0.499**
	(0.049)	(0.064)	(0.155)	(0.083)	(0.072)	(0.205)
3. Regulatory efficiency	0.16***	0.241**	0.482***	0.238***	0.298***	0.528***
	(0.057)	(0.094)	(0.144)	(0.086)	(0.092)	(0.164)
Trade freedom	0.108***	0.141***	0.167***	0.104***	0.120***	0.164***
	(0.019)	(0.026)	(0.05)	(0.039)	(0.039)	(0.046)
Investment freedom	0.055***	0.075**	0.11	0.064*	0.066*	0.139
	(0.021)	(0.038)	(0.093)	(0.037)	(0.04)	(0.124)
Financial freedom	0.117***	0.164***	0.213***	0.128***	0.144***	0.229***
	(0.027)	(0.028)	(0.069)	(0.027)	(0.047)	(0.051)
4. Market openness	0.12***	0.170***	0.232***	0.171***	0.158***	0.266***
	(0.029)	(0.037)	(0.069)	(0.043)	(0.051)	(0.076)

Panel C: Interquantile regressions

Variables	Common equity to assets			Tier 1 capital to risk weighted assets		
	25– 5th	50–25th	75–50th	25– 5th	50–25th	75–50th
	[1]	[2]	[3]	[4]	[5]	[6]
Economic development index	0.06**	0.093***	0.109**	0.165***	0.13**	0.167**
	(0.026)	(0.029)	(0.044)	(0.059)	(0.057)	(0.082)
N	862	862	862	472	472	472
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes

This table examines the effect of economic and financial development on Islamic banks' capital ratios. Panels A and B uses quantile regressions approach. We present the 25th, 50th, and 75th quantile of the dependent variable. The Wald test reports the difference between the coefficients on economic development at the upper quantile (Models 3 and 6) and the lower quantile (Models 4 and 1). Panel B breakdown the economic development index into 10 components representing the rule of law, limited government, regulatory efficiency, and open markets. Panel C performs interquantile regressions between 25th − 5th quartiles, 50th–25th quartiles, and 75th–50th quartiles, respectively. 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.