Political Systems and the Financial Soundness of Islamic Banks

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Abstract

We investigate whether and how political systems affect the financial soundness of conventional and Islamic banks. Using factors extracted from principal component analysis, we find that Islamic banks underperform their conventional counterparts in more democratic political systems but outperform them in hybrid and *Sharia'a*-based legal systems. The findings reflect the challenges Islamic banks face in Western countries in terms of perception, financial infrastructure, and regulatory constraints while mirroring the recognition of their specificities and their cultural and religious compliance with *Sharia'a* law in Muslim countries. The findings are robust to a battery of alternative estimation techniques and methods of correcting standard errors.

Keywords: Islamic banks, financial soundness, democracy, legal systems

JEL classification: C38, G01, G21, P5, Z12.

1. Introduction

More than five years after the beginning of the Arab Spring in 2010 (Ghosh, 2016), many Arab countries are still facing serious social and political tensions (as well as financial and economic instability), despite democratic elections that have led to new political regimes. Besides the Arab Spring, other episodes of political change have marked recent history, e.g., the transition from autocratic and communist regimes to democratic regimes in Europe and Latin America in the 1970s, 1980s, and early 1990s (Faria and McAdam, 2015). Yet, in contrast to most of these political changes, an important feature of the Arab revolts is that religion is recognized as a major force in politics and can play a key role in motivating and governing people's decisions. An important manifestation of this phenomenon is the choice between a democratic political system and a *Sharia'a*-based legal system. The outcome of this decision may have a direct influence on the country's economic and financial conditions.

Recently, several empirical studies have investigated the impact of the Arab Spring on the performance and stability of the banking sector. For instance, Bitar et al. (2016) find that the Arab Spring had a different effect on the performance and risk of conventional banks in Gulf Cooperation Council (GCC) countries than in countries in the rest of the Middle East and North Africa (MENA). Ghosh (2016) finds that the Arab Spring negatively affected the profitability and stability of both conventional and Islamic banks. In earlier contributions, Mahboub and Abdou (2012) and Khandelwal and Roitman (2013) show that the Arab Spring led to a sharp decrease in macroeconomic outputs, especially in the short- and medium-term. Finally, Awadallah (2013) finds that the economies of the Arab Spring countries lack a strong private sector due to fragmented markets and weak competition.

Another set of empirical studies examines the influence of political connections and autocratic political systems on bank performance and economic growth. For example, Nys et al. (2015) find that politically connected banks in Indonesia are more capable of attracting deposits while Abdelsalam et al. (2017) find that politically connected banks in the MENA region are less efficient. As for economic growth, Khafagy (2017) and Commander (2017) report that autocratic governments exhibit opportunistic behavior and often badge themselves as reformers only to gain popularity, thus leading to a deterioration of countries' economic situation.

Our paper differs from these previous studies in three major respects; firstly, we use factors extracted from principal component analysis (PCA), instead of financial ratios, to examine bank financial soundness. Secondly, we examine the effect of political systems in general (not just during

times of upheaval) on the financial soundness of banks. Thirdly, we not only consider conventional banks but extend our analysis so that it also covers Islamic banks. In addition, our study covers a longer time period than most of the existing literature, beginning a decade before the Arab Spring, and thus considers the circumstances that led to these political changes. Our goal is to investigate the effect of various political systems on the financial soundness of the two bank types; specifically, we explore whether a Western democratic political system and a *Sharia'a*-based legal system have different effects on the financial soundness of conventional versus Islamic banks and investigate the potential reasons for these differences.

Our study employs a three-stage approach. In the first stage, we apply PCA on twenty-nine measures of bank financial soundness. We use an initial sample of 729 banks (including 139 Islamic banks) in 33 developing countries for the period between 1999 and 2013. The results of the extracted components indicate that capital, efficiency, the volatility of returns, liquidity, the charging of rents for offering *Sharia'a* compliant products, profitability, and credit risk are the most informative indicators of Islamic banks' financial soundness.

In the second stage of our analysis, we follow a difference-in difference research design and use random-effect Generalized Least Squares (GLS) regressions to compare the financial soundness of conventional and Islamic banks. In contrast to Abedifar et al. (2013), Beck et al. (2013), and Alqahtani et al. (2016), our findings suggest that Islamic banks are more efficient, more profitable, slightly more capitalized and have more volatile earnings (are less stable) than their conventional counterparts. We also examine whether the political environment has the same effect on the financial soundness of Islamic banks compared to conventional banks, taking into consideration bank and country-level control variables. Our findings suggest that Islamic banks underperform their conventional counterparts in Western democratic nations but outperform them in countries that employ *Sharia'a* or hybrid legal systems. We argue that recognizing the *Sharia'a* law in a country's political or legal system could be a valuable resource for Islamic banks, especially in highly religious countries. First, recognizing Islamic law may translate into regulatory authorities better understanding the specificities of Islamic banks, leading to better adapted regulatory guidelines and avoidance of potential double regulatory standards. Second, recognizing *Sharia'a* law may enhance people's confidence, the public trust, and the reputation of Islamic banking institutions thus enabling them to more easily obtain resources in the form of deposits and sell their products to customers. Finally, in countries that have *Sharia'a* or hybrid legal systems, Islamic banks may benefit from the goodwill of religious depositors who believe that they preserve the Muslim culture and identity. Other than

political systems, our results also indicate that bank age, economic cycles, market discipline, and ownership dispersion are important determinants of Islamic banks' financial soundness as well.

In the third stage of our analysis, we use several additional tests to check the robustness of our results. First, we employ a propensity score matching (PSM) technique by matching observations of banks based on their probability of being Islamic. We continue to find evidence that Islamic banks are more capitalized, more efficient and profitable, and have lower credit risk than their conventional counterparts, while also having more volatile earnings. Second, we employ difference-in-difference (DID) estimation to compare changes in the financial soundness of both types of bank due to the Arab Spring. Our findings suggest that Islamic banks are less profitable and have more volatile earnings during the Arab Spring than conventional banks. Third, we use an instrumental variables (IV) approach to address endogeneity and correct for potential adverse selection problems. We also use a Heckman (1979) selection approach to correct for a potential self-selection bias. Our results confirm the previous findings and thus are not driven by endogeneity. Finally, we use truncated regressions with a Newey-West procedure to correct for autocorrelation among the residuals and again report very similar results.

Our study contributes to the literature in two ways. First, previous empirical studies that compare the financial characteristics of Islamic and conventional banks are based on ratio analyses and often report mixed results. Banking institutions are complex organizations and the financial soundness of their investment portfolio depends on many factors. These factors can be internal ones such as bank age and experience or external ones such as economic conditions and political systems. Thus, simple ratio analyses cannot capture the complete picture of a bank's financial soundness (Klomp and de Haan, 2012, 2014). Furthermore, in the context of Islamic banks, Johnes et al. (2014) argue that "the most severe drawback is the assumption underlying financial ratios of cost minimization or profit maximization" (pg. S96). In other words, the assumption that Islamic banks are excessive risk-taking and profit-maximizing organizations is unlikely to be wholly valid. Note that we do not completely dismiss the assumption; this is because there remain substantial divergences between what *Sharia'a* law ideally expects from Islamic banks and what has been applied in practice, where Islamic banks' practices are often criticized for being indistinguishable from those of conventional banks (Khan, 2010). Nevertheless, a few studies – including the present one – consider a multi-faceted concept for bank financial soundness instead of one-dimensional measures (Canbas et

al., 2005; Shih et al., 2008; Klomp and de Haan, 2012, 2014).[1] While a few empirical studies use principal component analysis (PCA) to examine the conventional banking sector's financial soundness, no study has used PCA to evaluate the financial soundness of Islamic banks.

Our second contribution relates to the newly emerging literature on the political environment (Bove et al., 2016; Boubakri and Saffar, 2016; Klomp and de Haan, 2016) and the literature on the effect of the Arab Spring (Mahboub and Abdou, 2012; Awadallah, 2013; Khandelwal and Roitman, 2013; Bitar et al., 2016; Ghosh, 2016). We also focus on a set of countries of particular importance in areas that are characterized by a high concentration of political instability (Ghosh, 2016) and high corruption levels (Belkhir et al., 2016), in addition to a mix of weak democracies, monarchies and authoritarian regimes (Abdelsalam et al., 2017). Finally, we complement the literature on the important role played by religion in affecting the financial characteristics of Islamic banks (Beck et al., 2013; Abedifar et al., 2013; Mollah and Zaman, 2015). By comparing banks that operate in democratic political systems with those that operate in *Sharia'a* and hybrid legal systems, we show that Islamic banks appear to be less financially sound in more democratic nations, reflecting the challenges they face in Western democratic countries in terms of perception and regulatory constraints, as well as reputation, trust, and cultural barriers.

The remainder of this paper is organized as follows. Section two reviews the literature and presents the hypotheses. Section three describes the data, introduces the PCA and explains the methodology. Section four compares conventional and Islamic banks' financial soundness using the components extracted from PCA. It also studies the effect of political systems on the financial soundness of Islamic banks. Section five presents the additional estimation techniques. Section six discusses the results of this study and compares them with previous studies. The last section concludes.

2. The financial soundness of Islamic banks: The effect of political systems

The literature offers a sizeable body of research comparing the financial characteristics of Islamic banks to those of conventional banks, including Islamic bank stability (Čihák and Hesse, 2010; Rajhi, 2013; Abedifar et al., 2013; Boumediene and Caby, 2013), efficiency (Beck et al., 2013;

[1] Multidimensional measures of bank performance such as Data Envelopment Analysis (DEA) have been extensively used in the Islamic banking literature (cf., Sufian, 2007; Viverita et al., 2007; Belans and Hassiki, 2012; Johnes et al., 2014; Saeed and Izzeldin, 2014). In this study, we use principal component analysis and extend the analysis by creating several dimensional measures that aim to cover all aspects of bank financial soundness such as capital, liquidity, and risk, and not only bank performance (e.g. profitability and efficiency).

Johnes et al., 2014), and profitability (Bourkhis and Nabi, 2013; Mollah and Zaman, 2015; Farook et al., 2015). For instance, Čihák and Hesse (2010) and Abedifar et al. (2013) find no significant difference in stability between Islamic and conventional banks, while Rajhi (2013) shows that Islamic banks are less stable than their conventional counterparts in MENA countries, but more stable than conventional banks in South East Asian (SEA) countries. Furthermore, Boumediene and Caby (2013) report that Islamic banks' stock returns are less volatile than those of conventional banks, suggesting that Islamic banks are more stable when using E-GARCH and GJR-GARCH estimation techniques. Regarding the business model of Islamic banks, Beck et al. (2013) suggest that there are no significant differences between Islamic and conventional banks, except that Islamic banks are less cost-efficient and have higher intermediation costs than their conventional peers. Their findings contradict Abedifar et al. (2013), who find that Islamic banks do not charge higher rates to borrowers, or offer lower rates to depositors, suggesting that there are no differences in terms of intermediation costs between Islamic and conventional banks. Johnes et al. (2014) add to the literature using efficiency scores. Their findings show that Islamic banks are more efficient than conventional banks, but only when each bank type is compared to a separate efficiency frontier. In addition, Alqahtani et al. (2014) and Wanke et al. (2016) find that Islamic banks are less cost efficient using the cost to income ratio and efficiency scores. Finally, Pappas et al. (2012) and Bourkhis and Nabi (2013) use CAMEL ratios to examine the financial soundness of Islamic and conventional banks. The former find significant differences in terms of liquidity, leverage, concentration, and failure risk, while the latter report no significant differences between the two bank categories.

While prior studies in the field of Islamic banking have been primarily concerned with identifying their risk, efficiency, and profitability profiles and comparing them to those of conventional banks, little research has been conducted on whether the political environment has the same effect on the financial soundness of the two bank types. This lack of research is, perhaps, surprising given the growing importance of political systems in shaping economic policies and in affecting financial decisions and economic growth. For example, Faccio (2006) and Li et al. (2008) show that the political environment is likely to be more important in emerging markets that are characterized by a lack of sound political institutions and the rule of law. These conditions often result in unpeaceful transitions, wars, fragile governments and weak and short-term economic policies. In line with this, Khafagy (2017) explains that autocratic political systems tend to exhibit opportunistic behavior by exploiting their countries' economic resources and outputs, especially in underdeveloped countries. Another example of the importance of political factors is the literature on political

connections and bank performance. For instance, Abdelsalam et al. (2017) show that political connections negatively affect bank efficiency in the MENA region. According to Nys et al. (2015), this negative effect can be explained by the fact that banks have fewer incentives to be efficient because they expect that they will be bailed out due to their political connections in case they encounter any difficulties.

This study attempts to address these important issues by extending the analysis to Islamic banks. Instead of referring to political connections, we use proxies for a broad range of measures of a country's political and legal systems to investigate their effect on the financial soundness of Islamic banks and their conventional counterparts. To the best of our knowledge, the banking literature has thus far made no attempt to examine the impact of political systems on the financial soundness of Islamic banks.

That being said, there is some previous research on the related issue of the association between religion and the financial soundness of Islamic banks, although the results are inconclusive. For instance, Mollah and Zaman (2015) find that Islamic banks are more profitable in Muslim majority countries. In contrast, Abedifar et al. (2013) and Mollah et al. (2016) find that Islamic banks are less profitable and less stable in Muslim majority countries and *Sharia'a* based legal systems. In this study, we do not use traditional and narrow measures of a country's religion (e.g. Muslim population, the Islamicity index, etc.); rather, we refer to broader and more comprehensive measures of democracy and legal systems that consider other implicit factors, such as Muslim culture and identity, loyalty and beliefs, traditions and customs. In our initial analysis, we use several proxies for democracy to characterize the country's political system. In a second analysis, we replace these variables with proxies for the legal system, meaning whether the country follows Western law, *Sharia'a* law, or a combination of the two. To some extent, the second analysis can be considered as a robustness test, as we expect the political and legal systems of a country to be interrelated.

We expect Islamic banks to be more sensitive than conventional banks to the political / legal environment and to fare better in *Sharia'a* and hybrid legal systems than in Western democratic systems. We argue that in Muslim countries, *Sharia'a* law is more recognized by both governments and the general public and thus depositors are more familiar with Islamic banks and the products they offer. This should enable Islamic banks to more easily obtain resources in the form of deposits and to sell *Sharia'a* compliant financial products even to non-religious clients. In contrast, Western countries may misunderstand Islamic banking practices and link them to extremism, which could damage the

reputation and public trust in the industry and thus negatively affect its financial soundness. In addition, regulatory authorities in countries that have a *Sharia'a* based legal system or a hybrid legal system are more capable of adapting or developing their regulatory guidelines (e.g. the Islamic Financial Services Board regulatory guidelines (IFSB) and the guidelines by the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI)) to fit with the specificities of Islamic banks. A regulatory framework that acknowledges the specificities of Islamic banks can also help reduce the complexity of regulations in countries where both bank types operate and thereby avoid the problem of double regulatory standards that Islamic banks often face in Western countries. Finally, religious depositors in Muslim majority countries may perceive Islamic banks as the best way to preserve Muslim culture and identity. Therefore, a political system that reflects people's opinions, culture, and identity is expected to be more efficient at understanding their needs and thus at improving social welfare, alleviating poverty, and promoting a stable and sustainable economic growth (Mikaïl, 2012). In the context of our study, this should be reflected by the fit between a given bank's operations with the underlying legal system.[2] Accordingly, we pose the following hypotheses:

H.1: Western, democratic-based political systems have a more detrimental effect on the financial soundness of Islamic banks than on the financial soundness of their conventional counterparts.

H.2: *Sharia'a* based or hybrid legal systems have a more positive effect on the financial soundness of Islamic banks than on the financial soundness of their conventional counterparts.

3. Variables, sample and methodology

3.1. Choice of main variables

The conventional banking literature mainly uses one-dimensional accounting or market-based measures to examine the financial soundness of banking institutions. For instance, research on bank performance often uses return on assets (or equity), cost to income, net interest margin, efficiency scores, stock returns, and Tobin's Q. However, whether these measures can fully capture bank performance is questionable (Klomp and de Haan, 2012, 2014; Johnes et al., 2014). This could

[2] The Islamic banking industry could potentially improve financial inclusion by increasing the number of bank account holders and also the use of financial products that are *Sharia'a* compliant (GFDR, 2014). Moreover, Mohieldin et al. (2011) and Demirgüç-Kunt et al. (2013) argue that in Muslim countries, the access to financial services such as formal bank accounts is significantly lower than in non-Muslim countries. The ability of Islamic banks to increase financial inclusion of religious customers is another reason why we expect Islamic banks to exhibit superior performance in *Sharia'a* and hybrid legal systems.

explain why the literature results are not unified on subjects such as banking regulation, stability, profitability, and efficiency. In contrast to most previous research, several recent studies perform PCA to construct multi-dimensional measures to capture conventional banks' financial soundness based on components of financial ratios. A good example is Canbas et al. (2005) who examine the default probability of Turkish commercial banks using PCA for a sample of 40 banks during the period between 1994 and 2001. Their results show that capital adequacy, income expenses, and liquidity ratios are the most important dimensions in explaining the total variation of internal structures in Turkish banks. In line with this, Shih et al. (2007) perform PCA to measure the financial intermediation of the Chinese banking sector. The authors show that insolvency risk, liquidity risk, credit risk, and profitability represent more than 64% of the total variance in the financial ratios employed in the PCA. More recently, Klomp and de Haan (2012) employ PCA with factor analysis (FA) to study the impact of banking regulations on bank risk. Using a sample of 200 banks from twenty one OECD countries, their results indicate that derived factors and components are strongly favored when dealing with multi-faceted concepts such as risk and regulation. Finally, Klomp and de Haan (2014) also use PCA and FA to examine the effect of institutional quality on the relationship between banking regulations and risk for 370 banks in seventy emerging and developing countries. Their findings suggest that capital and liquidity reduce bank risk and that the effect of banking regulations depends on the country's level of institutional quality and development.

In this study, we extend the concept of using PCA to create a new set of components to represent financial soundness (a technique that has so far only been applied to conventional banks), by also applying the approach to Islamic banks. One major issue in comparative studies is how to choose the correspondent variables. Since the literature shows no general consensus on how to combine financial ratios when measuring bank financial soundness, the CAMEL methodology proposes five broad indicators: capital adequacy (C), asset quality (A), management quality or efficiency (M), earnings and profitability (E), and liquidity (L).[3] We argue that since the original criteria used to determine which indicators are more deserving of inclusion in the CAMEL ratings are not disclosed to the public (Wanke et al., 2016; Jin et al., 2011), proxies are often selected based on what has already been used in the literature, taking into consideration data availability. In Table 1, we summarize 29

[3] CAMEL methodology also controls for sensitivity to market risk (S). We do not consider this category for two reasons. First, market-risk based indicators are extremely rare to find for banks in developing countries, especially for Islamic banks. Second, our goal is to use a broad sample of conventional and Islamic banks, rather than only publicly listed banks.

financial indicators used to emulate the CAMEL rating in both conventional and Islamic banking research studies.[4]

INSERT TABLE [1] HERE

The first group consists of indicators of capital adequacy. Canbas et al. (2005), Shih et al. (2007), and Klomp and de Haan (2012) show that capital ratios constitute the most informative components when applying PCA. We measure capital adequacy using Tier1 and total capital, all scaled by bank risk-weighted-assets, as recommended by the Basel Committee on Banking and Supervision (BCBS). We also employ four traditional measures of risk-independent capital ratios: Tier 1, total capital, common equity, and tangible equity, all scaled by total assets. We use risk and non-risk based capital ratios to avoid any misleading results that could be related to the manipulation of weights by banks to hide their real risk exposures (Cathcart et al., 2015; Dermine, 2015).

The second group consists of measures related to asset quality. We use loan loss reserves, loan loss provisions, and impaired loans, all scaled by growth loans, to proxy for asset quality.[5] These ratios measure loan quality and higher values indicate deterioration in the quality of the credit portfolio. In other words, higher values might be explained by a bank's precautionary reserve policy, as well as anticipation of more non-performing loans (Abedifar et al., 2013; Lee and Hsieh, 2013; Anginer et al., 2014).

The third group includes measures of managerial qualities. We proxy managerial quality using eight indicators. The first set of indicators includes four accounting ratios: the ratio of bank cost to income, the ratio of net interest margin, the ratio of overhead cost to assets, and the ratio of net fees and commissions to assets. Klomp and de Haan (2012) and Chortareasa et al. (2012) explain that higher expenses may indicate that a bank is not operating efficiently due to managerial deficiencies. We also employ four efficiency measures computed using Data Envelopment Analysis (Maghyereh and Awartini, 2014). In the first step, we compute a basic gross efficiency[6] score model in which we

[4] The summary table does not represent a complete survey and should be rather considered as an illustration, not a conclusive statement of the ratios used to emulate CAMEL rating and other overlapped financial criteria.

[5] We are aware that the ratio of loan loss reserves to gross loans is a backward-looking measure. This is because most of the countries in our sample do not have general or dynamic provisioning, which is considered as a forward-looking measure. We try to remedy this problem by including loan loss reserves and impaired loans ratios, although the latter is also considered as a backward-looking measure, albeit less backward than the first indicator. This point has been brought to our attention thankfully by one of the referees.

[6] We refer to gross efficiency when computing efficiency scores relative to a common frontier, which gives an advantage to conventional banks as they are more developed than Islamic banks. Therefore, we also follow another approach and compute

do not control for the risk in bank inputs and re-calculate our scores by introducing loan loss provisions to control for banking risk. In the second step, we compute a basic net efficiency score model in which we do not control for the risk in bank inputs and re-calculate our scores by introducing loan loss provisions to control for banking risk. In contrast to the first set of indicators, higher efficiency scores indicate better risk management, more competent managers, more highly skilled employees, and more adequate use of bank resources.

The fourth group controls for the profitability and earnings of banks. Lower profits may signal a decline in successful bank projects, while higher profits can be translated as excessive risk-taking. We proxy profitability using the return on average assets and the return on average equity, which are the two traditional and most commonly used profitability ratios (Abedifar et al., 2013; Mollah and Zaman, 2015). As bank earnings can be directly related to risk appetite, we include six measures of the risk and volatility of bank returns. We use the log value of bank Z-score (Klomp and de Haan, 2012), the risk-adjusted return on average assets, and the risk-adjusted return on average equity, with higher values indicating good risk-adjusted profits and more stable banking institutions (Turk-Ariss, 2010a, b). We also use the standard deviation of the return on average assets, the standard deviation of the return on average equity, and the standard deviation of net interest margin. A higher ratio can be interpreted as higher volatility in bank profits and, therefore, a higher risk profile (Houston et al., 2010; Schaeck and Cihák, 2013).

The fifth group identifies bank liquidity. The subprime crisis showed that liquidity is equally important to bank survival as capital, which required the BCBS to introduce two explicit liquidity ratios: the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NSFR). We measure liquidity with the following indicators: liquid assets to assets; liquid assets to deposits and short-term funding; liquid assets to total deposits and borrowing; and net loans to total assets. Except for net loans to total assets, the higher these ratios are, the more liquid and less vulnerable the bank will be in a situation of stress (Klomp and de Haan, 2012; Anginer and Demirgüç-Kunt, 2014). However, it is important to note that excessive liquidity might also be explained as a bank's inefficiency in managing its own resources. The net loans to total assets is – in contrast to the first three measures – inversely

net efficiency by estimating our efficiency scores relative to each bank category's own efficiency frontier to ensure the robustness of our results. In other words, Islamic (conventional) banks are compared to their own benchmark (i.e. the most efficient Islamic (conventional) banks in a chosen year (Johnes et al., 2014)).

related to liquidity. It reflects credit risk exposure, which can negatively affect a bank's financial strength (Turk-Ariss, 2010b; Demirgüç-Kunt and Detragiache, 2011).

3.2. Sample construction

To empirically compare the financial soundness of Islamic and conventional banks, we refer to Bankscope as a primary source of data collection. For each bank in the sample, we retrieve annual data from 1999 to 2013 in 33 countries. Our data are unbalanced and the number of conventional (Islamic) banks varies between 377 (44) banks (at the lowest) in 1999 and 590 (139) banks in 2012 (at the highest).[7] Macroeconomic data such as inflation and GDP growth rates, as well as GDP per capita, are obtained from the World Bank's World Development Indicators, whereas political and institutional variables are obtained from various sources, such as the Political Regime Characteristics and Transitions of Polity IV project, the Political Constraint Dataset, the World Bank's Database on Political Institutions (DPI), and the CIA's World Fact Book. Table 2 presents the mean, standard deviation, minimum, and maximum for both bank types that we initially use before conducting the PCA. All variables are winsorized at the 1% and 99% levels to mitigate the effect of outliers. A bank is excluded from the sample if it does not have at least 3 continuous observations. We perform a Wilcoxon-Mann-Whitney test (Wilc) and the univariate analysis of variance (ANOVA) test for the equality of means for each financial ratio. In Table 2, financial ratios are presented in ascending order, according to the significance level of F-statistics. Both tests suggest that almost all the financial ratios are able to split the banks between Islamic and conventional, thus providing empirical evidence that financial ratios have a discriminating ability and as a result can be used in the PCA (Canbas et al., 2005). The equality of both bank types' means cannot be rejected at 1% for 25 ratios out of 29 ratios (as suggested by the Wilcoxon-Mann-Whitney test) and at 5% for 23 out of 29 ratios (as suggested by the F-test).

INSERT TABLE [2] HERE

[7] The number of reported observations varies dramatically between risk-based capital measures and non-risk-based capital measures. For instance, Tier 1 capital to risk-weighted assets (Tier 1/rwa) has 2,939 (753) observations for conventional (Islamic) banks, while non-risk-based measures, such as common equity to assets and tangible equity to assets, have more than twice as many observations. (The two ratios have a total of 7,024 (1,375) observations for conventional (Islamic) banks). Bitar et al. (2016) argue that the missing observations can be explained either by the fact that most countries started reporting their capital requirements information in 2006 or by the fact that some banks prefer not to give information about their capital adequacy ratios and would rather provide information about their traditional capital ratios. These countries might still be working under the Basel I accord or might prefer not to disclose information about their risk weighting and thus their assets' risk exposure.

3.3. Principal Component Analysis

We use PCA to minimize the dimensionality of the set of financial soundness variables by creating a new platform of optimal components that correspond to the most important part of the necessary information. This procedure allows the identification and feeding of regression models with a few components that represent most of the information initially introduced by the variables. According to Canbas et al. (2005), PCA is a procedure for understanding different patterns in data, whereby correlated variables – used to proxy financial soundness – are examined to determine the most valuable indicators in reporting changes in banking institutions' financial position. Thus, using this technique reduces the initial data set and channels a complex array of correlated variables into a small number of uncorrelated variables or factors called components. Before proceeding with the PCA, several tests are performed to evaluate the validity of such a technique for our analysis (Canbas et al., 2005).

INSERT TABLE [3] HERE

First, Table 3 reports the correlation matrix of 29 financial ratios to capture any potential subgroups of highly correlated variables. The correlation between each category of financial ratios is clear. The literature shows that each category of CAMEL indicators can be measured by a variety of financial ratios. These ratios are highly correlated, which provides support for continuing with the PCA. Second, Table 4 presents the Bartlett's test of sphericity to evaluate the appropriateness of applying PCA to the financial ratios. This test identifies whether the diagonal elements of the correlation matrix are equal to one while the rest of the elements are equal to zero, which would indicate that no correlation exists between the ratios. The value of the Chi-square is very high and the observed significance is very small (<0.01 significance level). Therefore, we reject the null hypothesis that the correlation matrix is an identity matrix. Third, all the financial ratios are standardized with a mean of 0 and a standard deviation of 1. In our PCA study, we use 29 variables; the standardized variance is 1 and the total variance is 29. Fourth, we apply certain criteria (described in the following paragraph) to decide on the number of components to be retained. Finally, we use a Varimax factor rotation to ameliorate the interpretability of the retained components by maximizing the sum of the squared correlations between variables and factors. In other words, Varimax rotation helps identify variables and reduces the number of indicators that have a relatively high loading on a single component.

INSERT TABLE [4] HERE

The choice of latent variables depends on the eigenvalues and the percentage of total variance. Although there is no optimal criterion for deciding the number of components to retain when performing PCA, Canbas et al. (2005), Shih et al. (2007) and Klomp and de Haan (2012) refer to the Kaiser criterion and choose components with eigenvalues >1 to be included in the analysis. An alternative method is to look at the Cattell scree plot, which provides a graph in which the eigenvalues are plotted on the vertical axis and the components on the horizontal axis. Klomp and de Haan (2012) explain that "this test suggests selecting the number of factors that corresponds to the point after which the remaining factors decline in approximately a linear fashion, and to retain only the factors above the elbow" (pg.3199). The eigenvalues presented in Table 5 and the Cattell scree plot in Fig. 1 indicate that bank financial soundness can be evaluated using seven components. These components explain 78.02% of total variance in the financial soundness of conventional and Islamic banks. To assess the appropriateness of applying PCA to the data, we examine the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy for the overall data set as well as each individual variable's measure of sampling adequacy (MSA).

INSERT TABLE [5] HERE

The results for the seven principal components are presented in Table 6. We find an overall KMO of 0.713, greater than 0.7, which indicates that it is appropriate to continue with PCA. Table 6 also reports the loadings for components (1) to (7), respectively. The first component, C1, reflects bank capital, by combining all capital ratios (r_1 to r_6), and represents 20.84% of the total variance of the financial indicators. The second component, C2, depicts bank efficiency. It consists of four efficiency scores (r_{14} to r_{17}) and represents 19.13% of the total variance of the financial measures. The third component, C3, reports the banking system volatility of returns. It represents 12.49% of the total variance of the financial ratios and combines five measures of financial stability and adjusted returns (r_{20} to r_{24}). However, in contrast to C1 and C2, C3 also loads a negative association with two measures of earning volatility. Therefore, it reflects a trade-off between highly stable banks versus banks with highly volatile earnings. The fourth component, C4, explores the overall banking liquidity. It represents 9.05% of the total variance of the CAMEL indicators and combines four liquidity indicators (r_{26} to r_{29}). This component also shows an inverse association with credit risk and represents a trade-off between two strategies: highly liquid versus low liquidity banks. Therefore, C4 compares prudent liquid banks with riskier banks that have a higher loan engagement and, as a result, a lower liquidity position. Finally, C5, C6, and C7 denote bank financing rates for offering *Sharia'a*

products, profitability, and credit risk, respectively. The three components represent in total 16.53% of the total variance of the 29 financial indicators initially introduced.

INSERT TABLE [6] HERE

3.4. Econometric specification and control variables

We refer to Ghosh (2016) and adopt a difference-in-difference research design, using components extracted from PCA, to assess the differential effect of various politico-legal systems on the financial soundness of Islamic versus conventional banks. We also refer to Abedifar et al. (2013), Mollah and Zaman (2015), and Mollah et al. (2016) and use random-effect GLS regressions. We prefer the GLS technique to other estimation techniques for two reasons. First, regression models, such as OLS, ignore the panel structure of our data. Second, our Islamic bank dummy is time-invariant and cannot be estimated using a fixed-effect methodology. Accordingly, we employ the following regression model:

$$\text{CAMEL\_PCA}_{ijt} = \alpha + \beta_1 \times \text{Islamic}_i + \beta_2 \times \text{Political\_Systems}_{jt} + \beta_3 \times \text{Political\_Systems}_{jt} \times \text{Islamic}_i +$$

$$+\beta_4 \times \text{Bank\_Control}_{ijt} + \beta_5 \times \text{Country\_Control}_{jt} + \sum_{t=1}^{T} \beta_t \times \text{YFE}_t + \varepsilon \quad (1)$$

where CAMEL_PCA_{ijt} are the bank financial characteristics extracted from the PCA (capital, efficiency, volatility of returns, liquidity, financing rates for offering *Sharia'a* products, profitability, and credit risk), based on CAMEL indicators for bank *i* in country *j* at time *t*. Islamic_i is a dummy taking the value of one for Islamic banks and zero otherwise. $\text{Political\_Systems}_{jt}$ consists of several proxies to represent the political environment. We collect data on democracy from the Political Regime Characteristics and Transitions of Polity IV project. A democratic political system is mainly characterized by 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 a private and competitive media, which is considered to be "the fourth estate" along with the executive, the legislature, and the courts. From the same database, we also use a polity index computed as the difference between democracy and autocracy[8] scores, with higher values indicating a more democratic system. To check the robustness of our results, we consider two alternative measures

[8] A modern autocratic political system is characterized by a high degree of restriction or suppression of other political parties. It also exercises a high degree of control over social and economic activities.

of the political environment: (i) the POLCON index of political constraints, to measure the degree of institutional constraints on the executive branch of the government (Boubakri and Saffar, 2016; Klomp and de Haan, 2016); and (ii) the CHECKS index of the World Bank's Database of Political Institutions (DPI), to capture potential obstacles to policy change (Bove et al., 2016). For both measures, higher scores indicate that a country is more democratic. The interaction term between "Islamic" and "political systems" investigates whether a democratic-based political system has a negative effect on the financial soundness of Islamic banks, as expected by H.1. $\text{Bank\_Control}_{ijt}$ includes bank control variables suggested by previous studies. We use the natural logarithm of total assets to control for bank size. We also use bank growth to control for development strategies in bank total assets in the current year, compared with the previous year (Abedifar et al., 2013). Demirgüç-Kunt and Huizinga (2010) and Baele et al. (2007) find that greater reliance on non-interest income is associated with more volatile returns. Stiroh (2004) finds a negative association between total bank risk and diversification of revenues. Thus, we check for diversification using the income diversity ratio to capture the degree to which banks diversify between lending and non-lending activities. We follow Laeven and Levine (2007) and compute income diversity as 1–[(net interest income–other operating income)/(operating income)]. $\text{Country\_Control}_{ijt}$ controls for macroeconomic variables. Accordingly, we use the inflation rate, because banks in countries with higher inflation rates tend to charge customers more, resulting in higher bank profits (Lee and Hsieh, 2013). However, such behavior might be followed by less demand for loans and more expensive loan reimbursement, leading to higher default rates (Koopman, 2009). Chortareasa et al. (2012) consider inflation as a signal of an undeveloped market and banking system. Next, we include the GDP growth rate and the natural logarithm of GDP per capita to control for the size and development of economic activity in each country. YFE_t are the year fixed effects and ε is a white-noise error term. 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, our sample includes some countries that have a much larger number of observations than others. Second, we have 33 countries. Therefore, clustering at the country level might create biased results.

4. Political systems and the financial soundness of Islamic banks

4.1. Main findings

Table 7 Panel A presents the findings of Eq. (1). The baseline regression only compares the financial soundness of the two bank types using components extracted from PCA and thus does not

include political systems. For each of the extracted components, we use two specifications - before and after controlling for macroeconomic variables. The Wald Chi2 tests are highly significant for all models, and the R-squares are relatively high and similar to previous literature (Abedifar et al., 2013; Mollah and Zaman, 2015; Mollah et al. 2016), suggesting that the models are representative and fit with the decision to use GLS, random-effect regression. We find that Islamic banks have lower credit risk and are more efficient, more profitable, and more capitalized than their conventional counterparts, but their returns are more volatile (less stable). The results hold after controlling for macroeconomic conditions but with lower statistical significance for the credit risk component and no statistical significance for either the capital or the volatility component. As for the bank control variables, we find that larger banks are more efficient, more profitable, charge lower rates on their financial products, and have lower credit risk. We also find that larger banks are less capitalized, less liquid, and have less volatile returns. The growth rate of gross loans increases bank efficiency and profitability, reduces credit risk and liquidity, and makes bank profits less volatile. The diversification of bank income improves efficiency and liquidity but makes bank returns more volatile. With regards to the macroeconomic indicators, we find that banks in countries with higher GDP growth and GDP per capita are more capitalized, more efficient, have lower credit risk, and less volatile returns. Finally, we find that higher inflation rates increase bank volatility of returns.

While the conventional banking literature suggests that a country's political environment is an important determinant of financial and economic growth (Faccio, 2006; Li et al., 2008; Nys et al., 2015; Abdelsalam et al., 2017; Khafagy,2017), there is no empirical evidence concerning the influence of political factors on the financial soundness of Islamic banks. In this study, we focus on political systems by comparing the impact of a set of political environment proxies on the financial soundness of conventional and Islamic banks. We use Eq. (1), but this time we include political systems to represent the political environment. Our results are presented in Table 7, Panels B.1 to B.4, and suggest several new insights. First, we find that in a democratic political system, Islamic banks are less capitalized, less efficient, and less liquid but have less volatile earnings than conventional banks, thus lending support to hypothesis H.1. Islamic banks operating under democratic regimes are often exposed to two regulatory standards. They not only need to comply with international regulations such as the Basel Accords, but also with the Islamic Financial Services Board (IFSB) and the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI) regulatory frameworks, which could increase the costs of their compliance at the expense of their efficiency scores. The results also indicate that Islamic banks are undercapitalized and less liquid in

democratically-based political systems. Again, adherence to multiple regulatory frameworks can make holding or raising equity more complicated for Islamic banks. In addition, while Islamic banks can often benefit from oil revenues[9] to increase their deposits and capital ratios, this is not the case for most democratic countries in our sample, such as the UK, Singapore, and South Africa, who are not oil producing nations. Another explanation for holding lower capital ratios could be the fact that democratic countries are often considered more stable than countries with other political systems. Therefore, Islamic banks in these countries are less exposed to political instability and thus do not need to hold such high capital buffers. As for liquidity, the negative effect of democratic political systems reflects the liquidity challenge that Islamic banks face in several countries. Specifically, the tendency to hold long-term, less liquid assets rather than to develop new, short-term, liquid asset instruments could explain the results. For instance, Islamic banks in GCC countries have the resources to develop new, short-term liquidity instruments. In addition, most GCC countries have either a hybrid or a *Sharia'a* based legal system, which could also play an important role in encouraging the development of these tools compared to democratic countries. It is also interesting to consider the specific example of Malaysia, where the government has invested heavily in developing an Islamic financial infrastructure. In contrast to Islamic banks operating in Western democratic countries, Islamic banks in Malaysia can benefit from an Islamic interbank money market to facilitate access to short-term funding. While Islamic banks are not allowed to channel their liquidity surplus to conventional banks or to refinance from Central Banks as lenders of last resort, the existence of a *Sharia'a* compliant Islamic interbank money market allows Islamic banks that have a liquidity surplus to channel funds to banks that have liquidity shortages, thereby securing the liquidity mechanism necessary to promote the stability of the banking system.

A further reason as to why we might expect an interaction between a country's political system and the type of bank is that a country's politics often dictate whether the country follows a Western, hybrid, or *Sharia'a*-based legal system. For instance, in democratic Westernized nations such as the UK, Singapore, or South Africa, conventional banks have more privileges than Islamic banks, not only in terms of accessing the financial markets and benefiting from government help in periods of financial distress, but also with regard to attracting customers, as they can offer a large set of competitive financial products (compared to the unfamiliar and smaller set of Islamic financial products that are *Sharia'a* compliant). In addition, Western countries might misunderstand Islamic

[9] In oil rich countries, Islamic banks should be able to more easily attract competent and well-trained managers, which may further explain their better financial performance when compared to Islamic banks in Western democratic nations.

banking practices and link them to extremism, especially after the Arab Spring and the wave of terrorist attacks that have targeted many Western countries. This could damage the reputation and public trust in the Islamic banking industry and may even result in it being boycotted or constrained, which could affect the financial soundness of this industry. To further investigate this point of view, we consider the national legal system (i.e., the extent to which a country applies *Sharia'a* principles) and examine its effect on the financial soundness of Islamic banks. Given that political and legal systems are closely interrelated, to some extent, this investigation acts as a robustness test of the results presented above on the effects of the political system. To do this, we replace $\text{Political\_Systems}_{jt}$ with three interconnected dummy variables. The first dummy, Western legal system, takes on a value of one if a country does not apply *Sharia'a* rules in its legal system and zero otherwise. The second dummy, hybrid legal system, takes on a value of one if *Sharia'a* law operates alongside another legal system (such as English or French law), and zero otherwise. The third dummy, *Sharia'a* legal system, takes on a value of one if *Sharia'a* is the only accepted law and zero otherwise. For instance, some countries, such as Iran, Saudi Arabia, and Sudan have adopted the vision of a fully *Sharia'a* compliant regime, whereas countries like Indonesia, Malaysia, and Turkey allow both legal systems to co-exist.[10]

INSERT TABLE [7] HERE

Table 7 Panel B.5 reports the results for the effect of national legal systems on the financial soundness of Islamic banks. In contrast to our previous findings in democratic political systems, in countries that apply *Sharia'a* law, Islamic banks are more capitalized, more efficient, and have more volatile earnings than conventional banks, suggesting that Islamic banks can access more facilities than their conventional counterparts when working under *Sharia'a* law. We also find that Islamic banks charge higher rates for offering *Sharia'a* products, are more profitable, and have lower credit risk than their conventional counterparts. A major distinction between conventional and Islamic banks is that the latter's resources are mainly channeled to finance the purchase of tangible assets, reflecting a strong association with the real economy. According to Pappas et al. (2012), the involvement of Islamic banks in major governmental infrastructure projects offers a safer income stream and a higher ROA than that of conventional banks. For instance, a Standard and Poor's (2014) report states that the balance sheets of Qatar's Islamic banks are expected to reach $100 billion by 2017 compared with only $54 billion in 2012. This rapid growth is due to the engagement of Islamic banks in a large number of Qatar's governmental infrastructure projects. In addition, Islamic bank financed projects

[10] As we interact the Islamic bank dummy with the three legal system dummies, we drop the Islamic bank dummy itself.

have to be asset-backed, which could also reduce credit risk, although their direct involvement in the real economy could also make them vulnerable to financial crises that affect the real economy. Furthermore, their direct involvement could make them more exposed to the externalities of political conflicts. For instance, Herrala and Turk-Ariss (2016) argue that Islamic banks in countries undergoing political conflict might decide to tighten their financing decisions and follow a policy of "wait and see". We obtain similar results in countries with hybrid legal systems, except that Islamic banks now charge lower rates for offering *Sharia'a* products, indicating that they use this strategy to compete with the equivalent financial products offered by their conventional counterparts.

As expected, our findings confirm hypothesis H.2 in demonstrating that *Sharia'a* and hybrid based legal systems are more beneficial to Islamic banks than to their conventional counterparts. We further demonstrate that Islamic banks outperform their conventional counterparts in *Sharia'a* and hybrid based legal systems. In addition, Islamic banks operating in Western legal systems are less capitalized and less liquid than their conventional counterparts. This is the opposite to what is observed for banks operating in *Sharia'a* based systems. Our results also report that Islamic banks have lower credit risk than conventional banks in Western countries, which could explain the lower capitalization position of Islamic banks in these countries. Taken together, these observations confirm that Western systems have a more detrimental effect on the financial soundness of Islamic banks than on the financial soundness of their conventional counterparts (hypothesis H.1).

To summarize, we find that Islamic banks underperform their conventional counterparts in Western and democratic political systems, but that they show superior financial soundness in *Sharia'a*-based and hybrid legal systems. Our findings can be interpreted in several ways. First, Islamic banks operating in hybrid and *Sharia'a*-based legal systems are more recognized by the respective governments and the general public. In Muslim majority countries such as Malaysia, Saudi Arabia, and Iran, Islamic banks are older and more experienced and thus may be perceived as more reputable. In addition, in these countries, customers are more familiar with their products. This would enable Islamic banks to easily access the market, obtain resources, and sell *Sharia'a* compliant financial products, in contrast to Western countries where these banks are relatively new and their products and practices are unfamiliar and may be misunderstood by customers. Second, while Islamic banks in hybrid and *Sharia'a* based legal systems apply the IFSB/AAOIFI regulatory standard, they also have to comply with Basel regulatory guidelines when operating in Western countries, and thus are exposed to double regulatory standards. In addition, Islamic banks in Western countries lack a developed financial infrastructure such as the Islamic interbank money market. Finally, religious

depositors in Muslim majority countries may perceive Islamic banks as the best way to preserve Muslim culture and identity, which should improve their financial inclusion. The association between financial inclusion and Islamic banks' financial soundness in countries that apply a hybrid or a *Sharia'a* based legal systems is particularly important. By satisfying other implicit factors, such as Muslim culture and identity, loyalty and beliefs, and the application of *Sharia'a* principles, Islamic banks can play a significant role in improving the reputation, confidence, public trust in the financial system and thus improve the financial inclusion in Muslim countries, compared to their conventional counterparts.

4.2.Robustness checks

Given that the main focus of this paper is to investigate the effect of political systems on the financial soundness of Islamic banks, in this section, we provide new insights and examine the heterogeneity of Islamic banks' financial soundness, after controlling for the GCC region, the Arab Spring, bank age, economic cycles, market discipline and countries' risk ratings.

4.2.1. Controlling for GCC region and the Arab Spring

In this subsection, we explore whether our results are driven by Islamic banks in the Gulf Cooperation Council (GCC) countries.[11] We choose to focus on the GCC countries for several reasons. First, in 2012, the GCC countries accounted for some 66.2% of Islamic banking assets worldwide (Ernst and Young, 2015; Alqahtani et al., 2016). Second, for the period that followed the financial crisis, Islamic banks in GCC countries witnessed an 11% growth in assets compared to only 6.8% for conventional banks operating in the same market (Union of Arab Banks[12]). Third, political systems that govern the GCC countries are different from those that govern the rest of the countries in our sample (Bitar et al., 2016). Finally, the GCC countries contributed 24% of the world's total crude oil production in 2013.[13] Providing a stable and soundly based political environment plays an important role in securing oil exportation and is thus important for the economic and financial development of these countries and the world as a whole. Moreover, because of their reliance on the

[11] GCC countries include: Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. We exclude Oman because it only hosts one newly born Islamic bank that has two observations for the entire time period. To represent GCC countries, we use a dummy variable that equals one for each of the GCC countries and zero otherwise.

[12] Recent global developments of Islamic banking and finance available at: http://www.uabonline.org/en/research/financial/recentglobaldevelopmentsofislamicbanking/7471/0, accessed 23 August 2016.

[13] See the 2014 British Petroleum (BP) Statistical Review of World Energy report available at: http://www.bp.com/en/global/corporate/about-bp/energy-economics/statistical-review-of-world-energy.html, accessed 23 August, 2016.

real economy and their location in oil exporting countries, Islamic banks can benefit from oil revenues as a way to generate deposits and channel them to investments in large governmental and infrastructure projects. Therefore, we control for GCC countries and also introduce a measure of political distress, i.e. major protests[14], to control for the Arab Spring. To take account of these variables, we use Eq. (2) as follows:

$$\begin{aligned}\text{CAMEL\_PCA}_{ijt} = {} & \alpha + \beta_1 \times \text{Islamic}_i + \beta_2 \times \text{GCC}_j + \beta_3 \times \text{GCC}_j \times \text{Islamic}_i + \beta_4 \times \text{Major\_Protests}_{jt} \\ & + \beta_5 \times \text{Major\_Protests}_{jt} \times \text{Islamic}_i + \beta_6 \times \text{Bank\_Control}_{ijt} + \beta_7 \times \text{Country\_Control}_{jt} \\ & + \sum_{t=1}^{T} \beta_t \times \text{YFE}_t + \varepsilon \quad (2)\end{aligned}$$

The results presented in Table 8 Panel A suggest the following: (i) banks in GCC countries are more capitalized, more efficient, more profitable, less liquid, charge less rent on their financial products, and have higher credit risk than banks in other countries; (ii) in contrast to Alqahtani et al. (2016), there is no significant difference between Islamic and conventional banks in the GCC region in terms of capital, efficiency, and rent charged on financial products. In addition, we find marginal evidence that Islamic banks in the GCC countries are more liquid but slightly less profitable and have higher credit risk than their conventional counterparts, thus contradicting the results of Alqahtani et al. (2016) and Mollah et al. (2016) regarding profitability and credit risk; and (iii) banks are less efficient and have higher credit risk in periods of political distress. Moreover, we find that Islamic banks' profitability is more negatively affected by the Arab Spring than conventional banks' profitability, although this finding is only significant at the 10% level.

Conventional and Islamic banks in the GCC countries appear to be highly capitalized (compared to banks in other countries), suggesting that the favorable economic conditions in these countries, such as oil revenues, have the same positive effect on both bank types. As for the efficiency and profitability of banks in GCC countries, Bitar et al. (2016) suggest that the oil revenues, the rapid economic development through the private sector and bank lending, the opening up to foreign competition, and the newly adopted financial reforms put pressure on both bank types. Under such circumstances, banks may offer new and innovative financial products and spend more on research and development, as well as on employee training, to ensure efficiency in allocating resources and to

[14] Major protests is a dummy variable that equals one if a country is severely affected by the Arab Spring and zero otherwise. For more details about the Arab Spring, refer to Bitar et al. (2016) and Ghosh (2016).

enhance productivity. This could ultimately explain why the differential effect of operating in a GCC country on the profitability of Islamic banks (compared to conventional banks) barely reaches significance. We also find that Islamic banks have higher credit risk than their conventional counterparts in the GCC countries, which could also explain their highly capitalized position in these countries. Finally, we find a positive differential effect of operating in a GCC country on the liquidity of Islamic vs. conventional banks. Different arguments could explain the results. Perhaps Islamic banks in the GCC region are more prudent in their investment choices, especially because they cannot channel liquidity surplus to conventional banks and cannot benefit from central banks as lenders of last resort. In addition, each Islamic bank in the GCC countries has a different *Sharia'a* board, demonstrating differences of scholars' opinions, which in turn may lead to inconsistencies in their decisions. For instance, an Islamic liquidity instrument might be *Sharia'a* compliant according to one *Sharia'a* board but not another, which makes the development of liquidity instruments more complex and difficult to achieve (Hasan, 2010; Laldin et al., 2012). Finally, the higher liquidity of Islamic banks (relative to conventional banks) could also explain their lower profitability position. The necessity for Islamic banks to maintain higher cash reserves with a zero-return policy has a detrimental effect on their profitability because of the opportunity cost that arises from having non-earning assets on the banks' balance sheets.

INSERT TABLE [8] HERE

4.2.2. Bank age and economic cycle

A compelling reason for observing variations in the differences between Islamic and conventional banks' financial soundness might be related to bank age. Abedifar et al. (2013) use bank age as a proxy for bank experience. Older banks are more experienced and benefit from a large network of branches nationally and abroad. In addition, mature banks are likely to have long-term relationships with their clients and can thus benefit from information advantages. In contrast, young banks, as new players in markets, are considered less experienced and are often constrained by more stringent regulation and supervision and, thus, prefer to act more prudently compared to middle-aged and mature banks. Therefore, we proxy for bank age using three dummy variables. Banks less than ten years old are categorized as young banks, and those that have been operating for a period ranging between ten and 20 years are considered middle-aged banks. Finally, banks that have been operating for more than 20 years are considered mature banks. We use Eq. (3) and interact the Islamic bank dummy with the age dummies. Since we interact the Islamic bank dummy with all three age dummies, we drop the Islamic bank dummy itself.

$$\text{CAMEL\_PCA}_{ijt} = \alpha + \sum_{\text{AGE/CYCLE}=1}^{N} \beta_1 \times \text{IBDV}_i \times \text{AGE/CYCLE} + \beta_2 \times \text{Bank\_Control}_{ijt} + \beta_3 \times \text{Country\_Control}_{jt} + \sum_{t=1}^{T} \beta_t \times \text{YFE}_t + \varepsilon \qquad (3)$$

The results in Table 8 Panel B show important differences between Islamic and conventional banks. We find that young Islamic banks have more volatile earnings and lower credit risk than their conventional counterparts. We also find that middle-aged Islamic banks are less liquid and have lower credit risk. In addition, we find that mature Islamic banks are more efficient, more profitable, but less liquid than conventional banks. Finally, we find several significant differences between mature and young Islamic banks. Specifically, in contrast to Beck et al. (2013), mature Islamic banks are more efficient and more profitable than young Islamic banks, indicating that mature Islamic banks are more cost efficient and more capable of exploiting scale economies and activity diversification. Mature Islamic banks are also less liquid than young Islamic banks. In contrast to our findings regarding the effects of operating in a GCC country, we propose that age and experience cause Islamic banks to be less prudent in their investment choices and to prefer to hold fewer cash reserves of zero return, which could explain their higher profitability and efficiency position. Furthermore, because mature Islamic banks are more experienced and reputable, regulators are more flexible with them in terms of developing and structuring new *Sharia'a* compliant liquidity instruments. In addition, mature Islamic banks have more resources to spend on research and development, and thus to develop new liquidity instruments, and are better prepared to deal with any liquidity shortages.

Finally, we also control for the fluctuation of the economy between periods of growth and financial distress and examine whether Islamic banks react in the same way during different periods of an economic cycle. Because our sample includes the subprime crisis period, Table 8 Panel C compares the financial soundness of Islamic and conventional banks for the periods before (1999–2006), during (2007–2009), and after (2010–2013) the subprime crisis. To do this, we use Eq. (3) and interact the Islamic bank dummy with three dummies that represent the periods before, during, and after the subprime crisis.

We find that Islamic banks are more capitalized, more efficient, and more profitable, but have more volatile earnings for the period before the financial crisis than conventional banks. During the crisis, Islamic banks are also found to be more profitable, with more volatile earnings, but are no longer more efficient than their conventional peers. In addition, we find that Islamic banks have lower

credit risk than their conventional counterparts. After the crisis, both bank types show similarities in terms of capitalization, earnings volatility, liquidity, higher rates, and profitability. They differ, however, in terms of efficiency, where Islamic banks are once again more efficient than conventional banks.

4.2.3. Publicly traded banks and countries' risk ratings

So far, we have shown important differences between Islamic and conventional financial characteristics. These differences depend on several factors such as political environment, legal systems, bank age, and economic cycles. Aside from these factors, the financial soundness of Islamic banks can also depend on market discipline and dispersion of ownership. Therefore, we examine the impact of market discipline and the dispersion of ownership on the financial soundness of Islamic banks. Firstly, we use bank listing as a measure for bank market discipline. Indeed, listing a bank on the market implies more stringent rules and stricter capital regulation and supervision; thus, less risky behavior. Nevertheless, listed equity is likely to be more liquid than unlisted equity and, thus, can be easily raised at a lower cost. This means that listed banks can have greater opportunities to grow rapidly and benefit from financial instruments to take on more risk than unlisted banks. Secondly, listing a bank on the market can be used as a proxy for ownership dispersion. On one side, incentive problems arising from the separation of ownership and control become more significant when ownership is more dispersed, which might increase bank costs and reduce profits. On the other side, being publicly traded means that the bank is likely to be positively affected by market discipline, suggesting higher profits and lower costs.

To do this, we use two interconnected dummy variables. The first dummy, publicly traded, takes on a value of one if a bank is listed on a stock exchange and zero otherwise. The second dummy, unlisted, takes on a value of one if a bank is not listed on a stock exchange and zero otherwise. We interact the Islamic bank dummy with both dummies to investigate whether the differences between Islamic and conventional banks vary between listed and unlisted Islamic banks. As we interact the Islamic bank dummy with both listed and unlisted dummies, we drop the Islamic bank dummy itself. The results are presented in Table 9, Panel A and show that listed Islamic banks are more capitalized, more efficient, and more profitable than conventional banks, while unlisted Islamic banks report only lower credit risk than their conventional counterparts. Our results suggest that market discipline increases publicly traded Islamic bank capitalization, supervision, and monitoring, thus improving bank efficiency and profitability.

INSERT TABLE [9] HERE

As a final test, we examine the impact of a country's overall risk ratings on the financial soundness of Islamic banks using data provided by the Economist Intelligence Unit's (EIU) finance reports published by The Economist. A country's overall risk is derived from three risk indicators: sovereign risk, currency risk, and banking sector risk. We use EIU overall risk because it plays a key role in a country's financial assessment. In addition, EIU risk ratings can be a useful tool to help investors, bank managers, and hedge funds in deciding whether it is feasible to enter new emerging or rapidly changing markets. The overall risk ratings vary between A and CCC. We choose to compare Islamic banks with conventional banks in two types of country: highly ranked countries (i.e., those with rating A), which have lower overall risk profiles, and low ranked countries (i.e., those with rating C)[15], which have a higher risk profile.

The results in Table 9, Panels B and C, suggest that operating in countries with lower risk profiles (e.g. the United Kingdom, Singapore, and Qatar) increases the efficiency, profitability, stability and capitalization of Islamic banks to a greater extent than it increases the same financial soundness components for conventional banks. However, the results for the effect of operating in a high risk country (e.g. Syria, Sudan, etc.) are even more striking. We find that operating there makes banks more capitalized, more efficient, more stable, more liquid, more profitable, allows them to charge higher rates for *Sharia'a* products, and reduces their credit risk – particularly so for Islamic banks. These results indicate that Islamic banks have more distinguished financial characteristics and perform better in less developed countries. This might be due to the weak conventional banking sector in these countries, the religious beliefs of Muslim populations (prohibition of both interest and financial instruments that rely on speculation, etc.), and the important role that Islamic banks can play in promoting financial inclusion (Demirgüç-Kunt et al., 2013; Imam and Kpodar, 2016) and thus economic growth (Gheeraert, 2014).

5. Additional estimation techniques

In this section, we verify the robustness of our results using several additional econometric specifications and methods of correcting standard errors. To do this, we use propensity score matching and difference-in-difference estimation techniques. In addition, we employ an instrumental variable

[15] We use rating C instead of rating CCC because we find fewer countries with a CCC rating.

(IV) approach, a Heckman estimation, and truncated regressions with different clustering of standard errors.

5.1. Propensity score matching

In Panel A of Table 10, we examine whether differences in the financial soundness of the two bank types are driven by differences in sample size. Therefore, we use a propensity score matching (PSM) technique proposed by Rosenbaum and Rubin (1983) to neutralize any effects related to differences between samples and thereby verify the robustness of our results. PSM consists of matching observations of banks based on the probability that they are Islamic ones. The comparison between Islamic and conventional banks is then studied on the matched sample. To implement PSM we make use of our Islamic bank dummy which takes on a value of one for Islamic banks and 0 otherwise. We then estimate a logit model where we regress the Islamic bank 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 1 for Islamic banks and 0 for conventional banks. Additionally, we employ three different matching methods: K-nearest neighbors with n=2 and n=5; Gaussian Kernel matching; and radius matching. In all matched samples (Models (1) to (14) in Table 10 Panel A), we continue to find evidence that Islamic banks are more capitalized, more efficient, more profitable, and have lower credit risk but more volatile earnings than their conventional counterparts. The findings also suggest that Islamic banks are less liquid when matched with conventional banks with similar financial characteristics.

INSERT TABLE [10] HERE

5.2. Difference-in-difference estimation and matching

The findings in Table 8 suggest that political distress has a negative and marginal differential effect on the profitability component of Islamic banks relative to conventional banks while the effect is negative but not significant for the credit risk component. These findings are similar to Ghosh (2016) for credit risk but different for profitability. Therefore, we examine the robustness of the results using a difference-in-difference estimation technique. This technique allows us to compare the changes in the financial soundness of Islamic banks due to major protests with the changes in the financial soundness of a similar group of conventional banks. To do this, we create two dummy variables. Treated is a dummy variable used to identify the group exposed to the "treatment", which in our case are major protests. This dummy equals one for all Islamic banks in the sample (treated group) and zero for conventional banks (control group). Post is a dummy variable that equals one in the post-

treatment period, which in our case is the period when the major protests have taken place. Then, in a second step, we interact the Treated and Post dummies to represent the difference-in-difference and thus show the actual effect of the introduction of the variable Major Protests. In the difference-in-difference regression, we also include bank- and country-level control variables and year fixed effects. Schepens (2016) argues that to obtain reliable difference-in-difference estimates, a propensity score matching technique is needed to construct a control group of conventional banks that have similar financial characteristics as those of Islamic ones. Similar to section 6.1, we again employ a Kernel matching of propensity scores. We use a logistic model where we regress the Islamic bank dummy on all the control variables mentioned above. Finally, we use the predicted probabilities to match Islamic banks with their conventional counterparts. The impact of the Kernel difference-in-difference estimation is illustrated in Panel B of Table 10. The results confirm our earlier findings and suggest that the Arab Spring was more detrimental to the profitability of Islamic banks than to the profitability of conventional banks (at the 5% level of significance). The results also suggest that the Arab Spring caused a higher increase in the volatility of earnings for Islamic banks than for conventional banks.

5.3. Other estimation techniques and methods of correcting standard errors

We now examine the robustness of our results using two alternative econometric specifications and methods of correcting standard errors. First, we use truncated regressions to address any bias related to the upper and lower distribution of observations for the dependent variable. We also use a Newey-West procedure to correct autocorrelation among the residuals. Second, we employ random effect regressions and employ a White procedure to correct the heteroscedasticity of the standard errors. Table 10, Panel C reports very similar findings to the main results. Islamic banks are more efficient, more profitable, have lower credit risk, and more volatile earnings than conventional banks. There is also marginal evidence that Islamic banks are more capitalized and less liquid than conventional banks.

5.4. Addressing endogeneity and selection bias

We complement our analysis by addressing the issue of endogeneity using an instrumental variables (IV) approach. First, the IV approach regresses our Islamic bank dummy variable on the instruments (described below) and on the bank-level control variables and the year fixed effects as used in the baseline models (Table 7 Panel A). Second, the predicted values of the Islamic dummy replace the dummy itself in the baseline models. The current literature on comparing Islamic and conventional banks is largely silent about endogeneity and lacks proper instruments to correct for any

potential adverse selection problem. In this study, we use three instruments:[16] (i) religion, which represents the proportion of the population of each country that is Muslim; (ii) experience, which takes on the value of one if the bank has been operating for more than 20 years; and (iii) a GCC dummy which equals one if banks are located in the GCC regions and zero otherwise.

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 instruments do not explain cross-sectional differences in capital regulatory guidelines and measures. We reject the null hypothesis at the 1% level in all models. The results of the first-stage regressions are reported in Table 11, Panel A.1. Model (1) and mainly show that Islamic banks are less experienced than conventional banks and are primarily concentrated in the GCC and Muslim countries. The results of the second-stage regressions are reported in Table 11, Panel A.1, Models (2) to (15). We use two different estimation techniques: a two-stage least squares regression (2SLS) (Ashraf et al., 2016); and a generalized method of moments (GMM) (Bitar et al., 2016). The results yield very similar findings to the PSM technique. Islamic banks are more capitalized, more efficient, more profitable, less liquid, and have lower credit risk and more volatile earnings than their conventional counterparts. In Panel A.2, we replace the GCC dummy with a fuel export dummy to check the robustness of our instruments. We expect both the GCC dummy and the fuel export dummy to have a positive effect on the emergence and development of Islamic banks. We consistently obtain the same results, thus reinforcing our earlier findings.

INSERT TABLE [11] HERE

Finally, Table 11 Panel B shows the results from a Heckman (1979) selection approach to correct for a potential self-selection bias. The main objective of this analysis is to control for the bank choice of being Islamic. In the first step, we estimate a probit model that regresses our Islamic bank dummy on three instruments as well as on all control variables and year fixed effects. We use the same instruments as mentioned above and the control variables and year fixed effect from the baseline model. In the second-stage regression, we consider the PCA components as the different dependent variables, the Islamic bank dummy as the independent variable, and a self-selection parameter (measured as the inverse Mills ratio) estimated from the first-stage regression. Heckman's (1979) two-

[16] We are not claiming that these variables are the best possible instruments. However, as we have shown in Tables 7 and 8, these instruments display good explanatory power regarding the existence, the development, and the effect of the financial characteristics that distinguish between the two bank types.

stage self-selection model continues to suggest that Islamic banks are more efficient and have lower credit risk than their conventional counterparts, while the rest of the components report insignificant results.

6. Discussion of the results

The consensus in most empirical studies is that ratio analyses along with panel regressions are the best available practice for assessing and comparing the financial soundness of Islamic and conventional banks. However, previous research did not justify whether these ratios are capable of providing a complete picture of bank financial soundness, especially in comparative studies. For instance, Johnes et al. (2014) criticize ratio analyses and use Data Envelopment Analysis (DEA) to compare the efficiency scores of conventional and Islamic banks. The recent literature also uses PCA to derive new summarized measures that represent the most needed information for comparison purposes (Canbas et al., 2005; Shih et al., 2008, Klomp and de Haan, 2012, 2014). In this study, we add to the debate and employ PCA to investigate whether summarized components produce the same results as those found in the previous literature regarding the stability, efficiency, profitability, and credit risk of Islamic and conventional banks.

The regressions on PCA components provide new insights into the financial soundness of Islamic banks. Table 12 reports detailed comparisons of the present results based on PCA versus the results of methodologies and ratios used in previous studies.[17] For instance, most of the literature finds that Islamic banks are significantly more capitalized than conventional banks (Beck et al., 2013; Abedifar et al., 2013; Alqahtani et al., 2016). Our results show marginal evidence for the superiority of Islamic banks in term of capitalization. In addition, the previous literature tends to concur on the superiority of conventional banks' efficiency (Beck et al., 2013; Alqahtani et al., 2016; Wanke et al., 2016). Our study reports opposite results and shows that Islamic banks are significantly more efficient than conventional banks. Furthermore, the literature shows that conventional banks are more stable than Islamic banks, although several studies report no significant difference (Pappas et al., 2012; Abedifar et al., 2013; Beck et al., 2013; Boumedienne and Caby, 2013; Bourkis and Nabi, 2013). Our study reports opposite results and shows that Islamic banks are less stable and have more volatile earnings than conventional banks. We also report different results for the liquidity and the profitability

[17] It is worth bearing in mind that differences between the current findings and those of previous studies are likely to arise not only due to the different method of analysis (PCA versus single ratios) but also due to other methodological differences, such as the time period and specific countries investigated.

components. First, the liquidity component suggests that Islamic banks are not significantly different from conventional banks, thus contradicting the findings of Alqahtani et al. (2016). Second, Islamic banks are significantly more profitable than conventional banks, thus opposing the findings of Mollah and Zaman (2015) and Mollah et al. (2016). Nevertheless, the findings also show similarities with the previous literature. For example, we find that Islamic banks do not charge higher rates for offering *Sharia'a* compliant products (Abedifar et al., 2013) and that they have lower credit risk than conventional banks (Abedifar et al., 2013; Beck et al., 2013; Alqahtani et al., 2016).

In addition, the conventional banking literature points out that the political environment is an important determinant of financial and economic growth (Faccio, 2006; Li et al., 2008; Mahboub and Abdou, 2012; Khandelwal and Roitman, 2013; Nys et al., 2015; Abdelsalam et al., 2017; Khafagy, 2017), whereas prior comparative studies on conventional and Islamic banks lack evidence on whether political systems have the same effect on the two bank types. As explained in Section 2, we hypothesized that Western democratic political systems are likely to be more detrimental to Islamic banks than to conventional banks because in such systems, Islamic banks are relatively new, their products are unfamiliar to customers, they face cultural barriers, and experience increased regulatory challenges. Our findings reported in Table 7 provide clear evidence of the superiority of Islamic banks in terms of capital, efficiency, profitability, and credit risk, when operating in *Sharia'a* based legal systems compared to Western legal systems and more democratic nations, thus providing empirical support to hypotheses H.1 and H.2. Table 12 also reports detailed comparison of the results for the effect of political systems on the financial soundness of Islamic banks. While the previous literature reports no empirical evidence on whether Islamic banks are more capitalized, more efficient, more liquid, or charge a higher rent for offering *Sharia'a* products in democratic nations than in *Sharia'a* based legal systems, it provides some evidence for the effect of religion on stability, profitability and credit risk that is worth mentioning. For example, in contrast to Abedifar et al. (2013), we find that Islamic banks are more stable in Western and more democratic political systems than in *Sharia'a* based legal systems. We also find that Islamic banks are more profitable in *Sharia'a* based legal systems, thus opposing the findings of Mollah et al. (2016).

INSERT TABLE [12] HERE

7. Conclusions

In this study, we examine the financial soundness of conventional and Islamic banks using components extracted from PCA. We also examine whether a democratic political system and a *Sharia'a* legal system have a different effect on the financial soundness of Islamic banks versus conventional banks and the reasons that could explain any differences. To do this, we first create a new set of multidimensional measures and find that components of capital, efficiency, volatility of returns, liquidity, charging of higher rates for *Sharia'a* compliant products, profitability, and credit risk are the most informative indicators of bank financial soundness. Second, we use random-effect GLS regressions and find that Islamic banks underperform their conventional counterparts in Western democratic nations but outperform them in countries that employ *Sharia'a* or hybrid legal systems. Finally, a battery of robustness checks including a propensity score matching technique, an instrumental variables approach, and a Henchman estimation technique, confirm our results.

This study has methodological and operational implications for the current stream of research in Islamic banking. On a methodological level, our findings suggest that using components extracted from PCA to compare the financial soundness of conventional and Islamic banks could lead to conflicting results relative to those provided by the previous literature that uses accounting ratios. At the operational level, our results reflect the challenges that the Islamic banking industry faces in Western countries in terms of perception, regulatory constraints, reputation, trust, and cultural barriers. The latter finding is particularly important, as it suggests that other factors captured by a country's political environment, such as Muslim culture and identity, loyalty and beliefs, and the application of *Sharia'a* principles can also play a significant role in improving the reputation, confidence, public trust, and thus the financial soundness of Islamic banks. Therefore, in addition to studying the political environment, an appropriate avenue for future investigation would be to explore the impact of factors such as culture (e.g. Hofstede's and the Globe's cultural dimensions, the World Values Survey, etc.), the regulatory environment (e.g. capital stringency, supervisory power, independent auditors, etc.), and law and order (e.g. the rule of law, creditor rights, information sharing, etc.) on the financial soundness of Islamic banks. Finally, it is worth noting that the overall interpretation of the results depends largely on the way we understand the components extracted from the PCA. In other words, in comparison to simple ratio analyses, PCA suffers from the limitation that the intuitive meaning of the components is more difficult to uncover. We attempt to overcome potential limitations related to the interpretation of the components by presenting the factor loadings and by explaining how ratios are combined whenever we find a negative correlation between a ratio

and the rest of the component loadings. Another limitation that can be avoided in future investigations, although it would require the use of larger samples, is to account for sensitivity to market risk by adding market-risk based indicators along with accounting ratios in the CAMEL classification.

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Tables

Table 1
(Sub) criteria used to evaluate bank financial soundness

	CAMEL ratios used in conventional banking literature					CAMEL ratios used in Islamic banking literature				Other comparative studies		
	Klomp and de Haan (2015)	Betz et al. (2014)	Maghyereh et al. (2014)	Klomp and de Haan (2012)	Ötker and Podpiera (2010)	Wanke et al. (2016)	Alqahtani et al. (2016)	Bourkhis and Nabi (2013)	Rashid and Jabeen (2016)	Olson and Zoubi (2016)	Beck et al. (2013)	Abedifar et al. (2013)
Capital adequacy (C)												
Tier1/risk weighted assets (rwa)		√	√	√	√	(A)						
Total capital/ risk weighted assets (rwa)	√		√		√	√	√		√			
Tier1/total assets* (ta)												
Total capital/ total assets* (ta)								√				
Tangible equity/ tangible assets* (taa)	tetap	Tetap	tetap	tetap		Tetap	tetap		tetap	R		
Common equity/ total assets* (ta)	tetap	Tetap	tetap	tetap		Tetap	tetap		tetap	R		
Asset quality (A)												
Loan loss reserves/growth loans (gl)				/tl √	√	√				R	(E)	R
Loan loss provision/growth loans (gl)	/tl √	√ /tl	√ /tl	/tl √	√	√	√				BM	R
Impaired loans/growth loans (gl)	/tl √	√ /ta	√ /tl	/tl √	√	√	√	√			BM	R
Managerial quality (M)												
Cost to income ratio	√	√		√	√	(E)	√	(E)			(E)	(E)
Net interest margins (NIM)		(E)	(E)		(E)	√				(E)		
Overheads cost/total assets (ta)	√			√			√ /gi				(E)	
Net fees and commissions/total assets							(L)					
Net efficiency (Net eff)			√									
Net efficiency with risk factor (Net risk)			√									
Growth efficiency (Growth eff)			√									
Growth efficiency with risk factor (Growth risk)			√									
Earnings and profitability (E)												
Return on average assets (ROAAP)	√	(A)	√	√	√	√	√	√	√	√	S	√
Return on average equity (ROAE)	√	(M)	√	√	√	√	√	√	√	√		√
Log (Bank Z-score)				√	(C)					R	S	S
Adjusted ROAAP												S
Adjusted ROAE												S
Volatility of ROAAP*												
Volatility of ROAEP*												
Volatility of NIM*												
Liquidity (L)												
Liquid assets/total assets	√			√	√	√	√		√			
Liquid assets/ short-term funds	√		√	√			√	√			(A)	
Liquid assets/total deposits						√						
Net loans/total assets	√ /td		(A)	√ /td		√	√ /td	(A)	√			

Notes: (C), (A), (M), (E), and (L) represent Capital adequacy, Asset quality, Managerial quality, Earnings and profitability, and Liquidity, respectively. R, BM and S represent bank Risk; Business Model and Stability employed in the previous Islamic banking literature. We also include some other commonly used variants of ratios: tetap for equity to assets ratio; tl for total loans; ta for total assets; gi for gross income; td for total deposit. * refer to ratios used in the broader banking literature such as Houston et al. (2010), Schaeck and Cihák (2013), and Bitar et al. (2016).

Table 2
Descriptive statistics and tests of equality for the financial ratios of conventional and Islamic banks

Ratios	Conventional banks					Islamic banks					Test statistics		
	N	Mean	SD	Min	Max	N	Mean	SD	Min	Max	*Wilc.*	*F*	Sig.
Net efficiency	5620	53.38	24.57	0	100	1015	75.3	25.91	15.05	100	-23.07***	625.02	0.000
Net efficiency with risk factor	4523	66.84	22.56	0	100	677	86.37	19.85	24.65	100	-20.6***	548.96	0.000
Tangible equity/ total assets	7024	13.62	12.38	2.64	79.68	1374	20.96	21.19	3.78	82.42	-10.73***	160.59	0.000
Common equity/ total assets	7024	13.71	12.29	2.81	78.95	1375	21.34	21.66	3.77	84.4	-11.03***	154.66	0.000
Volatility of NIM	5447	0.65	0.95	0	24.27	1046	1.42	2.16	0	17.64	-16.41***	127.57	0.000
Tier1/risk weighted assets	2939	16.81	8.81	7.51	42.25	753	24.31	19.01	7.7	79.8	-9.12***	111.26	0.000
Volatility of ROAAP	5528	0.7	1.09	0	14.7	1077	1.5	2.56	0	19.38	-12.26***	102.53	0.000
Log (Bank Z-score)	5335	3.6	1.09	1.44	5.63	1031	3.26	1.07	1.08	5.33	9.02***	87.54	0.000
Adjusted ROAAP	5335	5.55	6.35	-1	23.55	1031	3.97	4.81	-1.47	17.65	7.08***	82.94	0.000
Tier1/total assets	3000	10.88	6.08	3.48	27.15	606	17.65	18.23	3.22	73.86	-6.37***	81.48	0.000
Adjusted ROAE	5330	5.73	6.73	-0.7	25.51	1033	4.11	5.05	-1.44	18.64	6.82***	78.62	0.000
Liquid assets/total assets	7001	34.01	21.99	1.13	83.43	1372	28.93	19.61	0.33	91.25	7.27***	73.75	0.000
Total capital/ risk weighted assets	4130	20.2	10.06	10.05	49.01	858	26.23	20.2	9.43	86	-4.75***	72.73	0.000
Total capital/ total assets	3205	12.34	6.33	4.39	29.49	613	18.54	18.43	3.57	75.57	-4.48***	67.96	0.000
Overheads cost/total assets	6848	2.89	2.47	0.08	15.86	1369	3.5	3.06	0.57	18.99	-.7.1***	46.79	0.000
Cost to income ratio	6716	58.68	31.88	6.86	232.61	1305	68.63	61.9	15.35	475.24	-2.84***	32.07	0.000
Loan loss provision/growth loans	6107	1.27	1.6	-0.5	6.01	1008	1.76	2.7	-0.31	11.17	-3.3***	31.69	0.000
Liquid assets/ short-term funds	6578	46.48	43.04	2.16	314.97	1285	57.94	79.77	1.46	546.19	-1.1	25.06	0.000
Volatility of ROAEP	5525	5.84	8.67	0	77.07	1077	7.13	8.53	0.06	77.67	-8.44***	20.39	0.000
Growth efficiency with risk factor	4523	62.52	23.83	0	100	677	67	24.87	18.31	100	-4.22***	19.32	0.000
Growth efficiency	5620	49.06	25.09	0	100	1015	52.36	27.4	2.36	100	-2.91***	12.76	0.000
Impaired loans/growth loans	4526	8.75	9.57	0.48	35.75	555	7.44	9.25	0.34	36.61	4.17***	9.88	0.000
Net interest margins (NIM)	6851	3.94	2.86	-1.14	17.33	1344	4.27	4.72	-6.28	28.23	-0.85	6.27	0.012
Net loans/total assets	6952	48.86	22.61	3.06	88.74	1328	47.78	24.66	0.03	98.86	0.66	2.19	0.139
Return on average equity (ROAE)	6941	10.1	15.42	-74.73	38.87	1371	9.47	15.76	-53.64	49.62	2.74***	1.8	0.180
Liquid assets/total deposits	5561	41.36	23.94	0.27	97.04	670	39.61	38.22	0.32	256.25	6.08***	1.34	0.247
Net fees and commissions/total assets	6144	1.09	1.3	-0.07	8.31	1106	1.14	1.77	-0.2	11.71	5.33***	0.86	0.353
Return on average assets (ROAAP)	6951	1.12	1.98	-9.22	6.47	1371	1.21	4.17	-17.15	16.67	-1.39	0.59	0.443
Loan loss reserves/growth loans	5915	6.22	6.36	0.51	24.46	969	6.26	7.21	0.52	28.97	1.05	0.02	0.894

Table 3
Correlation matrix of bank financial soundness indicators

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)
Tier1/risk weighted assets	(1)	1.00	0.94	0.79	0.65	0.77	0.75	0.11	-0.04	0.07	-0.04	0.26	0.19	0.16	-0.06	0.05	-0.09	0.02	0.27	0.04
Total capital/ risk weighted assets	(2)		1.00	0.71	0.66	0.70	0.69	0.13	0.00	0.08	0.02	0.22	0.20	0.16	-0.03	0.08	-0.04	0.06	0.19	-0.02
Tier1/total assets	(3)			1.00	0.88	0.92	0.92	0.05	-0.01	0.03	-0.13	0.38	0.27	0.24	-0.07	0.03	-0.15	-0.04	0.34	0.07
Total capital/ total assets	(4)				1.00	0.80	0.81	0.05	0.03	0.04	-0.09	0.35	0.28	0.24	-0.06	0.03	-0.13	-0.04	0.27	0.02
Tangible equity/ total assets	(5)					1.00	0.97	0.03	-0.05	0.01	-0.16	0.39	0.25	0.20	-0.09	0.02	-0.18	-0.05	0.37	0.09
Common equity/ total assets	(6)						1.00	0.06	-0.02	0.04	-0.09	0.41	0.31	0.23	-0.11	0.00	-0.18	-0.06	0.34	0.06
Loan loss reserves/growth loans	(7)							1.00	0.52	0.82	0.24	0.04	0.16	-0.01	-0.18	-0.23	-0.13	-0.20	-0.34	-0.31
Loan loss provision/growth loans	(8)								1.00	0.52	0.16	0.13	0.21	0.11	-0.06	-0.26	-0.05	-0.25	-0.44	-0.44
Impaired loans/growth loans	(9)									1.00	0.28	-0.04	0.13	-0.05	-0.17	-0.24	-0.15	-0.22	-0.40	-0.38
Cost to income ratio	(10)										1.00	-0.04	0.46	0.00	-0.29	-0.28	-0.25	-0.24	-0.61	-0.55
Net interest margins (NIM)	(11)											1.00	0.68	0.32	-0.36	-0.31	-0.40	-0.35	0.40	0.32
Overheads cost/total assets	(12)												1.00	0.55	-0.33	-0.28	-0.34	-0.29	0.05	0.03
Net fees /total assets	(13)													1.00	0.09	0.11	0.09	0.11	0.32	0.21
Net efficiency	(14)														1.00	0.81	0.89	0.75	0.11	0.08
Net efficiency with risk factor	(15)															1.00	0.73	0.91	0.20	0.15
Growth efficiency	(16)																1.00	0.82	0.06	0.06
Growth efficiency with risk factor	(17)																	1.00	0.16	0.13
Return on average assets (ROAAP)	(18)																		1.00	0.80
Return on average equity (ROAE)	(19)																			1.00

Notes: This table shows the correlation between 29 CAMEL indicators of bank financial characteristics that are used to construct our measures of bank soundness employed in the empirical analysis

Table 3
Correlation matrix of bank financial soundness indicators – continued

		(20)	(21)	(22)	(23)	(24)	(25)	(26)	(27)	(28)	(29)
Tier1/risk weighted assets	(1)	0.15	0.05	0.00	0.27	-0.09	0.17	0.24	0.18	0.20	-0.07
Total capital/ risk weighted assets	(2)	0.11	0.01	-0.03	0.25	-0.05	0.19	0.26	0.24	0.22	-0.07
Tier1/total assets	(3)	0.12	0.02	-0.01	0.26	-0.10	0.23	0.02	0.09	0.09	0.21
Total capital/ total assets	(4)	0.06	-0.01	-0.05	0.25	-0.05	0.24	-0.02	0.10	0.08	0.24
Tangible equity/ total assets	(5)	0.16	0.05	0.02	0.30	-0.15	0.19	0.05	0.09	0.12	0.19
Common equity/ total assets	(6)	0.13	0.02	-0.02	0.32	-0.12	0.22	0.06	0.10	0.13	0.18
Loan loss reserves/growth loans	(7)	-0.21	-0.18	-0.17	0.11	0.26	0.32	0.21	0.13	0.16	-0.27
Loan loss provision/growth loans	(8)	-0.33	-0.29	-0.30	0.14	0.38	0.31	0.12	0.09	0.12	-0.03
Impaired loans/growth loans	(9)	-0.21	-0.24	-0.24	0.07	0.28	0.29	0.18	0.14	0.20	-0.18
Cost to income ratio	(10)	-0.24	-0.31	-0.30	0.20	0.26	0.18	0.11	0.15	0.17	-0.12
Net interest margins (NIM)	(11)	0.03	0.08	0.06	0.41	-0.08	0.10	-0.10	-0.18	0.07	0.40
Overheads cost/total assets	(12)	-0.09	-0.11	-0.10	0.38	0.09	0.22	0.02	0.01	0.23	0.24
Net fees /total assets	(13)	-0.07	-0.03	-0.02	0.15	0.04	0.23	0.07	0.04	0.24	0.19
Net efficiency	(14)	0.04	0.09	0.12	-0.20	-0.01	-0.05	-0.01	0.14	-0.02	0.04
Net efficiency with risk factor	(15)	0.09	0.11	0.13	-0.14	-0.07	-0.06	-0.01	0.14	-0.01	0.03
Growth efficiency	(16)	0.06	0.11	0.15	-0.24	0.00	-0.08	0.02	0.17	0.01	-0.02
Growth efficiency with risk factor	(17)	0.09	0.13	0.15	-0.17	-0.05	-0.07	0.02	0.16	0.01	-0.02
Return on average assets (ROAAP)	(18)	0.26	0.33	0.33	0.04	-0.35	-0.15	-0.03	-0.05	-0.02	0.14
Return on average equity (ROAE)	(19)	0.31	0.37	0.38	0.01	-0.42	-0.23	-0.08	-0.11	-0.04	0.10
Log (Bank Z-score)	(20)	1.00	0.82	0.65	-0.20	-0.70	-0.69	-0.02	-0.08	-0.06	-0.08
Adjusted ROAAP	(21)		1.00	0.77	-0.19	-0.44	-0.46	-0.04	-0.10	-0.06	-0.02
Adjusted ROAE	(22)			1.00	-0.17	-0.47	-0.41	-0.06	-0.11	-0.07	-0.00
Volatility of ROAAP	(23)				1.00	0.19	0.31	0.05	0.10	0.08	0.07
Volatility of ROAEP	(24)					1.00	0.78	0.05	0.10	0.08	0.02
Volatility of NIM	(25)						1.00	0.05	0.12	0.13	0.07
Liquid assets/total assets	(26)							1.00	0.71	0.68	-0.44
Liquid assets/ short-term funds	(27)								1.00	0.51	-0.42
Liquid assets/total deposits	(28)									1.00	-0.05
Net loans/total assets	(29)										1.00

Notes: This table shows the correlation between 29 CAMEL indicators of bank financial characteristics that are used to construct our measures of bank soundness employed in the empirical analysis

Table 4
Results of Bartlett tests of sphericity

Bartlett tests of sphericity	
Chi-square	37221.81
Degrees of freedom	406
Significance	0.000

Table 5
Eigenvalues of the components

Components	Eigenvalues	Variance %	Cumulative %
C_1	**6.042**	20.84	20.84
C_2	**5.548**	19.13	39.97
C_3	**3.621**	12.49	52.45
C_4	**2.623**	9.05	61.5
C_5	**1.948**	6.72	68.22
C_6	**1.542**	5.32	73.54
C_7	**1.302**	4.49	78.02
C_8	0.926	3.19	81.22
C_9	0.811	2.8	84.02
C_{10}	0.740	2.55	86.57
C_{11}	0.635	2.19	88.76
C_{12}	0.526	1.82	90.57
C_{13}	0.426	1.47	92.04
C_{14}	0.314	1.08	93.13
C_{15}	0.289	1	94.12
C_{16}	0.262	0.9	95.03
C_{17}	0.231	0.8	95.82
C_{18}	0.194	0.67	96.49
C_{19}	0.173	0.6	97.09
C_{20}	0.164	0.57	97.66
C_{21}	0.147	0.51	98.16
C_{22}	0.130	0.45	98.61
C_{23}	0.111	0.38	99
C_{24}	0.085	0.29	99.29
C_{25}	0.067	0.23	99.52
C_{26}	0.061	0.21	99.73
C_{27}	0.030	0.1	99.84
C_{28}	0.025	0.09	99.92
C_{29}	0.022	0.08	100

Notes: This table reports the eigenvalues of the PCA components. The numbers in bold have an eigenvalue above 1, indicating (according to the Kaiser criterion) that 7 factors are relevant in capturing bank financial soundness: C1, C2, C3, C4, C5, C6, C7 represent capital, efficiency, volatility of returns, liquidity, charges for offering *Sharia'a* products, profitability and risk, respectively.

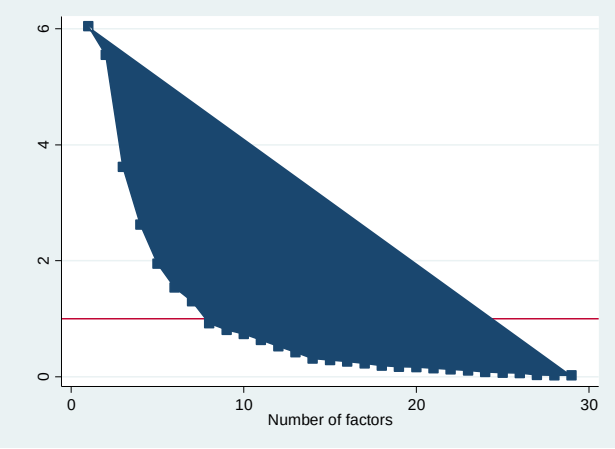

Fig.1. Scree plot of bank financial soundness

Table 6
The financial soundness of banks: A principal component analysis

Ratios	Definition	C1 Capital	C2 Efficiency	C3 Volatility	C4 Liquidity	C5 Charges	C6 Profitability	C7 Risk	KMO
[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
	Capital adequacy								
r_1	Tier1/risk weighted assets	**0.395**	-0.001	0.033	0.108	-0.056	-0.012	0.009	0.695
r_2	Total capital/ risk weighted assets	**0.383**	0.029	0.027	0.122	-0.043	-0.068	0.003	0.700
r_3	Tier1/total assets	**0.416**	0.007	-0.005	-0.061	0.014	0.024	0.015	0.787
r_4	Total capital/ total assets	**0.383**	0.023	-0.021	-0.079	0.037	-0.010	0.011	0.788
r_5	Tangible equity/ total assets	**0.410**	-0.02	0.009	-0.03	-0.002	0.045	-0.003	0.857
r_6	Common equity/ total assets	**0.406**	-0.016	0.002	-0.029	0.031	0.013	-0.002	0.849
	Asset quality								
r_7	Loan loss reserves/growth loans	0.015	-0.019	0.025	0.031	-0.016	0.033	**0.598**	0.694
r_8	Loan loss provision/growth loans	-0.038	0.037	-0.063	-0.055	0.116	-0.048	**0.459**	0.751
r_9	Impaired loans/growth loans	0.015	-0.017	0.018	0.017	-0.027	-0.036	**0.558**	0.714
	Managerial quality								
r_{10}	Cost to income ratio	-0.022	-0.052	0.032	0.079	0.211	**-0.578**	-0.119	0.689
r_{11}	Net interest margins (NIM)	0.044	-0.156	0.022	-0.083	**0.402**	0.174	0.048	0.711
r_{12}	Overheads cost/total assets	-0.001	-0.055	0.046	0.020	**0.565**	-0.162	-0.003	0.633
r_{13}	Net fees and commissions/total assets	-0.034	0.164	-0.030	0.063	**0.496**	0.088	0.029	0.547
r_{14}	Net efficiency	-0.009	**0.485**	-0.008	-0.028	-0.001	0.025	0.036	0.613
r_{15}	Net efficiency with risk factor	0.049	**0.464**	-0.008	0.001	-0.002	0.001	-0.079	0.612
r_{16}	Growth efficiency	-0.041	**0.487**	0.024	0.003	0.007	-0.003	0.059	0.612
r_{17}	Growth efficiency with risk factor	0.021	**0.469**	0.010	0.026	0.001	-0.016	-0.062	0.618
	Earnings and profitability								
r_{18}	Return on average assets (ROAAP)	0.053	-0.016	-0.008	0.06	0.085	**0.521**	-0.107	0.723
r_{19}	Return on average equity (ROAE)	-0.079	-0.045	0.039	0.067	0.106	**0.529**	-0.079	0.738
r_{20}	Log (Bank Z-score)	0.065	0.003	**0.517**	-0.002	-0.001	-0.062	0.016	0.722
r_{21}	Adjusted ROAAP	-0.013	0.040	**0.449**	-0.016	0.054	0.078	0.100	0.688
r_{22}	Adjusted ROAE	-0.038	0.056	**0.407**	-0.025	0.067	0.107	0.104	0.843
r_{23}	Volatility of ROAAP	0.075	0.040	**-0.411**	-0.008	0.056	0.105	0.137	0.727
r_{24}	Volatility of ROAEP	-0.045	0.056	**-0.395**	-0.014	0.014	0.001	0.116	0.727
r_{25}	Volatility of NIM	0.092	-0.083	-0.141	0.047	0.201	-0.009	-0.055	0.844
	Liquidity								
r_{26}	Liquid assets/total assets	-0.01	-0.034	0.004	**0.577**	-0.005	0.039	0.022	0.675
r_{27}	Liquid assets/ short-term funds	0.037	0.061	-0.047	**0.510**	-0.027	-0.03	-0.037	0.711
r_{28}	Liquid assets/total deposits	-0.025	0.027	0.009	**0.454**	0.221	-0.025	0.0045	0.690
r_{29}	Net loans/total assets	0.027	0.086	-0.052	**-0.356**	0.296	-0.031	-0.103	0.572
	Overall Kaiser–Meyer–Olkin test								**0.713**

Notes: This table reports the outcome of the principal component analysis of 29 CAMEL indicators of bank financial soundness. Columns [3] to [7] show the component loadings of each of our seven components retained from the PCA. The numbers in bold have a magnitude above 0.3, suggesting that these ratios are relevant in capturing bank financial soundness.

Table 7
The impact of countries' political systems on the financial soundness of Islamic banks

	C1 – Capitalization		C2 – Efficiency		C3 – Volatility		C4 – Liquidity		C5 – Charges		C6 – Profitability		C7 – Credit risk	
Model #	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
Panel A. Comparing the financial soundness of conventional and Islamic banks: a baseline model														
Islamic	0.892*	0.484	0.808***	0.486***	-0.48**	-0.36	-0.164	-0.161	-0.172	-0.118	0.535**	0.513**	-0.517**	-0.391*
	(0.542)	(0.522)	(0.227)	(0.188)	(0.242)	(0.255)	(0.298)	(0.321)	(0.246)	(0.254)	(0.242)	(0.246)	(0.208)	(0.228)
Size	-0.83***	-1.04***	0.632***	0.450***	0.131**	0.172***	-0.19***	-0.19***	-0.55***	-0.53***	0.133**	0.121**	-0.36***	-0.266***
	(0.099)	(0.120)	(0.049)	(0.0557)	(0.0523	(0.0552)	(0.052)	(0.0644)	(0.069)	(0.0855)	(0.0552)	(0.0573)	(0.0611)	(0.0653)
Loan growth	-0.001	-0.001	0.003*	0.003*	0.005*	0.005*	-0.01***	-0.01***	-0.001	-0.001	0.009***	0.009***	-0.01***	-0.012***
	(0.002)	(0.002)	(0.003)	(0.002)	(0.003)	(0.003)	(0.002)	(0.002)	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)
Income diversity	-0.209	-0.372	3.103***	2.847***	-0.915**	-0.694*	1.398***	1.281***	0.122	0.189	0.124	-0.01	0.615	0.496*
	(0.346)	(0.364)	(0.275)	(0.281)	(0.418)	(0.415)	(0.404)	(0.421)	(0.279)	(0.318)	(0.531)	(0.579)	(0.417)	(0.301)
Inflation		0.001		0.014		-0.04**		0.006		-0.007		0.007		0.021
		(0.012)		(0.013)		(0.016)		(0.009)		(0.008)		(0.012)		(0.017)
GDP growth		0.003		0.018**		0.048***		0.024***		-0.005		0.011		-0.059***
		(0.001)		(0.009)		(0.016)		(0.009)		(0.006)		(0.009)		(0.012)
LnGDP per capita		0.642***		0.528***		0.183**		0.02		-0.093		0.057		-0.188**
		(0.140)		(0.066)		(0.079)		(0.094)		(0.096)		(0.089)		(0.081)
Intercept	13.26***	10.79***	-10.7***	-12.7***	-1.154	-0.202	2.368***	2.114**	8.821***	9.303***	-2.67***	-3.02***	5.744***	6.142***
	(1.631)	(1.537)	(0.790)	(0.733)	(0.859)	(0.920)	(0.865)	(0.904)	(1.106)	(1.005)	(0.888)	(1.001)	(1.020)	(1.003)
Obs.	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Random effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R2	0.231	0.267	0.565	0.643	0.095	0.131	0.179	0.162	0.178	0.196	0.109	0.128	0.186	0.216
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
Panel B. Baseline results after controlling for the effect of political systems														
Panel B.1. A democratic political system														
Islamic	1.139*	0.84	1.111***	0.838***	-0.98***	-0.825**	0.37	0.411	-0.046	-0.00360	0.122	0.192	-0.532*	-0.404
	(0.604)	(0.633)	(0.263)	(0.241)	(0.314)	(0.331)	(0.358)	(0.368)	(0.331)	(0.332)	(0.344)	(0.333)	(0.285)	(0.280)
Democratic (β_1)	-0.14***	-0.11***	-0.005	0.047**	-0.058**	-0.073**	0.014	0.017	0.053*	0.0522*	-0.11***	-0.11***	-0.033	-0.061*
	(0.0274)	(0.029)	(0.020)	(0.020)	(0.025)	(0.029)	(0.028)	(0.033)	(0.029)	(0.0307)	(0.029)	(0.0330)	(0.028)	(0.032)
Democratic	-0.29***	-0.24***	-0.131**	-0.092**	0.135**	0.119*	-0.2***	-0.2***	0.017	0.013	0.027	0.018	-0.043	-0.065
× Islamic (β_2)	(0.0923)	(0.093)	(0.053)	(0.047)	(0.063)	(0.069)	(0.049)	(0.049)	(0.053)	(0.049)	(0.052)	(0.052)	(0.055)	(0.054)
Obs.	1137	1136	1137	1136	1137	1136	1137	1136	1137	1136	1137	1136	1137	1136
Bank-control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro-control	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R2	0.282	0.289	0.572	0.654	0.11	0.152	0.187	0.171	0.227	0.236	0.205	0.217	0.182	0.221
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
Test p-value (β_1) = (β_2)	1.93	1.7	3.83*	6.01**	6.28**	5.45**	9.22***	9.74***	0.23	0.31	3.47*	3.17*	0.02	0.01
Panel B.2. A democratic political system – II														
Islamic	-0.027	-0.089	0.539**	0.489***	-0.441*	-0.354	-0.323	-0.293	0.017	0.03	0.148	0.182	-0.72***	-0.71***
	(0.432)	(0.423)	(0.214)	(0.181)	(0.249)	(0.269)	(0.290)	(0.304)	(0.200)	(0.205)	(0.238)	(0.236)	(0.228)	(0.245)
Polity2 (β_1)	-0.08***	-0.06***	-0.01	0.026**	-0.03**	-0.042***	0.014	0.017	0.028**	0.027*	-0.06***	-0.07***	-0.015	-0.034**
	(0.014)	(0.015)	(0.010)	(0.011)	(0.013)	(0.015)	(0.015)	(0.018)	(0.014)	(0.015)	(0.014)	(0.017)	(0.015)	(0.017)
Polity2	-0.11***	-0.092**	-0.063**	-0.041*	0.068**	0.064*	-0.08***	-0.079***	0.002	0.000	0.009	0.002	-0.024	-0.042
× Islamic (β_2)	(0.037)	(0.036)	(0.027)	(0.023)	(0.030)	(0.034)	(0.024)	(0.026)	(0.028)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Obs.	1138	1137	1138	1137	1138	1137	1138	1137	1138	1137	1138	1137	1138	1137
Bank-control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro-control	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R2	0.294	0.295	0.577	0.652	0.107	0.15	0.195	0.182	0.222	0.226	0.218	0.238	0.179	0.216
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00**	0.00***	0.00**	0.00***	0.00***	0.00***
Test p-value (β_1) = (β_2)	0.37	0.44	2.58	5.45**	6.9***	6.95***	7.19***	6.9***	0.5	0.59	4.00***	3.9**	0.06	0.05
Panel B.3. Sound political institutions – I														
Islamic	-0.027	-0.089	0.539**	0.489***	-0.441*	-0.354	-0.323	-0.293	0.017	0.03	0.148	0.182	-0.72***	-0.71***
	(0.432)	(0.423)	(0.214)	(0.181)	(0.249)	(0.269)	(0.290)	(0.304)	(0.200)	(0.205)	(0.238)	(0.236)	(0.228)	(0.245)
Polcon (β_1)	-0.08***	-0.06***	-0.01	0.026**	-0.03**	-0.042***	0.014	0.017	0.028**	0.027*	-0.06***	-0.07***	-0.015	-0.034**

	(0.014)	(0.0154)	(0.010)	(0.0110)	(0.013)	(0.015)	(0.015)	(0.018)	(0.014)	(0.015)	(0.014)	(0.017)	(0.015)	(0.017)
Polcon	-0.11***	-0.092**	-0.063**	-0.041*	0.068**	0.064*	-0.08***	-0.079***	0.002	0.000	0.009	0.002	-0.024	-0.042
× Islamic (β_2)	(0.037)	(0.036)	(0.027)	(0.023)	(0.030)	(0.034)	(0.024)	(0.026)	(0.028)	(0.027)	(0.027)	(0.027)	(0.027)	(0.027)
Obs.	1138	1137	1138	1137	1138	1137	1138	1137	1138	1137	1138	1137	1138	1137
Bank-control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro-control	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R2	0.245	0.269	0.565	0.654	0.102	0.142	0.174	0.154	0.3	0.226	0.104	0.121	0.175	0.218
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
Test p-value (β_1) = (β_2)	0.65	0.69	1.63	3.41*	3.45*	3.44*	0.12	0.19	11.26***	12.45***	1.13	1.15	6.99***	5.36**
Panel B.4. Sound political institutions – II														
Islamic	1.397	1.024	1.633***	1.258***	-0.855**	-0.639	0.852*	0.885*	-0.985***	-0.92***	0.125	0.223	-0.139	-0.052
	(0.987)	(0.902)	(0.322)	(0.299)	(0.398)	(0.422)	(0.435)	(0.452)	(0.305)	(0.315)	(0.439)	(0.433)	(0.349)	(0.358)
Checks (β_1)	-0.193**	-0.096	-0.103	0.048	-0.101	-0.185**	0.051	0.064	-0.032	-0.044	-0.28***	-0.31***	0.053	0.01
	(0.075)	(0.081)	(0.069)	(0.068)	(0.0755)	(0.085)	(0.073)	(0.082)	(0.065)	(0.067)	(0.101)	(0.117)	(0.088)	(0.098)
Checks	-0.451	-0.39	-0.61***	-0.49***	0.192	0.111	-0.64***	-0.658***	0.517***	0.507***	0.1	0.069	-0.22	-0.218
× Islamic (β_2)	(0.504)	(0.414)	(0.149)	(0.104)	(0.168)	(0.178)	(0.146)	(0.144)	(0.089)	(0.088)	(0.179)	(0.183)	(0.161)	(0.168)
Obs.	1153	1152	1153	1152	1153	1152	1153	1152	1153	1152	1153	1152	1153	1152
Bank-control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro-control	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R2	0.253	0.274	0.573	0.646	0.1	0.147	0.198	0.182	0.177	0.195	0.182	0.198	0.183	0.215
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00**	0.00***	0.00**	0.00***	0.00***	0.00***
Test p-value (β_1) = (β_2)	0.25	0.47	7.03***	12.79***	1.95	1.86	13.31	14.63***	14.69***	15.1***	2.64	2.32	1.57	1.03
Panel B.5. Different legal systems														
Western	-1.162**	-1.002**	0.054	0.19	-0.033	-0.006	-1.63***	-1.664***	0.926***	0.928***	0.069	0.069	-0.83***	-0.86***
× Islamic (β_1)	(0.500)	(0.424)	(0.298)	(0.254)	(0.369)	(0.408)	(0.184)	(0.240)	(0.205)	(0.202)	(0.278)	(0.286)	(0.322)	(0.323)
Hybrid	1.715**	0.921	1.084***	0.628**	-0.34	-0.174	0.165	0.481	-0.859***	-0.87***	0.309	0.364	-0.413	-0.185
× Islamic (β_2)	(0.682)	(0.733)	(0.317)	(0.272)	(0.294)	(0.319)	(0.320)	(0.365)	(0.181)	(0.216)	(0.260)	(0.274)	(0.267)	(0.301)
Sharia'a	2.267***	1.905***	1.62***	1.352***	-1.49***	-1.644***	0.762***	0.778***	1.308***	1.306***	2.699***	2.668***	-0.27***	-0.048
× Islamic (β_3)	(0.479)	(0.640)	(0.091)	(0.117)	(0.186)	(0.133)	(0.229)	(0.243)	(0.145)	(0.150)	(0.732)	(0.721)	(0.090)	(0.116)
Observations	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155
Bank-control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro-control	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year dummy	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Test p-value (β_1) = (β_3)	25.98***	15.11***	28.74***	19.61***	13.48***	15.23***	85.64	62.21***	3.45*	3.36*	11.63***	11.55***	3.26*	6.13**
Overall R2	0.234	0.245	0.459	0.549	0.028	0.077	0.125	0.103	0.19	0.191	0.067	0.088	0.162	0.181
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***

Notes: Standard errors are clustered at the bank level and are reported in parentheses below their coefficient estimates. In Panel B, we only report the coefficient estimates of Islamic, the political and legal system proxies, and their interactions with Islamic 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
The impact of bank age and periods of different economic cycles on the financial soundness of Islamic banks

	C1 – Capitalization		C2 – Efficiency		C3 – Volatility		C4 – Liquidity		C5 – Charges		C6 – Profitability		C7 – Credit risk	
Model #	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
Panel A. Comparing the financial soundness of conventional and Islamic banks: controlling for the GCC countries and major protests														
Islamic	-0.253	-0.151	0.243	0.362	-0.092	-0.008	-0.656	-0.595	0.214	0.221	0.625*	0.578*	-0.747***	-0.9***
	(0.940)	(0.940)	(0.347)	(0.322)	(0.318)	(0.348)	(0.545)	(0.562)	(0.366)	(0.368)	(0.333)	(0.342)	(0.269)	(0.290)
GCC (β_1)	1.79***	1.139***	0.645***	-0.218	0.151	0.371	-0.63***	-0.91***	-0.6***	-0.579**	1.249***	1.604***	-0.043	0.563**
	(0.256)	(0.341)	(0.159)	(0.210)	(0.223)	(0.282)	(0.239)	(0.313)	(0.183)	(0.261)	(0.176)	(0.240)	(0.147)	(0.219)
GCC × Islamic (β_2)	0.872	0.707	0.555	0.384	-0.722	-0.802	1.122*	1.073*	-0.198	-0.219	-0.896*	-0.778*	0.526	0.748**
	(1.037)	(1.047)	(0.405)	(0.379)	(0.468)	(0.505)	(0.614)	(0.634)	(0.451)	(0.456)	(0.461)	(0.456)	(0.359)	(0.366)
Major protests (β_3)	-0.015	-0.013	-0.234*	-0.213	0.282	0.357	-0.159	-0.142	0.027	0.024	0.171	0.157	0.518**	0.435**
	(0.217)	(0.211)	(0.133)	(0.131)	(0.380)	(0.382)	(0.168)	(0.166)	(0.081)	(0.080)	(0.139)	(0.137)	(0.217)	(0.194)
Major protests × Islamic	-0.854	-0.871	-0.138	-0.151	-0.274	-0.106	0.715	0.674	-0.168	-0.13	-0.665*	-0.723*	-0.773	-0.907
(β_4)	(0.602)	(0.619)	(0.181)	(0.185)	(0.859)	(0.745)	(0.592)	(0.643)	(0.295)	(0.296)	(0.385)	(0.378)	(0.523)	(0.642)
Intercept	14.09***	12.17***	-10.17***	-12.8***	-1.219	0.068	2.147**	1.255	8.492***	8.628***	-2.017**	-1.166	5.575***	6.772***
	(1.631)	(1.558)	(0.823)	(0.817)	(0.875)	(1.055)	(0.873)	(1.016)	(1.116)	(1.039)	(0.856)	(1.088)	(1.017)	(1.074)
Obs.	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155
Bank and country control	Yes	Yes	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	Yes	Yes
Random effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R2	0.302	0.297	0.592	0.643	0.098	0.139	0.217	0.225	0.214	0.213	0.214	0.25	0.20	0.225
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
Test p-value (β_1) = (β_2)	0.66	0.14	0.03	1.58	2.15	3.38*	5.63**	6.45**	0.54	0.41	15.19***	18.33***	1.7	0.16
Test p-value (β_3) = (β_4)	1.42	1.44	0.11	0.04	0.27	0.22	1.79	1.37	0.37	0.23	3.47*	3.92**	4.15**	3.44*
Panel B. Comparing Islamic and conventional banks of different ages														
Young × Islamic	1.689	1.178	0.785	0.370	-1.07***	-0.843*	1.290	1.291	-0.445	-0.372	0.205	0.166	-1.05***	-0.939**
	(1.372)	(1.500)	(0.550)	(0.586)	(0.277)	(0.432)	(0.886)	(0.929)	(0.439)	(0.438)	(0.540)	(0.557)	(0.405)	(0.466)
Middle-aged × Islamic	-0.307	-0.091	0.0981	0.299	-0.485	-0.441*	-0.753**	-0.684*	-0.123	-0.164	-0.150	-0.093	-0.759**	-0.895**
	(1.196)	(0.916)	(0.592)	(0.372)	(0.306)	(0.235)	(0.365)	(0.405)	(0.729)	(0.737)	(0.347)	(0.340)	(0.374)	(0.430)
Mature × Islamic	0.978	0.402	1.024***	0.574***	-0.330	-0.242	-0.458**	-0.488*	-0.068	0.006	0.868***	0.815***	-0.293	-0.076
	(0.596)	(0.539)	(0.237)	(0.178)	(0.336)	(0.351)	(0.228)	(0.256)	(0.275)	(0.283)	(0.280)	(0.291)	(0.243)	(0.254)
Intercept	13.35***	10.82***	-10.49***	-12.5***	-1.030	-0.086	2.145**	1.852**	8.669***	9.147***	-2.93***	-3.34***	5.950***	6.387***
	(1.709)	(1.593)	(0.839)	(0.774)	(0.925)	(0.986)	(0.861)	(0.893)	(1.139)	(1.037)	(0.937)	(1.060)	(1.090)	(1.071)
Obs.	1119	1118	1119	1118	1119	1118	1119	1118	1119	1118	1119	1118	1119	1118
Bank-control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro-control	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Random effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R2	0.229	0.273	0.559	0.639	0.103	0.134	0.197	0.179	0.164	0.182	0.111	0.127	0.186	0.217
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
Panel C. Comparing Islamic and conventional banks in different periods of the economic cycle														
Before × Islamic	2.403**	2.034**	2.389***	2.198***	-1.24***	-1.29**	0.442	0.532	1.073	1.066	2.795***	2.823***	-0.477	-0.371
	(1.046)	(0.958)	(0.306)	(0.201)	(0.440)	(0.574)	(0.717)	(0.659)	(0.865)	(0.861)	(0.856)	(0.850)	(0.439)	(0.468)
During × Islamic	1.073*	0.562	0.432	0.195	-0.91***	-0.62**	-0.492	-0.188	0.002	-0.007	0.872***	0.957***	-0.66***	-0.63***
	(0.573)	(0.560)	(0.265)	(0.220)	(0.233)	(0.258)	(0.345)	(0.389)	(0.284)	(0.299)	(0.240)	(0.239)	(0.199)	(0.213)
After × Islamic	0.846	0.295	0.928***	0.609***	-0.056	-0.032	-0.216	-0.099	-0.340	-0.352	0.122	0.112	-0.454*	-0.242
	(0.548)	(0.545)	(0.244)	(0.204)	(0.303)	(0.307)	(0.288)	(0.333)	(0.216)	(0.232)	(0.231)	(0.239)	(0.246)	(0.273)
Intercept	8.514***	6.885***	-10.5***	-11.3***	-2.71***	-2.05**	5.904***	6.939***	7.752***	7.699***	-1.731**	-1.775**	6.547***	7.534***
	(1.574)	(1.487)	(0.767)	(0.756)	(0.958)	(1.041)	(1.000)	(1.111)	(1.059)	(0.989)	(0.855)	(0.900)	(1.100)	(1.118)
Obs.	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155
Bank-control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro-control	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year dummy	No	No	No	No	No	No	No	No	No	No	No	No	No	No

Random effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R2	0.212	0.228	0.461	0.554	0.028	0.076	0.110	0.089	0.174	0.170	0.076	0.105	0.159	0.178
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***

(Continued)

Notes: We only report the coefficient estimates of interaction terms between Islamic and different proxies of bank age and periods of economic cycles 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 9
The impact of market discipline, dispersion of ownership and countries' ratings on the financial soundness of conventional and Islamic banks

	C1 – Capitalization		C2 – Efficiency		C3 – Volatility		C4 – Liquidity		C5 – Charges		C6 – Profitability		C7 – Credit risk	
Model #	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]
Panel A. Comparing Islamic and conventional banks under two market conditions (listed and unlisted)														
Listed	1.277**	0.553	1.189***	0.751***	-0.624**	-0.547	-0.050	0.189	-0.176	-0.178	0.789**	0.859**	-0.243	-0.0236
× Islamic (β_1)	(0.535)	(0.504)	(0.268)	(0.226)	(0.312)	(0.333)	(0.301)	(0.328)	(0.325)	(0.341)	(0.326)	(0.334)	(0.248)	(0.251)
Unlisted	0.525	0.426	0.305	0.350	-0.089	0.071	-0.617	-0.484	-0.146	-0.150	-0.152	-0.106	-0.886***	-0.880***
× Islamic (β_2)	(1.050)	(1.020)	(0.414)	(0.349)	(0.289)	(0.321)	(0.521)	(0.604)	(0.345)	(0.349)	(0.334)	(0.337)	(0.282)	(0.314)
Intercept	8.281***	6.694***	-10.00***	-10.69***	-3.207***	-2.487**	6.273***	7.481***	8.326***	8.268***	-1.294	-1.176	6.581***	7.518***
	(1.535)	(1.470)	(0.807)	(0.804)	(1.012)	(1.111)	(1.084)	(1.196)	(1.105)	(1.032)	(0.905)	(0.965)	(1.151)	(1.181)
Obs.	1102	1101	1102	1101	1102	1101	1102	1101	1102	1101	1102	1101	1102	1101
Macro-control	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year dummy	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Random effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R2	0.189	0.206	0.434	0.522	0.029	0.071	0.113	0.088	0.14	0.141	0.04	0.058	0.153	0.17
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
Test p-value (β_1) = (β_2)	0.42	0.01	3.37*	1.03	1.72	1.94	0.94	1.04	0.01	0.01	4.41**	4.58**	3.31*	4.94**
Panel B. Comparing Islamic and conventional banks in countries with lower risk profile														
Islamic	0.812	0.172	0.773***	0.537***	-0.618**	-0.601**	-0.118	0.270	-0.155	-0.192	0.125	0.004	-0.439*	-0.257
	(0.621)	(0.613)	(0.222)	(0.206)	(0.264)	(0.289)	(0.317)	(0.378)	(0.262)	(0.272)	(0.275)	(0.284)	(0.237)	(0.267)
Rating A (β_1)	-0.0758	-1.472***	1.018***	0.418	-1.104***	-1.197***	1.195***	1.952***	-0.482	-0.558*	-1.510***	-1.812***	0.185	0.584*
	(0.318)	(0.365)	(0.253)	(0.270)	(0.302)	(0.333)	(0.345)	(0.384)	(0.322)	(0.308)	(0.295)	(0.297)	(0.289)	(0.315)
Rating A	1.287*	0.922	1.116**	0.919**	1.446**	1.085	-0.708	-0.838	-0.272	-0.275	2.140***	1.953***	-0.505	-0.181
× Islamic (β_2)	(0.735)	(0.719)	(0.438)	(0.422)	(0.630)	(0.669)	(0.631)	(0.686)	(0.455)	(0.469)	(0.583)	(0.601)	(0.384)	(0.391)
Intercept	8.830***	6.106***	-9.602***	-10.57***	-3.747***	-3.646***	6.713***	8.793***	8.097***	7.949***	-2.550***	-3.410***	6.637***	8.059***
	(1.601)	(1.526)	(0.782)	(0.835)	(0.946)	(1.164)	(0.977)	(1.143)	(1.066)	(0.997)	(0.815)	(0.896)	(1.145)	(1.245)
Obs.	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155
Macro-control	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year dummy	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Random effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R2	0.216	0.263	0.492	0.55	0.051	0.086	0.149	0.138	0.09	0.17	0.139	0.19	0.16	0.176
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
Test p-value (β_1) = (β_2)	2.14	6.53**	0.02	0.67	9.66**	7.35***	4.76**	9.29***	0.18	0.68	21.77***	23.02***	1.21	1.55
Panel C. Comparing Islamic and conventional banks in countries with high risk profile														
Islamic	0.676	0.0956	0.797***	0.464**	-0.392	-0.335	-0.394	-0.250	-0.196	-0.182	0.415	0.433	-0.495**	-0.324
	(0.475)	(0.403)	(0.250)	(0.181)	(0.245)	(0.259)	(0.262)	(0.297)	(0.253)	(0.265)	(0.262)	(0.267)	(0.213)	(0.234)
Rating C (β_1)	-1.215	-1.116	-0.981**	-0.890***	0.139	0.834**	0.585	0.865	-1.889***	-1.869***	0.007	-0.016	1.279*	0.642
	(0.892)	(0.792)	(0.412)	(0.283)	(0.351)	(0.368)	(1.010)	(0.940)	(0.274)	(0.253)	(0.320)	(0.272)	(0.759)	(0.515)
Rating C	7.960***	9.150***	2.184***	3.391***	0.347	0.871**	2.615***	2.860***	1.834***	1.774***	1.413***	1.671***	-1.315*	-1.292**
×Islamic (β_2)	(0.952)	(0.812)	(0.454)	(0.306)	(0.382)	(0.424)	(0.986)	(0.947)	(0.290)	(0.310)	(0.296)	(0.295)	(0.774)	(0.513)
Intercept	8.740***	7.147***	-10.41***	-11.17***	-2.825***	-2.252**	5.774***	6.829***	8.362***	8.342***	-1.393	-1.409	6.420***	7.438***
	(1.537)	(1.431)	(0.770)	(0.756)	(0.969)	(1.044)	(1.003)	(1.105)	(1.040)	(0.968)	(0.858)	(0.908)	(1.110)	(1.128)
Obs.	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155
Macro-control	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
Year dummy	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Random effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R2	0.231	0.25	0.46	0.553	0.028	0.073	0.121	0.104	0.172	0.177	0.054	18.16***	0.166	0.179
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
Test p-value (β_1) = (β_2)	27.27***	45.5***	15.39***	73.02***	0.10	0.01	1.07	0.177	70.81***	66.86***	7.94***	0.081	2.99*	4.32**

Notes: We only report the coefficient estimates of Islamic and of the interaction between Islamic and market discipline, dispersion of ownership and countries' ratings 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
The financial soundness of Islamic banks: alternative estimation techniques

Matching method	Model #	C1 – Capitalization [1]	[2]	C2 – Efficiency [3]	[4]	C3 – Volatility [5]	[6]	C4 – Liquidity [7]	[8]	C5 – Charges [9]	[10]	C6 – Profitability [11]	[12]	C7 – Credit risk [13]	[14]
Panel A. Propensity score matching technique															
K-Nearest neighbors															
n = 2	Treated	0.899	0.899	0.809	0.809	-0.401	-0.401	-0.314	-0.314	0.149	0.149	0.397	0.397	-0.345	-0.349
	Controls	0.446	0.575	-0.013	0.106	0.101	-0.136	0.191	0.169	0.211	-0.005	0.03	-0.109	0.029	-0.029
	Difference	0.453	0.325	0.822***	0.703***	-0.5**	-0.265	-0.5**	-0.483**	-0.062	0.154	0.363*	0.506**	-0.378**	-0.319*
	T stat	1.32	0.91	3.69	3.09	-2.16	-1.11	-2.46	-2.3	-0.3	0.7	1.8	2.49	-2.3	-1.93
n = 5	Treated	0.899	0.899	0.809	0.809	-0.401	-0.401	-0.314	-0.314	0.149	0.149	0.397	0.397	-0.349	-0.349
	Controls	0.369	0.537	-0.154	0.216	0.069	-0.126	0.182	0.135	0.218	-0.058	-0.069	-0.209	-0.038	0.062
	Difference	0.531*	0.362	0.963***	0.593***	-0.47**	-0.275	-0.18***	-0.449**	-0.069	0.207	2.53**	0.606***	-0.312**	-0.41***
	T stat	1.75	1.13	4.98	2.91	-2.27	-1.26	-2.79	-2.3	-0.39	1.1	2.53	3.13	-2.36	-2.75
Kernel															
	Treated	0.831	0.899	0.798	0.809	-0.391	-0.401	-0.365	-0.314	0.139	0.149	0.373	0.397	-0.344	-0.349
	Controls	0.03	0.328	-0.089	0.228	0.027	-0.072	0.016	0.106	0.048	-0.094	-0.037	-0.082	0.044	-0.26
	Difference	0.8***	0.572**	0.888***	0.581***	-0.42**	-0.329*	-0.381**	-0.42**	0.092	0.243	0.41**	0.479***	-0.39***	-0.32***
	T stat	2.93	2.02	5.11	3.28	-2.17	-1.7	-2.47	-2.56	0.58	1.53	2.44	2.8	-3.43	-2.77
Radius															
	Treated	0.899	0.899	0.809	0.809	-0.401	-0.401	-0.314	-0.314	0.149	0.149	0.397	0.397	-0.349	-0.349
	Controls	-0.074	-0.076	-0.064	-0.067	0.061	0.063	-0.025	-0.28	-0.032	-0.031	-0.032	-0.033	-0.01	-0.017
	Difference	0.974***	0.976***	0.873***	0.877***	-0.46**	-0.46**	-0.289*	-0.286*	0.181	0.18	0.429***	0.431***	-0.34***	-0.33***
	T stat	3.54	3.54	5.22	5.24	-2.48	-2.49	-1.84	-1.82	1.19	1.19	2.61	2.62	-3.14	-3.08
Panel B. Difference in difference estimation technique															
	Baseline														
Diff-in-diff	Treated	0.797	0.797	0.849	0.849	-0.412	-0.412	-0.475	-0.475	0.207	0.207	0.531	0.531	-0.374	-0.374
(Kernel)	Controls	-0.071	0.083	-0.053	-0.133	-0.017	0.025	0.01	-0.027	0.027	0.122	-0.048	-0.003	0.008	-0.062
	Difference	0.867	0.714	0.902***	0.982***	-0.395	-0.437	-0.486**	-0.448*	0.18	0.085	0.579**	0.534**	-0.382	-0.312
	T stat	1.56	1.28	2.79	3.08	-1.3	-1.47	-2.01	-1.89	0.64	0.3	2.4	2.2	-1.85*	-1.55
	Follow-up														
	Treated	1.265	1.265	0.395	0.395	-0.279	-0.279	0.572	0.572	-0.745	-0.745	-0.473	-0.473	-0.257	-0.257
	Controls	0.219	-0.045	-1.256	-1.308	1.406	1.56	0.028	-0.067	-0.889	-0.772	0.043	0.114	0.252	1.355
	Difference	1.046	1.31	1.651**	1.704**	-1.68***	-1.838**	0.544	0.638	0.144	0.027	-0.516	-0.587	-0.509	-1.612
	T stat	0.86	1.21	2.13	2.08	-2.92	-2.5	0.65	0.75	0.51	0.08	-1.08	-1.22	-1.35	-2.87**
	Diff-in-diff	0.179	0.596	0.749	0.721	-1.299*	-1.401*	1.029	1.087	-0.036	-0.058	-1.095**	-1.121**	-0.126	-1.3**
Panel C. Other estimation techniques and methods of correcting standard errors															
Panel C.1. Truncated regressions															
Islamic		0.759	0.478	0.848***	0.486***	-0.456	-0.289	-0.423*	-0.467*	0.032	0.258	0.486**	0.473**	-0.374*	-0.340
		(0.557)	(0.514)	(0.172)	(0.148)	(0.279)	(0.299)	(0.255)	(0.265)	(0.250)	(0.235)	(0.220)	(0.215)	(0.196)	(0.208)
Obs.		1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155
Year dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wald Chi2		0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
Panel C.2. Random effect regressions with White standard errors															
Islamic		0.892*	0.484	0.808***	0.486***	-0.479**	-0.360	-0.164	-0.161	-0.172	-0.118	0.535**	0.513**	-0.517**	-0.391*
		(0.542)	(0.522)	(0.227)	(0.188)	(0.242)	(0.255)	(0.298)	(0.321)	(0.246)	(0.254)	(0.242)	(0.246)	(0.208)	(0.228)
Obs.		1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155	1156	1155
Year dummy		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Overall R2		0.231	0.267	0.565	0.643	0.095	0.131	0.18	0.162	0.178	0.196	0.109	0.128	0.186	0.216
Wald Chi2		0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***

Notes: We only report the coefficient estimates of the Islamic dummy 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 11
The financial soundness of Islamic banks: Addressing endogeneity

Panel A. IV approach															
Panel A.1. Religion, experience and GCC dummy as instruments															
	First stage	Second stage													
		C1 – Capitalization		C2 – Efficiency		C3 – Volatility		C4 – Liquidity		C5 – Charges		C6 – Profitability		C7 – Credit risk	
		2SLS	GMM	2SLS	GMM	2SLS	GMM	2SLS	GMM	2SLS	GMM	2SLS	GMM	2SLS	GMM
Model #	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
Islamic		8.107***	7.864***	2.231***	3.105***	-0.958	-1.308*	-3.42***	-4.486***	-3.25	-3.66	5.623***	6.476***	-0.062	-0.676**
		(0.991)	(0.951)	(0.489)	(0.529)	(0.671)	(0.673)	(0.656)	(0.682)	(2.609)	(2.626)	(0.838)	(0.885)	(0.534)	(0.289)
Religion	0.131***														
	(0.025)														
Experience	-0.07**														
	(0.031)														
GCC dummy	0.001***														
	(0.000)														
Obs.	1119	1119	1119	1119	1119	1119	1119	1119	1119	1119	1119	1119	1119	1119	1119
Bank-control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro-control	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
F-test	32.06***														
Panel A.2. Religion, experience and countries' fuel exports as instruments															
Islamic		7.416***	7.437***	1.356**	2.395***	-1.141	-1.323*	-3.505***	-4.853***	-1.831	-2.52	5.594***	7.246***	-0.878	-1.866***
		(1.161)	(1.089)	(0.576)	(0.610)	(0.768)	(0.775)	(0.783)	(0.804)	(1.647)	(1.663)	(0.972)	(1.073)	(0.628)	(0.610)
Religion	0.001***														
	(0.000)														
Experience	-0.087***														
	(0.031)														
Fuel export	0.001***														
	(0.000)														
Obs.	1029	1029	1029	1029	1029	1029	1029	1029	1029	1029	1029	1029	1029	1029	1029
Bank-control	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Macro-control	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Wald Chi2	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***	0.00***
F-test	28.88***														
Panel B. Heckman estimation technique															
	Selection equation	Outcome equation													
		C1 – Capitalization		C2 – Efficiency		C3 – Volatility		C4 – Liquidity		C5 – Charges		C6 – Profitability		C7 – Credit risk	
Model #	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]
Panel B.1. Clustering standard errors at the bank level															
Islamic		0.22	0.107	0.886***	0.712***	-0.423	-0.307	-0.079	-0.14	0.298	0.422	0.011	0.117	-0.439**	-0.448**
		(0.547)	(0.511)	(0.185)	(0.149)	(0.296)	(0.312)	(0.280)	(0.279)	(0.239)	(0.321)	(0.223)	(0.218)	(0.218)	(0.214)
Religion	0.016***														
	(0.003)														
Experience	-0.534***														
	(0.152)														
GCC dummy	0.71***														
	(0.123)														
Size	-0.827**	-0.57***	-0.69***	0.653***	0.438***	0.099**	0.157***	-0.192***	-0.252***	-0.352***	-0.22***	0.110**	0.134***	-0.246***	-0.199***
	(0.349)	(0.090)	(0.105)	(0.046)	(0.049)	(0.049)	(0.052)	(0.048)	(0.061)	(0.051)	(0.064)	(0.054)	(0.047)	(0.049)	(0.052)
Loan growth	0.004	0.005	0.006	0.003	0.004**	0.004	0.003	-0.006*	-0.005*	0.007**	0.004	0.012***	0.01***	-0.017***	-0.016***
	(0.016)	(0.004)	(0.004)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.002)
Income diversity	-0.398	0.863	0.659	3.198***	2.615***	-0.992**	-0.636	2.392***	2.25***	-0.235	-0.103	-0.246	-0.314	0.754	0.497
	(1.089)	(0.546)	(0.525)	(0.395)	(0.370)	(0.468)	(0.468)	(0.520)	(0.534)	(0.571)	(0.594)	(0.441)	(0.489)	(0.527)	(0.459)
Inflation			-0.002		0.032*		-0.051**		0.004		0.066***		0.013		0.032
			(0.028)		(0.016)		(0.020)		(0.017)		(0.019)		(0.019)		(0.020)

GDP growth			0.007		0.013		0.077***		-0.006		0.002		0.07***		-0.086***	
			(0.023)		(0.013)		(0.017)		(0.013)		(0.013)		(0.015)		(0.014)	
LnGDP per capita			0.328***		0.63***		0.213**		0.167*		-0.26***		-0.013		-0.087	
			(0.113)		(0.061)		(0.082)		(0.088)		(0.086)		(0.076)		(0.084)	
Intercept	22.91***	9.533***	7.258***	-9.44***	-13.3***	-1.032	-0.004	2.818***	1.373	3.619***	5.131***		-1.549		6.503***	
	(7.017)	(1.360)	(1.471)	(0.755)	(0.704)	(1.082)	(2.005)	(0.866)	(1.028)	(0.753)	(1.038)		(1.226)		(1.343)	
Inverse Mills		Sig.	Sig.	Insig.	Sig.	Insig.	Insig.	Sig.	Sig.	Insig.	Insig.	Sig.	Sig.	Insig.	Insig.	
Obs.	1174	1119	1118	1119	1118	1119	1118	1119	1118	1119	1118	1119	1118	1119	1118	
Year dummy	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Pseudo R2/R2	0.151	0.295	0.317	0.56	0.65	0.11	0.143	0.254	0.262	0.212	0.282	0.225	0.246	0.203	0.247	
F-test		10.41***	10.32***	38.62***	61.31***	6.79***	7.74***	10.74***	9.61***	6.68***	7.3***	11.08***	12.01***	6.91***	8.31***	

(Continued)

Notes: In Panels A.1 and A.2 we only report the coefficient estimates of the Islamic dummy 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
Political systems and the financial soundness of Islamic banks: A comparison of the current findings (shown in the final column) with the methodologies and the results of existing studies

Authors (year)	Period under study	Countries	Main indicators	Methodology	Main empirical findings	PCA and GLS results
Capital ratios vs. capital component						
Beck et al. (2013)	1995–2009	22 countries	Equity to assets	Panel data fixed effect	Small Islamic banks are more capitalized than conventional banks	Islamic banks are marginally more capitalized than conventional banks
Abedifar et al. (2013)	1999–2009	24 OIC countries	Capital to assets	Panel data random effect	No significant difference between the two bank types	
Alqahtani et al. (2016)	1998–2013	6 GCC countries	Capital adequacy and equity to assets	Panel data fixed effect	Islamic banks are more capitalized than conventional banks for the 2007–2009 period	Capital component shows no significant difference between the two bank types in the GCC region. Young Islamic banks are more capitalized than conventional banks in the period before the 2007–2009 crisis. Publicly listed Islamic banks are more capitalized than publicly listed conventional banks. **Islamic banks are more capitalized than conventional banks in *Sharia'a*-based legal systems, but less capitalized than their conventional counterparts in Western based legal systems and more democratic countries**
Efficiency measures vs. efficiency component						
Johnes et al. (2014)	2004–2009	19 Muslim countries	Efficiency scores	Panel data random effect	Islamic banks are more efficient than conventional banks only when compared to their own efficiency frontier	Efficiency component shows that Islamic banks are more efficient than conventional banks
Beck et al. (2013)	1995–2009	22 countries	Cost to income and overheads to assets	Panel data fixed effect	Large Islamic banks are significantly less cost efficient than conventional banks	
Alqahtani et al. (2016)	1998–2013	6 GCC countries	Cost to income	Panel data fixed effect	Islamic banks are less cost efficient than conventional banks for the 2009–2013 period.	Efficiency component shows no significant difference between the bank types in the GCC region. Mature Islamic banks are more efficient than conventional banks for the period before and after the financial crisis. Publicly listed Islamic banks are more efficient than publicly listed conventional banks
Wanke et al. (2016)	2009–2013	Malaysia	Efficiency scores computed using a dynamic slacks based model	Monte Carlo Markov Chain and generalized linear mixed models	Islamic banks are less efficient than conventional banks	**Being an Islamic (as opposed to a conventional) bank has an overall positive effect on efficiency, but this effect is reduced in Western-based legal systems and more democratic countries compared to in *Sharia'a*-based legal systems**
Stability measures vs. stability (volatility) component						
Abedifar et al. (2013)	1999–2009	24 OIC countries	Z-score and adjusted ROA	Panel data random effect	No significant difference between the bank types when using Z-score and adjusted ROA. Small Islamic banks are more stable than conventional banks.	Islamic banks are less stable (have more volatile earnings) than conventional counterparts
Beck et al. (2013)	1995–2009	22 countries	Z-score	Panel data fixed effect	No significant difference between the bank types when using Z-score.	
Mollah et al. (2016)	2005–2013	14 countries	Z-score	GLS random effect	Overall, no significant difference between the bank types, but Islamic banks are less stable than conventional banks in the GCC region	Stability (volatility) component shows no significant difference between the bank types in the GCC region. The main effect of lower stability for Islamic banks is driven by small Islamic banks in the periods before and after the financial crisis.
Boumedienne and Caby (2013)	2005–2009	9 countries	Stock returns	GARCH methods	Islamic banks are more stable than conventional banks	

Authors (year)	Period under study	Countries	Main indicators	Methodology	Main empirical findings	PCA and GLS results
Pappas et al. (2012)	1995–2010	20 Middle and Far Eastern countries	Financial ratios	Cox survival analysis	Islamic banks have significantly lower failure risk than conventional counterparts	
Bourkhis and Nabi (2013)	1998–2009	16 countries	Z-score	GLS random effect	Islamic banks are marginally more stable than conventional banks	
Abedifar et al. (2013)	1999–2009	24 OIC countries	Z-score and adjusted ROA	Panel data random effect	No significant difference between Islamic and conventional banks' stability in Muslim countries	Being an Islamic (as opposed to a conventional) bank has an overall positive effect on stability (i.e. it reduces earnings volatility), but this effect is reduced in *Sharia'a* based legal systems compared to Western and more democratic countries.
Mollah et al. (2016)	2005–2013	14 countries	Z-score	GLS random effect	Islamic banks are less stable in Muslim countries than conventional banks	
Liquidity ratios vs. liquidity component						
Alqahtani et al. (2016)	1998–2013	6 GCC countries	Liquid assets to assets and liquid assets to deposits and short term funding	Panel data fixed effect	Islamic banks are significantly more liquid than conventional banks for the 2008–2012 period but only when using the liquid assets to deposits and short term funding ratios	Liquidity component shows no significant difference between bank types. Islamic banks are marginally more liquid than conventional banks in the GCC countries. Middle-aged and mature Islamic banks are less liquid than conventional banks, while no significant difference is found between small Islamic banks and conventional banks
Beck et al. (2013)	1995–2009	22 countries	Liquid assets to deposits and short term funding	Panel data fixed effect	Small Islamic banks are more liquid in periods of local financial crises	**In comparison to conventional banks, Islamic banks are more liquid in *Sharia'a*-based legal systems, but less liquid in Western-based legal systems and more democratic countries**
Charges measures vs. Charges component						
Alqahtani et al. (2016)	1998–2013	6 GCC countries	Fees and commissions to gross income	Panel data fixed effect	Islamic banks rely less on intermediate activities that generate fees and commissions	
Beck et al. (2013)	1995–2009	22 countries	Fee income to operating income	Panel data fixed effect	No significant difference between the two bank types	
Abedifar et al. (2013)	1999–2009	24 OIC countries	Net interest margin	Panel data random effect	Islamic banks do not charge higher rates for offering *Sharia'a* compliant products	Charges component shows no significant difference between the bank types **In comparison to conventional banks, Islamic banks charge less rent for offering *Sharia'a* compliant financial products in a hybrid legal system, but more rent in Western and *Sharia'a*-based legal systems**
Profitability ratios vs. Profitability component						
Alqahtani et al. (2016)	1998–2013	6 GCC countries	Return on assets, return on equity	Panel data fixed effect	Islamic banks are more profitable than conventional banks for the 2007–2008 period. The results become negative and insignificant for the 2009–2012 period.	
Beck et al. (2013)	1995–2009	22 countries	Return on assets and stock returns	Panel data fixed effect	No significant difference in terms of profitability between bank types. Islamic banks have higher stock returns during the financial crisis	
Mollah and Zaman (2015)	2005–2011	25 countries	Operating profits to average equity, operating profits to average assets, return on assets, return on equity, Tobins' Q	GLS random effect	No significant difference between bank types	
Mollah et al. (2016)	2005–2013	14 countries	Return on assets	GLS random effect	Islamic banks are significantly less profitable than conventional banks. However, they are more profitable in the GCC countries.	Profitability component shows that mature Islamic banks are significantly more profitable than conventional banks, especially in the period before and during the financial crisis. Islamic banks are slightly less profitable in the GCC region than conventional banks. Publicly listed Islamic banks are more profitable than publicly listed conventional banks

Authors (year)	Period under study	Countries	Main indicators	Methodology	Main empirical findings	PCA and GLS results
Mollah et al. (2016)	2005–2013	14 countries	Return on assets	GLS random effect	Islamic banks are less profitable in Muslim countries than conventional banks	Islamic banks are more profitable than conventional banks in *Sharia'a* based legal systems
Mollah and Zaman (2015)	2005–2011	25 countries	Operating profits to average equity, operating profits to average assets, return on assets, return on equity, Tobins' Q	GLS random effect	Operating in a country with a majority Muslim population is positively associated with the profitability of Islamic banks	
Credit risk ratios vs. credit risk component						
Abedifar et al. (2013)	1999–2009	24 OIC countries	Loan loss reserves	Panel data random effect	Small Islamic banks have lower credit risk than conventional banks	
Beck et al. (2013)	1995–2009	22 countries	Loan loss reserves, loan loss provisions, non-performing loans	Panel data fixed effect	No significant difference between bank types when using loan loss reserves and loan loss provisions. Small and middle-aged Islamic banks have lower credit risk when using non-performing loans especially during the crisis period	Young and middle-aged Islamic banks have lower credit risk than conventional counterparts, especially during the crisis period. Unlisted Islamic banks have lower credit risk than listed conventional banks
Alqahtani et al. (2016)	1998–2013	6 GCC countries	Non-performing loans and loan loss provisions, all scaled by gross loans	Panel data fixed effect	No significant difference between bank types	
Abedifar et al. (2013)	1999–2009	24 OIC countries	Loan loss reserves	Panel data random effect	Islamic banks have lower credit risk than conventional banks in Muslim and *Sharia'a* based legal systems	Islamic banks have lower credit risk in both Western and *Sharia'a* based legal systems, compared to conventional banks

(Continued)

The "PCA and GLS results" column in Table 12 shows the current PCA results, to facilitate comparison with the methodologies and the results of existing studies. These studies examine the capital, efficiency, volatility of returns, liquidity, charges for *Sharia'a* compliant financial products, profitability, and credit risk for conventional and Islamic banks. The sentences in bold in the final column present new evidence on the effect of political systems (Western democracies vs. *Sharia'a*-based and hybrid legal systems) on the financial soundness of Islamic banks.