

Economic Uncertainty and Bank Stability: Conventional vs. Islamic Banking

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Abstract: In this paper, we explore whether economic uncertainty differently affects the default risk of Islamic and conventional banks. Using a sample of 568 banks from 20 countries between 2009 and 2018, we use the World Uncertainty Index (WUI) by Ahir et al. (2018) to conduct a study based on a comparable measure across countries. Our findings indicate that economic uncertainty increases the default risk of conventional banks but does not affect Islamic banks' default risk. To understand why, we explore the influence of religiosity, institutional factors, and bank-level heterogeneity. We observe that Islamic banks' default risk is not significantly affected by uncertainty in all types of countries, but such a difference with conventional banks mainly holds for banks with high income diversification, larger size, and that are publicly traded. Moreover, our findings show that conventional banks suffer more from uncertainty in terms of stability in countries with higher religiosity and with a higher share of profit-loss sharing (PLS) contracts. Our results are robust to alternative estimation techniques to deal with endogeneity and to alternative variable measurements.

Keywords: Islamic Banks, Conventional Banks, Economic Uncertainty, Bank Stability, World Uncertainty Index

JEL Codes: G21, G28, G01, G32, D81

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1. Introduction

The Islamic financial industry has grown rapidly in the last three decades. The global financial crisis of 2007-2009 and rising uncertainty, along with further globalization, have contributed to the very fast development of Islamic banking in particular. Global Islamic banking assets increased from USD \$1.3 trillion in 2012 to USD \$1.76 trillion in 2018; they are expected to reach USD \$2.175 trillion in 2024 (ICD-REFINITIV, 2020). Such trends strongly attract attention from researchers and policy-makers; many studies explore Islamic banking, especially the differences between Islamic and conventional banks over the last decade (Beck et al., 2013a; Abedifar et al., 2015). A strand of this literature investigates whether Islamic banks are more financially stable than their conventional counterparts (Čihák and Hesse, 2010; Abedifar et al., 2013), especially during crisis periods (Hasan and Dridi, 2010; Beck et al., 2013a; Srairi, 2013).

Although most of this literature compares the stability of Islamic banks (IBs) and conventional banks (CBs) in crisis times, in this paper we question whether economic uncertainty affects their stability differently in both normal and crisis times. Specifically, we investigate whether both types of banks tackle fluctuations in economic uncertainty differently, possibly leading to variations in default risk. Uncovering such a channel is important because numerous factors could lead to differences in behaviors and outcomes for the two types of institutions due to their different commitments vis-a-vis their borrowers and lenders.

Economic uncertainty has significant negative consequences on the firm performance and the economy (Bloom, 2014; Baker et al., 2016) such as reducing the level of corporate investment (Gulen and Ion, 2016), reducing the responsiveness of research and development (R&D) investments to changes in demand conditions (Bloom, 2007), tempering mergers and acquisitions (Nguyen and Phan, 2017; Bonaime et al. 2018), decreasing venture capital investment (Tian and Ye, 2018), increasing corporate credit spread (Kaviani et al. 2020), among others. Despite the amount of literature on its influence on the real economy, whether economic uncertainty affects the stability of banks has been relatively less explored. Two opposing views on the potential influences of uncertainty on conventional banks' risk exist in the literature. On the one hand, real option theory states that the lack of complete information under uncertainty leads to an increase in the probability of making wrong decisions (McDonald and Siegel, 1986; Pindyck, 1988). Banks might follow a wait-and-see approach and might have a tendency to restrict the amount of credit and try to choose more creditworthy borrowers in uncertain times, which might then increase their stability (Wu et al., 2020). On the other hand, the probability

of loan defaults might rise in uncertain times, translating into increases in the risk profiles of conventional banks (Baum and Wan, 2010; Tang and Yan, 2010). Besides, firms or households might postpone their investment or spending (Dixit and Pindyck, 1994), inducing a downward pressure on the loan interest rates for conventional banks (Hartzmark, 2016). Depositors might demand higher deposit rates from the banks due to the increased exposure to adverse shocks (Valencia, 2017). These two forces might decrease the profitability of conventional banks and might increase their incentives to supply more loans for “high-risk, high-return” projects. Conventional banks might also have an increased tendency to diversify their income sources in uncertain times (Rajan, 2006; Dell’Ariccia et al. 2014) by replacing traditional lending activities with trading, derivatives, and commission- and fee-based activities which might make banks more vulnerable and less resilient (DeYoung and Roland, 2001; Lepetit et al., 2008a; Meslier et al., 2014).

In theory, the contracts and arrangements between a bank and its customers are very different for Islamic and conventional institutions, both on the asset side and the liability side of the balance sheet. Specifically, the risk-sharing principle between a bank and its borrowers, and between a bank and its depositors, shapes risk-management practices differently, which possibly leads to different outcomes. Moreover, uncertainty could influence the demand and supply for banking products differently in an Islamic context compared to conventional banking. Religiosity and the institutional environment could enhance such differences.

For Islamic banks, the profit-loss sharing (PLS) principle and pass-through of risk between depositors and borrowers are possible risk-reducing factors in times of higher uncertainty (Čihák and Hesse, 2010). Unlike CBs that charge fixed interest rates on loans, IBs act as “capital partners” and provide PLS loans in which borrowers repay the principal and some agreed share of profits (or deductions in case of losses). Moreover, although depositors in conventional banks do not bear any risk as long as the bank is solvent, IBs channel deposits into PLS loans. This allows equity holders to absorb any loss on the asset side; depositors, generally referred to as investment account holders (IAH), also absorb these losses. Researchers expect such PLS and risk-reducing mechanisms to reduce deterioration in IBs’ net worth to some extent during uncertain times (Čihák and Hesse, 2010; Bourkhis and Nabi, 2013). Even though the share of PLS contracts in the IBs’ aggregate assets is observed to be decreasing globally and account for only about 5% of aggregate assets as of December 2015, there is a wide variation across

countries. For instance, some countries such as Indonesia, Iran, Pakistan, and Sudan use significantly higher levels of PLS contracts (Shabsigh et al., 2017)¹.

Religiosity and the disciplinary role of depositors might mitigate Islamic banks' risky behavior in uncertain times (Diamond and Rajan, 2000, 2001). Due to the equity-like nature of savings and investment accounts, depositors closely monitor and discipline Islamic banks, which mitigates moral hazard and adverse selection issues. More religious depositors are observed to be more risk-averse and are more likely to withdraw their deposits from distressed banks (Osoba, 2003; Abedifar et al. 2013). In addition, IBs themselves are generally more risk-averse and have a stronger preference for investing in the real economy. Besides, IBs are not allowed to conduct risky and speculative trading activities. Shariá's supervision prohibits the use of derivative products or toxic securities, and any activity involving uncertainty such as short selling, arbitrage and speculation (Aziz et al., 2009; Mollah et al., 2017). Such constraints could thus also make IBs less sensitive to changes in economic uncertainty compared to conventional banks. Moreover, operating on smaller scales, bank-customer relationships are tighter in Islamic banks, which might lead to a comparative advantage in terms of soft information processing (Berger et al., 2005; Berger and Udell, 2011) which might mitigate their overall risk in uncertain times.

Nevertheless, the profit-loss sharing (PLS) principles to which Islamic banks adhere could also make them riskier (Abedifar et al., 2013). Indeed, PLS financing transfers credit risk from banks to depositors, but this leads to higher risk on the asset side of the balance sheet as it makes Islamic banks vulnerable to risks normally borne by equity investors rather than debtholders (Beck et al., 2013a; Čihák and Hesse, 2010). This equity-like financing can also decrease market discipline for Islamic banks. Furthermore, in terms of operational risk, Islamic banks face more complex legal and Shariá compliance risk (Beck et al., 2013a; Čihák and Hesse, 2010) compared to conventional banks which might be mitigated in countries with stronger legal protections of investors and institutional development, and in countries with better corporate governance (Beck et al. 2003; La Porta et al. 1998). The hedging capabilities are also lower for Islamic banks than for conventional banks, as they may only use specific asset classes

¹ PLS contracts are comprised of two main components, namely Musharakah and Mudarabah contracts. For instance, the shares of Musharakah contracts in total assets account for 29% and 63 % in Iran and Indonesia, respectively. The shares in Pakistan and Sudan are 11% and 13%, respectively. The average share for Mudarabah contracts is around 5% in Indonesia, Iran, and Sudan (Shabsigh et al., 2017).

and thus fewer risk-hedging instruments. Under higher uncertainty, CBs might better hedge their risks by using dedicated risk-management techniques such as loan-loss provisioning, collaterals, credit default swaps, derivative instruments, etc. As Islamic banks generally operate on small scales compared to conventional banks, they might benefit less from economies of scale and portfolio diversification, which could increase their unsystematic risks.

Our work is related to a large strand of the literature that compares the stability of Islamic banks and conventional banks (Sorwar et al., 2016), and in which there is no consensus on which group is more stable (Čihák and Hesse, 2010; Rajhi and Hassairi, 2013; Srairi, 2013; Abedifar et al., 2013; Kabir et al., 2015; Pappas et al., 2017). Our work is also linked to papers comparing the performance of the two types of banks (Doumpos et al., 2017), their efficiency (Yudistra, 2004; Mobarek and Kalonov, 2014), and their market power (Weill, 2011). Some papers compare risk during crisis periods, such as Beck et al. (2013a), who show that even during the 2007-2009 global financial crisis, Islamic banks had higher asset quality and were better capitalized compared to conventional banks, leading to higher stock returns. However, papers such as Alandejani et al. (2017) find that Islamic banks are more likely to fail considering the global financial crisis of 2007-2008; therefore, survival time is shorter than conventional banks.

We extend the literature by examining how economic uncertainty affects the default risk of Islamic and conventional banks. Economic uncertainty is present in both normal and crisis times, and various backward- and forward-looking measures are available in the literature to capture it. Backward-looking measures are mainly derived from statistical models that use standard macroeconomic variables. Some examples include the time-varying volatility in the real interest rates by Fernández -Villaverde et al. (2011), the macroeconomic uncertainty index of Jurado et al. (2015), the variance risk premium of Dew-Becker et al. (2017); among many others². Since backward-looking uncertainty measures cannot properly capture the shifts related to sudden developments (Altig et al. 2020), forward-looking measures have been developed such as stock market volatility indices (VIX), and newspaper-based uncertainty measures such as the economic policy uncertainty index (EPU) of Baker et al. (2016) and World Economic Uncertainty Index (WUI) of Ahir et al. (2018). Considering the EPU index, it is a forward-looking text-based uncertainty measure that counts the frequency of newspaper articles containing as indicated by the authors: “the following trio of terms: “economic” or

² See Barrero and Bloom (2020), Cascaldi-Garcia et al. (2020), and Altig et al. (2020) for reviews on the leading measures of economic uncertainty.

“economy”; “uncertain” or “uncertainty”; and one or more of “Congress,” “deficit,” “Federal Reserve,” “legislation,” “regulation,” or “White House.”” (Baker et al., 2016). Since its introduction, there has been a rising interest in the literature to examine how EPU affects several financial and economic outcomes, including stock returns, Bitcoin prices, the real estate industry, growth, and oil prices. In the banking literature, several studies examine how EPU affects nonperforming loans (Karadima and Louri, 2021), credit growth (Bordo et al., 2016; Nguyen et al., 2020), credit risk (Chi and Li, 2017), bank valuations (He and Niu, 2018), bank loan pricing (Ashraf and Shen, 2019), loan-loss provisions (Ng et al., 2020), liquidity hoarding (Berger et al. 2020) and bank stability (Phan et al., 2021).

Following the spirit of EPU, Ahir et al. (2018) introduce the World Economic Uncertainty Index (WUI) by counting the frequency of the word uncertainty (and its variants) in Economist Intelligence Unit (EIU) country reports. WUI is different from EPU and other forward-looking economic uncertainty indices because first, it covers a wide range of advanced and emerging countries (over 140). Other forward-looking economic uncertainty indices using newspaper information or volatility forecast errors only have limited country coverage, mainly being advanced countries. Second, it is a more standardized uncertainty measure across countries because it is based on a single source, EIU country reports. The WUI index is able to capture the uncertainty that globally peaks around the major uncertainty-generating events such as the 9/11 attacks, the SARS outbreak, the Euro debt crisis, El Niño, the Brexit, the U.S. presidential elections, and the COVID-19 outbreak (Ahir et al., 2018). Another advantage of the WUI is that it tracks economic uncertainty on a continuous basis and captures the fact that uncertainty is present in both normal and crisis times (Bilgin et al., 2021), which makes it a much more powerful indicator than using dummy variables. One concern with text-based indices like EPU and WUI is the reliability and accuracy of the information in newspaper articles and country reports (Baker et al., 2016). This is less of an issue for the WUI index because the information is from a single source, EIU, whose accuracy is known to be extremely high, mitigating such potential biases (Ahir et al., 2018). However, one downside of WUI is that there is only one EIU report per country and per quarter which might lead to potentially large sampling noise (Ahir et al. 2018). Nevertheless, as an economic uncertainty measure, WUI works quite well for cross-country analyses due to its large country coverage and specific topic coverage i.e., economic and political developments. Figure 1 shows that uncertainty measured with the WUI fluctuates significantly; the values of this index are sometimes higher in normal times than in crisis periods.

To explore how economic uncertainty affects the default risk of Islamic and conventional banks, this paper uses a sample of 568 banks from 20 countries between 2009 and 2018. To our knowledge, this is the first study to investigate how economic uncertainty affects bank default risk, with specific focus on different outcomes for Islamic and conventional banks. Our findings indicate that economic uncertainty increases default risk for conventional banks but not for Islamic banks. The results are robust to splitting the sample into Islamic and conventional banks, addressing endogeneity, and using alternative uncertainty index calculations. As Bitar and Tarazi (2019) document, the current literature on Islamic and conventional banking is rather silent about endogeneity issues and lacks exogenous instruments for examining bank stability. As a robustness check, we control for endogeneity by considering the two-stage least squares (2SLS) instrumental variable (IV) and the generalized method of moments (GMM) techniques; our results remain robust. For deeper insights, we also decompose default risk into asset risk and leverage risk; leverage risk is the main driver of our results, which economic uncertainty significantly affects for conventional banks but not for Islamic banks.

To shed light on why economic uncertainty influences default risk in Islamic and conventional banks differently, we also consider the influence of religiosity and institutional factors. We find evidence for the role of religiosity and our results, suggesting that default risk is not sensitive to changes in uncertainty for Islamic banks but is sensitive to changes in uncertainty for conventional banks, are stronger in highly religious countries. This suggests that the observed resilience of IBs to uncertainty could be due to the role of religion, and specifically higher trust and stronger links between banks and customers. This is also in line with the disciplinary role of risk-averse and religious depositors in mitigating risky bank behavior (Diamond and Rajan, 2000, 2001; Osoba, 2003; Abedifar et al. 2013). Besides, we find evidence for the role of PLS contracts in mitigating the default risk of IBs and find that uncertainty only negatively affects conventional banks but not IBs for countries with relatively higher PLS contracts. This supports the view that the PLS principle is a risk-reducing factor for Islamic banks in periods of higher economic uncertainty (Čihák and Hesse, 2010; Bourkhis and Nabi, 2013). With regard to the impact of the institutional environment, we observe that economic uncertainty has a different impact on stability for both types of banks only in countries that implement Common English law, are in the GCC, are richer. Further, cross-sectional analyses show that the main findings hold for banks with higher income diversification (for both trading-oriented and commission- and fee-oriented banks), large size, and public listing.

The rest of the paper is organized as follows. Section 2 presents our data, variables, and methodology. Section 3 discusses the empirical findings of the study. Section 4 concludes the paper and provides policy implications.

2. Data and Methodology

We first present the data used in this study, and then we present the variables and our baseline econometric specification to capture how uncertainty affects Islamic bank stability compared to conventional bank stability.

2.1 Data sources and sample construction

The data for bank-level variables is from the Fitch Connect database, which has data on both listed and non-listed banks. Following Beck et al. (2013b), we use unconsolidated data when available; if not, we use consolidated data to avoid double-counting subsidiaries. We form our initial sample focusing on the 2009-2018 period; we find data for 120 Islamic banks and 585 conventional banks from 23 countries where both Islamic and conventional banking operate alongside each other³. In order to reach our final sample, we follow the filtration in Mollah et al. (2017) and Beck et al. (2013a). Specifically, we filter the sample by excluding countries with fewer than four banks and by excluding banks fewer than three years of consecutive data. After filtering, our final sample has 568 banks (95 Islamic, 473 conventional) from 20 countries between 2009 and 2018. Table A1 in the appendix presents the list of countries, as well as their respective numbers of Islamic and conventional banks.

WUI, the world uncertainty index, is the key independent variable of interest in our analysis. We collect data for the WUI from Ahir et al. (2018), who develop the index by counting the frequency of words similar to *uncertainty* in Economist Intelligence Unit (EIU) country reports. The EIU reports cover political and economic developments in each country, alongside future policy-related and economic projections. They scale the raw counts of *uncertainty* by the number of words in each report, which makes the index comparable across countries.⁴

³ When we select Islamic banks in the FitchConnect database, we choose the “specialization description” field as “Islamic Banks” and banks are categorized as Islamic if they are specialized in Islamic banking. The database does not provide any information on the commercial banks that offer both Islamic and conventional financial products.

⁴ A detailed presentation of WUI is at <https://worlduncertaintyindex.com/>.

The data for macroeconomic variables such as GDP growth, inflation, and oil and mineral rents are from World Bank World Development Indicators. Financial and institutional development indicators are from numerous sources, such as the World Bank Global Financial Development Database, Islamic Financial Services Board (IFSB) database, Pew Research Center (2009), Djankov et al. (2007), CIA's World Factbook, and the World Values Surveys (WVS).

2.2 Variables and empirical methodology

Following the extant literature on Islamic banking (Bitar and Tarazi, 2019; Abedifar et al., 2013; Mollah et al., 2017; Mollah and Zaman, 2015), we conduct the baseline estimations using random effects and generalized least square (GLS) regressions. We use GLS for two reasons. First, regression techniques such as ordinary least squares (OLS) do not account for the panel dimensions of the data. Second, one of our main independent variables is a time-invariant dummy variable for Islamic banks, which we cannot estimate in a straightforward manner using fixed-effect estimation techniques.⁵ We use the following empirical model in our baseline estimations:

$$\text{Bank risk}_{ijt} = \beta_0 + \beta_1 \text{ISLAMIC}_i + \beta_2 * \text{WUI}_{jt} + \beta_3 * \text{WUI}_{jt} * \text{ISLAMIC}_i + \beta_4 \text{Bank Controls}_{ijt-1} + \beta_5 \text{Country Controls}_{jt-1} + \beta_t + \varepsilon_{ijt} \quad (1)$$

where i , j , and t stand for bank, country, and time, respectively. Following Bitar and Tarazi (2019) and Beck et al. (2013a), standard errors are clustered at the bank level instead of the country level because some countries in the sample have more observations than others and clustering at the country level with 20 countries might distort the results. β_t stands for time fixed effects, and ε_{ijt} indicates unobserved error terms. Bank and country controls are lagged by one year to mitigate potential reverse-causality concerns and to take into account lagged responses of banks. We eliminate the outliers in bank-specific variables by winsorizing at the 1% and 99% levels.

In addition to random-effects generalized least square (GLS) regressions, we use dynamic panel data techniques with the two-step system GMM estimators and IV regressions with 2SLS

⁵ We perform the Hausman test, and the results confirm that random effects are better with an insignificant test statistic and of magnitude 31.37.

estimators to deal with potential endogeneity. For this purpose, we use the following dynamic model:

$$\text{Bank risk}_{ijt} = \beta_0 + \beta_1 * \text{Bank risk}_{ijt-1} + \beta_2 * WUI_{jt} + \beta_3 \text{Bank Controls}_{ijt-1} + \beta_4 \text{Country Controls}_{jt-1} + \beta_t + \varepsilon_{ijt} \quad (2)$$

Table 1 displays the brief descriptions of all bank-specific and country-specific variables in our analysis. *Bank risk* in equations 1 and 2 corresponds to bank stability measures, where the main dependent variable is bank default risk (*DEFAULT RISK*), proxied by the Z-score. Z-score measures bank soundness and is widely used as a bank stability measure in the banking literature (Agoraki et al., 2011; Beck et al., 2013b; Bourkhis and Nabi, 2013). It is calculated as $z = \frac{(ROA + CAPITALIZATION)}{SD(ROA)}$ where *ROA* indicates the return on assets, and *CAPITALIZATION* is the share of equity in total assets. *SD(ROA)* is the standard deviation of ROA calculated using three-year rolling windows. As the formula clearly indicates, we can interpret the Z-score as the number of standard deviations that ROA can drop below its expected value before equity is depleted; it is inversely related to the probability of a bank's insolvency. For easy interpretation, our measure in the analysis, *DEFAULT RISK*, is taken as the negative of the natural logarithm of Z-score so that higher values indicate higher risk. Table 2 presents descriptive statistics for the full sample, as well as for Islamic and conventional banks; it shows that *DEFAULT RISK* varies from -8.01 to 0.13, with an average of -3.99. Univariate comparisons with two-sided *t*-tests between Islamic and conventional banks in table 2 reveal that Islamic banks, on average, have a higher *DEFAULT RISK* compared to conventional banks. Table A2 in the appendix presents descriptive statistics at the country level for the main variables in the baseline estimations. The highest average *DEFAULT RISK* is in Iran, followed by Yemen and Sudan. Meanwhile, Singapore, Saudi Arabia, and Malaysia rank at the bottom with the lowest averages.

>>>INSERT TABLE 1 &2 HERE<<<

We further decompose the Z-score into its two components (Goyeau and Tarazi, 1992; Lepetit et al., 2008a; Barry et al., 2011) for deeper insights and a better understanding of what is mainly driving default risk or what economic uncertainty specifically affects. The first component is *LEVERAGE RISK*, which is the negative of the natural logarithm of the ratio of *CAPITALIZATION* to *SD(ROA)*. The second component is *PORTFOLIO RISK*, calculated as

the negative of the natural logarithm of the ratio of *ROA* to *SD(ROA)*. Table 2 indicates that Islamic banks have a significantly higher *PORTFOLIO RISK* compared to conventional banks; however, we observe no significant difference for *LEVERAGE RISK*. *ISLAMIC* in equation 1 is a dummy variable equal to 1 for Islamic banks and 0 for conventional banks. As displayed in table 2, Islamic banks represent 17% of the banks in our sample.

We use the country-specific world uncertainty index following Bilgin et al. (2018) and Jones and Sackley (2016). We transform it by taking its natural logarithm. The index is available on a quarterly basis; since our analysis requires yearly variables, we use the simple average of the four quarters and generate a yearly variable. We then take the natural logarithm of this mean and call the transformed variable *WUI* for brevity. Table 2 indicates that *WUI* ranges from -4.05 to -0.29 with an average of -2.15. As apparent from the within-country and between-country standard deviations, although *WUI* shows substantial variation both over time and across countries, variation over time is higher. Table A2 shows that the highest average *WUI* is from Turkey, followed by Lebanon and Tunisia. The lowest average *WUI* is from Qatar, followed by Bangladesh. We further consider alternative calculation methods to compute our yearly *WUI* measure for robustness checks. While *WUI_V2* is the natural logarithm of the average quarterly country-specific *WUI* index, it uses the three-quarter weighted moving average.⁶ *WUI_V3* is the natural logarithm of the average of only the first two-quarters of country-specific *WUI*. *WUI_V3*, in fact, incorporates the lagged effect of *WUI*. We further include an interaction term between *WUI* and *ISLAMIC* in equation 1 to examine whether economic uncertainty affects Islamic bank risk differently than it affects conventional banks.

Bank controls are bank-specific indicators of bank stability, which we choose following the extant literature (Beck et al., 2013; Abedifar et al., 2013). They include the natural logarithm of total assets (*SIZE*), annual growth of total assets (*GROWTH*), net loans to total assets (*LOAN SHARE*), and income diversification (*DIVERS*). While income diversification is the share of non-interest income in gross revenues for conventional banks; it is the share of non-financing income in gross revenues for Islamic banks. From table 2, we observe that Islamic banks have a significantly higher income diversification (*DIVERS*) compared to conventional banks. For deeper insights, we also use *COMMISSION* and *TRADING*. *COMMISSION* is the share of net

⁶ As an example, the three-quarter weighted moving average of the World Uncertainty Index for 2012Q4 as follows: 2012Q4 = [(2012Q4*0.6) + (2012Q3*0.3) + (2012Q2*0.1)] / 3. For details, please refer to <https://worlduncertaintyindex.com/>.

fees and commissions in nontraditional⁷ income, and the average *COMMISSION* is 53.80% in the overall sample. *TRADING* is the share of net trading and derivatives in nontraditional income, and its mean value is 12.87% in the overall sample. We also consider liquid assets to total assets (*LIQUIDITY*), the share of total costs to total income (*COST TO INCOME*), and *LISTED*, a dummy variable equal to 1 for publicly listed banks and 0 otherwise. Table 2 shows *COST TO INCOME* is significantly higher for Islamic banks than conventional banks; 41% of the banks in our overall sample are listed.

Country controls are macroeconomic and financial development variables. They include real GDP growth rate (*GDP GROWTH*), inflation rate (*INFLATION*), and oil and mineral rents as a share of GDP (*OIL MINERAL*). In addition, we use foreign banking share of total assets (*FOREIGN BANK ASSETS*) and the share of total assets of the three largest banks to total assets (*CONCENTRATION*). Table A2 indicates a wide variation of country controls across countries, confirming that it is relevant to control for these effects in our analysis.

In extended analyses, we use additional country controls, which include *MUSLIM SHARE*, *COMMON LAW*, *CIVIL LAW*, *LEGAL SYSTEM*, *IMPORTANCE OF RELIGION*, and *PLS*. *MUSLIM SHARE* is the share of the Muslim population in each country; it is from the Pew Research Center (2009).⁸ Table 2 indicates that the average *MUSLIM SHARE* in our sample countries is 84.87%. *COMMON LAW* and *CIVIL LAW* are indicator variables that equal 1 for countries with English common law and French civil law legal origins, respectively, and 0 otherwise, with data from Djankov et al. (2007). We find that 36% of the countries in our sample implement common law. *LEGAL SYSTEM* equals 0 if the country does not have *Shariá* law in its legal system, 1 for countries that consider *Shariá* together with other legal systems, and 2 if the legal system is based exclusively on *Shariá* law. The data on legal systems is from the CIA's World Factbook.⁹ *IMPORTANCE OF RELIGION* corresponds to the share of the population that considers religion very important, using data from World Values Surveys (WVS). Table 2 shows that, on average, 90.77% of populations consider religion very important. Finally, *PLS* indicates the share of profit-loss sharing contracts in total financing and its data is extracted from The Islamic Financial Services Board (IFSB).¹⁰ Table 2 indicates that, on average, the

⁷ Nontraditional income is taken as non-interest income for conventional banks; and as non-financing income for Islamic banks, respectively.

⁸ The report is at <https://www.pewforum.org/2009/10/07/mapping-the-global-muslim-population/>

⁹ It can be reached from <https://www.cia.gov/library/publications/the-world-factbook/fields/308.html>

¹⁰ The database can be reached from https://www.ifsfb.org/psifi_03.php

share of PLS contracts in total financing is 15.06%. There is a drop of observations because not every country reports information on the amount of PLS contracts in the database. Table A3 shows correlation coefficients between exogenous variables and indicate no major collinearity problems.

3. Results

We first present the baseline regression results and then the findings of our further investigations.

3.1. Baseline regressions

We present the main regression results in table 3, which uses the full sample of banks. We conduct the estimations using random effects generalized least square (GLS) regressions. We use equation 1 and include the Islamic bank dummy (*ISLAMIC*) and the interaction term between *WUI* and *ISLAMIC* in all model specifications in order to investigate differences in this relationship between Islamic and conventional banks. The Wald Chi2 tests are significant for all models, and R-squared values are relatively high, in line with previous literature (Bitar and Tarazi, 2019; Houston et al., 2010). Model 1 uses *DEFAULT RISK* as a dependent variable. The positive and significant coefficient for *WUI* in model 1 indicates that an increase in *WUI* significantly increases bank default risk for conventional banks. Exploring how Islamic banks react to changes in uncertainty, we observe that as presented at the bottom of table 3, the overall effect captured by the insignificance of the sum of the coefficients of *WUI* and *ISLAMIC*WUI* indicates that Islamic banks are not significantly influenced by changes in uncertainty. Models 2 and 3 decompose *DEFAULT RISK*, Z-score, into its two components (*LEVERAGE RISK* and *PORTFOLIO RISK*). We observe that *LEVERAGE RISK* drives our previous findings but *PORTFOLIO RISK* does not. Although uncertainty increases leverage risk in conventional banks, its effect on Islamic banks' leverage risk is not significant. Model 4 uses *FOREIGN BANK ASSETS* and *CONCENTRATION* as two additional country controls, and our results remain robust. Endogeneity is a concern because even though we use a wide range of control variables, there might be some omitted variables that might affect both *WUI* and default risk of banks. At the same time, an increase in overall bank risk might increase economic uncertainty, generating reverse causality issues. We use the first-lag of independent variables in the regressions to mitigate this to some extent. Model 5 uses dynamic panel data techniques with two-step system GMM estimators to further address endogeneity concerns; we include lagged *DEFAULT RISK* as an independent variable. We take the lagged dependent variable and bank-

specific controls as predetermined because these bank-level variables are not strictly exogenous; they depend on banks' managerial discretion. WUI is also taken as predetermined to account for the fact that an increase in overall bank risk might also lead to increases in economic uncertainty. We consider the real GDP growth rate (GDP GROWTH) as another predetermined variable because real GDP growth is dependent on various factors, including bank default risk. Macroeconomic variables such as inflation rate (INFLATION), and oil and mineral rents as a share of GDP (OIL MINERAL) are taken as exogenous. We perform various specification tests to validate our GMM estimation, including the Arellano-Bond AR(1) and AR(2) tests for the first- and second-order autocorrelation of the residuals as well as the Hansen test of overidentifying restrictions. The coefficients of the tests are at the bottom of table 3, confirming a valid specification and reliable model. Specifically, the AR(2) and Hansen tests are not significant, which is in line with expectations, showing that there is no second-order autocorrelation among errors and overidentifying restrictions are valid, respectively. Therefore, our main findings remain robust under GMM estimation. Models 6 and 7 use alternative WUI measures (*WUI_V2* and *WUI_V3*, respectively) using random effects generalized least square (GLS) regressions. Our results remain robust under these alternative WUI specifications.

>>>INSERT TABLE 3 HERE<<<

With regard to bank-level control variables, many are significant with the expected signs. We observe that banks with higher loan shares are less risky and banks with higher income diversification are riskier. This is consistent with the view that traditional banking activities such as lending are more stable over time and it is harder to walk away from such relationships due to switching and information costs. In contrast, nontraditional income activities might suffer from large fluctuations, increasing overall bank risk (Lepetit et al. 2008b; Köhler, 2015). Moreover, we observe that banks with high cost-to-income ratios and higher growth are riskier. This is in line with the view that less efficient banks might experience lower profitability and might have higher incentives for risky behavior. Banks with higher growth might lower their lending standards and collateral requirements, increasing their risk levels (Köhler, 2015). Regarding the country controls, higher inflation is observed to increase bank risk, and higher oil and mineral rents have a negative impact on bank risk. Since higher inflation is associated with deteriorating economic conditions, we would expect to observe an increase in overall bank risk. Conversely, higher oil and mineral rents share are associated with better economic conditions and are hence expected to be beneficial for bank stability. Finally, higher foreign

bank dominance in a country is found to increase bank risk which is in line with the view that foreign banks might have an informational disadvantage as compared to domestic counterparts and suffer from sharper agency problems between affiliates and their parent banks, leading to an overall increase in bank risk (Dell'Ariccia and Marquez, 2004; Wu et al. 2017).

For robustness checks, table 4 displays the WUI-bank default risk regressions for separate samples of Islamic and conventional banks using *DEFAULT RISK* as the dependent variable. Models 1 and 2 are for Islamic and conventional bank subsamples, respectively, using random-effects generalized least square (GLS) regressions. The findings are in line with our previous ones, indicating that higher economic uncertainty is associated with higher default risk for conventional banks, which is not the case for Islamic banks.

Models 3 and 4 in table 4 use IV estimation techniques to account for potential endogeneity. As Bitar and Tarazi (2019) state, the current literature on Islamic and conventional banking is rather silent about endogeneity issues and lacks exogenous instruments for examining bank risk-taking. Considering the potential endogeneity that might be due to uncertainty spurred by banking system fragility, we re-estimate our regressions by considering the 2SLS instrumental variable approach. Following Wu et al. (2020) and Baker and Bloom (2013), we use the following instruments for WUI. First, for each country, we use the WUI index for its largest export market country. Second, we utilize, for each country, the WUI index for their foreign direct investment (FDI) inflow partner country.¹¹ The underlying assumption is that uncertainty among major export partners and biggest foreign investor countries is contagious and thus increases the country's own uncertainty. However, uncertainties in such countries are less likely to affect bank risk (Wu et al., 2020). Third, following Baker and Bloom (2013), we use political shocks and high-casualty terrorist attacks as IVs. *Political shocks* equals 1 for periods of successful and attempted (failed) coups and the resignation of national leadership due to the loss of authority; it equals 0 otherwise. *High-casualty terrorist attacks* reflects terrorist bombings that cause more than 15 deaths; it is an indicator variable ranging from 1 to 6, according to the magnitude of the attack. The data for political shocks and high-casualty terrorist attacks are from Baker and Bloom (2013) and the Center for Systemic Peace. As a final IV, we use the lagged first-order difference of *WUI*. Our results are in table 4 models 3 and 4. The Kleibergen and Paap (2006) LM under-identification test, reported at the bottom of table

¹¹ Major export market data is from the Observatory of Economic Complexity website (<https://oec.world/en/>), and major sources of FDI data is from *UNCTAD Statistics*.

4, shows that the instruments are valid and jointly relevant to explain *WUI*. Moreover, the Hansen J-statistic, an overidentification test, reveals that instruments are not correlated with the error term. The coefficient of *WUI* is positive and significant for conventional banks but not significant for Islamic banks, generating additional support for earlier findings.

>>>INSERT TABLE 4 HERE<<<

3.2. Additional analyses on the influence of religiosity and institutional environment

To shed light on why economic uncertainty influences the default risk of Islamic and conventional banks rather differently, we follow Mollah et al. (2017) and Bitar and Tarazi (2019) and extend the baseline regressions by considering the influence of religiosity and the institutional environments in the countries. We first evaluate the influence of religiosity by splitting the sample into Muslim majority (*MUSLIM SHARE+90*) and non-Muslim-majority (*MUSLIM SHARE-90*) populations, high and low *IMPORTANCE OF RELIGION*, *Shariá* law versus non-*Shariá* law countries, and *PLS High* and *PLS Low* countries (table 5). Models 1 and 2 in table 5 present the findings for *MUSLIM SHARE+90* versus *MUSLIM SHARE-90* countries. Following Abedifar et al. (2013) and Abedifar et al. (2016), Muslim-majority countries in our analyses have more than a 90% share of Muslim population. The results indicate that *WUI* is positive and significant and the sum of the coefficients of *WUI* and *ISLAMIC*WUI* is insignificant only for *MUSLIM SHARE+90* countries (models 1 and 2 in table 5). Therefore, we observe the differential impact of fluctuations in economic uncertainty on the stability of both types of banks only in countries with relatively high Muslim populations. In countries with a lower proportion of Muslims, uncertainty does not affect the stability of IBs or CBs. This suggests that the observed immunity of IBs to uncertainty in the baseline regression could be due to the role of religion, and specifically higher trust and stronger links between banks and customers. In countries with a lower proportion of Muslims, such a contrast between Islamic banks and conventional banks is not prevalent, possibly because such effects are diluted. This is in line with the previous literature that focuses on the disciplinary role of depositors mitigating risky bank behavior (Diamond and Rajan, 2000, 2001). More religious depositors tend to be more risk-averse and more sensitive to a bank's risky behavior. They have a tendency to monitor bank behavior more closely and impose more withdrawal risk as compared to conventional bank depositors (Osoba, 2003; Abedifar et al. 2013).

Models 3 and 4 confirm the strong role of religion; they also display results for another dimension of religion (adherence) (*IMPORTANCE OF RELIGION*). Following Bitar and Tarazi (2019), high importance corresponds to values for *IMPORTANCE OF RELIGION* above the 75th percentile in our analysis.¹² The results in columns (3) and (4) show that where citizens consider religion less important, all banks are sensitive in terms of stability, and both CBs and IBs suffer from higher uncertainty. Conversely, where religion is important, uncertainty negatively affects stability only in CBs, but not in IBs.

Models 5 and 6 in table 5 analyze *Shariá*-law versus non-*Shariá*-law countries. We consider *Shariá*-law countries as countries implementing either *Shariá* law exclusively in their legal systems or *Shariá* law together with other legal systems. This corresponds to countries for which *LEGAL SYSTEM* equals 1 or 2. Non-*Shariá* law countries are those for which *LEGAL SYSTEM* equals 0. Our main findings only hold for countries that implement *Shariá* law either exclusively or alongside other legal systems. In other countries, uncertainty does not influence default risk for IBs or CBs. This is comparable to the results in columns (1) and (2); again, it suggests that bank customers adopt different behavior toward CBs and IBs only in highly religious countries. In less religious countries, neither CBs nor IBs suffer from lower stability when uncertainty is higher. Moreover, this finding is also in line with the view that due to *Shariá*'s supervision on bank risk taking, IBs are not significantly affected by economic uncertainties. Islamic law prohibits using derivative products or toxic securities and any activity involving uncertainty such as short selling, arbitrage and speculation (Aziz et al. 2009; Mollah et al. 2017). The *Shariá*'s supervision, by limiting such products and activities, prevents any potential negative impacts from such activities on bank risk.

Finally, Models 7 and 8 present the findings for PLS High and PLS Low countries. PLS High corresponds to countries that have a share of PLS contracts in their total financing above the median and PLS Low corresponds to below median countries, respectively. Specifically, the PLS High subsample includes Indonesia, Iran, Pakistan, and Sudan, which exhibit a higher level of PLS contracts in their national banking systems. The PLS Low subsample includes the rest of the countries with available data in the Islamic Financial Services Board (IFSB) database. Our main finding that uncertainty negatively affects only the stability of conventional banks but not that of Islamic banks is stronger for countries with relatively higher PLS contracts. As

¹² The 75th percentile for *IMPORTANCE OF RELIGION* in our sample is 94%.

shown in table 5, in countries with a lower proportion of PLS contracts, while uncertainty again only negatively influences the stability of CBs, the value of the coefficient of the WUI term is much lower (0.059 instead of 0.209) and less significant (5% level instead of 1%). Our finding supports the view that the PLS principle in which borrowers repay the principal and some agreed share of profits (or deductions in case of losses) is a risk-reducing factor for Islamic banks in periods of higher economic uncertainty (Čihák and Hesse, 2010; Bourkhis and Nabi, 2013). IBs act as “capital partners” and channel deposits into PLS loans, which allows both equity holders and depositors to absorb any losses.

We perform robustness checks in table A4, where we conduct subsample estimations and estimate the regressions for IBs and CBs separately. Our findings are consistent with the previous ones: the differential impact of fluctuations in economic uncertainty on the stability of both types of banks occurs only in highly religious countries with Muslim-majority populations (*MUSLIM SHARE*+90), where religion is important (*IMPORTANCE OF RELIGION*: High), that implement *Shariá* law, and that have a higher share of PLS contracts.

>>>INSERT TABLE 5 HERE<<<

Next, we extend the baseline regressions in table 6 and consider the influence of the institutional environment by splitting the sample into *COMMON LAW* and *CIVIL LAW* countries; *GCC* and *Non-GCC* countries; and *RICH* and *POOR* countries. The results indicate that although Islamic banks are not significantly affected by uncertainty in all countries, conventional banks suffer more from a negative impact of uncertainty if they are in common-law countries (models 1 and 2 in table 6) and Gulf Cooperation Countries (GCC), as opposed to countries (models 3 and 4 in table 6) with higher coefficient estimates.¹³ Finally, models 5 and 6 in table 6 distinguish rich countries from poor countries, where rich countries have real GDP per capita above the median and poor countries have real GDP per capita below the median, respectively.¹⁴ Our previous findings are mainly relevant for rich countries. In poor countries, uncertainty affects neither Islamic nor conventional banks in terms of default risk. We perform robustness checks in table A5 by estimating the regressions for subsamples of IBs and CBs separately. In line with our previous results, the two types of banks behave differently in terms of stability for common law, GCC, and rich countries. This finding is in line with the view that legal and complex *Shariá*

¹³ GCC countries in the sample are Kuwait, Qatar, Saudi Arabia, and the United Arab Emirates.

¹⁴ The median real GDP per capita (with 2010 constant USD) in our sample is \$4,120.429 USD.

compliance risk that is more prevalent in Islamic banking might be mitigated in common law countries because common-law countries are generally observed to have stronger legal protections of investors as compared to civil-law countries (e.g., Beck et al. 2003; La Porta et al. 1998). Moreover, richer and GCC countries might have better corporate governance practices and more advanced institutional development such that the legal risk in IBs in these contexts are better mitigated.

>>>INSERT TABLE 6 HERE<<<

Overall, our main finding indicates that uncertainty only affects conventional banks' default risk negatively, and Islamic banks' default risk are not affected by uncertainty. This is stronger or mainly prevalent for the following country groups: (1) *MUSLIM SHARE+90* (Muslim population share>90%), (2) high *IMPORTANCE OF RELIGION*, (3) *Shariá* law, (4) High PLS share, (5) *COMMON LAW*, (6) *GCC* countries, and (7) *RICH* countries.

3.3. Bank-level heterogeneity

To understand why economic uncertainty influences Islamic and conventional banks' default risk differently, we explore bank-level heterogeneity by focusing on specific bank-level characteristics. We explore the role of income diversification, bank size, and whether the banks are listed on a stock exchange (see table 7). Specifically, models 1 and 2 split banks into high- and low-income diversification (*DIVERS*) groups; models 3 and 4 decompose the high *DIVERS* subsample into trading-oriented and commission-and-fee-oriented banks. Models 5 and 6 split the samples according to large or small bank size, and models 7 and 8 present the findings for listed and non-listed banks, respectively.^{15,16,17,18} We observe substantial differences under

¹⁵ We generate high versus low *DIVERS* subsamples using banks that have nontraditional income as a proportion of gross revenues above or below the median of 27.63%. For robustness, we also consider Q25 and Q75 instead of the median (below Q25 and above Q75) and obtain similar findings. The results are available upon request.

¹⁶ The “*High DIVERS-Trading Oriented*” subsample in column 3 reflects the intersection of banks with a high proportion of nontraditional income (in column 1) and a high proportion of trading activities in nontraditional income (above the median). The “*High DIVERS- Commission and Fee Oriented*” subsample in column 4 is similar. We implement robustness checks using Q25 and Q75 instead of the median (below Q25 and above Q75) and obtain similar findings. The results are available upon request.

¹⁷ We generate subsamples according to size using observations above or below the median of the log of total assets, which is 7.63 (corresponding to \$2.06 billion USD). We also use Q25 and Q75 instead of the median (below Q25 and above Q75) and observe similar findings.

¹⁸ To make sure we have enough observations of both IBs and CBs in these subsamples, we calculate the share of IBs in the total number of banks for each subsample. The average share of IBs in these subsamples is between 13% and 17%, which is similar to our overall sample distribution (the share of IBs in the overall sample is 14%).

these settings.¹⁹ A quick glance at the results shows that our main findings only hold for banks with higher income diversification (*DIVERS*) (both trading-oriented and commission-and-fee-oriented banks), larger banks, and *LISTED*. Only these Islamic banks react differently than their conventional peers. For the other types of banks, there is no significant difference in terms of default-risk sensitivity to changes in uncertainty. Specifically, the fact that nontraditional income plays, in our setting, a major role in terms of sensitivity of default risk to uncertainty changes is not surprising. *DIVERS* (the proportion of nontraditional income in gross revenues) shows the extent of diversification. For conventional banks nontraditional income includes revenues from sources other than interest, such as net gains on trading activities and commissions and fees. For Islamic banks, nontraditional income includes non-financing income. Overall, such activities capture how much banks rely on nontraditional activities other than lending. Nevertheless, such activities also include fees directly or indirectly related to lending activities and possibly, to a larger extent, for Islamic banks, which cannot charge explicit interest on loans. The findings from models 1 and 2 of table 7 show that the coefficient estimate of *WUI* is significant only for banks with high *DIVERS*, revealing that uncertainty negatively affects only CBs highly diversified away from strictly traditional interest activities. Such a finding is in line with the literature showing that income diversification through replacing traditional lending activities with trading, derivatives, and commission- and fee-based activities is associated with higher earnings volatility and risk (DeYoung and Roland, 2001; Lepetit et al., 2008a; Meslier et al., 2014). Such nontraditional activities suffer from uncertainty and hence make CBs more vulnerable and less resilient under such circumstances.

However, the situation is rather different for IBs. In model 1, the insignificance of the sum of the coefficients of *WUI* and *ISLAMIC*WUI* reveals that IBs with high nontraditional income are not significantly affected by uncertainty.

In models 3 and 4, we go deeper and investigate which types of nontraditional activities make CBs more vulnerable. For that purpose, as in Lepetit et al. (2008a, 2008b), we first disaggregate *DIVERS* into its components: *COMMISSION* and *TRADING*. We then take the intersection of high *DIVERS* and banks with a high share of *TRADING* and *COMMISSIONS* to form “high

¹⁹ For the concerns of overlapping subsamples (such as large banks being the more diversified and listed ones), we calculate the number of observations for each subsample. The subsamples of high- and low-income diversification do not overlap with large and small banks. Nevertheless, listed banks are generally larger. The results are available upon request.

DIVERS trading-oriented” and “high *DIVERS* commission-and-fee-oriented” subsamples (models 3 and 4). The coefficient estimates of *WUI* are significant for both models 3 and 4, showing that when uncertainty goes up, regardless of how they are diversified (either mainly into trading activities or mainly into commission and fee activities), conventional banks always suffer from higher uncertainty. For commission and fee activities, the absence of impact on stability for IBs happens possibly because such income is linked to balance sheet activities such as loans. For trading activities, Islamic banks are not affected perhaps because of the nature of their trading portfolios, which are presumably different due to restrictions imposed by *Shariá* boards. Moreover, activities such as trading, derivatives, and commission-and-fee income are either prohibited or less developed for IBs compared to CBs.²⁰ This finding supports the view that Islamic banks are not allowed to conduct risky and speculative trading activities making their default risk less sensitive to changes in economic uncertainty compared to conventional banks (Čihák and Hesse, 2010; Beck et al. 2013).

Regarding heterogeneity in bank size (model 5 in table 7), we observe that although large CBs suffer from uncertainty in terms of stability, large IBs are not significantly affected. For small banks, model 6 shows that default risk is not significantly associated with uncertainty, either for IBs or CBs. With regard to the differences between *LISTED* and non-*LISTED* banks (models 7 and 8), we observe that although uncertainty negatively affects conventional listed banks, Islamic listed banks are not affected significantly. However, for non-listed banks, neither CBs nor IBs suffer from uncertainty. In our sample, listed banks are generally larger.²¹ Thus, our findings could be due to the fact that the bank-customer relationship might be tighter in Islamic banks which generally operate on smaller scales. Small banks have a comparative advantage in terms of soft information processing (Berger et al., 2005; Berger and Black, 2011) and mitigating their overall risk under uncertainty. Therefore, for small banks, bank type matters less for the link between stability and uncertainty; both types of banks (IBs and CBs) continue to support their customers. However, for large banks, bank-customer relationships might get weaker and they might rely more on hard information. Thus, the impact of fluctuations in uncertainty on large CBs’ stability is stronger compared to large IBs.

²⁰ Table 2 shows that although the average of *COMMISSIONS* is 49.30% for IBs, it is higher for CBs (54.67%). Similarly, the mean value of *TRADING* is 11.08% for IBs and 13.12% for CBs.

²¹ For the listed banks in our sample, 68% are large and 32% are small. Note that we define large and small banks using observations greater and smaller than the median of *SIZE*, which is the natural logarithm of total assets.

We perform several robustness checks presented in the appendix (table A6). We estimate the regressions on subsamples of IBs and CBs separately for high and low *DIVERS* in models 1-4. We also estimate for high *DIVERS* trading-oriented versus high *DIVERS* commission-and-fee-oriented in models 5-8, as well as for large versus small banks in models 9-12, and *LISTED* and non-*LISTED* banks in models 13-16, respectively.²² Our main findings remain unchanged.²³

>>>INSERT TABLE 7 HERE<<<

4. Conclusion and Policy Implications

We examine whether economic uncertainty differently influences default risk in Islamic and conventional banks. We proxy economic uncertainty via the World Uncertainty Index (WUI) from Ahir et al. (2018). We find that when economic uncertainty increases, so does default risk in conventional banks, implying lower stability. However, default risk in Islamic banks is not significantly influenced by the differences or changes in uncertainty. The results are robust to splitting the sample into Islamic and conventional banks, addressing endogeneity (GMM and IV estimations), and using alternative uncertainty index measures. After decomposing default risk, we find that uncertainty increases leverage risk in conventional banks, but the effect on Islamic banks' leverage risk is not significant, which explains why uncertainty does not affect them. We conclude that leverage risk (but not portfolio risk) drives the different impact of economic uncertainty on CBs and IBs.

To examine why economic uncertainty differently influences risk in Islamic and conventional banks, we consider the influence of religiosity and institutional factors. We find evidence for the role of religiosity and observe that economic uncertainty has a different impact on stability for both types of banks only in Muslim-majority countries. In countries with a lower proportion of Muslims, uncertainty does not affect the stability of IBs or CBs. We confirm the strong role of religion once we use another dimension of religion, namely the importance of religion. In

²² We use the within subsample medians instead of overall sample medians to generate high versus low noninterest and large versus small subsamples, respectively.

²³ After finding that the results are stronger for three groups of banks (high nontraditional income share, large, and listed banks), we further investigate the influence of religiosity and institutional environment for these three groups separately. We confirm the different behavior for IBs and CBs. Our main findings (uncertainty negatively affects CBs but not IBs) are still stronger for Muslim-majority countries, countries that implement *Shariá* law and where the importance of religion and the share of PLS contracts are high, common-law countries, GCC countries, and richer countries. The results of these estimations are available upon request.

countries where religion is important, economic uncertainty negatively affects default risk in conventional banks, but IB default risk is not significantly affected. Besides, we find evidence for the role of PLS contracts in mitigating the default risk of IBs in uncertain times. Specifically, we find that our results are stronger in countries where there is a higher share of PLS contracts in their national banking systems such as Indonesia, Iran, Pakistan, and Sudan. This immunity also holds for countries that implement *Shariá* law, either exclusively or alongside other legal systems. In terms of the influence of the institutional environment, the default risk of two types of banks differs in common law countries, Gulf Cooperation Countries, and rich countries.

Moreover, we explore the effect of bank-level heterogeneity by focusing on the role of income diversification, bank size, and bank stock listings. Our main finding only holds for banks with high income diversification (both trading-oriented and commission-and-fee oriented), large banks, and listed banks. Only these Islamic banks exhibit a different reaction in terms of stability from their conventional peers.

Our findings for conventional banks are in line with Phan et al. (2021), who show that uncertainty (measured by *EPU*) hurts bank stability. We, however, show that, under certain conditions, Islamic banks are not affected by economic uncertainty. Our findings have several policy implications. Regulatory bodies and governments should be aware that uncertainty affects conventional and Islamic banks' default risk differently, especially regarding leverage risk. According to our findings, a dramatic rise in uncertainty can severely destabilize the banking industry but less so in dual-banking markets where both types of banks are present. Also, because conventional banks are more affected than Islamic banks, regulators might need to take stronger action when recapitalizing conventional banks. Increases in uncertainty affect leverage risk in conventional banks the most.

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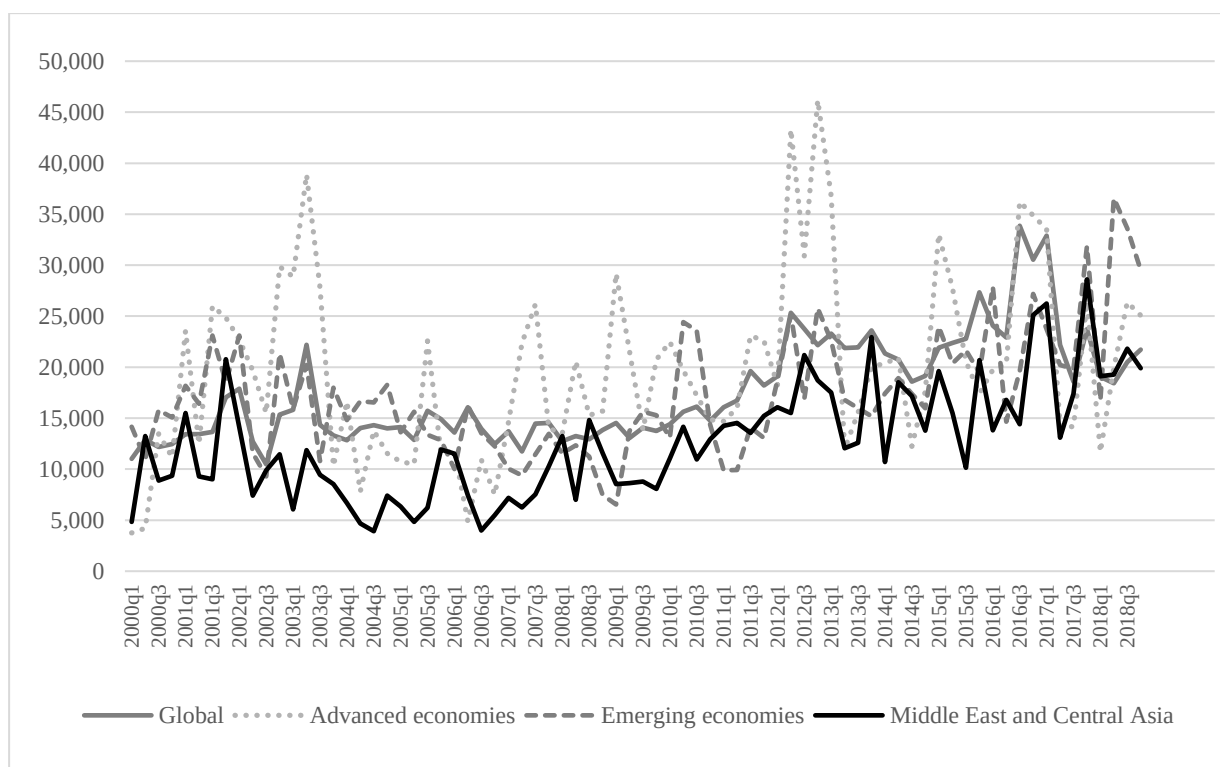


Figure 1. World Economic Uncertainty Index

Source: Ahir et al. (2018)

Table 1: Variable Descriptions

	Description	Data sources
Dependent variables		
DEFAULT RISK	Negative of the natural logarithm of Z-score: $(-1) * \ln [(ROA + CAPITALIZATION) / SD(ROA)]$ where CAPITALIZATION stands for Equity to Total Assets and SD (ROA) is the standard deviation of ROA, respectively.	Fitch Connect
LEVERAGE RISK	$(-1) * \ln [CAPITALIZATION / SD(ROA)]$	Fitch Connect
PORTFOLIO RISK	$(-1) * \ln [ROA / SD(ROA)]$	Fitch Connect
Independent variables		
WUI	Natural logarithm of average quarterly country-specific World Uncertainty index (WUI)	Ahir et al. (2018) (http://www.policyuncertainty.com/)
WUI_V2	Natural logarithm of average quarterly country-specific WUI index calculated using the three-quarter weighted moving average	Ahir et al. (2018) (http://www.policyuncertainty.com/)
WUI_V3	Natural logarithm of average of first two quarters of country-specific World Uncertainty index (WUI)	Ahir et al. (2018) (http://www.policyuncertainty.com/)
ISLAMIC	A dummy variable that takes the value of 1 for Islamic banks; 0 otherwise	Fitch Connect
SIZE	The natural logarithm of total assets	Fitch Connect
GROWTH	Annual growth of total assets	Fitch Connect
LOAN SHARE	Net loans/ Total assets	Fitch Connect
DIVERS	Income diversification is the share of non-interest income in gross revenues for conventional banks. For Islamic banks, it is taken as the share of non-financing income in gross revenues.	Fitch Connect
LIQUIDITY	Liquid assets/ Total assets	Fitch Connect
COST TO INCOME	Total costs/ Total income	Fitch Connect
LISTED	A dummy variable that takes the value of 1 for publicly listed banks; 0 otherwise	Fitch Connect
COMMISSION	The share of net fees and commissions in nontraditional income. Nontraditional income captures non-interest income for conventional banks and non-financing income for Islamic banks, respectively.	Fitch Connect
TRADING	The share of net trading and derivatives in nontraditional income. Nontraditional income captures non-interest income for conventional banks and non-financing income for Islamic banks, respectively.	Fitch Connect
Country Controls		
GDP GROWTH	Real GDP growth rate	World Bank World Development Indicators
INFLATION	The annual growth rate of the GDP implicit deflator	World Bank World Development Indicators
OIL MINERAL	Oil and mineral rents as a share of GDP	World Bank World Development Indicators
FOREIGN BANK ASSETS	Percentage of the total banking assets that are held by foreign banks. A foreign bank is a bank where 50 percent or more of its shares are owned by foreigners.	World Bank Global Financial Development Database
CONCENTRATION	Assets of the three largest banks as a share of total commercial banking assets.	World Bank Global Financial Development Database
MUSLIM SHARE	Percent of Muslim Population in the country.	Pew Research Center (2009)
COMMON LAW	Equals 1 for the English common law legal origin countries; 0 otherwise	Djankov et al. (2007)
CIVIL LAW	Equals 1 for the French civil law legal origin countries; 0 otherwise	Djankov et al. (2007)
LEGAL SYSTEM	Takes a value of 0 if the country does not have Shari'ah law in its legal system, and the value 1 for countries that consider Shari'ah together with other legal system and the value 2 if the legal system is based exclusively on Shari'ah law.	CIA's World Fact Book (https://www.cia.gov/library/publications/the-world-factbook/fields/308.html)

IMPORTANCE OF RELIGION	Share of population who consider religion to be very important.	World Values Surveys (WVS)
PLS	The share of PLS contracts in total financing.	The Islamic Financial Services Board (IFSB) (https://www.ifsb.org/psifi_03.php)

Table 2: Descriptive Statistics

	Full sample						Islamic banks		Conventional banks		
Variable	N	Mean	Min	Max	SD	Median	N	Mean	N	Mean	Difference t-test
DEFAULT RISK	3615	-3.99	-8.01	0.13	1.13	-3.93	577	-3.91	3,038	-4.01	0.09*
LEVERAGE RISK	3618	-3.88	-8.26	0.22	1.16	-3.81	579	-3.81	3,039	-3.89	0.08
PORTFOLIO RISK	3621	-1.47	-5.74	5.01	1.37	-1.52	583	-1.29	3,038	-1.50	0.22***
ISLAMIC	5680	0.17	0	1	0.37	0					
WUI	5328	-2.15	-4.05	-0.29	0.87	-2.20					
Within variation					0.66						
Between variation					0.56						
WUI_V2	5591	-3.33	-7.21	-1.45	0.94	-3.37					
WUI_V3	4469	-1.99	-3.76	0.35	0.84	-2.20					
SIZE	4507	7.67	3.02	11.79	1.90	7.63	736	7.89	3,771	7.63	0.26***
GROWTH	4183	18.65%	0.25%	143.23%	21.73%	12.69%	677	19.92%	3,506	18.41%	1.51*
LOAN SHARE	4436	53.21%	1.33%	92.33%	20.23%	58.88%	727	53.49%	3,709	53.16%	0.33
DIVERS	4476	32.94%	1.35%	122.61%	24.11%	27.63%	727	40.39%	3,749	31.49%	8.9***
COST TO INCOME	4470	57.71%	15.03%	208.78%	28.91%	52.38%	729	61.34%	3,741	57.01%	4.33***
LIQUIDITY	4504	21.60%	1.11%	87.31%	16.65%	17.24%	733	20.48%	3,771	21.82%	-1.34**
LISTED	5320	0.41	0	1	0.49		930	0.39	4,390	0.41	-0.02
COMMISSION	3999	53.80%	-46.51%	180.86%	33.25%	55.71%	648	49.30%	3,351	54.67%	-5.37***
TRADING	2250	12.87%	-159.30%	153.82%	35.27%	9.32%	280	11.08%	1,970	13.12%	-2.04
Components of Z-score											
ROA	4218	1.74%	0.03%	12.03%	1.85%	1.27%	688	1.62%	3,530	1.77%	-0.15*
CAPITALIZATION	4503	16.60%	2.91%	89.12%	15.53%	11.79%	732	16.64%	3,771	16.60%	0.04
Country Controls											
GDP GROWTH	5663	4.77%	0.12%	19.59%	2.57%	5.01%					
INFLATION	5663	7.64%	0.02%	47.17%	6.76%	5.87%					
OIL MINERAL	5112	8.43%	0%	61.23%	13.17%	2.79%					
FOREIGN BANK ASSETS	4734	20.37%	0%	94%	17.51%	21.00%					
CONCENTRATION	4788	51.85%	26.45%	100%	17.98%	43.56%					
MUSLIM SHARE	5680	84.87%	14.90%	99.50%	17.15%	89.60%					
COMMON LAW	5680	0.36	0	1	0.48	0					
CIVIL LAW	5680	0.62	0	1	0.49	1					
LEGAL SYSTEM	5680	0.71	0	2	0.56	1					
IMPORTANCE OF RELIGION	4280	90.77%	43.10%	995.80%	70.83%	89.50%					
PLS	2058	15.06%	0.00%	35.14%	13.47%	9.44%					

Note: This table presents descriptive statistics for the full sample, and Islamic banks and conventional banks subsamples, respectively. * p<0.10, ** p<0.05, *** p<0.010

Table 3: The Effect of WUI on Bank Stability: Islamic vs. Conventional Banks

	(1) (DEFAULT RISK)	(2) (LEVERAGE RISK)	(3) (PORTFOLIO RISK)	(4) (DEFAULT RISK)	(5) (GMM)	(6) (WUI_V2)	(7) (WUI_V3)
WUI (β_1)	0.098*** (0.03)	0.103*** (0.03)	0.038 (0.03)	0.092*** (0.03)	0.083*** (0.03)	0.097*** (0.03)	0.084*** (0.03)
ISLAMIC	-0.146 (0.18)	-0.179 (0.18)	0.21 (0.24)	-0.431** (0.18)	-0.413 (0.42)	-0.113 (0.24)	-0.04 (0.18)
ISLAMIC*WUI (β_2)	-0.068 (0.06)	-0.078 (0.07)	0.039 (0.10)	-0.149** (0.07)	-0.167 (0.15)	-0.035 (0.06)	-0.028 (0.07)
L.SIZE	-0.011 (0.02)	-0.006 (0.02)	-0.095*** (0.02)	-0.008 (0.02)	-0.046 (0.05)	-0.012 (0.02)	-0.016 (0.02)
L.GROWTH	0.002** (0.00)	0.003** (0.00)	0.000 (0.00)	0.002* (0.00)	0.005** (0.00)	0.002** (0.00)	0.003** (0.00)
L.LIQUIDITY	-0.003 (0.00)	-0.003 (0.00)	0.001 (0.00)	-0.002 (0.00)	0.003 (0.01)	-0.003 (0.00)	-0.004 (0.00)
L.LOAN SHARE	-0.004* (0.00)	-0.004* (0.00)	-0.004 (0.00)	-0.002 (0.00)	-0.009 (0.01)	-0.004* (0.00)	-0.004** (0.00)
L.DIVERS	0.004*** (0.00)	0.004*** (0.00)	0.005*** (0.00)	0.005*** (0.00)	0.001 (0.00)	0.004*** (0.00)	0.005*** (0.00)
L.COST TO INCOME	0.004*** (0.00)	0.003*** (0.00)	0.009*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.003*** (0.00)	
L.GDP GROWTH	0.011 (0.01)	0.012 (0.01)	0.008 (0.01)	0.015 (0.01)	0.002 (0.01)	0.011 (0.01)	0.01 (0.01)
L.INFLATION	0.008** (0.00)	0.009** (0.00)	0.001 (0.00)	0.015*** (0.00)	0.007** (0.00)	0.009** (0.00)	0.008* (0.00)
L.OIL MINERAL	-0.060*** (0.02)	-0.060*** (0.02)	-0.050*** (0.02)	-0.063*** (0.02)	-0.051*** (0.02)	-0.058*** (0.02)	-0.074*** (0.02)
L.FOREIGN BANK ASSETS				0.006** (0.00)			
L.CONCENTRATION				0.000 (0.00)			
L.DEFAULT RISK					0.306*** (0.05)		
CONSTANT	-3.832*** (0.29)	-3.713*** (0.30)	-1.120*** (0.32)	-4.206*** (0.39)	-1.867*** (0.72)	-3.737*** (0.30)	-3.739*** (0.29)
R2	0.1253	0.1165	0.2599	0.1512	0.1298	0.1431	

Observations	3112	3115	3118	2912	2642	3159	2476
Number of Banks	506	506	507	464	486	506	496
Number_of instruments					180		
Year FE	YES	YES	YES	YES	YES	YES	YES
$\beta_1 + \beta_2$	0.03	0.025	0.077	-0.057	-0.084	0.062	0.056
Wald Chi2	74.78***	73.4***	128.68***	86.62***	131.45***	73.54***	72.86***
AR1					-6.18***		
AR2					-4.49		
Hansen's J stat					216.21		

Notes: This table shows the WUI and bank risk-taking regressions for IBs and CBs. We conduct the estimations using random effects generalized least square (GLS) regressions (except column 5). DEFAULT RISK is a dependent variable in all columns except 2 and 3. Columns 2 and 3 use LEVERAGE RISK and PORTFOLIO RISK as dependent variables, respectively. Column 4 uses additional country controls, and column 5 uses dynamic panel data techniques with two-step system GMM estimators to control for endogeneity. Columns 6 and 7 use alternative WUI measures: WUI_V2 and WUI_V3, respectively. Standard errors are clustered at the bank level and reported in parentheses.

* p<0.10, ** p<0.05, *** p<0.010

Table 4: The Effect of WUI on Bank Stability: Subsample Estimations

	(1) (Islamic) (Random effects GLS)	(2) (Conventional) (Random effects GLS)	(3) (Islamic) (IV 2SLS)	(4) (Conventional) (IV 2SLS)
WUI	0.032 (0.06)	0.074*** (0.03)	0.036 (0.19)	0.112** (0.07)
L.SIZE	-0.004 (0.05)	-0.040* (0.02)	-0.12 (0.22)	0.160* (0.09)
L.GROWTH	0.003 (0.00)	0.003*** (0.00)	0.00 (0.00)	0.002** (0.00)
L.LIQUIDITY	0.001 (0.01)	-0.004 (0.00)	0.01* (0.01)	-0.004 (0.00)
L.LOAN SHARE	0.000 (0.01)	-0.001 (0.00)	0.001 (0.01)	-0.003 (0.00)
L.DIVERS	0.005** (0.00)	0.005*** (0.00)	0.002** (0.00)	0.003 (0.00)
L.COST TO INCOME	0.002 (0.00)	0.004*** (0.00)	0.004* (0.00)	0.004** (0.00)
L.GDP GROWTH	0.026 (0.02)	0.004 (0.01)	0.007 (0.02)	0.016** (0.01)
L.INFLATION	0.001** (0.01)	0.010** (0.00)	-0.002 (0.01)	0.001 (0.01)
L.OIL MINERAL	0.000 (0.01)	-0.005 (0.00)	0.000 (0.01)	0.000 (0.01)
CONSTANT	-4.536*** (0.63)	-3.869*** (0.30)		
R2	0.1127	0.1228		
Observations	529	2879	441	2602
Number of Banks	94	461	81	441
Year FE	YES	YES	YES	YES
Wald Chi2	25.54**	53.08***		
Hansen J stat.			0.586	7.44
Hansen J stat. p-value			0.9646	0.159
Kleibergen-Paap Wald F test			16.955***	200.421***

Notes: This table shows the WUI and DEFAULT RISK regressions by splitting the sample into Islamic and conventional banks. Although the estimations in columns 1 and 2 use random effects generalized least square (GLS) regressions; columns 3 and 4 use instrumental variable (IV) approach with two-stage least squares regression (2SLS). Standard errors are clustered at the bank level and reported in parentheses. * p<0.10, ** p<0.05, *** p<0.010

Table 5: The Effect of WUI on Bank Stability: The Influence of Religiosity

	(1) (MUSLIM SHARE +90)	(2) (MUSLIM SHARE -90)	(3) (IMPORTANCE OF RELIGION: High)	(4) (IMPORTANCE OF RELIGION: Low)	(5) (Shari'ah law)	(6) (No Shari'ah law)	(7) (PLS High)	(8) (PLS Low)
WUI (β_1)	0.128*** (0.05)	0.024 (0.03)	0.081** (0.03)	0.128*** (0.04)	0.115*** (0.04)	0.05 (0.04)	0.209*** (0.08)	0.059** (0.03)
ISLAMIC	0.137 (0.28)	-0.251 (0.21)	-0.651*** (0.24)	0.364 (0.23)	-0.165 (0.19)	0.721** (0.35)	-0.167 (0.36)	-0.055 (0.17)
ISLAMIC*WUI (β_2)	0.012 (0.11)	-0.106 (0.08)	-0.236*** (0.09)	0.073 (0.09)	-0.098 (0.07)	0.134 (0.14)	-0.045 (0.14)	-0.048 (0.06)
L.SIZE	-0.003 (0.03)	-0.066** (0.03)	0.006 (0.03)	-0.051* (0.03)	-0.067** (0.03)	0.006 (0.03)	0.046 (0.04)	-0.033* (0.02)
L.GROWTH	0.004*** (0.00)	0.002 (0.00)	0.002 (0.00)	0.005*** (0.00)	0.003* (0.00)	0.003** (0.00)	0.001 (0.00)	0.003*** (0.00)
L.LIQUIDITY	-0.004 (0.00)	-0.001 (0.00)	-0.001 (0.00)	-0.007* (0.00)	-0.006** (0.00)	0.002 (0.01)	0.009** (0.00)	-0.003 (0.00)
L.LOAN SHARE	-0.006** (0.00)	0.004 (0.00)	-0.005 (0.00)	0 (0.00)	-0.001 (0.00)	-0.002 (0.00)	-0.001 (0.00)	-0.001 (0.00)
L.DIVERS	0.003* (0.00)	0.005** (0.00)	0.004** (0.00)	0.005** (0.00)	0.005*** (0.00)	0.002 (0.00)	0.005* (0.00)	0.005*** (0.00)
L.COST TO INCOME	0.005*** (0.00)	0.002 (0.00)	0.004*** (0.00)	0.003* (0.00)	0.003** (0.00)	0.005*** (0.00)	0.006*** (0.00)	0.004*** (0.00)
L.GDP GROWTH	0.021* (0.01)	-0.013 (0.01)	0.007 (0.01)	0.004 (0.01)	0.014 (0.01)	0.003 (0.02)	-0.048 (0.03)	0.012 (0.01)
L.INFLATION	-0.001 (0.01)	0.016*** (0.01)	0.014*** (0.00)	-0.009* (0.01)	0.007* (0.00)	0.004 (0.01)	0.007 (0.01)	0.007* (0.00)
L.OIL MINERAL	-0.005 (0.00)	-0.006 (0.01)	-0.014*** (0.01)	0.006 (0.00)	-0.003 (0.00)	-0.011* (0.01)	0.004 (0.01)	-0.005* (0.00)
CONSTANT	-3.691*** (0.36)	-4.071*** (0.37)	-3.871*** (0.37)	-3.781*** (0.37)	-3.555*** (0.34)	-4.208*** (0.47)	-4.315*** (0.55)	-4.156*** (0.28)
R2	0.1847	0.1205	0.1433	0.2126	0.123	0.1616	0.1833	0.1206
Wald Chi2	49.73***	43.97***	64.04***	48.23***	56.52***	46.44***	95.38***	115.12***
Observations	1405	2003	2083	1325	2153	1420	1106	3408
Number of Banks	231	324	320	235	365	219	189	555
$\beta_1 + \beta_2$	0.14	-0.082	-0.155	0.201***	0.017	0.184	0.164	-0.041
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Notes: This table shows the WUI and DEFAULT RISK regressions for IBs and CBs and considers the influence of religiosity by splitting the sample according to country characteristics. We conduct the estimations using random effects generalized least square (GLS) regressions. Columns 1 and 2 display regression results for predominantly Muslim countries (MUSLIM SHARE $\geq 90\%$) versus MUSLIM SHARE $< 90\%$. Columns 3 and 4 display results for countries where IMPORTANCE OF RELIGION is high (> 75 th percentile) and low (> 75 th percentile). Columns 5 and 6 show the results for Shariá law and non-Shariá law countries. Columns 7 and 8 show the results for PLS High (PLS $>$ Median) and PLS Low (PLS $<$ Median) countries, respectively. Standard errors are clustered at the bank level and reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table 6: The Effect of WUI on Bank Stability: Influence of the Institutional Environment

	(1) (COMMON LAW)	(2) (CIVIL LAW)	(3) (GCC)	(4) (Non-GCC)	(5) (Rich)	(6) (Poor)
WUI (β_1)	0.105*** (0.05)	0.068** (0.03)	0.185** (0.09)	0.067** (0.03)	0.129*** (0.03)	0.029 (0.04)
ISLAMIC	-0.529** (0.23)	-0.223 (0.26)	-0.235 (0.39)	-0.016 (0.19)	0.168 (0.22)	-0.572** (0.26)
ISLAMIC*WUI (β_2)	-0.198** (0.08)	-0.042 (0.09)	-0.121 (0.12)	-0.031 (0.07)	0.003 (0.07)	-0.179* (0.10)
L.SIZE	-0.108*** (0.04)	-0.007 (0.02)	-0.029 (0.05)	-0.017 (0.02)	-0.088*** (0.02)	0.046 (0.03)
L.GROWTH	0.002 (0.00)	0.003*** (0.00)	0.001 (0.01)	0.003*** (0.00)	0.003** (0.00)	0.003** (0.00)
L.LIQUIDITY	-0.012*** (0.00)	0.001 (0.00)	-0.001 (0.01)	-0.003 (0.00)	-0.001 (0.00)	-0.002 (0.00)
L.LOAN SHARE	-0.004 (0.00)	0.001 (0.00)	-0.005 (0.01)	0.000 (0.00)	0.005 (0.00)	-0.004 (0.00)
L.DIVERS	0.003 (0.00)	0.006*** (0.00)	0.006 (0.01)	0.005*** (0.00)	0.005*** (0.00)	0.005** (0.00)
L.COST TO INCOME	0.001 (0.00)	0.004*** (0.00)	0.003* (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.005*** (0.00)
L.GDP GROWTH	0.042*** (0.01)	-0.007 (0.01)	0.024 (0.02)	0.004 (0.01)		
L.INFLATION	0.008 (0.01)	0.003 (0.00)	0.005 (0.01)	0.009* (0.01)	-0.002 (0.01)	0.018*** (0.01)
L.OIL MINERAL	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.00 (0.00)	0.002 (0.00)	-0.017* (0.01)
CONSTANT	-2.976*** (0.50)	-4.294*** (0.32)	-3.928*** (1.07)	-4.070*** (0.29)	-3.821*** (0.36)	-4.359*** (0.41)
R2	0.1536	0.102	0.155	0.1094	0.1212	0.1089
Wald Chi2	59***	45.77***	27.25***	43.44***	55.27***	50.91***
Observations	1053	2302	495	2913	1719	1689
Number of Banks	194	346	66	489	372	312
$\beta_1 + \beta_2$	-0.093	0.026	0.064	0.036	0.132**	-0.15
Year FE	YES	YES	YES	YES	YES	YES

Notes: This table shows the WUI and DEFAULT RISK regressions and considers the influence of the institutional environment by splitting the sample according to country characteristics. We conduct the estimations using random effects generalized least square (GLS) regressions. Columns 1 and 2 show the results for COMMON LAW and CIVIL LAW countries, respectively. Columns 3 and 4 incorporate results for GCC and non-GCC countries. Columns 5 and 6 show the results for rich (GDP per capita > median) and poor (GDP per capita < median) countries. Standard errors are clustered at the bank level and reported in parentheses. * p<0.10, ** p<0.05, *** p<0.010

Table 7: Cross-Sectional Analyses on Bank Heterogeneity

	(1) (High DIVERS)	(2) (Low DIVERS)	(3) High DIVERS- Trading Oriented	(4) High DIVERS- Commission and Fee Oriented	(5) (Large)	(6) (Small)	(7) (LISTED)	(8) (Non- LISTED)
WUI (β_1)	0.151*** (0.04)	0.033 (0.03)	0.154*** (0.05)	0.196*** (0.06)	0.126*** (0.03)	0.075* (0.04)	0.143*** (0.04)	0.053 (0.04)
ISLAMIC	-0.152 (0.26)	-0.04 (0.19)	-0.198 (0.30)	-0.911** (0.37)	0.149 (0.21)	-0.757*** (0.25)	0.29 (0.27)	-0.490** (0.22)
ISLAMIC*WUI (β_2)	-0.106 (0.10)	0.001 (0.08)	-0.109 (0.12)	-0.420*** (0.14)	0.038 (0.07)	-0.277*** (0.10)	0.011 (0.10)	-0.109 (0.08)
L.SIZE	-0.049* (0.03)	0.005 (0.03)	-0.03 (0.03)	-0.100*** (0.04)			-0.04 (0.03)	0.053 (0.03)
L.GROWTH	0.001 (0.00)	0.004*** (0.00)	0.001 (0.00)	0 (0.00)	0.006*** (0.00)	0.002 (0.00)	0.003* (0.00)	0.002 (0.00)
L.LIQUIDITY	-0.003 (0.00)	-0.004 (0.00)	0 (0.00)	0.002 (0.01)	-0.001 (0.00)	-0.004 (0.00)	-0.005 (0.01)	-0.003 (0.00)
L.LOAN SHARE	-0.003 (0.00)	-0.006** (0.00)	-0.001 (0.00)	-0.001 (0.00)	-0.007** (0.00)	-0.005 (0.00)	-0.005 (0.00)	-0.004 (0.00)
L.DIVERS					0.004 (0.00)	0.005** (0.00)	0.006*** (0.00)	0.003 (0.00)
L.COST TO INCOME	0.002* (0.00)	0.007*** (0.00)	0.003* (0.00)	0.003 (0.00)	0.007*** (0.00)	0.003** (0.00)	0.006*** (0.00)	0.002 (0.00)
L.GDP GROWTH	0.014 (0.01)	0.007 (0.01)	0.011 (0.02)	0.029 (0.02)	0.026** (0.01)	-0.017 (0.01)	0.015 (0.01)	0.01 (0.01)
L.INFLATION	0.010** (0.01)	0.011* (0.01)	0.008* (0.01)	0.013** (0.01)	0.007 (0.01)	0.009 (0.01)	0.004 (0.01)	0.013** (0.01)
L.OIL MINERAL	-0.053** (0.02)	-0.062** (0.02)	-0.057** (0.03)	-0.065** (0.03)	-0.059*** (0.02)	-0.072** (0.03)	-0.047** (0.02)	-0.057* (0.03)
CONSTANT	-3.150*** (0.37)	-4.170*** (0.37)	-3.455*** (0.42)	-3.002*** (0.50)	-3.978*** (0.22)	-3.666*** (0.33)	-3.713*** (0.39)	-4.148*** (0.41)

R2	0.0573	0.1028	0.0497	0.0927	0.2705	0.0581	0.2119	0.1027
Wald Chi2	43.5***	75.83***	28.19***	49.48***	78.08***	42.82***	64.15***	34.04***
Observations	1499	1616	1112	784	1668	1444	1415	1598
Number of Banks	359	352	321	248	271	311	205	274
$\beta_1 + \beta_2$	0.045	0.034	0.045	-0.224*	0.164	-0.202	0.154	-0.056
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Notes: This table investigates bank-level heterogeneity in the WUI and bank default risk regressions. We conduct the estimations using random effects generalized least square (GLS) regressions. We use default risk (Z-score) as dependent variables in all columns. Columns 1 and 2 split the banks into high DIVERS (> overall sample median) and low DIVERS (< overall sample median), respectively. Columns 3 and 4 decompose the high DIVERS subsample into trading-oriented (DIVERS>median and TRADING>median) and commission-and-fee-oriented (DIVERS>median and COMMISSION>median). Columns 5 and 6 split the banks into large banks (>overall sample median) and small (<overall sample median) banks. Columns 7 and 8 present the findings for LISTED and non-LISTED banks, respectively. Standard errors are clustered at the bank level and reported in parentheses. * p<0.10, ** p<0.05, *** p<0.010

Appendix

Table A1: Sample Distribution

	Islamic Banks	Conventional Banks	Total
BANGLADESH	5	49	54
EGYPT	1	24	25
INDONESIA	8	113	121
IRAN	17	0	17
IRAQ	6	12	18
JORDAN	3	11	14
KUWAIT	3	14	17
LEBANON	2	37	39
MALAYSIA	15	29	44
MAURITANIA	2	12	14
PAKISTAN	5	29	34
QATAR	5	8	13
SAUDI ARABIA	3	10	13
SENEGAL	1	12	13
SINGAPORE	1	13	14
SUDAN	7	11	18
TUNISIA	1	18	19
TURKEY	1	45	46
UNITED ARAB EMIRATES	6	22	28
YEMEN	3	4	7
Grand Total	95	473	568

Table A2: Descriptive Statistics at the Country Level

	DEFAULT T RISK	WUI	SIZE	GROWTH	LOAN SHARE	DIVERS	COST TO INCOME	LIQUIDITY	CAPITALIZATION	GDP GROWTH	INFLATION	OIL MINERAL	FOREIGN BANK ASSETS	CONCENTRATION	PLS
BANGLADESH	-3.70	-2.85	7.18	21.09	62.57	32.46	52.76	17.64	13.89	6.45	6.73	0.09	3.00	31.51	3.71
EGYPT	-3.59	-1.78	8.32	17.88	36.19	23.93	45.35	24.48	10.54	3.71	13.29	6.53	22.44	59.11	.
INDONESIA	-3.95	-2.45	7.01	20.41	63.54	18.56	62.18	18.83	16.15	5.38	5.97	3.24	25.89	40.82	32.23
IRAN	-3.26	-1.88	9.55	26.52	62.35	57.98	69.58	14.12	8.74	4.46	14.33	19.53	.	.	.
IRAQ	-3.82	-2.06	5.92	31.07	25.84	81.34	49.39	46.02	43.79	5.79	13.65	41.34	.	66.49	.
JORDAN	-4.35	-2.80	8.05	8.82	48.75	33.17	53.15	20.05	13.72	2.74	3.83	1.70	24.56	74.10	0.06
KUWAIT	-4.05	-2.28	8.12	10.54	54.73	47.10	63.67	21.38	25.33	3.56	12.31	47.40	7.22	79.75	1.28
LEBANON	-4.47	-1.28	7.75	14.37	28.24	34.25	59.90	30.90	10.41	2.90	3.92	0.00	30.22	41.25	.
MALAYSIA	-4.49	-2.45	8.41	14.99	54.50	29.30	52.16	25.01	14.88	5.03	2.93	4.35	17.00	60.99	8.14
MAURITANIA	-4.25	-2.63	4.94	18.62	52.34	53.02	83.73	26.37	23.23	3.80	6.56	31.15	5.78	71.06	.
PAKISTAN	-3.72	-2.37	7.53	19.42	40.50	25.56	69.40	15.32	11.94	4.12	8.21	0.73	51.56	57.33	14.68
QATAR	-4.41	-2.93	9.25	16.34	56.45	28.88	39.98	18.58	24.46	6.68	11.21	22.53	0.00	85.81	.
SAUDI ARABIA	-4.59	-2.21	10.20	9.68	60.20	33.48	41.50	16.37	19.83	3.76	9.46	35.45	0.00	55.58	0.01
SENEGAL	-3.50	-2.40	6.09	19.09	57.37	54.32	70.37	16.16	10.29	4.82	1.64	1.64	92.11	54.34	.
SINGAPORE	-4.62	-2.80	9.38	13.41	50.62	52.16	60.07	18.23	21.56	4.68	1.47	0.00	6.11	88.35	.
SUDAN	-3.49	-1.81	6.04	31.22	34.49	64.10	56.82	28.50	17.66	3.25	22.57	8.32	10.11	84.43	9.58
TUNISIA	-3.85	-1.34	7.20	13.54	61.96	43.18	59.57	26.17	11.64	2.51	4.48	4.24	28.33	39.67	.
TURKEY	-3.77	-1.07	7.84	27.29	58.60	28.01	59.87	20.02	23.54	6.20	8.46	0.32	13.11	40.37	.
UAE	-4.17	-1.78	9.23	13.69	61.36	31.72	43.66	18.43	16.96	3.80	7.67	20.32	1.00	60.81	0.00
YEMEN	-3.32	-2.57	6.63	15.08	13.03	43.39	63.73	37.22	11.18	7.06	17.16	11.78	.	.	.

Table A3: Correlations

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1) DEFAULT RISK	1													
(2) LEVERAGE RISK	0.9972*	1												
(3) PORTFOLIO RISK	0.7373*	0.6976*	1											
(4) ISLAMIC	-0.002	-0.01	0.0371*	1										
(5) WUI	0.0602*	0.0629*	0.0144	-0.0559*	1									
(6) WUI_V2	0.0666*	0.0702*	0.0163	-0.0489*	0.9781*	1								
(7) WUI_V3	0.0736*	0.0774*	0.0289	-0.0798*	0.8237*	0.8509*	1							
(8) SIZE	-0.1369*	-0.1241*	-0.2928*	0.0065	0.0358*	0.0341*	-0.0099	1						
(9) GROWTH	0.1494*	0.1556*	0.0980*	0.005	0.0506*	0.0400*	0.0649*	-0.2147*	1					
(10) LOAN SHARE	-0.031	-0.0293	-0.0873*	-0.0138	-0.1149*	-0.0948*	-0.0392*	0.1803*	-0.0695*	1				
(11) DIVERS	0.1171*	0.1164*	0.1345*	0.0891*	0.0547*	0.0158	0.0277	-0.0952*	0.0540*	-0.3258*	1			
(12) COST TO INCOME	0.1601*	0.1441*	0.3496*	0.0392*	0.0147	0.0011	0.0376*	-0.3538*	0.0698*	-0.1442*	0.1542*	1		
(13) CAPITALIZATION	-0.1003*	-0.1209*	0.1169*	0.0264	0.0058	0.0128	-0.0003	-0.4772*	0.0735*	-0.1842*	0.1512*	0.1057*	1	
(14) LIQUIDITY	0.0016	-0.0025	0.0858*	-0.0096	0.0751*	0.0669*	0.0560*	-0.3041*	0.1702*	-0.3369*	0.2153*	0.0749*	0.2903*	1
(15) GDP GROWTH	0.0759*	0.0779*	0.0603*	-0.003	-0.1225*	-0.0934*	-0.0478*	-0.0539*	0.1322*	0.0749*	-0.0337*	0.0028	0.0580*	0.0057
(16) INFLATION	0.1121*	0.1195*	0.0154	0.0858*	0.0426*	0.0078	-0.0212	-0.0054	0.0898*	-0.1185*	0.1345*	-0.0568*	0.0623*	0.0777*
(17) OIL MINERAL	-0.0971*	-0.0958*	-0.0692*	0.1548*	0.0371*	0.0709*	-0.017	0.1203*	-0.0708*	-0.1263*	0.1949*	-0.0443*	0.1032*	0.1460*
(18) FOREIGN BANK ASSETS	0.0802*	0.0832*	0.0526*	-0.0851*	0.0404*	-0.0089	0.0168	-0.2153*	0.0085	-0.1205*	-0.0306	0.1597*	-0.1639*	-0.0277
(19) CONCENTRATION	-0.0950*	-0.0946*	-0.0644*	0.1787*	-0.1365*	-0.2194*	-0.1291*	0.1464*	-0.0752*	-0.1649*	0.2634*	-0.0566*	0.1288*	0.0610*
(20) MUSLIM SHARE	0.1916*	0.1928*	0.1278*	-0.0569*	0.0295*	0.0464*	0.0588*	-0.1713*	0.0682*	0.1318*	-0.0378*	0.0559*	0.0366*	-0.0623*
(21) LEGAL SYSTEM	-0.0415*	-0.0386*	-0.0558*	0.1767*	0.0057	-0.0266*	-0.0552*	0.2272*	-0.0895*	-0.2136*	0.2456*	-0.1026*	-0.0654*	0.0683*
(22) COMMON LAW	-0.0211	-0.0224	0.01	0.1343*	-0.3027*	-0.3311*	-0.2683*	0.0187	-0.0441*	-0.0931*	0.1087*	-0.0057	-0.0395*	-0.0204
(23) CIVIL LAW	0.0182	0.0161	0.0146	-0.1545*	0.2730*	0.3063*	0.2259*	-0.1243*	0.0215	0.0541*	-0.1194*	0.0303*	0.0947*	0.0592*
(24) IMPORTANCE OF RELIGION	-0.1012*	-0.1050*	-0.1057*	0.1022*	-0.0144	-0.0113	-0.0958*	0.3099*	-0.1139*	0.1072*	0.0394*	-0.1421*	0.1150*	-0.0673*
(25) PLS	0.0812*	0.0786*	0.1123*	-0.1666*	-0.1060*	-0.0418	-0.0941*	-0.3188*	0.0844*	0.1887*	-0.3737*	0.1720*	-0.0042	-0.0956*

Table A3: Correlations (Continued)

	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)	(24)	(25)
(1) DEFAULT RISK											
(2) LEVERAGE RISK											
(3) PORTFOLIO RISK											
(4) ISLAMIC											
(5) WUI											
(6) WUI_V2											
(7) WUI_V3											
(8) SIZE											
(9) GROWTH											
(10) LOAN SHARE											
(11) DIVERS											
(12) COST TO INCOME											
(13) CAPITALIZATION											
(14) LIQUIDITY											
(15) GDP GROWTH	1										
(16) INFLATION	-0.0223	1									
(17) OIL MINERAL	-0.1913*	0.2246*	1								
(18) FOREIGN BANK ASSETS	-0.1354*	-0.1764*	-0.0863*	1							
(19) CONCENTRATION	-0.2016*	0.2682*	0.5998*	-0.1077*	1						
(20) MUSLIM SHARE	0.0794*	0.2190*	-0.1201*	0.1752*	-0.2596*	1					
(21) LEGAL SYSTEM	-0.1939*	0.2139*	0.2847*	-0.2755*	0.2734*	0.0427*	1				
(22) COMMON LAW	0.026	0.0211	-0.3507*	-0.1295*	0.2301*	-0.2567*	0.2923*	1			
(23) CIVIL LAW	-0.0296*	-0.0460*	0.3087*	0.1394*	-0.1374*	0.2041*	-0.5082*	-0.8230*	1		
(24) IMPORTANCE OF RELIGION	-0.0751*	0.1186*	0.4832*	-0.4117*	0.3736*	-0.0026	0.3198*	-0.0917*	0.1523*	1	
(25) PLS	0.2443*	-0.1877*	0.0314	0.5579*	-0.3990*	0.1692*	-0.9063*	-0.6393*	0.6160*	-0.4843*	1

Note: * significance at 0.05

Table A4: Robustness Checks for the Influence of Religiosity

	(1) (MUSLIM SHARE +90)	(2) (MUSLIM SHARE +90)	(3) (MUSLIM SHARE -90)	(4) (MUSLIM SHARE -90)	(5) (IMPORTANCE OF RELIGION: High)	(6) (IMPORTANCE OF RELIGION: High)	(7) (IMPORTANCE OF RELIGION: Low)	(8) (IMPORTANCE OF RELIGION: Low)
	Islamic	Conv	Islamic	Conv	Islamic	Conv	Islamic	Conv
WUI	0.151 (0.11)	0.119*** (0.05)	-0.065 (0.07)	0.022 (0.03)	-0.139 (0.09)	0.083** (0.03)	0.213*** (0.08)	0.128*** (0.04)
L.SIZE	0.059 (0.06)	-0.009 (0.03)	-0.077 (0.08)	-0.063** (0.03)	0.02 (0.08)	0.006 (0.03)	-0.002 (0.09)	-0.056* (0.03)
L.GROWTH	0.004 (0.00)	0.004*** (0.00)	-0.002 (0.00)	0.003* (0.00)	-0.003 (0.00)	0.002 (0.00)	0.008*** (0.00)	0.005** (0.00)
L.LIQUIDITY	-0.015* (0.01)	-0.003 (0.00)	0.013* (0.01)	-0.004 (0.00)	0.008 (0.01)	-0.003 (0.00)	-0.006 (0.01)	-0.007 (0.00)
L.LOAN SHARE	-0.012** (0.01)	-0.005 (0.00)	0.014** (0.01)	0.002 (0.00)	0.003 (0.01)	-0.006* (0.00)	0.000 (0.01)	0.000 (0.00)
L.DIVERS	0.001 (0.00)	0.005** (0.00)	0.010** (0.00)	0.004 (0.00)	0.009** (0.00)	0.003 (0.00)	0.001 (0.00)	0.006** (0.00)
L.COST TO INCOME	0.003 (0.00)	0.005*** (0.00)	0.001 (0.00)	0.002 (0.00)	0.001 (0.00)	0.005*** (0.00)	0.004 (0.00)	0.003 (0.00)
L.GDP GROWTH	0.01 (0.02)	0.026* (0.01)	0.023 (0.03)	-0.026* (0.02)	0.023 (0.02)	0 (0.01)	-0.02 (0.03)	0.008 (0.02)
L.INFLATION	-0.015* (0.01)	0.005 (0.01)	0.018** (0.01)	0.016*** (0.01)	0.018** (0.01)	0.013*** (0.01)	-0.020** (0.01)	-0.004 (0.01)
L.OIL MINERAL	-0.001 (0.01)	-0.006 (0.00)	0.002 (0.01)	-0.008 (0.01)	0.002 (0.01)	-0.017*** (0.01)	0.005 (0.01)	0.006 (0.00)
CONSTANT	-3.159*** (0.78)	-3.843*** (0.43)	-5.193*** (0.83)	-3.861*** (0.42)	-5.360*** (0.84)	-3.737*** (0.42)	-3.579*** (0.76)	-3.815*** (0.44)
R2	0.383	0.1715	0.1525	0.1176	0.0193	0.1599	0.3992	0.1379
Observations	204	1201	325	1678	279	1804	250	1075
Number of Banks	46	185	48	276	41	279	53	182
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Table A4: Robustness Checks for the Influence of Religiosity (continued)

	(9) (Shari'ah law)	(10) (Shari'ah law)	(11) (No Shari'ah law)	(12) (No Shari'ah law)	(13) (PLS High)	(14) (PLS High)	(15) (PLS Low)	(16) (PLS Low)
	Islamic	Conv	Islamic	Conv	Islamic	Conv	Islamic	Conv
WUI	0.013 (0.06)	0.108*** (0.04)	0.147 (0.16)	0.046 (0.04)	0.058 (0.09)	0.194*** (0.06)	0.123 (0.05)	0.105** (0.05)
L.SIZE	0.004 (0.06)	-0.083** (0.03)	0.069 (0.13)	0.016 (0.03)	0.086 (0.06)	0.047 (0.04)	-0.080* (0.04)	-0.082** (0.04)
L.GROWTH	0.002 (0.00)	0.003* (0.00)	0.001 (0.01)	0.003** (0.00)	-0.001 (0.00)	0.001 (0.00)	-0.002 (0.00)	0.002 (0.00)
L.LIQUIDITY	-0.003 (0.01)	-0.006** (0.00)	0.027 (0.03)	0.002 (0.01)	0.012** (0.01)	0.008* (0.00)	-0.008 (0.01)	-0.014** (0.01)
L.LOAN SHARE	-0.002 (0.01)	-0.001 (0.00)	0.019 (0.01)	-0.001 (0.01)	-0.002 (0.01)	-0.001 (0.00)	-0.003 (0.01)	-0.005 (0.01)
L.DIVERS	0.003** (0.00)	0.007*** (0.00)	0.023** (0.01)	0.002 (0.00)	0.006 (0.00)	0.003 (0.00)	0.005 (0.00)	0.005 (0.00)
L.COST TO INCOME	0.003 (0.00)	0.003* (0.00)	0.013* (0.01)	0.005*** (0.00)	0.006** (0.00)	0.007*** (0.00)	0.00 (0.00)	-0.001 (0.00)
L.GDP GROWTH	0.023 (0.02)	0.007 (0.01)	0.019 (0.07)	-0.006 (0.02)	-0.016 (0.03)	-0.05 (0.03)	0.051** (0.02)	0.062*** (0.02)
L.INFLATION	0.004 (0.01)	0.008* (0.01)	-0.029 (0.05)	0.018* (0.01)	0.001 (0.01)	0.008 (0.01)	0.007 (0.01)	0.004 (0.01)
L.OIL MINERAL	0.001 (0.01)	-0.004 (0.00)	-0.244* (0.15)	-0.037 (0.03)				
CONSTANT	-4.260*** (0.56)	-3.461*** (0.43)	-6.711*** (1.50)	-4.368*** (0.51)	-4.863*** (0.71)	-4.296*** (0.56)	-3.524*** (0.78)	-3.289*** (0.73)
R2	0.1338	0.137	0.3066	0.058	0.1318	0.1833	0.1121	0.1708
Observations	459	1694	70	1185	353	1051	776	990
Number of Banks	83	282	11	179	76	181	115	160
Year FE	YES	YES	YES	YES	YES	YES	YES	YES

Notes: This table shows the robustness checks for WUI and bank DEFAULT RISK regressions and considers the influence of religiosity by splitting the sample into both IBs and CBs. We conduct the estimations using random effects generalized least square (GLS) regressions. Columns 1 and 2 display regression results for IBs and CBs respectively, both for predominantly Muslim countries (MUSLIM SHARE $\geq 90\%$). Columns 3 and 4 display regression results for IBs and CBs respectively, for MUSLIM SHARE $< 90\%$. Although columns 5 and 6 display regression results for IBs and CBs for the countries with high IMPORTANCE OF RELIGION (> 75 th percentile), Columns 7 and 8 display regression results for countries with low IMPORTANCE OF RELIGION (< 75 th percentile). Columns 9 and 10 display regression results for IBs and CBs, both for Shari'ah law countries; columns 11 and 12 display regression results both for non-Shari'ah law countries. Columns 13 and 14 display regression results for IBs and CBs, both for PLS High countries ($> \text{Median}$); columns 15 and 16 display regression results both for PLS Low ($< \text{Median}$) countries. Standard errors are clustered at the bank level and reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.010$

Table A5: Robustness Checks for the Influence of the Institutional Environment

	(1) (COMMON LAW)	(2) (COMMON LAW)	(3) (CIVIL LAW)	(4) (CIVIL LAW)	(5) (GCC)	(6) (GCC)	(7) (non-GCC)	(8) (non-GCC)	(9) (Rich)	(10) (Rich)	(11) (Poor)	(12) (Poor)
	Islamic	Conv	Islamic	Conv	Islamic	Conv	Islamic	Conv	Islamic	Conv	Islamic	Conv
WUI	-0.068 (0.07)	0.106*** (0.05)	-0.008 (0.10)	0.065** (0.03)	0.052 (0.09)	0.145*** (0.08)	0.058 (0.07)	0.061** (0.03)	0.124 (0.06)	0.123*** (0.03)	-0.096 (0.10)	0.03 (0.04)
L.SIZE	-0.197* (0.11)	-0.110** (0.04)	-0.022 (0.08)	-0.002 (0.03)	0.023 (0.15)	-0.051 (0.05)	0.054 (0.06)	-0.024 (0.02)	-0.063 (0.07)	-0.089*** (0.03)	0.102 (0.13)	0.044 (0.03)
L.GROWTH	0.000 (0.00)	0.003 (0.00)	0.002 (0.00)	0.003*** (0.00)	0.002 (0.01)	0 (0.01)	0.003 (0.00)	0.003*** (0.00)	0.007** (0.00)	0.003 (0.00)	-0.004 (0.00)	0.004*** (0.00)
L.LIQUIDITY	0.005 (0.01)	-0.015*** (0.00)	-0.013 (0.01)	0.002 (0.00)	-0.008 (0.01)	0.009 (0.01)	0.004 (0.01)	-0.004 (0.00)	-0.008 (0.01)	0 (0.00)	0.014** (0.01)	-0.003 (0.00)
L.LOAN SHARE	0.007 (0.01)	-0.007 (0.00)	-0.012* (0.01)	0.003 (0.00)	-0.011 (0.01)	0.003 (0.01)	0.002 (0.01)	-0.001 (0.00)	-0.002 (0.01)	0.006* (0.00)	0.003 (0.01)	-0.005* (0.00)
L.DIVERS	0.002 (0.00)	0.004 (0.00)	0.009** (0.01)	0.005*** (0.00)	0.009* (0.01)	0.007 (0.01)	0.005* (0.00)	0.005** (0.00)	0.001 (0.00)	0.006*** (0.00)	0.006 (0.00)	0.004* (0.00)
L.COST TO INCOME	0.000 (0.00)	0.001 (0.00)	0.001 (0.00)	0.005*** (0.00)	0.000 (0.00)	0.005*** (0.00)	0.002 (0.00)	0.004** (0.00)	0.004** (0.00)	0.004** (0.00)	0.002 (0.00)	0.006*** (0.00)
L.GDP GROWTH	0.025* (0.01)	0.049*** (0.02)	0.013 (0.04)	-0.01 (0.01)	0.011 (0.05)	0.026 (0.03)	0.016 (0.02)	-0.003 (0.01)				
L.INFLATION	0.016 (0.01)	0.004 (0.01)	0.008 (0.01)	0.003 (0.01)	0.026*** (0.01)	-0.016 (0.02)	0.003 (0.01)	0.013*** (0.01)	-0.01 (0.01)	0.001 (0.01)	0.021* (0.01)	0.016*** (0.01)
L.OIL MINERAL	-0.004 (0.01)	0.008* (0.01)	-0.006 (0.01)	-0.004 (0.00)	0.031** (0.01)	-0.002 (0.01)	-0.011* (0.01)	-0.001 (0.01)	0.01 (0.01)	0.001 (0.00)	-0.017* (0.01)	-0.014 (0.01)
CONSTANT	-3.392*** (0.93)	-2.796*** (0.57)	-3.536*** (0.85)	-4.472*** (0.33)	-5.049*** (1.69)	-4.323*** (1.15)	-4.661*** (0.56)	-3.996*** (0.33)	-3.367*** (0.60)	-4.018*** (0.42)	-5.546*** (1.18)	-4.284*** (0.44)
R2	0.2389	0.1318	0.0671	0.1159	0.1278	0.206	0.1593	0.1088	0.1689	0.1134	0.0476	0.1143
Observations	245	808	216	2086	120	375	409	2504	329	1390	200	1489
Number of Banks	41	153	36	310	17	49	77	412	67	305	34	278
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: This table shows the WUI and bank DEFAULT RISK regressions and considers the influence of the institutional environment by splitting the sample into both IBs and CBs. We conduct the estimations using random effects generalized least square (GLS) regressions. Columns 1 and 2 display regression results for IBs and CBs respectively, both for COMMON LAW countries, and columns 3 and 4 for CIVIL LAW countries and IBs and CBs, respectively. Columns 5 and 6 display regression results for IBs and CBs, both for GCC countries, and columns 7 and 8 for non-GCC countries, respectively. Columns 9 and 10 display regression results for IBs and CBs, both for rich (GDP per capita>median) countries, and columns 11 and 12 for poor (GDP per capita<median) and IBs and CBs, respectively. Standard errors are clustered at the bank level and reported in parentheses. * p<0.10, ** p<0.05, *** p<0.010

Table A6: Robustness Checks of the Cross-Sectional Analyses on Bank Heterogeneity

	ISLAMIC CONVENTIONAL				ISLAMIC CONVENTIONAL				ISLAMIC CONVENTIONAL				ISLAMIC CONVENTIONAL			
	(1) (High DIVERS)	(2) (Low DIVERS)	(3) (High DIVERS)	(4) (Low DIVERS)	(5) High DIVERS- Trading Oriented	(6) High DIVERS- Commission and Fee Oriented	(7) High DIVERS- Trading Oriented	(8) High DIVERS- Commission and Fee Oriented	(9) (Large)	(10) (Small)	(11) (Large)	(12) (Small)	(13) (Listed)	(14) (Non-listed)	(15) (Listed)	(16) (Non-listed)
WUI	-0.016 (0.09)	0.135 (0.09)	0.126*** (0.04)	0.011 (0.04)	0.044 (0.10)	-0.191 (0.13)	0.157*** (0.05)	0.198*** (0.06)	0.278 (0.08)	-0.183 (0.07)	0.094*** (0.03)	0.06 (0.05)	0.127 (0.10)	-0.064 (0.08)	0.108** (0.04)	0.016 (0.04)
L.SIZE	0.047 (0.07)	0.026 (0.09)	-0.070** (0.03)	0.011 (0.03)	0.055 (0.06)	-0.153 (0.10)	-0.055 (0.04)	-0.102*** (0.04)					-0.022 (0.10)	0.042 (0.07)	-0.031 (0.03)	0.053 (0.04)
L.GROWTH	0.001 (0.00)	0.011*** (0.00)	0.001 (0.00)	0.004*** (0.00)	-0.001 (0.00)	-0.005 (0.01)	0.001 (0.00)	0 (0.00)	0.013*** (0.00)	-0.001 (0.00)	0.005** (0.00)	0.002 (0.00)	0.006 (0.01)	0.001 (0.00)	0.003* (0.00)	0.002 (0.00)
L.LIQUIDITY	-0.006 (0.01)	0.001 (0.01)	-0.003 (0.00)	-0.006* (0.00)	-0.005 (0.01)	0.009 (0.01)	0.000 (0.01)	-0.001 (0.01)	0.005 (0.01)	-0.002 (0.01)	-0.001 (0.00)	-0.004 (0.00)	-0.012 (0.01)	0.013* (0.01)	-0.004 (0.01)	-0.006 (0.00)
L.LOAN SHARE	0.001 (0.01)	-0.009 (0.01)	-0.005 (0.00)	-0.006* (0.00)	0.000 (0.01)	0.014 (0.01)	-0.002 (0.00)	-0.004 (0.01)	-0.007 (0.01)	-0.006 (0.01)	-0.008*** (0.00)	-0.005 (0.00)	-0.01 (0.01)	0.008 (0.01)	-0.003 (0.00)	-0.006** (0.00)
L.DIVERS									0.006 (0.00)	0.003 (0.00)	0.002 (0.00)	0.005** (0.00)	0.007* (0.00)	0.006* (0.00)	0.006** (0.00)	0.001 (0.00)
L.COST TO INCOME	0.004 (0.00)	0.001 (0.00)	0.002 (0.00)	0.008*** (0.00)	0.004 (0.00)	-0.001 (0.01)	0.002 (0.00)	0.003 (0.00)	0.004* (0.00)	-0.001 (0.00)	0.008*** (0.00)	0.003** (0.00)	0.001 (0.00)	0.001 (0.00)	0.007*** (0.00)	0.002 (0.00)
L.GDP GROWTH	0.044** (0.02)	0.024 (0.03)	0.001 (0.02)	0.012 (0.02)	0.035 (0.03)	0.063* (0.04)	0.002 (0.02)	0.024 (0.02)	0.045* (0.02)	0.013 (0.02)	0.017 (0.02)	-0.023 (0.02)	0.062*** (0.02)	0.000 (0.02)	0.000 (0.02)	0.009 (0.02)
L.INFLATION	0.003 (0.01)	-0.007 (0.02)	0.010* (0.01)	0.011 (0.01)	0.008 (0.01)	0.024* (0.01)	0.011* (0.01)	0.009 (0.01)	-0.012 (0.01)	0.009 (0.01)	0.016** (0.01)	0.005 (0.01)	-0.008 (0.01)	0.013 (0.01)	0.008 (0.01)	0.011* (0.01)
L.OIL MINERAL	-0.032 (0.06)	-0.115* (0.07)	-0.074*** (0.03)	-0.060* (0.03)	-0.067 (0.06)	-0.032 (0.10)	-0.059** (0.03)	-0.062* (0.03)	-0.036 (0.05)	-0.129* (0.07)	-0.088*** (0.02)	-0.048 (0.04)	-0.019 (0.06)	-0.125 (0.10)	-0.055** (0.03)	-0.079** (0.04)
CONSTANT	-4.936*** (0.88)	-3.342*** (0.78)	-2.936*** (0.43)	-4.320*** (0.44)	-4.396*** (0.89)	-4.303*** (0.96)	-3.178*** (0.48)	-2.697*** (0.57)	-3.417*** (0.60)	-4.378*** (0.75)	-4.133*** (0.30)	-3.822*** (0.39)	-3.298*** (0.767)	-5.673*** (0.918)	-4.075*** (0.476)	-4.101*** (0.507)
R2	0.1554	0.0388	0.0791	0.106	0.1711	0.0039	0.063	0.1303	0.3585	0.0031	0.3237	0.0858	0.3671	0.0304	0.1714	0.105
Observations	268	247	1227	1374	222	119	890	665	286	227	1389	1209	203	300	1212	1298
Number of Banks	68	56	293	299	61	41	260	207	54	48	218	256	35	54	170	220
Year FE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES

Notes: This table presents the robustness checks for the cross-sectional analyses on bank heterogeneity. We conduct the estimations using random effects generalized least square (GLS) regressions. DEFAULT RISK is the dependent variable in all columns. Columns 1 and 2 present the results for IBs and columns 3 and 4 for CBs, and we split the sample into high DIVERS (> within subsample median) versus low DIVERS (<within subsample median), respectively. Columns 5 and 6 present the results for IBs, and columns 7 and 8 for CBs, and we split the sample into "high DIVERS trading-oriented" and "high DIVERS commission-and-fee-oriented," respectively. Columns 9 and 10 display the results for IBs and columns 11 and 12 for CBs, and we split the sample into large banks (> within subsample median) versus small banks (<within subsample median), respectively. Columns 13 and 14 present the results for IBs, and columns 15 and 16 for CBs, and we split the sample into LISTED banks versus non-LISTED banks. Standard errors are clustered at the bank level and reported in parentheses. * p<0.10, ** p<0.05, *** p<0.010