

Market Discipline and Capital Buffers in Islamic and Conventional Banks in the MENA Region

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Abstract:

This paper examines the effectiveness of market discipline in motivating banks to mitigate their default risk by using capital buffers against adverse effects in portfolio risk. Using a large sample of 126 banks from 9 MENA countries from 2009 -2014, we study whether support, funding, and risk disclosure motivate banks to hold larger capital buffers to cover potential portfolio risk or not; and whether it affects differently Islamic and conventional banking sectors. Our paper findings provide evidence of the contradictory effects of these factors on Islamic banks compared to conventional banks. While government support results in higher capital buffers, stronger market discipline resulting from uninsured liabilities and disclosure results in larger capital buffers. Most factors look effective only for the conventional banking industry and ineffective for the Islamic banking industry due to its risk-sharing characteristic. Our paper findings provide evidence of the effectiveness of market discipline mechanisms, especially for the conventional banking industry. Moreover, high government support reinforces the disclosure and uninsured funding effects, especially for conventional banks. Finally, competition minimizes bank's risk incentives.

JEL classification: G21; G28; G32; D82

Keywords: Risk disclosure; Market discipline; Moral hazard; Competition; Islamic banks, financial institutions, MENA region.

1. Introduction:

Over the last decade, researchers and policymakers stressed the important control role exerted by depositors on banks as a form of self-regulation mechanism. Market discipline is a mechanism allowing depositors to punish the behavior of banks that impose a cost on their funds by the withdrawal of deposits or the shortening of formal and factual maturities or demands for higher rates of return (Berger, 1991).

Banks are susceptible to engaging in morally hazardous behaviors when they collect deposits and finance risky projects. Therefore, banks hold capital buffers to avoid insolvency risk to cover any possible adverse outcomes from risky investments. However, previous bankruptcy experiences show that banks do not consider the interests of either depositors or other stakeholders. Therefore, market discipline can be an effective mechanism that may help

control a bank's morally hazardous behavior (Nier and Bauman, 2006). Furthermore, many international and national organizations and policymakers are conscious of the importance of market discipline in safeguarding financial stability and, in turn, economic growth. For example, the International Financial Reporting Standards (IFRS) urges banks to issue subordinated debt. In addition, Basel 2 and 3, issued by the Basel Committee on Banking Supervision (BCBS), require banks to be more transparent and enhance disclosure to strengthen the role of market discipline. More significantly, greater risk disclosure will be an incentive for banks to maintain capital buffers that match the risks that they take (Nier and Bauman, 2006).

It is important to assess the conditions of market discipline effectiveness. There have been studies of banks' market discipline in both developed and developing countries over different periods (e.g., Berger and Turk-Ariss, 2015; Godspower-Akpomiemie and Ojah, 2021; Cutura, 2021; Tran, Hassan and Houston, 2019; Eisenbach, 2017; Hett and Schmidt, 2017; Trinugroho, Pamungkas, Ariefianto and Tarazi, 2020; Haq, Avkiran and Tarazi, 2019). However, to the best of our knowledge, only few studies (Ghosh, 2017 and Alaeddin, Archer, Karim, and Shah, 2017) explored the effect of market discipline in the MENA region, considering the specificities of these markets. Our research is different from that of Ghosh (2017 and Alaeddin, Archer, Karim, and Shah, 2017). First, we consider a large number of Islamic and conventional banks. Second, we consider three main factors: support, funding, and risk disclosure that influence the relationship between market discipline and capital buffers. Third, we consider the specific features of Islamic bank deposits, which is the profit-risk-sharing. Indeed, while Islamic bank depositors have a profit-risk-sharing character, conventional bank depositors are known for preferring safe, long-term investments and, thus, they are patient in receiving returns on their patient capital. Finally, we study only countries with a dual banking system, which may help us assess and compare market discipline's effect on Islamic banks with its counterpart.

The approach, adopted in our study, complements the previous researches on the effect of capital buffers on banks' risk incentive (Alfon et al. 2004, Flannery and Rangan, 2004, Ayuso et al. 2004; Lindquist 2003 and Nier and Bauman, 2006; Aysan et al. 2015; Ghosh, 2017 and Alaeddin, Archer, Karim, and Shah, 2017). Using a cross-country panel data set-up from the MENA region, we examine and compare empirically whether or not and; to what extent market discipline exerted by Investment account holders (for Islamic banks) and banks depositors (for conventional

banks) can be an effective incentive for banks to maintain capital buffers to limit the risks associated to their portfolios arising from adverse outcomes. We focus on the MENA region context for three main reasons. First, in recent times, only a few researchers have studied banks' market discipline in the MENA context. Moreover, most of them used small samples or do not consider the specific characteristics of the dual banking system existing in most of the countries of this region (Ghosh, 2017 and Omet et al., 2008). Second, many MENA countries are large oil-exporters (e.g., Kuwait, Saudi Arabia...). The oil prices boom had led the former to build up sizeable surpluses invested in their domestic banking system, making the size of the banking system quite important in these countries. Third, some countries have experienced bankruptcy cases during the last global financial crisis (e.g., Gulf Finance House Bahrain, the International Banking Corporation, and Awal Bank¹).

Our sample consists of a unique data set for 126 Islamic and conventional banks operating in 9 MENA countries, observed from 2009 to 2014. Using a generalized method of moments (GMM) estimation (Blundell and Bond, 1998), our main findings show contradictory results for Islamic and conventional banks. While uninsured fund and risk disclosure act as a disciplinary mechanism for conventional banks and push them to limit their risks investment strategy, the opposite is observed for Islamic banks, which its risk-sharing basis can explain. However, for both sectors, implicit government safety nets increase the banks' capital buffers. We also find that government support improves the effect of disclosure and uninsured funding. Competition mitigates risk behavior in banks, and market discipline is more effective in countries where there is strong competition between banks.

Our findings have several implications for policymakers, international financial regulatory bodies, and banks. First, for policymakers, the results amplify how to enhance the effectiveness of market discipline for conventional and Islamic banking systems. Second, this study tests the effect of the new directives for international regulatory bodies and shows new room for improvement in the regulatory framework to guarantee the financial sector's stability. Finally, for banks, increasing the level of risk disclosure will increase competition and attract funds.

The next section of this paper briefly summarizes previous studies on market discipline. Section 3 describes the methodology, variables employed in this paper and provides descriptive statistics. Section 4 discusses the results of our main regression model. Section 5 offers several robustness tests to analyze the factors that help raise or decrease the effectiveness of market discipline, and Section 6 concludes the paper.

¹ https://www.gulfbase.com/ScheduleReports/33f7047f_BankruptcyintheGCC-MarkazResearch.pdf

2. Literature review:

2.1 Previous studies on market discipline

An extensive set of literature (Godspower-Akpomiemie and Ojah,2021; Cutura, 2021; Tran, Hassan and Houston, 2019; Eisenbach, 2017; Hett and Schmidt, 2017; Trinugroho, Pamungkas, Ariefianto and Tarazi, 2020; Haq, Avkiran and Tarazi, 2019 and Ghosh, 2017) discussed the power of depositors to discipline management risk strategy decisions and to provide additional information to financial supervisors. As a result, market discipline can be considered a substitute for financial supervision and reduces government intervention. In addition, market discipline helps to improve financial supervision.

However, three conditions must be satisfied to have an effective market discipline (Nier and Baumann, 2006). First, depositors must be aware of the risk of loss in case of bankruptcy. Second, any deviations in the bank's risk management strategy must have cost consequences. Third, depositors have the required information and skills to assess the bank's default. Explicitly, Rochet (1992), Blum (2002), and Cordella and Yeyati (1998) provide evidence that, lacking principal-agent conflicts between bank owners and management, the bank's depositors are fully aware of the risks associated with uninsured deposits and that the bank makes the correct choice. The primary purpose is that banks make the depositors aware of the impact of their risk strategy since, in turn, they will ask for higher returns if the bank incurs higher risks. Similar to such circumstances, an effective market discipline mitigates the moral hazard.

On the other hand, in cases of either insured deposits or the bank's risk strategy being unknown by depositors, the bank will opt for a less efficient risk strategy at the expense of depositors. This bank attitude is that depositors will not ask for higher compensation to compensate for the higher risk taken by the bank. In such circumstances, the market discipline is ineffective, and the bank's risk default strategy is subject to an agency problem. Previous literature (Rochet, 1992; Blum, 2002; Cordella and Yeyati, 1998 and Nier and Baumann, 2006) defines the three conditions needed for effective market discipline. First, the efficacy of the market discipline in the banking sector is primarily influenced by government protection. Second, both explicit and implicit government support can incentivize banks to opt for riskier management decisions without caring about default risk and then reduce the

effects of market discipline. Third, the social and economic costs of bank bankruptcy might be high. Generally, to maintain the financial sector, a government prefers to bail out the failed bank rather than close it.

Nevertheless, governments have some concerns arising from the moral hazard created by implicit insurance. Thus, governments usually limit any official action to such critical circumstances and keep a measure of 'constructive ambiguity' regarding their bailout policy (Freixas, 1999). From a market perspective, a government bailout in the case of bank bankruptcy remains unclear. Its possibility of happening depends on both the failed bank and the government strategy.

Second, market discipline is more effective when uninsured funds finance the bank since the latter increases the default risk more costly. Previous studies show that uninsured funding increases the effect of market discipline (Billet et al. 1998; Park and Peristiani, 1998; Jordan, 2000; Jagtiani and Lemieux, 2000; Goldberg and Hudgins, 2002; Maechler and McDill, 2006; Shimizu, 2009; Demirgüç-Kunt, Karacaovali, and Laeven, 2005). For a given level of risk behavior, the more important is the value of the uninsured fund, the stronger will be the effect of market discipline. Gropp and Vesala (2004) and Nier and Baumann (2006) provide evidence that uninsured funding is negatively correlated with banks' risks incentive.

Third, market discipline is primarily correlated to the bank's risk strategy (risk disclosure). Market discipline is more effective if the banks divulge more information about their risk strategies and have an imperative reason to limit their default risk. Agency theory suggests that the information asymmetry between the agent (shareholders) and the principal (managers) can be reduced through the implementation of monitoring mechanisms that are likely to promote a higher level of information disclosure [Jensen & Meckling, 1976]. This is because investors do not play an active role in corporate management, and managers tend to serve their interests (rather than maximizing shareholders' value). Consequently, information about risk would reduce uncertainty for investors. Banks are, in essence, risk-taking enterprises. Therefore, they are expected to ensure an appropriate flow of risk reporting to the marketplace [Linsley & Shrides, 2005]. Such a system helps to monitor the managers' attitudes towards risk exposure, foster banks' transparency, and reduce the information gap between both sides [Jensen & Meckling, 1976; Linsley & Shrides, 2003; Oliveira et al., 2013].

2.2 market discipline and Islamic banking sector

The specificities of Islamic finance make the effect of market discipline on Islamic banks different from their conventional counterpart. Indeed, Islamic banks cannot charge interest on their products and cannot pay interest on deposits. A profit-risk-sharing mechanism replaces the interest-based mechanism. Unlike conventional banks, depositors in Islamic banks (Investment Account Holders) become partners instead of creditors. Also, as Islamic banking products are asset-backed or asset-based, investors can claim on the underlying asset. Besides, excessive risk and uncertainty are prohibited in Islamic finance. These three factors may suggest that Islamic banks would hold lower capital buffers.

However, on the opposite side, Islamic banks are intrinsically vulnerable to concentration risk given the high levels of asset-backed lending (Song and Ostuzien, 2014) and liquidity risk because of the nature of their offered products (assets based or baked products). Additionally, Islamic banks face a unique risk which is the displaced commercial risk arising from assets managed on behalf of Investment Account Holders. Islamic banks have to pay a rate of return equivalent to a competitive rate of return and absorb a portion of losses (in case of failure) which usually would have been borne by investment account holders to prevent massive withdraw. These factors could result in a higher capital buffer for Islamic banks.

While many previous studies discussed the effect of market discipline in the conventional banking sector, very few research investigated this relation in the Islamic banking context. Farooq and Zaheer (2015) find that Pakistani Islamic banks are less vulnerable to deposit withdrawals. Aysan et al. (2016) provide evidence that better-capitalized Turkish Islamic banks experienced higher deposit growth, whereas bigger banks offer higher deposit rates. Aysan et al. (2015) and Aysan, Disli, Duygun, and Ozturk (2017) find that the deposit insurance reform has increased the market discipline for Turkish Islamic banks. However, this reform may have upset the sensitivities of the religiously inspired depositors, and perhaps more importantly, it might have terminated the existing mutual supervision and support among Islamic banks. Ghosh (2017) shows that Islamic banks' depositors pay much more heed to market discipline than their conventional counterparts, especially during the crisis. These studies did not consider the three conditions needed for effective market discipline (support, funding, and risk disclosure). We hypothesize that these three factors will influence the effectiveness of market discipline differently in the Islamic banking sectors.

3. Econometric approach

For our econometric approach, we use a generalized method of moments (GMM) estimation (Blundell and Bond, 1998) to test whether or not market discipline affects the banks' capital buffers. Our model also controls several bank characteristics (B) and several macroeconomic variables (C) that can explicitly or implicitly the volume of capital that banks maintained as a buffer. Our regression model is as follows:

$$\text{Capital Buffer}_{it} = f(B_{it}, C_{jt}, \text{Market Discipline}_{it}) + U_{it},$$

Where i is bank i , j represents country j , and t represents the time.

In this regard, the capital buffer (CAP) is equal to the bank's equity capital as a proportion of its other liabilities. This is the inverse of leverage in book value terms (equity involves common stock, preferred stock, capital reserves, retained earnings, and capital surplus). It is noteworthy that, for our model, we used a measure based on the book value of equity rather than a measure based on the bank's market capitalization. According to Nier and Baumann (2006), by making certain decisions, for example, dividend payment, issuing a bond, or repurchasing shares, the bank's management takes direct control of the market value of the bank's equity. However, we consider that it is not a clear choice for the bank's management to use variables of proxies based on the market value of the bank's equity. In addition to the bank management's decisions on the capital structure, the bank's market capitalization reflects its current and future business environment and the market's expectations concerning any support that the government may provide in the event of the bank's failure.

Generally, it is recognized that when the bank has an effective market discipline mechanism, the bank's management makes good decisions on the amount of capital buffer required to offset its risk exposure. However, it is accepted that when the bank does not have an adequate market discipline mechanism, it is unlikely to have a sufficient capital buffer to counteract any exposure to risk (Nier and Baumann, 2006)). Therefore, we can test many assumptions. First, implicit government guarantees are an incentive for banks to maintain lower capital buffers and vice versa. Second, a bank-funded primarily by insured deposits is more likely to maintain a lower capital buffer because such circumstances mean that it will be less costly to borrow capital from the market. Third, banks with strong market discipline mechanisms and high capital buffers are unlikely to default. On the other hand, banks,

which have weak market discipline mechanisms and low capital buffers due to high disclosure risks, are likely to have a greater risk of default.

3.1. Market discipline variables:

3.1.1 Support

Fitch rating agency developed a rating scale ranging from 1 (close inevitable bailout) to 5 (bailout very improbable) to assess the degree of government support. However, previous studies provided evidence that market discipline is mostly ineffective if markets consider a possible bailout (Gropp et al. 2002 and Nier and Baumann. 2006). In this paper, we follow previous studies to construct our variable "Support." The variable takes the value 1 if the public support rating is very probable (rating is equal to 1 or 2) and 0 otherwise (rating is equal to 3, 4, or 5). Thus, the higher the probability of market support, the weaker will be the market discipline.

3.1.2 Funding

Following Nier and Baumann (2006), we employ two proxies of uninsured funding. The first one is the value of deposits received from other banks (Bank deposits). We include this variable because, in most markets, interbank deposits are not subject to explicit deposit insurance schemes. Moreover, in the interbank market, banks can be considered to be better-informed investors. Like the borrowing bank, a lending bank may face the same types of shocks to risk and profitability. Therefore, interbank deposits are more likely to be sensitive to the risk taken by the borrowing bank. Consistent with this view, Nier and Baumann (2006) found a positive correlation between the amount of the capital buffer provided by bank deposits capital buffer. The second measure includes, also, deposit growth. Several studies have shown that the rate of deposit growth reflects the bank's risk profile. Therefore, we use the real rate of deposit growth from non-financial entities (DEPOSIT_GRT_i) to capture the market discipline. Also, Hassan et al (2013) used this proxy.

3.1.3 Risk disclosure:

To measure risk disclosure, we developed our index from the following four primary sources: namely, the IFRS guidelines; the Basel II: Market Discipline guideline; The AAOIFI and IFSB standards (specific to Islamic banks); and the accounting literature (Cabedo & Tirado, 2004; Oliveria, Rodrigues & Craig, 2011; Barakat & Hussainey, 2013;

Abdallah et al., 2015). Typically, we adopted a two steps process. In the first step, we conducted an extensive review of previous studies and identified the common items used to assess banks' risk disclosure.

Next, we clustered these items following regulatory requirements (IFRS 7; Basel II: Market discipline; AAOIFI and IFSB standards). In total, our risk disclosure index includes 69 items grouped into 8 risk sub-categories. To measure the banks' levels of risk disclosure, we assigned to each of these risk items the number of sentences disclosed in the banks' annual reports. We coded risk disclosures in any sentence that informed the reader about "any opportunity or prospect, or of any hazard, danger, harm, threat or exposure, that has already impacted or may impact upon the company, as well as the management of any such opportunity, prospect, hazard, harm, threat, or exposure" (Linsley & Shrives, 2006).

We ensured the construct validity of our risk disclosure index and the reliability of our scores by following these procedures. First, as stated previously, we derived the index categories and items from multiple and varied sources of information (IFRS, Basel II, AAOIFI, IFSB, prior literature). Second, to ensure reproducibility, one single coder performed the content analysis of the banks' annual reports (Krippendorff, 2004). Third, an independent evaluator with financial reporting expertise coded a sub-sample of 25 annual reports to ensure the scale's reliability. Krippendorff (1980, 2004) argues that it is important that at least two researchers do this type of analysis independently and compare their results to check reliability. Fourth, we compared the risk Disclosure Index, coded by both academics (the primary researcher and the independent evaluator), to ascertain if there were any significant differences.

3.2 Bank specific characteristics

In this study, we employ a number of control variables. First, there is an expectation that a bank's asset risk will positively affect (desired) capital. Previous studies show that risk and bank capital are positively correlated (Shrieves and Dahl, 1992; Flannery and Rangan, 2004; Calomiris and Wilson, 2004). However, we have to distinguish between ex-ante risk (the ratio of non-performing loans) and ex-post risk (the ratio of loan loss provisions). According to Ayuso et al. (2004), it is usual for the ex-post measures to reduce the value book capital. Our approach takes account of the effects of both measures. We measured ex-ante asset risk to determine the standard deviation of a bank's assets and ex-post realized risk by calculating the ratio of the bank's flow of loan loss provisions to total loans. In addition, the one-year lag is used to mitigate endogeneity issue.

Previous studies also show that banks' size and capital level are negatively correlated (Ayuso et al. 2004, Alfon et al. 2004, Flannery and Rangan 2004). Indeed, larger banks can expand their lending across business lines and regions, which helps decrease the idiosyncratic shocks for these banks and reduce the need for a capital buffer. Furthermore, it is easier for larger banks to raise new capital from the market (Myers and Majluf, 1984).

When raising new capital is costly, capital accumulation may rely on internally generated funds, in line with the 'Pecking order theory of finance.' The greater the bank's profitability, the easier it is for the bank to accumulate equity through retained earnings. Conversely, the lesser the bank's profitability, the greater the costs of issuing equity, and this may result in decisions not to increase the bank's capital.

Consistent with this reasoning, Berger (1995) demonstrated that ROE and capital ratios are positively correlated. Flannery and Rangan (2004) produced similar findings from their research of the situation in the 1990s. Having regard to these findings, we included the bank's return on equity in our model and expected that there would be a positive association between this variable and the capital ratio

3.3. Country-specific characteristics

Market discipline can be affected by various macroeconomic factors. Consequently, we controlled such effects in our regression models. In addition, we took account of previous research, which provided evidence of the association between bank risk-taking and bank competition. Furthermore, following Barth et al. (2015), we used a proxy for prudential regulatory restrictions on foreign bank entry to control the effect of competition.

Previous researches highlighted the importance of deposit insurance in increasing the incentives for banks to take risks. While this mechanism is implemented to protect banks from runs by depositors, previous research findings show that extensive depositor protection schemes motivate banks to take greater risks (Hovakimian et al. 2003, Demirgüç-Kunt and Detragiache, 2002). Oppositely, Gropp and Vesala (2004) report that an explicit deposit insurance scheme can limit the safety of insured depositors. To control these two effects, we used the variables provided by Demirgüç-Kunt and Sobaci (2000). Furthermore, the quality of law enforcement can affect, also, the bank's incentive to take risks. Indeed, a strong rule of law plays an important role in refraining moral hazard behavior from deposit insurance protection (Demirgüç-Kunt and Detragiache, 2002). To control the effect of law enforcement, we used the measures of law and order developed by La Porta et al. (1998). Accordingly, we expect

that decision makers will not engage in fraud and strategic defaults in economies with a strong rule of law that will harm depositors.

Finally, we controlled the macroeconomic conditions by employing (annual) growth of Gross Domestic Product (GDP). The previous research findings of Ayuso et al. (2004), Lindquist (2003), and Nier and Baumann (2006) show that capital buffers are counter-cyclical.

3.4. Data Sample

Our sample consists of all banks operating in the MENA region, with their data being available on BankScope². In addition, we collected accounting data from the BankScope database and the banks' annual reports. Our initial sample of 168 banks. Due to data unavailability for some variables, our final sample consists of 126 banks (51 Islamic banks and 75 conventional banks). Table B.1 (in Appendix) provides the data source and definition for all variables employed in this study.

Insert Table 1 here

3.5 Descriptive statistics

Table 1 summarizes our variables used in this study for all banks and Islamic and conventional banks samples. On average, CAP is 27%. The average CAP for Islamic banks (35%) is higher than in conventional banks (16%). On average, ROE for all our samples is 18%. On average, ROE in Islamic banks (22%) is higher than the ROE in conventional banks (12%).

With regard to market discipline variables, bank deposits and risk disclosure are higher in conventional banks than in Islamic banks. However, on average, customer deposit growth (DEPOSIT_GR) is higher in Islamic banks than in conventional banks. 59% of our sample of Islamic banks are listed banks, and 69% of our sample of conventional banks are listed banks.

² The BankScope database provided information for the years 2009–2014

Also, it is noteworthy that the number of observations changes according to data availability for variables introduced in the regressions. Indeed, the support rating is the most restrictive variable, and it is only available for 80 banks.

Table 2 reports the outputs of the correlation matrix of the covariates used in the analysis. There are no significant correlation coefficients greater than 50%. Therefore, our estimation is not subject to the multicollinearity problem.

Insert Table 2 here

4. Analysis of Results

Insert Table 3 here

Table 3 (Panels A, B, and C) reports our main regression results. Panel A reports the results of all our samples. Panel B reports the results of the Islamic banks' sample, and Panel C reports the conventional banks' sample results. First, column (1) presents our basic model with bank characteristics and macroeconomic control variables. Then, in columns (2) to (7), we add the market discipline variables one by one to our basic model.

Column (2) reports the results of our basic model with government support variables. Again, contrary to our expectations, government support positively affects bank capital buffers. But, again, our finding is contrary to Nier and Baumann's (2006) findings.

Concerning the funding variables, we report a negative correlation between interbank deposits and the larger capital ratios of our sample of Islamic banks. However, consistent with the interbank market's disciplinary role and with Nier and Baumann's (2006) previous finding, there is a positive correlation between interbank deposits and the capital ratio of our sample of conventional banks. Furthermore, with everything else being equal, the growth of customers' deposits is correlated with a larger capital ratio for both Islamic and conventional banks subsamples. Besides, we find that, for conventional banks subsample, bank risk disclosure is associated with larger capital ratios. This suggests that, with everything else being equal, banks holding larger capital buffers disclose more information

about risks. However, it does not have any effect on the Islamic banks' subsample. For both our primary sample and subsamples, the rating variable has a positive impact on capital buffer. This signifies that, with everything else being equal, a higher credit rating leads banks to hold larger capital buffers. On the other hand, the listing of banks hurts capital buffers.

Table 3 provides further interesting additional findings. First, concerning macroeconomic variables, Table 3 shows that legal restrictions on entry are correlated with larger capital buffers, limiting the extent to which there are incentives to take risks. Keeley (1990) argues that entry restrictions reduce competition, increase franchise values, and reduce the incentives to take risks. Furthermore, our results provide evidence that banks, which operate in markets with strong legal traditions, look to retain larger capital buffers. Our finding is in line with Demirgüç-Kunt and Detragiache's (2002) previous findings. Moreover, our findings are consistent with our prediction that explicit insurance may mitigate moral hazard incentives and result in larger capital buffers. Besides, Gropp and Vesala's (2004) and Demirgüç-Kunt and Detragiache's (2002) findings show that generous protection exacerbates the incentives to take risks.

In addition, we find that the growth in GDP hurts capital ratios. Concerning bank-specific controls, an ex-post realized risk measure (provisions) is revealed to reduce capital. This is in line with Flannery and Rangan's (2004), Ayuso et al.'s (2004), and Nier and Baumann's (2006) findings. As expected, we find that bank size is negatively correlated to capital buffers, and bank profitability is positively associated with capital buffers.

Overall, our findings provide evidence regarding the assumption that market discipline is an important mechanism pushing banks to limit their risks of insolvency. However, these depend primarily on the nature of the banking sector. The Islamic banking sector shows different results.

However, the results show that great safety results in higher capital buffers, with everything else being equal. Additionally, interbank deposits and the growth in customers' deposits have a disciplinary effect on conventional banks, but this is not the case for Islamic banks. Finally, conventional banks that disclose more risk information have a higher capital buffer than conventional banks that disclose less risk information.

5. Robustness test

Our main results provide evidence on the general effectiveness of market discipline according to each banking sector (Islamic banks and conventional banks). However, the following important questions remain: What are the conditions that enhance market discipline? Conversely, what are the conditions that make market discipline less effective?

5.1 High versus low support—interactions

Insert Table 4 here

As a robustness test, we tried to test if the disciplinary effect of disclosure and uninsured funds is stronger for banks supported by the government or not.

For our main sample and sub-sample, we interacted the support variable with the risk disclosure index and bank deposit and deposit growth variables. As shown in Table 4, two results stand out. First, when the benchmark effect of bank deposit is positive in the column, government support increases this effect. This suggests that the efficacy of interbank deposits in providing motivations to maintain higher capital buffers is more stressed if the market expects the government to bail out the bank in the event of its failure. Second, when there is a continuing positive effect in the deposits growth, government support's expectations increase the disciplinary effect of deposits growth in providing capital buffers. Our finding is generalized for both subsamples.

In general, banks with strong government support, uninsured funds, and a higher level of risk disclosure can be relied upon to discipline the banks' actions.

5.2 Country characteristics—interactions

Insert Table 5 here

Our second robustness test explores how macroeconomic conditions can affect the effectiveness of market discipline. To this end, we make two assumptions. First, we predict that country characteristics can impact the marginal effect of market discipline on bank risk-taking. To test this assumption, we expect that in higher competition, franchise values will be low, and banks will continue strong appetite for the risky project. In such circumstances, if there is strong market discipline, banks would be extremely unlikely to take excessive risks. However, when there is weak competition, franchise values will be high, and bank managers will avoid excessive risk. Second, we test this assumption by interacting our proxy of entry restrictions/ explicit insurance scheme with the market discipline variable. Since entry restrictions must be associated with a low level of competition between banks, we expect that market discipline is ineffective in markets with high entry restrictions.

Contrary to our prediction, obtained results from table 5 show a positive interaction between entry restrictions and most of our market discipline variables (listing, rating variable, disclosure, bank deposits, and uninsured funding). Thus, weak competition and high entry restrictions reinforce the effectiveness of market discipline.

Our second assumption is that explicit insurance schemes can impact market discipline's effect on risk incentive behavior. In this regard, our main finding shows that there is only a positive interaction between market discipline and explicit insurance schemes in the case of the conventional banks' subsample.

5.3 Country dummies

Insert Table 6 here

We performed a further test to analyze the overall robustness of our results. As shown in Table 6, we introduced another change to the benchmark specification to check whether or not there were any material changes to the results.

We acknowledge that our main regression may not consider all aspects of the bank's macroeconomic environment since these may vary from one market to another and possibly may impact the value of the capital buffers maintained by banks. To this end, we replace the country controls variable with country dummy variables. It is noteworthy that, since part of their explanatory power may be derived from cross-country differences, this is an

important test in checking the robustness of our effects on the market discipline variables. Table 6 confirms the robustness from including the country-fixed results for most of the market discipline variables.

6. Conclusions

This paper studies the market discipline's effectiveness in limiting the incentives of banks operating in the MENA region to take risks by requiring them to maintain capital buffers against adverse outcomes arising from risks to their portfolios. This paper also tests if market discipline is an effective mechanism for both Islamic and conventional banks and if the risk-sharing specificity of Islamic banks reduced the effect of market discipline.

To this end, we analyzed the effect of three factors related to the strength of market discipline tested in the previous researches (i.e., Nier and Baumann, 2006). These were: a. the effect of the government support; b. the funding of the banks; and c. bank's transparency (risk disclosure).

By analyzing these factors, our research provides several contributions to the existing corporate finance literature. First, we assessed whether or not implicit government support exacerbated the incentives for Islamic and conventional banks to take risks. Second, we analyzed whether or not uninsured (interbank) funding and insured funding affected the incentives for Islamic and conventional banks to take risks. Third, this is one of the first studies testing whether or not risk disclosure impacts the incentives for Islamic and conventional banks in the MENA region to take risks. Finally, this is one of the first papers to compare the different effects of these three factors on the samples of Islamic and conventional banks.

Our findings provide contradictory evidence based on a sample of 126 banks (51 Islamic banks and 75 conventional banks) from 8 different MENA countries from 2009 to 2014. Indeed, for the subsample of conventional banks, our findings are consistent with the assumption that market discipline limits the banks' incentives to take risks. However, for Islamic banks subsample, most of the market discipline variables seem to be ineffective. Our findings are consistent with Alaeddin, Archer, Karim, Rasi, and Shah (2017).

Our findings show that the government support incentives to hold higher capital buffers for both subsamples of Islamic and conventional banks. Our results show that uninsured funding had only a disciplinary effect for the conventional banks' subsample and led them to choose larger capital buffers. On the other hand, we observed the opposite outcome for the Islamic banks' subsample. Moreover, our findings show that the growth in deposits affected both subsamples' capital buffers. Also, only the conventional banks subsample favored the idea that

banks, which disclosed more risk information, displayed stronger market discipline and chose higher capital buffers that limited their probability of default.

In general, our paper findings support international policy initiatives pointing to strengthen banking sector stability by improving market discipline, especially for conventional banks. In particular, they support the third Pillar of Basel 2, which encourages banks to improve their transparency to improve the efficacy of market discipline. However, our findings show that, due to this sector's characteristics towards sharing risks, market discipline works differently in the Islamic banking sector because of the risk-sharing paradigm of this financial sector. Furthermore, our paper findings provide evidence that competition increases the incentives to take risks. This finding shows that financial liberalization and, more generally, higher competition may knock the banking system's stability, especially if banks have weak market discipline.

Our findings have a significant policy implication for the Islamic banking sector. As our paper findings do not show strong evidence of market discipline for the Islamic banking sector with current regulatory framework, policymakers have to revise the framework governing this industry considering two different sides. First, policymakers might boost the role of PSIA as an effective market discipline mechanism by improving disclosure and strengthening transparency, which will enable PSIA holders to monitor and influence managers' decisions. Second, policymakers have to enhance supervisory and monitoring powers to warranty the stability of this industry in the absence of a strong market discipline power of PSIA holders.

While the study offers a comprehensive and interesting analysis of market discipline and capital buffer in the dual banking system in the MENA region, it suffers from some research limitations. First, due to the lack of literature on market discipline and capital buffer of Islamic banks, we had difficulties constructing this study's conceptual framework. Second, the researchers acknowledge the limitation of data, especially concerning capital buffer proxies. Third, the present study also limits the scope of research by focusing on the effect of market discipline on the capital buffer of conventional and Islamic banks in 8 MENA countries. In other words, the research findings cannot be generalized in other contexts like developed countries. Notwithstanding these limitations, the research provides several important pieces of evidence that meet the research aims and objectives and answer the research questions. In addition, future studies can extend the sample and the period of observation.

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6. Tables :

Table 1: Descriptive statistics

	All Sample					Islamic Banks Sample					Conventional Banks Sample				
	Mean	Median	Std.Dev	Min	Max	Mean	Media n	Std.De v	Min	Max	Mean	Median	Std.Dev	Min	Max
<i>Risk And Capital Variables</i>															
CAP	0.27	0.16	0.55	0.01	6.68	0.35	0.16	0.73	0.01	6.68	0.16	0.16	0.05	0.01	0.39
Size	22.56	22.71	1.63	17.28	25.51	22.05	22.27	1.68	17.2	25.49	23.09	23.34	1.41	20.21	25.50
ROE	0.18	0.12	0.58	-0.26	6.68	0.22	0.11	0.18	-0.18	6.68	0.12	0.13	0.08	-0.27	0.40
<i>Market Discipline Variables</i>															
SUPPORT	2.03	2.00	0.67	3.00	1.00	2.00	2.00	0.65	1.00	3.00	2.04	2.00	0.67	1.00	3.00
Bank deposit	20.46	20.75	1.96	15.25	29.03	19.85	19.91	1.97	15.2	26.41	21.17	21.49	1.73	215.40	29.03
DEPOSIT_GR	0.37	0.11	1.76	-0.99	22.04	0.50	0.15	1.81	-0.54	22.04	0.23	0.08	1.67	-0.99	22.04
LIST	0.65	1.00	0.48	0.00	1.00	0.59	1.00	0.49	0.00	1.00	0.69	1.00	0.46	0.00	1.00
RATING	4.30	4.00	1.21	2.00	7.00	4.36	4.00	0.89	2.00	7.00	4.30	4.00	1.36	2.00	7.00
RISK						385.0				1284.0					
DISCLOSURE	406.39	393.00	197.19	7.00	1284.00	0	374.50	179.45	7.00	0	421.39	417.00	208.22	14.00	1227.00

SUPPORT: support rating; Bank_deposits: Log bank deposits; DEPOSIT_GR: deposit growth, LIST: 1 if bank is listed, otherwise 0; RATING: Scale of rating; ROE: Return on equity

CAP: equity ratio; SIZE: log of total assets; RISK DISCLOSURE: risk disclosure index.

Table 2: Correlation Matrix

	SIZE	ROE	PROVISION	GDP-GRO WTH	RLAW	ENTRY	EXPLICIT	UNLIMITED	SUPPORT	Bank deposits	LISIT	RISK DISCLOSURE
SIZE	1.000											
ROE	-0.235*	1.000										
PROVISION	-0.232*	-0.091	1.000									
GDP-GROWTH	0.072	-0.008	-0.123*	1.000								
RLAW	-0.051	0.578*	-0.282	0.098	1.000							
ENTRY	-0.370*	0.062	0.258*	-0.330*	-0.097*	1.000						
EXPLICIT	-0.449*	0.132	0.213*	-0.069	0.412*	0.254*	1.000					
UNLIMITED	0.044*	0.006	-0.072*	-0.008	0.099*	-0.509*	0.034*	1.000				
SUPPORT	-0.264*	-0.288	0.099*	0.079	0.513*	0.099	0.476	0.199*	1.000			
Bank deposits	0.009*	-0.002	-0.007*	-0.035	-0.073	0.048	0.063	-0.016	-0.004	1.000		
LIST	0.398*	-0.222	0.113*	0.112	0.543*	-0.488*	-0.370*	0.228	-0.417*	0.029*	1.000	
RISK DISCLOSURE	0.323*	-0.051	-0.032*	0.035	0.608	-0.179*	0.058	0.229	-0.141	0.004	0.225	1.000

*indicate significance at 5% and 1%.

PROVISION: ratio of loan loss provisions, SUPPORT: support rating; Bank_deposits: Log bank deposits; LIST: 1 if bank is listed, otherwise 0; ROE: Return on equity, SIZE: log of total assets; GDP_GROWTH: real GDP growth; EXPLICIT: deposit insurance index; UNLIMITED: deposit insurance index; ENTRY: entry into banking requirements; RLAW: rule of Law; RISK DISCLOSURE: risk disclosure index.

Table 3: The effect of market discipline on CAP

Panel A: All Sample							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIZE	-0.01	-0.005	-0.027	-0.028	-0.061	-0.0079	-0.037
							3.57**
	3.24***	1.72*	-3.79***	4.69***	3.59***	1.27	*
ROE	0.13	0.09	0.024	0.234	0.102	0.007	0.0345
	5.23***	1.67*	-1.53	-1.45	2.17**	-1.27	1.74*
PROVISION	-0.049	-0.049	-0.223	-0.235	-0.052	-0.248	0.096
	-0.86	0.86	3***	3.21***	0.24	3.53***	0.81
YEAR	-0.06	-0.007	0.004	0.004	0.009	0.009	0.004
							3.14**
	2.9***	0.82	5.42***	5.68***	4.41***	1.17*	*
GDP-GROWTH	0.123	0.204	0.35	0.305	0.27	0.423	0.55
	1.05	2.39**	0.72	1.86*	0.57	2.52**	2**
RLAW	1.9	4.21	1.346	0.59	1.83	0.85	0.031
		3.62**					
	2.88***	*	2.13**	0.79	2.77**	1.35	2.1**
ENTRY	0.001	0.003	0.005	0.002	0.171	0.047	0.005
						2.92***1	
	2.91***	2.53*	0.93	0.98	2.8**		1.46
EXPLICIT	0.302	-0.048	-0.058	0.001	-0.006	-0.012	0.0081
	4.95***	-1.39	-1.49	0.007	0.13	0.6	0.29
UNLIMITED	-0.37	-0.04	-0.082	-0.058	-0.077	-0.065	-0.09
	-2.88**	4.71**					
	*	*	6.2***	4.5***	0.9	2.03**	1.82*
ISLAMIC	0.059	-0.007	-0.29	0.028	0.031	0.047	0.049
	1.29	0.64	2.71**	1.78*	0.68	2.92***	1.9*
SUPPORT		0.017					
		2.92**					*
Bank deposits			-0.011				
			-0.79				
Deposit_GR				0.016			
				3.22***			
LISIT					-0.201		
					-3.09**		
					*		
RATING						0.08	
						1.74*	
RISK DISCLOSURE							0.004
							3.5***
R-Square	0.703	0.924	0.34	0.982	0.344	0.981	0.555

*, **, and *** indicate significance at 10%, 5%, and 1% level.

PROVISION: ratio of loan loss provisions, SUPPORT: support rating; Bank_deposits: Log bank deposits; LIST: 1 if bank is listed, otherwise 0; ROE: Return on equity, SIZE: log of total assets; GDP_GROWTH: real GDP growth; EXPLICIT: deposit insurance index; UNLIMITED: deposit insurance index; ENTRY: entry into banking requirements; RLAW: rule of Law; RISK DISCLOSURE: risk disclosure index.

Panel B: Islamic banks sample							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIZE	-0.12 3.19** *	0.046 4.13** *	-0.112 2.56**	-0.052 4.18** *	-0.117 3.12** *	-0.045 3.36** *	-0.077 3.5
ROE	0.129 1.86*	0.115 0.81	0.129 1.88*	0.041 1.94*	0.158 2.31**	-0.018 0.88	-0.071 1.96*
PROVISION	-0.07 0.2	-1.49 2.45** *	-0.056 0.16	-0.257 2.29**	-0.081 0.23	0.294 2.6**	0.0564 0.3
YEAR	0.001 3.38** *	0.114 2.54**	0.002 3.27** *	0.008 4.91** *	0.002 3.7***	0.007 3.62** *	0.001 3.77** *
GDP-GROWTH	-0.21 1.32	-0.46 0.35	-0.095 0.08	0.349 0.94	-0.118 -0.11	0.439 1.18	0.599 0.97
RLAW	1.16 2.12**	2.14 1.98*	0.079 6.82** *	0.09 3.92** *	0.104 7.98** *	0.077 4.98** *	0.071 6.05** *
ENTRY	0.22 1.75*	-0.008 1.42	-0.024 1.3	0.014 2.69**	-0.034 1.92*	0.029 3.07** *	-0.01 1.46
EXPLICIT	0.465 2.1**	0.094 2.89** *	0.224 1.54	0.086 1.94*	0.215 1.52	0.196 2.43**	0.125 1.51
UNLIMITED	0.018 1.76*	-0.062 2.57**	-0.478 -2.07**	-0.254 3.45** *	-0.47 2.1**	-0.36 3.33** *	-0.316 2.33**
SUPPORT		0.099 3.98** *					
Bank deposits			-0.014 0.51				
Deposit_GR				0.013 2.08**			
LISIT					-0.276 2.35**		
RATING						0.089 3.48** *	

RISK DISCLOSURE							0.267
							1.23
R-Square	0.325	0.364	0.325	0.71	0.462	0.706	0.496

*, **, and *** indicate significance at 10%, 5%, and 1% level.

PROVISION: ratio of loan loss provisions, SUPPORT: support rating; Bank_deposits: Log bank deposits; LIST: 1 if bank is listed, otherwise 0; ROE: Return on equity, SIZE: log of total assets; GDP_GROWTH: real GDP growth; EXPLICIT: deposit insurance index; UNLIMITED: deposit insurance index; ENTRY: entry into banking requirements; RLAW: rule of Law; RISK DISCLOSURE: risk disclosure index.

Panel C: Conventional banks sample							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
SIZE	0.0106	0.003	0.114	0.002	0.18	0.008	0.0027
	4.73***	6.65***	2.48**	0.65	7.16***	2.2**	0.63
ROE	-0.187	-0.056	-0.197	-0.191	-0.047	0.127	-0.169
	2.96***	2.2**	-3.2***	2.94***	0.83	2.09**	2.55**
PROVISION	-0.063	-0.067	-0.059	-0.063	-0.286	-0.041	-0.069
	0.96	2.41**	0.93	0.95	1.9*	0.068	1.06
YEAR	0.0002	0.003	0.003	0.001	0.001	0.001	0.002
	0.51	2.93***	0.82	0.65	4.89***	0.4	1.06
GDP-GROWTH	0.206	0.203	0.201	0.029	0.1337	0.163	0.208
	2.11**	2.19**	2.12**	1.24	1.52	1.7*	2.13**
RLAW	0.432	2.701	1.94	0.097	0.121	0.086	0.094
	0.25	2.14**	1.08	4.59***	6.64***	4.32***	3.65***
ENTRY	0.0014	0.003	0.001	0.002	0.004	0.002	0.001
	1.07	2.7**	0.75	1.3	1.07	1.21	0.71
EXPLICIT	-0.014	-0.027	-0.075	-0.021	-0.024	-0.021	-0.008
	1.13	1.74*	1.46	1.72*	1.91*	1.75*	0.17
UNLIMITED	-0.031	-0.031	-0.47	-0.025	-0.018	-0.051	-0.038
	0.96	1.03	1.46	0.62	0.56	1.65	1.17
SUPPORT		0.029					
		3.65***					
Bank deposits			0.009				
			3.06***				
Deposit_GR				0.029			
				1.24			
LISIT					-0.032		
					1.79*		
RATING						0.008	

						2.01**	
RISK							
DISCLOSURE							0.068
							2.27***
R-Square	0.906	0.925	0.911	0.961	0.912	0.98	0.902

*, **, and *** indicate significance at 10%, 5%, and 1% level.

PROVISION: ratio of loan loss provisions, SUPPORT: support rating; Bank_deposits: Log bank deposits; LIST: 1 if bank is listed, otherwise 0; ROE: Return on equity, SIZE: log of total assets; GDP_GROWTH: real GDP growth; EXPLICIT: deposit insurance index; UNLIMITED: deposit insurance index; ENTRY: entry into banking requirements; RLAW: rule of Law; RISK DISCLOSURE: risk disclosure index.

Table 4: The effect of market discipline with support interactions

	Panel A: All Sample			Panel B: Islamic banks sample			Panel C: Conventional banks sample		
	(1)	(2)	(3)	(1)	(2)	(3)	(1)	(2)	(3)
SIZE	-0.01	-0.01	-0.01	-0.05	-0.07	-0.05	-0.01	-0.01	-0.01
	1.67*	2.86**	1.77*	5.37***	6.87***	4.32***	2.16**	0.85	1.90**
ROE	0.09	0.08	-0.07	0.25	0.10	-0.08	0.08	0.06	-0.04
	2.46**	1.46	1.27	1.92*	1.02	1.60	-1.68*	1.92*	0.65
PROVISION	-0.05	-0.06	-0.07	1.53	0.98	1.18	-0.06	-0.07	-0.07
	2.18**	1.17	1.18	3.01***	2.37**	2.01*	1.07	1.06	1.18
YEAR	0.01	0.00	0.00	-0.01	-0.01	0.00	0.00	0.00	0.00
	1.35	1.06	1.23	3.81***	5.94***	1.64*	1.39	0.72	0.61
GDP-GROWTH	0.19	0.17	0.19	0.04	0.02	-0.07	0.16	0.19	0.20
	2.10**	2.11**	2.27**	0.33	0.21	0.63	1.74*	1.89*	2.12**
RLAW	4.26	0.06	4.62	-1.21	0.56	0.63	4.16	4.04	3.26
	1.90**	1.65*	4.68***	2.14**	1.65*	1.55	1.51	1.90*	1.51
ENTRY	0.012	0.01	0.02	0.00	0.00	-0.01	0.01	0.01	0.01
	2.79***	2.33***	2.88***	0.81	0.39	1.65*	2.32**	2.69**	2.74**
EXPLICIT	-0.03	-0.02	0.00	-0.22	-0.14	-0.05	-0.02	-0.03	-0.03
	1.93*	1.56	1.90*	1.57	0.21	1.24	2.32**	1.88*	1.74*
UNLIMITED	-0.03	-0.34	-0.02	-0.46	-0.05	-0.46	-0.04	-0.03	0.22
	0.86	1.08	0.82	2.04**	1.58	2.04**	1.65*	1.77*	0.96
ISLAMIC	-0.14	-0.02	0.00						
	1.20	-1.04	0.36						
SUPPORT	0.02	-0.11	0.02	0.16	0.32	0.04	0.11	0.03	0.02
	3.11***	1.08	1.24	4.69***	3.12***	1.67*	2.50**	2.87**	1.63*
Bank deposits		-0.02		0.10	0.03		0.03	0.02	
		2.38**		2.27**	1.79*		2.57**	2.11**	
Deposit_GR	0.34								
	1.80*								
SUPPORT*DEPOSIT_GR	0.07			0.05			0.00	0.01	
	1.73*			2.26**			1.88**	1.76*	
SUPPORT*BANKS DEPOSIT		0.01			-0.01				
		1.79*			1.97*				
RISK DISCLOSUR			0.00			0.00			0.00
			0.64			1.27			1.60
Risk DISCLOSURE* SUPPORT			0.10			0.01			0.00
			1.35			1.45			1.39
R-Square	0.92	0.93	0.93	0.98	0.91	0.95	0.93	0.92	0.92

*, **, and *** indicate significance at 10%, 5%, and 1% level.

PROVISION: ratio of loan loss provisions, SUPPORT: support rating; Bank_deposits: Log bank deposits; LIST: 1 if bank is listed, otherwise 0; ROE: Return on equity, SIZE: log of total assets; GDP_GROWTH: real GDP growth; EXPLICIT: deposit insurance index; UNLIMITED: deposit insurance index; ENTRY: entry into banking requirements; RLAW: rule of Law; RISK DISCLOSURE: risk disclosure index.

Table 5: The effect of market discipline with interaction with country-specific variables

	Panel A: All Sample		Panel B: Islamic banks sample		Panel C: Conventional banks sample	
	Interaction dummy		Interaction dummy		Interaction dummy	
	Entry	Explicit	Entry	Explicit	Entry	Explicit
SUPPORT	0.006	0.013	0.258	0.104	0.022	0.009
	1.36	1.3	1.59	2.84**	1.48	1.75*
SUPPORT*Dummy	0.002	0.088	0.01	0.23	0.001	0.004
	1.39	2.3**	1.98*	0.82	1.49	1.32
BANKDEPOSIT	0.005	0.06	0.122	0.021	0.008	0.013
	1.96*	1.76*	1.57	0.08	1.13	2.88***
BANKDEPOSIT*Dummy	0.001	0.127	0.004	0.002	0.008	0.01
	1.6	3.63***	1.57	1.15	1.25	3.12***
DEPOSIT_GR	0.03	0.009	0.589	0.0014	0.032	0.05
	1.69*	1.25	1.35	1.31	1.5	1.95*
DEPOSIT_GR*Dummy	0.01	0.159	0.246	0.23	0.005	0.162
	1.54	2.35**	1.35	0.82	1.49	2.44***
LIST	0.98	0.358	0.10	0.106	0.91	0.428
	3.39***	3.15***	0.69	2.57**	2.79**	3.55***
LIST*Dummy	0.031	0.311	0.073	0.65	0.029	0.019
	3.42***	3.17***	4.8***	1.01	2.84**	1.77***
RATING	0.119	0.004	0.145	0.004	0.123	0.009
	3.52***	0.99	2.56**	1.29	3.18***	1.73*
RATING*Dummy	0.004	0.029	0.052	0.06	0.004	0.005
	3.44	2.68**	2.24**	0.53	2.98***	1.77*
RISK DISCLSURE	0.005	0.007	0.014	0.002	0.002	0.028
	1.91*	0.01	1.28	1.54	1.54	0.18
RISKDISCLPSURE*Dummy	0.009	0.006	0.001	0.02	0.006	0.006
	1.96*	0.74	1.29	1.29	1.58	0.87
R-Square	0.935	0.928	0.931	0.867	0.912	0.923

*, **, and *** indicate significance at 10%, 5%, and 1% level.

PROVISION: ratio of loan loss provisions, SUPPORT: support rating; Bank_deposits: Log bank deposits; LIST: 1 if bank is listed, otherwise 0; ROE: Return on equity, SIZE: log of total assets; GDP_GROWTH: real GDP growth; EXPLICIT: deposit insurance index; UNLIMITED: deposit insurance index; ENTRY: entry into banking requirements; RLAW: rule of Law; RISK DISCLOSURE: risk disclosure index.

Table 6: country dummies

Panel A: All Sample						
	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	-0.007	-0.045	-0.023	-0.058	-0.009	-0.036
	2.03**	2.07**	3.57***	3.37***	1.52	3.62***
ROE	0.1956	0.084	-0.021	0.102	0.0059	0.046
	3.75***	1.78*	1.53	2.17**	0.39	1.79*
PROVISSION	-0.038	-0.059	-0.222	-0.032	-0.273	0.103
	0.67	0.27	3.06***	1.15	3.89***	0.87
GDP-GROWTH	0.16	0.146	0.304	0.292	0.345	0.378
	2.04**	1.32	1.9*	1.65*	3.89***	1.45
Country	0.005	0.015	0.003	0.004	0.004	0.008
	3.18***	1.84*	1.15	0.53	0.16	1.78***
ISLAMIC	0.016	0.039	0.024	0.033	0.039	0.047
	1.75*	1.86*	1.58	0.73	2.59***	1.6
SUPPORT	0.026					
	4.06***					
Bank deposits		0.016				
		1.13				
Deposit_GR			0.014			
			2.88**			
LISIT				0.188		
				2.9**		
RATING					0.006	
					1.92*	
RISK DISCLOSURE						0.004
						0.69
CONST	0.027	0.166	0.73	1.74	0.33	1.04
	0.82	4.07***	4.7***	4.31***	2.31**	4.5***
R-Square	0.368	0.362	0.295	0.293	0.423	0.391

*, **, and *** indicate significance at 10%, 5%, and 1% level.

PROVISSION: ratio of loan loss provisions, SUPPORT: support rating; Bank_deposits: Log bank deposits; LIST: 1 if bank is listed, otherwise 0; ROE: Return on equity, SIZE: log of total assets; GDP_GROWTH: real GDP growth; EXPLICIT: deposit insurance index; UNLIMITED: deposit insurance index; ENTRY: entry into banking requirements; RLAW: rule of Law; RISK DISCLOSURE: risk disclosure index.

Panel B: Islamic Banks Sample						
	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	0.046 3.51***	-0.083 1.9*	-0.036 3.05***	-0.09 2.66**	-0.027 2.02**	0.06 3.07***
ROE	-0.343 2.41**	-0.125 1.82*	-0.036 1.72*	-0.143 2.11**	-0.009 0.44	0.68 1.83*
PROVISSION	0.826 1.21	0.073 0.21	-0.225 2.06**	-0.134 0.38	-0.319** 2.78	0.449 0.24
GDP-GROWTH	0.037 0.24	0.354 0.21	0.634 1.76*	0.57 0.56	0.901 2.51**	0.884 1.43
Country	0.005 0.84	0.031 0.34	0.011 1.97*	-0.021 1.18	-0.002 0.35	0.017 1.74*
SUPPORT	0.061 2.33**					
Bank deposits		0.02 1.73*				
Deposit_GR			0.0145 2.25**			
LISIT				0.216 1.96*		
RATING					0.061 2.7**	
RISK DISCLOSURE						0.007 1.2
CONST	1.037 2.88**	2.73 3.65***	1.063 3.98***	2.65 3.5***	0.507 1.76*	1.71 3.89***
R-Square	0.403	0.5108	0.356	0.503	0.261	0.272

*, **, and *** indicate significance at 10%, 5%, and 1% level.

PROVISSION: ratio of loan loss provisions, SUPPORT: support rating; Bank_deposits: Log bank deposits; LIST: 1 if bank is listed, otherwise 0; ROE: Return on equity, SIZE: log of total assets; GDP_GROWTH: real GDP growth; EXPLICIT: deposit insurance index; UNLIMITED: deposit insurance index; ENTRY: entry into banking requirements; RLAW: rule of Law; RISK DISCLOSURE: risk disclosure index.

	Panel C: Conventional banks sample					
	(1)	(2)	(3)	(4)	(5)	(6)
SIZE	0.004	0.002	0.001	0.007	0.006	0.002
	1.04	0.72	1.39	1.19	1.63*	0.47
ROE	0.174	0.248	0.254	0.23	0.207	0.235
	3.13***	4.31***	4.26***	4.24***	3.66***	3.98***
PROVISSION	-0.46	-0.048	-0.042	-0.033	-0.027	-0.055
	0.76	0.75	0.63	1.51	0.44	1.86*
GDP-GROWTH	0.168	0.197	0.175	0.229	0.152	0.193
	1.96*	2.31**	1.96*	2.73***	1.68*	2.23**
Country	0.006	0.004	0.005	0.006	0.04	0.036
	3.37***	2.42**	3.09***	3.55***	2.63**	2.03**
SUPPORT	0.031					
	4.36***					
Bank deposits		0.0441				
		0.33				
Deposit_GR			0.031			
			1.27			
LISIT				0.047		
				2.71**		
RATING					0.05	
					1.65*	
RISK DISCLOSURE						0.01
						1.21
CONST	-0.017	0.097	0.114	0.173	0.031	0.05
	0.18	1.08	1.13	1.86*	0.35	1.17
R-Square	0.361	0.528	0.319	0.574	0.591	0.513

*, **, and *** indicate significance at 10%, 5%, and 1% level.

PROVISSION: ratio of loan loss provisions, SUPPORT: support rating; Bank_deposits: Log bank deposits; LIST: 1 if bank is listed, otherwise 0; ROE: Return on equity, SIZE: log of total assets; GDP_GROWTH: real GDP growth; EXPLICIT: deposit insurance index; UNLIMITED: deposit insurance index; ENTRY: entry into banking requirements; RLAW: rule of Law; RISK DISCLOSURE: risk disclosure index.

Appendix

Table B.1: Country-wide distribution of sample

	Number of Islamic Banks	Number of Conventional Banks
Bahrain	19	17
Egypt	2	7
Qatar	4	7
Kuwait	6	6
Jordan	2	7
Saudi Arabia	6	5
Tunisia	2	9
Turkey	4	7
United Arab Emirates	6	10
Total	51	75

Table B.2: Variable definitions and data sources

Variables	Description	Details	Data source
PROVISIONS	Ratio of loan loss provisions	Ratio of loan loss provisions to total loans	BankScope
SUPPORT	Support rating	Support = 1 if FITCH IBCA support rating equals 1 or 2, 0 otherwise	BankScope
BANK_DEPOSITS	LN of bank deposits	Log bank deposits	BankScope
LIST	Listing	Listing = 1 if bank is listed, otherwise 0	BankScope
RATING	Rating	Scale of rating	BankScope
ROE	Return on equity	Net income divided by the book value of equity from the previous period	BankScope
CAP	Equity ratio	Ratio of equity capital to debt and deposits	BankScope
SIZE	Log of total assets	Logarithm of total assets	BankScope
GDP GROWTH	Real GDP growth		International Financial Statistics (IFS)
EXPLICIT	Deposit insurance index	Explicit = 1 if the country has an explicit deposit insurance scheme	Demirgüç-Kunt and Sobaci (2000)
UNLIMITED	Deposit insurance index	Unlimited = 1 if there exists an explicit scheme which provides unlimited coverage	Demirgüç-Kunt and Sobaci (2014)
ENTRY	Entry into banking requirements	The sum of 8 sub-indices related to administrative entry requirements imposed by supervisors, as further described in Barth et al. (2001)	Barth et al. (2001)
RLAW	Rule of Law	Rlaw Rule of Law Assessment of the law and order tradition in the country produced by the country risk rating agency International Country Risk (ICR), on a scale of 1 to 10, as described further in La Porta et al. (1998) updated	La Porta et al. (1998) updated
RISK DISCLOSURE	Risk disclosure index	Risk disclosure index includes 69 items grouped into 8 risk sub-categories	Hand collected data

Table B.3: Credit rating classifications

Debt rating	Assigned RATING score	Grade
Aaa	7	Investment
Aa+	6	Investment
Aa	6	Investment
Aa-	6	Investment
A+	5	Investment
A	5	Investment
A-	5	Investment
Baa+	4	Investment
Baa	4	Investment
Baa-	4	Investment
Ba+	3	Speculative
Ba	3	Speculative
Ba-	3	Speculative
B+	2	Speculative
B	2	Speculative
B-	2	Speculative
Caa +	1	Speculative
Caa	1	Speculative
C	1	Speculative