Risk Governance and Financial Stability: A Comparative Study of Conventional and Islamic Banks in the GCC

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Abstract

While the linkage between bank governance and financial stability has been discussed widely, empirical explorations of the strength of this relationship are scant. This paper examines the specific role of risk governance in promoting financial stability in banks. Using hand-collected data, it develops a Risk Governance Index (RGI) to measure the strength of risk governance structures and then examines its impact on four main indicators of financial stability for conventional and Islamic banks in the countries of Gulf Cooperation Council (GCC). The results from the dynamic panel models using two-step GMM method suggest that risk governance significantly contributes to the enhancement of the key financial stability measures. The RGI for Islamic banks is found to be smaller than their conventional counterparts and the regression results indicate that risk governance in Islamic banks has a negative impact on stability indicators. While the business models of Islamic banks have features that can enhance stability, poor risk governance can potentially negate this positive feature.

Key words: Corporate governance; risk governance; financial stability; Islamic banks.

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1. Introduction

The global financial crisis (GFC) of 2007-2008 highlighted several weaknesses in the banking sector that led to instability and systemic risks causing enormous costs to economies globally. Islamic financial sector came into focus after the GFC as some studies showed it fared relatively better than its conventional counterpart. With rapid growth during the post-crisis period and global assets of US$ 2.19 trillion in 2018, the Islamic financial industry has become systematically significant in many jurisdictions (IFSB, 2019). Beck, et.al. (2013) find that Islamic banks had higher capitalization liquidity reserves and better asset quality compared to conventional banks in the period prior to the crisis (1995-2007) and Hasan and Dridi (2010) show that Islamic banks were not adversely affected by the crisis and their assets growth was higher than their conventional counterparts. The differences in performance and stability of Islamic banks and conventional banks are attributed to business models and some key features of Islamic financial system that emphasise risk-sharing, direct linkages with the real economy, low leverage and not dealing with derivatives (Ahmed, 2011; El-Hawary et al., 2004; Hasan and Dridi, 2010).

While business model and products are identified as key factors to explain the differences in performance of conventional banks (CBs) and Islamic banks (IBs), the crisis highlighted the role of corporate governance as a determining factor of risk taking and performances. In a study carried out after the GFC, OECD (2009) underscores that weakness in the governance framework was one of the key underlying causes of the crisis. Echoing OECD's perspectives, Kirkpatrick (2009) identifies weak governance as the key factor for the GFC with risk management systems failing due to inadequate corporate governance procedures. Thereafter, several empirical studies confirm the significant role governance plays on performance and stability of banks (Beltratti and Stulz, 2012; Berger and Bouwman, 2013; Fahlenbrach and Stulz, 2011; Grove et al., 2011).

Even though governance framework shapes operations and risk-taking behaviour in banks, few studies consider it in comparative studies of Islamic and conventional banks. Some research that explore relative stability features of Islamic and conventional banks do not consider governance variables (Abedifar et. al 2013; Cihak and Hesse 2010). Whereas Mollah and Zaman (2015) include governance in their study, they examine its impact on performance, not

stability. To the best of our knowledge, Mollah et. al (2017) is the only paper that explores how governance structure affects risk-taking and stability in CBs and IBs. They use a governance index incorporating items related to board characteristics and CEO determinants and find that interaction variable between Islamic bank dummy variable and the governance index has a significant negative impact on log z-score implying that governance in IBs induces more risk taking than CBs.

This paper contributes to the scant literature by investigating the role of governance on financial stability of Islamic and conventional banks. A broader risk governance index (RGI) that incorporates risk-management related governance features reflecting the post-crisis notion of governance in banks outlined by the Basel Committee for Banking Supervision (BCBS 2015) is used in the study. Using a sample of 26 Islamic banks and 27 conventional banks from five countries in the Gulf Cooperation Council (GCC) region for the period 2006-2012, we estimate the impact of RGI and other bank specific and macroeconomic variables on different stability indicators. We find that for the overall sample RGI contributes positively to financial stability. Islamic banks dummy variable that captures their underlying unique governance and non-governance features has negative impact suggesting that they are less stable than CBs. However, when the interaction of RGI and Islamic banks variable is included in the regressions, the impact of Islamic banks dummy variable becomes positive implying that the relative instability in the Islamic banks is due to governance structures rather than banking model and products.

Other than adding to the meagre comparative literature on the role of governance on stability of conventional and Islamic banks, the paper contributes in several other ways. First, the paper constructs a hand collected governance index reflecting aspects of risk governance emphasized in post-crisis literature in general and by BCBS (2015) in particular. A key feature of the BCBS *Corporate governance principles for banks* is the incorporation of the risk-management related governance issues in different principles. The holistic risk governance indicator used in this research consists of 19 elements reflecting five essential functions of the board of directors, the risk and audit committees, chief risk officer and the internal audit. Since various contemporary risk-related governance features are added in the index, we specify it as risk governance index (RGI). Second, while Mollah et. al (2017) use log z-score as dependent variable in their study to assess the role of governance on stability, we use additional stability indicators such as capital adequacy ratio, the asset quality (ratio of loan loss reserves to gross loans) and liquidity (ratio

of liquid assets to deposits and short-term funding). Finally, the study analyses whether stability features of Islamic banks are due to governance framework or business model and products.

The remainder of this paper is structured as follows: the next section reviews the relevant literature on how risks and stability are related to banking models, corporate governance and Islamic banking and develops the research hypotheses. Section three introduces the econometric models and the data. Subsequently, the empirical results are presented in section four and section five concludes the paper.

2. Related Literature and Hypotheses Development

This section presents the key theoretical motivations and associated empirical literature on banking models, corporate governance and Islamic banks and outlines the hypothesis developed for the empirical models used in the study.

2.1. Banking Models and Corporate Governance

Banking theories identify banks to be inherently prone to risks due to their business models and operations. The key function of banks of maturity transformation from short-term liquid liabilities to longer term illiquid assets introduces risks arising from maturity mismatch (Bhattacharya and Thakor, 1993; Diamond and Dybvig, 1983; Diamond and Rajan, 2001) . Not being able to meet the liquidity needs of depositors can precipitate runs on the banks making banks fragile. Deposit insurance is introduced to discourage mass withdrawals, but in turn can create incentives of risk taking in banks. To mitigate liquidity and solvency risks, regulators impose various regulatory measures such as capital requirements and restrictions on activities to mitigate the risks (Diamond and Rajan, 2001; Laeven and Levine, 2009) . The traditional banking models began to transform by expanding their funding sources to include other instruments such as bonds and commercial papers on the one hand and introducing 'originate and distribute' through securitisation on the other hand (Bord and Santos, 2012; Brunnermeier, 2009; Purnanandam, 2011). When assets are securitised and sold in the market, overall risks can increase due to use of poorer assessment of credit quality *ex ante* and weaker monitoring *ex post*.

A plethora of empirical research examines the role of business models, products and operations on stability of banks. The factors studied include new developments and innovations (Acharya, 2009; Leung et al., 2015; White, 2008), lack of transparency and opaque products (Hildebrand, 2008), excessive credit expansion and credit boom (Acharya, 2009; Brunnermeier, 2009; White, 2008), high debt levels and excessive leverage (Beltratti and Stulz, 2012; Brunnermeier,

2009; Grove et al., 2011; Hildebrand, 2008; Leung et al., 2015), trade in risky securities (Brunnermeier, 2009; Leung et al., 2015), low capital ratio (Berger et al., 2016; Leung et al., 2015), lower returns (Beltratti and Stulz, 2012; Berger et al., 2016; Leung et al., 2015), poor underwriting practices and higher proportion of non-performing loans (Berger et al., 2016; Leung et al., 2015) and the transformation of the traditional banking model to that of 'originate and distribute' model (Brunnermeier, 2009; Purnanandam, 2011) .

Some research also associate the instability of banks during the crisis to the overall regulatory framework such as deregulations that allowed banks to shift assets off balance sheet to hold less capital (Crotty, 2009), evasion of regulatory capital requirements through regulatory arbitrage that resulted in risk concentration and defaults (Acharya and Richardson, 2009) and excessive reliance on credit rating agencies and a move towards self-regulation (Coffee, 2009). Acknowledging the weaknesses of the risk management functions that contributed to the systemic risks of the GFC, the Basel Committee on Banking Supervision (BCBS) has introduced Basel III regulatory guidelines that strengthen the capital and liquidity requirements.

Theories relating to corporate governance examine incentive structures among shareholders and depositors and agency relationships between shareholders and managers. Due to limited liability and shareholders receiving residual claims, they have incentives to more risk-taking compared to depositors and debt-holders (Ellis et al., 2014; Esty, 1998; Galai and Masulis, 1976). Deposit insurance, however, can reduce incentives of depositors to monitor banks and lead to more risk-taking as shareholders can transfer the negative consequences of the bank's activities to deposit insurers (Anginer et al., 2016; John and Senbet, 1998). The principal agent problem arising from the divergence of the interests of shareholders and managers creates certain governance issues that can affect risks. The incentives of risk-taking among managers would be lower than shareholders if the former have skills that are bank-specific and can extract private benefit from control (Demsetz and Lehn, 1985; Jensen and Meckling, 1976). However, the divergence of the interests can be overcome by aligning the compensation of the managers with the objectives of the shareholders, one of which would be rewarding the former with equity options (Ellis et. al 2014).

A number of studies identify idiosyncratic characteristics of corporate governance to explain the performance and stability of banks. While several empirical studies examine the impact of banks specific governance variables on performance (Adams and Mehran, 2008; Aebi et al., 2012; Andres and Vallelado, 2008; Beltratti and Stulz, 2009, 2012; Caprio et al., 2003, 2007), a handful of research considers how governance affects stability in banks. Pathan (2009) shows

that for a sample of 212 large banks in the US, risk-taking is positively related to strong boards and negatively to CEO power. Akhigbe and Martin (2008) find that financial services firms including banks with certain governance measures such as internal and external monitoring and the percentage of managerial and institutional ownership experienced small increases in total risks. Laeven and Levine (2009) show that banks with large and powerful owners with substantial cash-flow rights tend to engage in higher risk particularly in countries that have deposit insurance than those without.

Becht et al. (2011) find that board independence, ownership and control, executive compensation and internal controls are correlated to bank failures. Anginer et. al (2016) show that banks with shareholder friendly governance structures tend to be less capitalised than banks that serve the shareholders' interest less. Mollah and Liljeblom (2016) construct an index of CEO power with six features and find that banks with more powerful CEOs performed better during the crisis, but had higher insolvency risks. They also find board independence to enhance both bank performance and solvency. Dewatripont et al. (2010) argue that it is necessary to implement adequate governance measures, risk management systems and control over senior management remuneration to restrain risk-taking incentives of managers. Battaglia and Gallo (2015) show the impact of governance variables, which include features of risk committee, on performance on Chinese and Indian banks to be positive.

Acknowledging the weaknesses of corporate governance that contributed to the systemic risks of GFC, several international multilateral bodies such as the Basel Committee on Banking Supervision (BCBS), the Financial Stability Board (FSB), the OECD and the IMF published a corpus of principles and guidelines to improve the practices in bank corporate governance in general and in risk governance in particular (BCBS, 2015; FSB, 2013; IMF, 2009; OECD, 2015, 2009). A key feature of the BCBS *Corporate governance principles for banks* is the emphasis on risk governance with risk management related issues permeating in most of the corporate governance principles.

Given the role of governance in mitigating risks, some authors include risk management aspect of governance in their studies. Aebi et. al (2012) is among one of the first to include the risk governance elements along with the traditional corporate governance variables such as board size, board independence, etc. to study the impact on performance of banks during the GFC. They use hand-collected data on corporate governance that include information on the presence of chief risk officer (CRO) in the executive board, their reporting line (to the board or CEO) and various attributes of the risk committee. Interestingly, they find that while CRO reporting

to board affects returns positively, the traditional governance variables do not impact performance. Ellul and Yerramilli (2013) develop a risk management index that entails items related to CRO and risk committee and find that banks with higher index before the GFC had lower tail risk, less nonperforming loans, higher operating performance and higher returns during the crisis years (2007 and 2008).

Given the above discussions, the relationship between governance and stability of banks in the GCC region is tested in hypothesis 1.

Hypothesis 1: Risk governance and financial stability of banks.

H_{01}: There is no relationship between risk governance and the banks' financial stability.

The alternative hypothesis is that there is a positive relationship. We expect to reject the null hypothesis in favour of a positive association between better risk governance and stability indicators of banks.

2.2. Islamic Banking Products and Models

The underlying business models and products of IBs and CBs are different since the former abides by Shariah rules and principles that have implications on risk return features. Islamic commercial law prohibits *riba* (literally meaning 'excess'), *gharar* (legal ambiguity or excessive risk) and *maysir* (gambling) in transactions. While *riba* is usually translated as interest, it has wider connotations such as prohibition of sale of debt. Similarly, contemporary derivatives (forwards, futures, swaps, etc) are not permissible as they have elements of both *riba* and *gharar*. Since interest is prohibited, Islamic finance uses various other permissible contracts to structure financial products.

The key contracts used in practice can be broadly classified as those that are profit-loss sharing (PLS) which include partnership based contracts (*mudarabah* and *musharakah*) and those that are fixed-income based which include sale-based contracts that create debt (*murabahah, salam* and *istisna*) and leasing contract (*ijarah*) (Abedifar et al., 2013; Ayub, 2007; Usmani, 2012). A key difference between various contracts relates to the inherent risks with the PLS modes being more risky than the fixed-income based instruments. Even though debt is created through sale based contracts in Islamic banking, their underlying risk features are different than interest based loans as the former also entails market risks and are illiquid as they cannot be sold (Ahmed 2011; Abedifar et al. 2013; Aggarwal and Yousef 2000).

The dominant Islamic banking model uses PLS (*mudarabah*) based savings/investment accounts on the liability side and multiple financing tools on the assets side (Ahmed, 2011; Ali 2012). Using PLS based savings accounts introduces various risks in IBs that do not exist in CBs. Theoretical models show that Islamic banks would be more stable since depositors share the risks of financing on the assets side (Khan, 1987) . Furthermore, using PLS based *mudarabah* contract changes the agency relationships between the bank and depositors. Since the contracts are equity-like, depositors have more incentives to monitor and discipline the bank (Beck, et.al. 2013). However, since Islamic banks operate in competitive markets along with other Islamic and conventional banks, paying depositors returns that are lower than that paid by the market can lead to withdrawal risks. To mitigate the risks, Islamic banks create reserves that are used for profit-smoothing practices in cases where the returns are below market rates. In cases when the reserves are not adequate, the shareholders would give up their shares of profit to sustain market rates of returns to depositors (Abedifar et al., 2013; Ahmed, 2011; Khan and Ahmed, 2001) .

The risk profile of assets portfolio will depend on the composition of assets and type of contracts used for financing. While in principle, Islamic banks can use different modes of financing, fixed-income contracts form the bulk of financing. For example, Ali (2012) finds the proportion of debt-based *murabahah* financing to be 75% for a sample of 30 Islamic banks in nine countries and Khan (2010) reports that the range of PLS modes used in seven banks range from 0% (Al Rajhi Bank) to 20.1% (Kuwait Finance House). The lack of using PLS modes can be explained by moral hazard and agency problems that arise in these contracts (Aggarwal and Yousef 2000).

Another factor that can affect the risk profile of IBs is the lack of Shariah compliant risk management instruments to mitigate different risks. For example, Islamic banks cannot borrow funds from money markets on interest or sell debt-based assets to cover liquidity needs since selling debt is prohibited (Khan and Ahmed 2001). Furthermore, Islamic law prohibits the use of derivatives which reduces the exposure to speculation and toxic assets on the one hand, but also limits the use of these instruments to hedge against risks on the other hand.

Other than products, corporate governance in Islamic banks is also qualitatively different from conventional banks as the former have an additional layer of overview by the Shariah supervisory boards (Grais and Pellegrini, 2006; Mollah and Zaman, 2015). Shariah supervisory board (SSB) is an independent body with a specific role of ensuring that products and operations are Shariah compliant. The SSB defines the boundaries and imposes restrictions on the board

of directors and management of the banks based on Shariah principles. Thus, the governance and risk management aspects of Islamic banks would be influenced by an overlay of Shariah principles that are vetted and approved by the SSB.

Some empirical research examines the relative stability features of IBs and CBs. Hasan and Dridi (2010) show that the financial shocks during the GFC did not adversely impact the profitability of Islamic banks in 2008 and their profit levels were higher during the pre-crisis period between 2005 and 2007. They find that the credit and asset growth in Islamic banks were higher than in mainstream banks and Islamic banks generally had better credit ratings than conventional banks. They contend that the business model peculiar to Islamic banks as well as their adherence to Shariah principles sheltered them from losses. Using a sample of 209 banks from 21 countries covering the period 2005-2009, Beck et al., (2013) find that Islamic banks have higher loan-deposit ratios, higher cost-to-income ratios, higher overhead costs but lower non-performing loans and higher capital-asset ratios.

Čihák and Hesse (2010) explore the relative stability of Islamic and conventional banks by using a sample of 77 Islamic banks and 397 commercial banks from 20 countries over 1993 and 2004. They find that overall Islamic banks' *z*-scores are higher than those of commercial banks suggesting that overall the former is more stable than the latter. When accounting for size, however, they find that small Islamic banks are more stable than large Islamic banks and large commercial banks are more stable than large Islamic banks. Similarly, Abedifar et al. (2013) examine comparative stability of Islamic and conventional banks and show that Islamic banks have lower credit risk than conventional banks. In addition, they find that the loan quality, the (implicit) interest income and (implicit) interest expense of Islamic banks are less sensitive to domestic interest rates.

Mollah et al. (2017) appears to be the only paper that empirically investigates the influence of the governance structure on the risk-taking and performance of both Islamic and conventional banks. Using a sample of 52 Islamic banks and 104 conventional banks in 14 countries through 2005 to 2013, the authors construct a composite corporate governance indicator (CGI) based on 12 governance items related to board characteristics and CEO related determinants. Their findings show that while the Islamic dummy variable has a positive (but insignificant) effect on stability, the governance structures in Islamic banks tend to produce more instability.

The above discussion indicates that business model/products and governance framework of IBs are qualitatively different from CBs. As such, we test the following two hypotheses related to

the stability features of IBs and CBs arising from the differences in both governance and non-governance factors.

Hypothesis 2: The overall stability features of IBs and CBs would be different.

H_{02}: There is no difference in the stability features of IBs and CBs.

Whereas differences in the business model/products of IBs and CBs imply different risk implications, it is difficult to ascertain a-priori which one would the more stable due to the reasons discussed above. Thus, the alternative hypothesis would be that there are differences in stability features of IBs and CBs.

Hypothesis 3: The stability features of IBs are due to both governance and non-governance factors.

H_{03}: The stability of Islamic banks is not affected by the governance and non-governance factors

Although difficult to predict the direction of impact of these factors on stability of Islamic banks at this stage, the alternative hypothesis would be that governance and non-governance (business models) factors affect the stability of Islamic banks.

3. Empirical Models, Data and Method

The econometric model set out in equation (1) below will be used to test H_{01} and H_{02}.

$$FSI_{i,t} = \alpha_0 + \beta_1 FSI_{i,t-1} + \delta RGI_{i,t} + \gamma X_{i,t} + \zeta BK_{i,t} + \theta Z_{i,t} + \beta_2 Islamic\_Dummy + \beta_3 Crisis\_Dummy + u_i + \varepsilon_{i,t} \quad (1)$$

While the coefficient of *RGI* will test $H_{01,}$ the coefficient of *Islamic_Dummy* will test H_{02}. To test hypothesis 3, we modify equation (1) by including an interaction term between the RGI and the Islamic dummy variable (RGI*IS_DV) while keeping the same set of other explanatory variables. The new equation estimated is set out below:

$$FSI_{i,t} = \alpha_0 + \beta_1 FSI_{i,t-1} + \delta RGI_{i,t} + \lambda \text{RGI*IS\_DV}_{i,t} + \gamma X_{i,t} + \zeta BK_{i,t} + \theta Z_{i,t} + \beta_2 Islamic\_Dummy + \beta_3 Crisis\_Dummy + u_i + \varepsilon_{i,t} \quad (2)$$

$FSI_{i,t}$ stands for the financial stability indicator of bank *i* at time *t*. We use four models of FSI: LnZScore, CAR, LLR_GL and LiqA_DSTF recursively. $FSI_{i,t-1}$ is the first lag value of the financial stability indicator, $RGI_{i,t}$ is the risk governance index for bank *i* at time *t* and is one of our main variable of interest, $X_{i,t}$ is a matrix of explanatory variables, $BK_{i,t}$ is a matrix of bank specific control variables, $Z_{i,t}$ is a matrix of macroeconomic variables. α_0 is the constant, $\beta_{1,}$ δ,

γ, ζ, θ are β_2 and β_3 are the vectors of parameter estimates for their respective matrices. U_i are the unobserved individual-level effects and ε is the residual term. The variables used in the equations are defined and their sources are identified in Table 1.

Table 1: Description of Variables Used in the Empirical Models

Variables	Definition, Coding and Data Source
Panel A: Dependent Variables (Financial Stability Indicators)	
LnZScore	Natural logarithm of the *z*-score is used as a proxy for insolvency risk and estimated as z =(capital to assets ratio+μ_{ROA})/σ_{ROA}, μ_{ROA} and σ_{ROA} stand for the mean and the volatility of the ratio of return to assets respectively. We follow Lepetit and Strobel (2013) where the mean and standard deviation of the returns on assets are calculated over the full sample then combined to the current values of the capital-to-assets ratio. A higher value of z-score would imply more stability (Data Source: BankScope & Authors' Calculations)
CAR	Capital Adequacy Ratio as equal to (Tier1 + Tier 2) divided by Risk Weighted Assets and Off-Balance Sheet risks. (Data Source: BankScope)
LLR_GL	Ratio of Loan Loss Reserves to Gross Loans is used as a proxy for poorer asset quality or credit risk (Abedifar et al. 2013; Ng and Roychowdhury, 2014). A larger ratio would represent lower stability. (Data Source: BankScope)
LiqA_DSTF	Deposit Run-Off Ratio as equal to Liquid Assets divided by Total deposits and short-term funding captures the liquidity mismatch between assets and liabilities with a higher number indicating more bank stability (Beck et. al 2013b). (Data Source: BankScope)
Panel B: Explanatory Variables	
RGI	Risk Governance Index consisting of following 19 elements across five dimensions: board of director (board size, board chair and board independence), risk committee (risk committee existence, risk committee authority, risk committee activity, risk committee chair and risk committee composition), audit committee (audit committee existence, audit committee authority, audit committee activity, audit committee chair and audit committee composition), chief risk officer CRO (CRO presence, CRO stature and CRO independence) and internal audit function (internal audit presence, internal audit stature and internal audit chair). The criteria used to assess each item and the related literature are presented in Table 2 and discussed in the text (Data Source: hand collected from Annual Reports and corporate governance reports).
Islamic Dummy	Dummy variable that takes the value of 1 when the bank is Islamic and 0 otherwise
Crisis Dummy	Dummy variable that takes the value of 1 when the year of the observation is from the post crisis period (that is 2008 to 2012) and 0 otherwise
Tier1_K	Tier 1 Capital entails shareholder funds plus perpetual non-cumulative preference shares plus disclosed reserves. Financial Data are in USD (Source: BankScope)
NL_TA	Ratio of Net Loans to Total Assets (Source: BankScope)
TEA	Total Earning Assets. Financial Data are in USD (Source: BankScope)
LnTA	Natural Logarithm of total assets (Source: BankScope)
Macroeconomic Control Variables	
GDP_Grw	Gross Domestic Product Growth Rate (Source: World Bank Database)
Infl	Inflation rate (Source: World Bank Database)
Pol_Stab	Defined by the World Bank as a measure of the "perceptions of the likelihood of political instability and/or politically-motivated violence, including terrorism". Estimates ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance. (Source: World Bank Database)
Gov_Eff	Defined by the World Bank as reflecting the "perceptions of the quality of public services, the quality of the civil service and the degree of its independence from

	political pressures, the quality of policy formulation and implementation, and the credibility of the government's commitment to such policies". Estimates ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance. (Source: World Bank Database)
Reg_Qual	Defined by the World Bank as reflecting the "perceptions of the ability of the government to formulate and implement sound policies and regulations that permit and promote private sector development". Estimates ranges from approximately -2.5 (weak) to 2.5 (strong) governance performance. (Source: World Bank Database)

Following the method used by Akhigbe and Martin (2006, 2008) and Mollah and Liljeblom (2016), we construct a composite governance measure RGI by selecting 19 attributes of governance and risk management related functions. Each attribute is drawn from relevant regulatory and academic literature that relates to the concept of risk governance in banking institutions. Specifically, the risk related governance attributes introduced in post-GFC period such as in BCBS (2010b, 2006, 2015) and in FSB (2013) are included in addition to the determinants commonly used in academic research such as Aebi et al. (2012), Ellul and Yerramilli (2013) and Hines and Peter (2015). The criteria used for scoring and the relevant references for each determinant included in the index are specified in Table 2. Fulfilling the criterion identified for each item is scored 1, otherwise takes a value 0. The final score of RGI for each bank in each year is the sum of all items.

Table 2: Checklist and References for scoring Risk Governance Index

Dimension 1: BOD determinants:

- *Board Size*: number of directors on a bank's board should be ≤ 8[1]), scored 1 if so or 0 otherwise (Jensen, 1993; Lipton and Lorsch, 1992) .
- *BOD_Chair:* Chair of BOD is not chair of AC and/or RC and is not the CEO (non-executive), scored 1 if so or 0 otherwise (BCBS, 2015a; FSB, 2013; Hines and Peter, 2015)
- *BOD_Independence*: Majority of BOD members should be independent, scored 1 if so or 0 otherwise (BCBS, 2015b; FSB, 2013).

Dimension 2: Risk Committee (RC) determinants:

- *RC_existence:* if a risk committee exists in bank this is scored 1 or 0 otherwise (Aebi et al., 2012; BCBS, 2015b; Ellul and Yerramilli, 2013; FSB, 2013)
- *RC_Activity*: if the bank's board risk committee met more frequently during the year compared to other banks on average this is scored 1 or 0 otherwise (Battaglia and Gallo, 2015; Ellul and Yerramilli, 2013)
- *RC_Authority:* if the *R*C is at board level and not at the management level this is scored 1 or 0 otherwise (Battaglia and Gallo, 2015; Ellul and Yerramilli, 2013)
- *RC_Chair*: if the chair of the RC is independent, this is scored 1 or 0 otherwise (BCBS, 2015b)
- *RC_Independence*: if most of the RC members are independent directors this is scored 1 or 0 otherwise (BCBS, 2015b).

Dimension 3: Audit Committee (AC) determinants:

- *AC_existence:* if an audit committee exists in bank this is scored 1 or 0 otherwise (BCBS, 2015b; FSB, 2013)
- *AC_Activity*: if the bank's board audit committee met more frequently during the year compared to other banks on average this is scored 1 or 0 otherwise (Ellul and Yerramilli, 2013).
- *AC_Authority:* if the AC reports directly to BOD i.e. is at board level this is scored 1 or 0 otherwise (BCBS, 2015b; FSB, 2013)
- *AC_Chair*: if the chair of the AC is independent, this is scored 1 or 0 otherwise (BCBS, 2015b; FSB, 2013)
- *AC_Independence*: if most of the AC members are independent directors this is scored 1 or 0 otherwise (BCBS, 2015b).

Dimension 4: Chief Risk Officer (CRO) Determinants:

- *CRO_Present:* if the CRO is present in the bank, this is scored 1 or 0 otherwise (Aebi et al., 2012; BCBS, 2015b; Ellul and Yerramilli, 2013; FSB, 2013; Hines and Peter, 2015)
- *CRO_Stature*: if CRO reports to BOD, this is scored 1 or 0 otherwise (Aebi et al., 2012; BCBS, 2015b; FSB, 2013)
- *CRO_Independence*: if CRO has an independent function (no dual-hatting), this is scored 1 or 0 otherwise (BCBS, 2015b; FSB, 2013)

Dimension 5: Internal Audit (IA) determinants:

- *IA_Existence:* if the IA function is present in the bank, this is scored 1 or 0 otherwise (BCBS, 2015a; FSB, 2013)
- *IA_Stature:* if IA reports to AC this is scored 1, if it reports to the CEO this is scored 0 (BCBS, 2015a; FSB, 2013)
- *IA_Independence:* if the person who leads the IA (Chief Audit Executive/ Head of or Chief IA) is named this is scored 1 or 0 otherwise (BCBS, 2015a; FSB, 2013).

[1] Following theory Jensen (1993), Lipton and Lorsch (1992)

4. Summary Statistics and Results

4.1. Descriptive Statistics

Table 3 presents the descriptive statistics for all the variables included in the econometric analysis. The focus variable RGI has 325 observations with a mean of 8.68 across the sample and a standard deviation of 3.54. The financial stability indicators *z*-score, CAR, LLR_GL and LiqA_DSTF used as dependent variables have means of 20.94, 21.08, 3.50 and 36.68 respectively. The explanatory variables, Tier1_K and TEA have means of USD 2.27 million and 17.1 million respectively while the average of log of total assets (TA) is 16.22. The ratio of net loans to total assets, which indicates the proportion of the banks' assets that are tied up in loans displays an average of 56.71%.

To account for country specific effects, the macroeconomic control variables selected are economic growth (GDP_Grw) and inflation rate (Infl). Table 3 shows GDP_Grw and Infl have averages of 6.01 and 4.74 respectively. Additionally, three macro-level governance indicators from the World Bank Database are incorporated in the models to account for further differences that may exist among the GCC countries despite the sociocultural and institutional similarities (Abdallah et al., 2015). Reflecting differences in political stability, government efficiency and regulatory quality, these World Bank indicators have a scale that ranges from -2.5 for the weakest to +2.5 for the strongest. The results show that the average of political stability for the GCC countries is 0.29, while it is 0.50 and 0.45 for government efficiency and regulatory quality respectively.

Table 3: Descriptive Statistics of all Variables

VARIABLES	N	Mean	Std. dev.	Min	Max
z-score	371	20.94	20.06	-2.636	118.5
LnZScore	361	2.522	1.280	-1.619	4.774
CAR	296	21.08	16.34	0.650	204.4
LLR_GL	310	3.501	2.600	0	14.69
LiqA_DSTF	319	36.68	61.91	2.464	944.0
IS_DV	371	0.491	0.501	0	1
Crisis_DV	370	0.714	0.453	0	1
RGI	325	8.689	3.547	0	17
Tier1_K	282	2.27e+06	2.042e+06	42.761	9.439e+06
TA	325	1.922e+07	1.944e+07	255.984	1.008e+08
lnTA	325	16.21	1.170	12.45	18.43
NL_TA	324	0.567	0.138	0.064	0.87
TEA	325	1.716e+07	1.728e+07	208.473	9.419e+07
GDP_Grw	371	6.011	6.124	-7.076	26.17
Infl	371	4.749	4.373	-4.863	15.05
Pol_Stab	371	0.297	0.676	-1.140	1.210
Gov_eff	371	0.501	0.418	-0.320	1.150

Reg_Qual	371	0.452	0.262	-0.060	0.810

Table 4 shows the relative averages of RGI and the key selected variables for CBs and IBs used in the regressions. The table shows that lnZScore is significantly higher for the sample of CBs (3.08) compared to their Islamic counterparts (1.91) which indicates more stability in the former. The CAR and liquidity indicator (LiqA_DSTF), however, are larger for IBs. The t-test results from the mean comparison shows a statistically significant difference between LiqA_DSTF in Islamic and conventional banks where the mean of the former (47.56) is substantially higher than the latter's (28.37). This is different from results found by Beck et al. (2013) who report no statistically significant difference between means of the ratio in the two bank types. While asset quality of CBs is slightly better than that of IBs, it is not statistically significant. The average mean of RGI is 9.17 for CBs and is significantly larger than that of 8.1 for IBs implying that the former have better risk governance framework than the latter.

Table 4: Inferential Statistics for the FSI and RGI

Variables	**Conventional Banks**		**Islamic Banks**		**t-statistic**
	Obs.	**Mean**	**Obs.**	**Mean**	
LnZScore	187	3.08	174	1.91	9.76***
CAR	178	18.01	118	25.69	-4.06***
LLR_GL	185	3.61	125	3.33	0.94
LiqA_DSTF	181	28.37	138	47.56	-2.77***
RGI	178	9.17	147	8.10	2.72***

Note: *** significant at 1%.

4.2 Results and Analysis

As introduced in section 3 above, the analysis of the relationship between risk governance and financial stability is carried out for the overall sample that includes both Islamic and conventional banks for the period 2006 to 2012. Specifically, the role that better risk governance frameworks might play in enhancing the four indicators of banks' stability in the two banks' types are examined. In this section, hypotheses H_{01} and H_{02} outlined in section 2 are tested. To do so, we construct the dynamic panel model set out in Equation 1 to assess the association between the financial stability indicators, the RGI and the explanatory variables for the overall sample. The relative stability of IBs and CBs as outlined in null hypothesis H_{02} is tested by introducing the dummy variable IS_DV in the equation. A second modified model (Equation 2) investigates null hypothesis H_{03} to assess the impact of the governance and non-governance factors in Islamic banks by introducing the interaction term RGI*IS_DV which is discussed in the next sub-section.

The econometric models are estimated using two-step generalized methods of moments (GMM) with instrumental variables for several reasons. Firstly, considering the panel structure of our data and the sample size which has relatively more individual banks and fewer time periods, this study falls within the context of "large N, small T" for which the GMM estimators are designed. Secondly, considering the nature of the four dependent variables and their interactions with the selected explanatory variables, there is a high probability that past realizations (especially ones in time *t-1*) of the dependent variables lnZScore, CAR, LLR_GL and LiqA_DSTF will influence their values at time *t*. Therefore, the panel data model bears an autoregressive dynamic that has to be considered even though the coefficient of the lagged dependent variable is not of direct interest (Bond, 2002). Thirdly, our model of interest contains explanatory variables some of which are strictly exogenous and others are predetermined (endogenous), meaning that they are correlated with past and possibly current realisations of the error (Roodman, 2009). Hence, there will be a need to tackle endogeneity by using the lags of some variables as instruments (IV-Style). Also, the idiosyncratic disturbances may have individual-specific patterns of heteroscedasticity and serial correlation.

Given the above issues and as set out in Roodman (2009) it can be deduced that the generalized method of moments (GMM) is an appropriate model to use as it will enable obtaining robust estimators under fewer assumptions. The Arellano-Bover/Blundell-Bond system estimator specifies a system of equations (the original and the transformed) that also allows the introduction of more instruments which improves efficiency. Following Wintoki et al. (2012), we use the system two-step GMM estimator and control for time-invariant unobserved heterogeneity and the dynamic relationship between current values of the explanatory variables and the past values of the dependent variable.

As introduced earlier and to test null hypotheses regressions are run recursively on LnZScore, CAR, LLR_GL and LiqA_DSTF as dependent variables. The results of the dynamic regressions to test H_{01} and H_{02} outlined in Equation 1 are reported under Model 1 and results of Equation 2 used to test H_{03} are presented in Model 2 in Table 5.

(Insert Table 5 here)

The diagnostic tests for the specification of the models are carried out by using Arellano-Bond tests for first and second order serial correlation and the Hansen J-Statistic to test for the validity of instruments. We report the Arellano-Bond tests AR1 and AR2 in the first-differenced residuals. Given the use of first-differenced transformation, first order serial correlation in the residuals of the differenced equation is expected, although this does not indicate that the model

is misspecified nor does it invalidate the estimation results. Therefore AR1 is usually ignored in the context of the GMM regressions (Roodman, 2017). However, rejecting the null hypothesis at higher orders, that is no serial correlation at the second order, would imply that the moment conditions are not valid. In our study all regression models exhibit insignificant AR2 p-values except in Models 1b and 2b indicating that the estimates of all models are consistent except those in models examining the impact on CAR. Therefore, while we report Models 1b and 2b in Table 5, the results of these models are excluded from discussions on the implications of this paper.

A further diagnostic test concerns the validity of the over-identifying restrictions in the two-step GMM model. The Hansen J-statistic is favoured to Sargan test of over-identified restrictions because the latter is not robust although not weakened by many instruments while the former is robust although weakened by many instruments. Also, the Hansen J-Statistic is a post-estimation test of special interest to two-step GMM estimations as it is only valid when the weighting matrix is optimal, which means that it equals the inverse of the covariance matrix of the moment conditions (Hall, 2005). As all regressions in this study are estimated through two-step GMM method, we report results of the Hansen J-Statistic for each equation immediately after AR2. In results of all models in Table 5, we fail to reject the null hypothesis for the Hansen-J statistic which implies that the instruments as a group are exogenous. This means that the lags used as instruments are valid and uncorrelated with the error term and that the excluded instruments have been correctly excluded from the estimated equation.

The statistical results relating to testing H_{01} and H_{02} for the four measures of stability are reported under Model 1 in Table 5. For LnZScore, RGI bears a small yet positive and highly significant effect which signifies that the stronger the risk governance structure in place the lower the probability of insolvency. Specifically, for each unit increase in the risk governance Index, the bank's probability of insolvency declines by 0.0314. Mollah et al. (2017) also find a positive coefficient although significant at only 10% level for their corporate governance index on the logarithm of the *z*-score.

The Islamic dummy variable IS_DV shows a significant negative coefficient of -0.692 indicating that soundness of Islamic banks is relatively lower compared to their mainstream counterparts. This is consistent with the results of a two-sample t-test with equal variance that shows significant differences between the means of LnZScore (as well as raw *z*-score) in the two types of banks with conventional banks are more stable (see Table 4). This result is similar to Mollah et al. (2017) who also find that conventional banks are more stable than Islamic

banks. Nonetheless, Čihák and Hesse (2010) report that large mainstream banks are financially stronger than the large Islamic banks whereas the small commercial banks are less stable than the small Islamic banks. Beck et al. (2013b) do not find any significant difference in *z*-score results between the two types of banks neither during normal times nor during the GFC.

The regression on capital adequacy (Model 1b, Table 5) also shows the coefficient of RGI to be positive (0.320) but not significant. Nonetheless, we do not take full comfort from the results in Model 1b as the estimations do not pass the AR2 test and the presence of second-order autocorrelation implies inconsistent estimates. The effect of RGI on the ratio of LLR_GL (Model 1c, Table 5) is positive (0.0401) but not statistically significant. The Islamic dummy IS_DV shows a negative and statistically significant parameter estimate of -2.908 indicating that in Islamic banks the quality of the loan portfolio is likely to be better than one of their mainstream counterparts. This result is similar to that of Abedifar et. al (2013) who find credit risk to be lower for Islamic banks compared to conventional banks.

The last financial soundness indicator estimated is LiqA_DSTF and is presented in Model 1d in Table 5. Ideally, this liquidity ratio needs to be as high as possible to cover liabilities from depositors particularly in the case of a sudden bank run. Results from Model 1d show that overall RGI positively and significantly improves this ratio. Available liquid assets to deposits and short-term funding are likely to increase by 2.381 when the RGI increases by one unit holding other factors constant. The coefficient of Islamic banks dummy variable IS_DV is positive but not significant indicating there is no statistically significant impact from the banks' types in terms of deposit run off ratio. Previous literature suggested that Islamic banks had excess liquidity, at least until the recent crisis, and had more stable funds as they rely heavily on retail deposits (Hasan and Dridi 2010).

In summary, results from the estimations of Model 1 for the overall sample indicate that robust risk governance structures promote aspects of banks' financial stability such as their distance from insolvency and liquidity profile. The effect of risk governance does not appear to improve CAR and asset quality in this initial model. Furthermore, the results of Model 1 show that while the overall soundness measured by LnZSscore of Islamic banks is lower than conventional banks, the quality of assets measured by LLG_GL is better in the former compared to the latter.

4.3 Risk Governance and Financial Stability: The Case of Islamic Banks

The preliminary set of estimations reported in the previous section indicate that the effects of the banks' business models cannot be ignored as the estimated coefficients of IS_DV were

statistically significant in the regressions for LnZScore and LLG_GL. As discussed in Section 2, the differences in the performance and stability between Islamic and conventional banks can be explained in two ways: through the business models and the risk governance framework. This is highlighted by Hasan and Dridi (2010) who maintain that the business model of Islamic banks enabled them to safeguard their profitability and maintain higher credit and asset growth compared to their conventional counterparts. However, the authors point out that flaws in the risk management function in Islamic banks engendered a decline in their profitability later in 2009. Therefore, the interest in this section, as laid out in H_{03}, is to explore whether the differences in the stability features between Islamic banks is due to their business models or to their risk governance framework. To assess the latter, an interaction variable RGI*IS_DV is introduced that captures the effects of risk governance specific to Islamic banks (see Equation 2).

The results from the second set of estimations are reported under Model 2 in Table 5. We notice that all the coefficients of RGI in the regressions for all the stability indicators in Model 2 have the expected signs and are statistically significant. Specifically, the coefficients of RGI are 0.0618 (statistically significant at 1%) in Model 2a, 0.507 (significant at 1% level) in Model 2b, -0.0376 (significant at 10% level) in Model 2c and 2.828 (significant at 1% level) in Model 2d. The results indicate that increase in RGI promotes better protection from insolvency, provides stronger capital buffers, improves asset quality and adds more liquidity to tackle more efficiently unexpected withdrawals from depositors.

To understand whether differences in the stability features in Islamic banks compared to conventional banks are due to business models or to risk governance framework, the results of Islamic dummy variable IS_DV in Model 2 is examined relative to the corresponding results in Model 1 on the one hand and results of the interaction variable RGI*IS_DV in Model 2 on the other hand. As noted earlier, while the coefficients of IS_DV is likely to capture the effects on stability indicators due to differences between Islamic banks and conventional banks attributed to business models and risk governance framework, the interaction variable RGI*IS_DV identifies the impact due to the risk governance features only.

The coefficient of the interaction term RGI*IS_DV in Model 2a shows a significant negative impact (-0.0357) on LnZScore implying that the risk governance in Islamic banks has negative effects on the solvency. The coefficient of IS_DV in the same model is negative but not significant. It is interesting to note that the introduction of the interaction term RGI*IS_DV in Model 2a dissipates the significant negative impact of IS_DV on LnZScore that was found in

Model 1a. The implication is that the negative impact for IS_DV found in Model 1a was mainly due to weaker risk governance framework. When RGI*IS_DV is included in Model 2a, it captures the impact from risk governance frameworks in Islamic banks making the coefficient of IS_DV insignificant. Thus, it can be concluded that negative impact of Islamic banks on LnZScore is due to poorer risk governance practices, rather than the business model. Although the study of (Mollah et al., 2017) is on corporate governance rather than risk governance, they also find a negative association between the logarithm of the *z*-score and the interaction of the Islamic dummy and their corporate governance index implying a similar finding on the weaker governance practices in Islamic banks which lead to a negative impact on the proxy for insolvency.

Similar conclusions can be drawn for Models 2b, 2c and 2d in Table 5. The coefficient of RGI*IS_DV is negative (-0.942) and significant in Model 2b implying the risk governance in Islamic banks leads to holding less capital. The coefficient of Islamic banks dummy variable IS_DV shows a large positive impact (15.1) on CAR. These results imply that while the overall business model of Islamic banks promotes holding more capital, the risk governance framework has the opposite effect. Although previous research show that Islamic banks are more capitalized than conventional banks (Abedifar et al., 2013; Beck et al., 2013) and this is confirmed by the data presented in Table 4 in this paper, healthy risk governance practices are not found to be direct causes of their higher capitalization. However, we do not take full comfort from the results in Model 2b as the estimations do not pass the AR2 test and the presence of second-order autocorrelation implies inconsistent estimates.

Noting that LLR_GL is negatively related to the quality of assets, Model 2c shows that the coefficient of RGI*IS_DV is positive (0.358) and highly significant indicating the role of risk governance in worsening the quality of assets in Islamic banks. The coefficient of IS_DV, however, is negative and significant at 1% level implying that the asset quality is better for Islamic banks than conventional banks. Since the positive coefficient of RGI*IS_DV indicates the risk governance framework in Islamic banks has a negative impact on the quality of assets, the resulting positive effect of IS_DV on asset quality (LLR_GL) is due to the business model inherent in Islamic banks.

In Model 2d, the coefficient of RGI*IS_DV is negative and insignificant and the coefficient of IS_DV is positive and significant. Thus, while risk governance in Islamic banks do not play any role in determining stability in terms of liquidity (LiqA_DSTF), the positive impact on the stability indicator comes mainly from IS_DV that represents its business model. While Islamic

banks are found to be more liquid than their counterparts (as shown in Table 4), this result might indicate that this was not due to their boards and senior management's decisions. From the results reported under four models, it could be then inferred that the financial stability of Islamic banks is not associated with the strength and level of the key risk management mechanisms but could be due to non-governance factors such as their inherent business models.

The results of bank-specific and macroeconomic control variables show consistent results across Models 1 and 2 in Table 5. The crisis dummy variable Crisis_DV has a highly significant positive coefficients in Models 1a and 2a suggesting that lower variability of the banks' returns was noted in the years following the GFC. A significant positive sign of the crisis dummy variable in CAR regression and LLG_GL regressions indicate a positive impact on capital holdings and lower quality of assets in the post-crisis period. Tier 1 capital (Tier1_K) has positive impact on both LnZScore and CAR, Net loan to total assets ratio (NL_TA) has negative impact on CAR and LiqA_DSTF and total earning assets (TEA) has a significant positive on all indicators of stability except LLG_GL. The total assets (lnTA) have significant negative impact on all stability indicators expect LLG_GL which has a positive impact in both models indicating improvement of the banks' asset portfolio quality. This finding is consistent with Mollah et al. (2017), although Abedifar et al. (2013) and Beck et al. (2013) find negative but insignificant estimates of LnTA on the natural logarithm of *z*-score. The negative relationship supports the substantial analysis of Laeven et al. (2016) who find strong evidence that systemic risk increases along with bank size.

Some of the relevant results from the country specific variables include GDP_Grw which shows mixed results. It affects indicators of solvency (LnZScore) and asset quality (LLG_GL) positively and having a negative impact on CAR and LiqA_DSTF. The former result is different from that found by Abedifar et al. (2013) and Ghosh (2015) who report statistically significant negative relationship between respectively GDP per capita and logarithm of *z*-score and real GDP and non-performing loans. Proxy for political stability (Pol_Stab) has a significant positive effect on LnZScore and LiqA_DSTF. Country-level political stability enables banks to operate in a safer environment where disruptions and shocks from external sources are minimal. It is therefore expected to find positive associations between higher values of Pol_Stab and lower probability of banks' insolvency as well as more liquidity available for withdrawals from depositors.

5. Summary of the Results and Conclusion

The results on the relationship between risk governance and financial stability among Islamic banks and conventional banks can be summarized as follows. First, the indicator measuring the risk governance framework RGI is found to be positively associated with various stability indicators. While in Model 1, it positively affects indicators of solvency (lnZScore) and liquidity (LiqA_DSTF), in Model 2 RGI shows significant positive impact on all four indicators of stability. Second, the paper finds mixed results on the relative stability features of Islamic banks compared to their conventional counter parts in Model 1. While the dummy variable of Islamic banks IS_DV negatively affects solvency measure LnZScore relative to conventional banks, Islamic banks have relatively better impact on quality of assets (LLG_GL). However, results from Model 2 confirm that Islamic banks have significant positive impact relative to conventional banks on most stability indicators (CAR, LLR_GL and LiqA_DSTF).

The paper explores whether the differences in impact between Islamic and conventional banks is due to governance and non-governance (business models) factors. The results in Model 2 show that risk governance specific to Islamic banks measured by interaction term RGI*IS_DV generally shows negative impact on all stability indicators. Including this variable in the model makes the impact of Islamic dummy variable IS_DV positive and statistically significant for most of the stability indicators (CAR, LLR_GL and LiqA_DSTF). Therefore, it is concluded that while the business model of Islamic banks, which is captured in IS_DV, promotes stability through better asset quality and more liquidity, their status of risk governance framework is weaker than conventional banks and has a negative impact on stability indicators of insolvency risk and asset quality.

Other than contributing to the meagre literature on the link between risk governance and stability in Islamic banks and conventional banks, the findings of the paper highlight some key implications for the former. The descriptive statistics show that the risk governance index for Islamic banks is smaller than their conventional counterparts and the regression results indicate that risk governance in Islamic banks has a negative impact on stability indicators. While the business models of Islamic banks have features that can enhance stability, poor risk governance can negate this positive feature. The implication is that moving forward, Islamic banks need to improve their risk governance frameworks by aligning them with the international standards to reap positive benefits of their business model that promote stability.

Table 5: Twostep GMM Estimations – Overall Results and Specific Case of Islamic Banks

	Model 1				**Model 2**			
	Model1a	Model1b	Model1c	Model1d	Model2a	Model2b	Model2c	Model2d
VARIABLES	**LnZScore**	**CAR**	**LLG_GL**	**LiqA_DSTF**	**LnZScore**	**CAR**	**LLR_GL**	**LiqA_DSTF**
LnZSscore	0.398***				0.285***			
	(0.0646)				(0.0572)			
L.Tot_Kratio		0.358***				0.319***		
		(0.0479)				(0.0391)		
L.LLR_GL			0.760***				0.809***	
			(0.0660)				(0.0491)	
L.LiqA_DSTF				0.0137				0.0234
				(0.0188)				(0.0150)
RGI	0.0314**	0.320	0.0401	2.381***	0.0618***	0.507***	-0.0376*	2.828***
	(0.0155)	(0.232)	(0.0321)	(0.710)	(0.0125)	(0.108)	(0.0227)	(0.706)
RGI*IS_DV					-0.0357**	-0.942***	0.358***	-0.0456
					(0.0159)	(0.337)	(0.0537)	(0.936)
IS_DV	-0.692*	7.827	-2.908**	18.09	-0.251	15.10***	-6.214***	38.56*
	(0.355)	(5.203)	(1.388)	(17.82)	(0.340)	(5.204)	(0.889)	(21.49)
Crisis_DV	0.107***	2.116***	0.636***	2.417	0.0888***	2.404***	0.802***	1.849
	(0.0284)	(0.715)	(0.168)	(2.407)	(0.0179)	(0.504)	(0.0970)	(2.083)
Tier1_K	4.75e-08**	6.22e-07***	2.43e-08	-7.26e-07	8.43e-08***	5.96e-07***	3.72e-08	-1.01e-07
	(2.00e-08)	(2.06e-07)	(3.90e-08)	(4.94e-07)	(1.44e-08)	(1.57e-07)	(2.92e-08)	(4.37e-07)
NL_TA	0.0239	-8.436*	1.680	-46.80**	-0.0484	-6.833*	0.943	-52.76***
	(0.214)	(5.115)	(1.375)	(21.85)	(0.163)	(3.974)	(0.882)	(18.68)
TEA	1.76e-08***	3.41e-07***	2.01e-08	1.38e-06***	1.36e-08***	2.86e-07***	2.29e-08*	1.26e-06***
	(5.71e-09)	(9.38e-08)	(1.88e-08)	(3.26e-07)	(2.99e-09)	(8.43e-08)	(1.31e-08)	(3.40e-07)
lnTA	-0.422***	-3.795**	-1.208***	-17.42***	-0.397***	-2.801*	-1.529***	-11.34*
	(0.0992)	(1.785)	(0.429)	(5.257)	(0.0628)	(1.681)	(0.303)	(5.814)
GDP_Grw	0.00679***	-0.138**	-0.0759***	-0.486***	0.00751***	-0.0912***	-0.0853***	-0.510***
	(0.00237)	(0.0600)	(0.0123)	(0.122)	(0.00199)	(0.0343)	(0.00596)	(0.113)
Infl	0.0111***	0.0853	-0.0288**	0.273	0.0120***	0.0573	-0.0256***	0.420**

	(0.00394)	(0.0792)	(0.0124)	(0.203)	(0.00309)	(0.0492)	(0.00824)	(0.169)
Pol_Stab	0.182***	2.018	-0.193	13.69***	0.101**	1.310	0.378	12.28***
	(0.0692)	(1.364)	(0.371)	(3.109)	(0.0506)	(1.204)	(0.330)	(3.257)
Gov_eff	0.418***	-0.811	0.737*	-24.51***	0.452***	-0.888	0.515	-20.24***
	(0.0851)	(1.833)	(0.431)	(6.295)	(0.0846)	(1.995)	(0.378)	(5.654)
Reg_Qual	-0.487***	3.347	-1.921***	19.84**	-0.318***	3.935**	-1.563***	25.05***
	(0.134)	(2.991)	(0.646)	(8.833)	(0.111)	(1.799)	(0.390)	(7.270)
Constant	7.975***	62.51**	20.72***	285.9***	7.550***	45.63*	26.74***	175.8*
	(1.603)	(29.40)	(6.559)	(81.00)	(1.045)	(26.12)	(4.237)	(92.52)
Arellano-bond test for (AR1)	0.076	0.013	0.049	0.215	0.078	0.006	0.012	0.265
Arellano-bond test for (AR2)	0.407	0.048	0.185	0.338	0.793	0.043	0.273	0.225
Hansen J-Statistic	0.509	0.147	0.118	0.347	0.640	0.358	0.498	0.306
Observations	215	211	198	214	215	211	198	214
Number of Bank_ID	48	47	45	48	48	47	45	48

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