EVALUATING STABILITY IN DUAL BANKING SYSTEM: COMPARISON BETWEEN CONVENTIONAL AND ISLAMIC BANKS IN MALAYSIA

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Abstract

Purpose of Study: This paper aims to explore whether Islamic banks are more stable when compared with conventional banks in a dual banking system.

Methodology: This research employs Pooled OLS methodology for 42 banks, including 27 conventional banks and 15 Islamic banks, for the period of 2005-2016.

Results: The study suggests that Islamic banks are less stable compared to conventional banks in overall banking sector. Furthermore, it is found that big Islamic banks are less stable than big conventional banks and small Islamic banks are less stable than small conventional banks. The results disapprove of the widespread belief that Islamic banks are more stable and more resilient to adverse shocks in the financial crisis. Moreover, while investigating the shift in overall level of banking stability with respect to financial crises, regardless of bank type and bank size, it is observed that the overall banking stability is enhanced after the financial crises. This is intriguing and a sigh of relief for policy makers and regulators in the country.

Implications/Applications: This research is of contribution to policy makers and central banks in the countries with highly dual banking environment and for the central banks striving to become International Islamic financial hub.

Keywords: Bank Size, Dual Banking, Islamic Banking, Malaysia, Stability

JEL Classification: G01 G18 G21

INTRODUCTION

Banks are an important pillar of a financial system. The recent financial crisis brought many lessons for banking sector. Relaxed prudent behavior, failure of risk management and lack of supervision were few among the main reasons behind the crisis. The financial crisis has attracted researchers and central banks to revisit the banking behaviors. Having seen the failure of many conventional bank during the crisis, it is important to re-assess the stability of the financial system. To avoid any failures in financial system, it is crucial to monitor the banking stability of a country.

Moreover, considering the severe effects of financial crisis on conventional banks, many countries are considering Islamic banking as an alternative. Banking system has got intense with the introduction of Islamic banking in many countries including non-muslim countries, for instance, the UK. The research on the stability of conventional banks is plentiful. However, the literature on stability of dual banking is still scarce. The researchers are found indifferent while exploring stability in dual banking. For example, Turk (2010) and Bourkhis and Sami (2013) concluded no significant difference in stability of conventional and Islamic banks. Some researchers also conclude that Islamic banks are better stable than conventional banks and Islamic bank perform better (Parashar and Venkatesh, 2010; Pappas, 2012; Altunkaya and Ates, 2018). Opposed to this, few studies found that Islamic banks are less stable than their conventional counterparts (Shafik, 2014; Wahid and Dar, 2016; Abdul, 2017). Comparing stability of both bank types surrounding the financial crises (Bourkhis and Sami, 2013) and Wahid and Dar (2016) found no significant effects of crisis on level of stability. Considering the increasing global interest in Islamic banking and the above differences in the evidence provided by the previous studies, it is worthwhile to explore and compare the stability of Islamic and conventional banks within dual banking system. This research explores any possible difference in the level of stability between Islamic and conventional banks.

This research contributes to the literature on the overall stability of dual banking and on comparison of stability between Islamic and conventional banks. Since Malaysia, due to its developed legal environment for both bank systems, is regarded as one of the developed dual banking systems, therefore, this study considers Malaysia as a sample of the study. This research explores Malaysian banking sector for the period of 2005 – 2016, which enables this research to capture the change in banking stability before the crisis, during the crisis and after the crisis period.

The remaining paper is arranged as follows: Section 2 presents the relevant literature. Section 3 presents the data and methods used in this research. Section 4 presents the main findings and discussion, which is then followed by the conclusion and policy implications.
RELEVANT LITERATURE

Despite the global interest in Islamic banking, the literature on exploring Islamic banking stability over conventional banks is scarce. The attempt to examine the Islamic banking stability started after the financial crisis of 2008 due to the increasing interest in Islamic banking as an alternative to conventional banking. The first study exploring the stability in dual banking is done by Gamaginta and Rokhim (2015) where they explored the banking sector of Indonesia. This was followed by Cihák and Hesse (2010) who examined the Islamic banking impact on financial stability in a cross-country research. The literature on comparison of stability of Islamic banks and conventional banks is relatively less. Recent attempts can be found by Hasan and Dridi (2010), Rajhi and Hassairi (2013) and Pappas (2016). However, these researches are based on cross-country evidences.

The studies on stability of Malaysian banking sector is even more limited. The study done by Kassim and Majid (2010) examined the level of stability of both banks, they further explored if Islamic banks are more resistant to shocks than conventional banks and concluded that both banks are equally exposed and vulnerable to shocks. The attempt by Rahim and Zakaria (2013) is relatively more related to this research. Using Z-score as proxy for banking risk for the period 2005-2010, they found that Islamic banks are more stable than conventional banks. A study by Rahman and Masngut (2014) explored the Malaysian banking vulnerability by employing rating system of capital adequacy, asset quality, management quality, earnings efficiency, liquidity and Shariah compliance ratio (CAMELS). Their results showed that Islamic banks are more stable and are less likely to face troubles and added that this might be the good performance of Islamic banks measured by CAMELS.

Taking a limited sample of two Islamic banks and 3 conventional banks, Verbeet (2014) compared stability based on accounting measures. Verbeet (2014) argued that Islamic banks are less stable than conventional banks. They added that the reason of the less stability of Islamic banks was their lower performance, liquidity and capital adequacy ratios.

Provided the above discussion, the literature on the researches on stability in dual banking is limited and the evidences are inconclusive. The overall literature can be divided further into two main arguments. Firstly, that Islamic banks are more stable than conventional banks and secondly, that the conventional banks are more resilient than less vulnerable than Islamic banks. Nevertheless, the results are of mixed conclusions (Hasan and Dridi, 2010; Kassim and Majid, 2010; Turk, 2010; Pappas, 2012;2016; Bourkhis and Sami, 2013; Rahim and Zakaria, 2013; Rajhi and Hassairi, 2013; Agbabiaka-Mustapha and Adebola, 2018). The mix evidences in the literature disapprove of the widespread understanding that Islamic banks are more stable and more resilient to adverse shocks in the financial crisis. The results provide unclear evidence of whether the Islamic banks are more stable than conventional banks.

This research is an attempt to explore the stability of the banking sector in Malaysia and investigate if Islamic banks are more stable than conventional banks. Additionally, this research explores the over all banking stability in Malaysian banking sector surrounding the Global Financial Crisis.

DATA

Taking all the commercial banks into account, this study attempts to differentiate the stability for conventional and Islamic banks. Data for this research are extracted from Fitch Connect database. The total number of banks studied are 42, including 27 conventional banks and 15 Islamic banks. This research explores Malaysian banking sector for the period of 2005 – 2016. There are two reasons for choosing this unique dataset. Firstly, Islamic banking gained momentum during 2005 after BNM issued licenses to foreign Islamic banks in 2005, the Kuwait Finance House and Asian Finance bank and to Al-Rajhi investing and Banking corporation in 2006. Secondly, to gain in-depth insights of difference in stability for the two-bank types surrounding the financial crisis. The research employs the Z-scores as a proxy for banking stability.

Measuring Stability, Z-Score

This research employs Z-score to measure banking stability. This measure has been widely used in literature of banking stability. Following (Clark et al., 2017); (Fernández et al., 2016); Rajhi and Hassairi (2013) this research uses Z-score to access the level of stability. This indicator is quite famous among the researchers for its precision. Z-score can be estimated at bank level and is widely used to measure and to differentiate in the level of banking stability in dual banking studies which is also the main objective of this research. The indicator measures the deviations that how far a bank is from failing by losing its capital. It uses accounting measures to derive the default probability of an individual bank. Z-scores compares the equity ratio to the change in returns to capture the volatility in returns, where the returns are estimated by dividing the sum of the equity ratio and ROAA by the standard deviations of ROAA. The main assumption while measuring Z-scores is that a bank default if it capital falls to 0. Z-score is given as:

\[ Z = \frac{EQUITY+ROAA}{stdROAA} \]

(1)
Control Variables

This research employs bank level and country level controls. Firstly, Banks’ size is included which is taken as a log of total assets (lnTA). Cihák and Hesse (2010) and Liu et al. (2012) argue that size notably impacts a bank’s stability due to the fact that large banks, due to higher market powers, may take on more risk. It also employs capitalization ratio (EQ/TA). It is often argued that banks with high capital ratio may influence their financial stability because they have a higher capacity of risk taking. Extent of bank’s lending (NL/TA) is also controlled. Additionally, this study controls for Bank market power (Lerner) with Lerner Index. It is argued that banks with higher market power tend to have relaxed conditions for extending loans and financing and that is how, these banks engage in riskier activities (Alam et al., 2018). Lerner Index is defined as the change between price and marginal cost, divided by price. It is estimated following the estimation of Alam et al. (2018). Some Macroeconomic variables were also employed using GDP growth (lgdp) and Inflation (lninf).

METHODOLOGY

This research employs static estimators Panel OLS which have also been used in previous research (Calomiris and Wilson, 2004; Laeven and Levine, 2009; Demirgüç-Kunt and Huizinga, 2010; Akgun and Tektufekci, 2017). This method allows the research to control for heterogeneity, because each bank in the sample has different credit policy and different approach to risk taking and managing the risk. This will also help regarding the country-level characteristics. Therefore, for exploring the difference in the level of stability of Islamic banks and conventional banks, the below regression equation is estimated:

\[ \text{LnZ}_{it} = \beta_0 + \beta_1 \text{IB Dummy}_{it} + \beta_2 X_{it} + \beta_3 \text{Mac}_{it} + \beta_4 \text{Period} + \epsilon_{it} \] (2)

In equation 2, i, t and j indicate the bank, year and country respectively. LnZ denotes log of bank stability measure. Islamic bank Dummy, IB_Dummy is included to differentiate in bank types. IB_Dummy is equal to one for Islamic bank and 0 for the conventional bank. X is a vector of control variables at bank level such as size of bank, proxied by taking log of the total assets (lnTA), Bank Capitalization (EQ/TA), net loans to total assets (NL/TA) and the bank market power (Lerner). Lastly, Mac is a vector of country-level variables, the GDP growth (lgdp) and Inflation (lninf).

RESULTS AND DISCUSSION

Descriptive Statistics

Table 1 presents the descriptive statistics of the variables used in this research. The table is divided into four sets of descriptive statistics presentation for four different samples, namely, Islamic Banks, Conventional Banks, Small banks and Big Banks. First column gives the descriptive statistics for overall sample period, second is for pre-crisis period, third presents the during-crisis and last column presents Post-crisis period. The banks those have total assets of USD 10.0 billion or above are considered as big banks and banks with total assets lower than 10.0 billion are considered as small banks. While comparing the Z-scores for different bank types, it is seen that the mean Z-score for Islamic banks having a value of 0.863861, is lower than conventional banks which stands at 1.890592. This shows that Islamic Banks are less stable than conventional banks. Moreover, it is observed that the mean Z-score for small banks is lower than big banks with value of 1.31188. This implies that smaller banks are less stable than bigger banks.

Furthermore, while comparing the stability with respect to financial crisis (in Precrisis, Ducrisis and Poscrosis), it is observed that Conventional banks have remained better stable than Islamic banks. Islamic banks are seen less stable throughout the sampling period. Moreover, it is worth noting that Islamic banks’ stability has a decreasing trend within different time periods and conventional banks are seen better performing after the crisis in terms of stability. In case of bank size, the bigger banks are seen to be better stable throughout the sampling period. This implies that the financial crisis has caused no difference in comparing stability in dual banking system. One reason for this finding can be that conventional banks are bigger as compared to Islamic banks that is why they are better stable. Putting differently, most of the big banks are conventional banks that is why they are seen better stable banks. So far, these findings are in line with Wahid and Dar (2016) who attempted to compare the stability in dual banking for the period 2004 – 2013. Table 2 presents the correlations among the variables. The table 2 indicate no serious multicollinearity problems among the variables used in this research.

Regression Results

In table 3, 4 and 5, six different model specifications are presented by estimating eq. 1 for overall sample, Big Banks and Small banks respectively (See appendix). The model specifications are as follows: (1) includes only banks specific variables, (2) adds measure of market power (Lerner) to the specification in model (1), (3) Country-level characteristics are included in the model that are GDP growth and Inflation. In model (4), (5) and (6), the time period dummies (PreCrisis, DuCrisis and PosCrisis) are added to the model (3) respectively. This is to capture any period effects on the comparison. Table 4 presents the difference in level of stability in overall banking sample, it
The overall results in table 4 are in line with the earlier comparison of Z-score means for Islamic banks and conventional banks in section 5.1, table 2. Findings of estimations for overall sample are in line with Shafik (2014), Verbeet (2014) and Abdul (2017) who also concluded that Islamic Banks are relatively less stable than conventional banks. These results also support the findings of Gamaginta and Rokhim (2015), who also found that the level of stability in Islamic banking is relatively lesser than their conventional counterparts.

Furthermore, in model (4), (5) and (6), the period dummies (PreCrisis, DuCrisis and PosCrisis) are included in the regression to capture any crises effects on the overall level of stability. The results for period dummies are found to be interesting. The period dummies, PreCrisis, DuCrisis and PosCrisis, presents the overall level of stability in banking in the country in different periods. It is interesting to note that Pre Crisis dummy is highly significant at the 1% and is positive. It is found that overall banks’ market power explains a bank’s level of stability and can be regarded as the determinants of banking stability. This is in line with the literature on banks’ risk taking where more risk-taking makes banks less stable and increased chances of default. This is also in line with the literature on competition and banking stability where Lerner, the measure of market power, is used as an inverse measure of competition and a positive relationship is found thus competition-fragility view is supported, implying that more market power makes banks more stable (Jiménez et al., 2013; Alfauzan and Tarchouna, 2017; Kabir and Worthington, 2017; Leroy and Lucotte, 2017; Danisman and Demirel, 2018; Risfandy et al., 2018).

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Notes: lnTA is a natural log of total assets. EQ/TA is an equity to total assets. NL/TA is net loans to total assets. Lerner is banks’ Market power. lgdp is a GDP growth. linf is an inflation

Table 5 presents the estimation results for big banks. It is found that big Islamic banks are significantly less stable when compared to big conventional banks. These results confirm the previous studies of Wahid and Dar (2016) and Cihák and Hesse (2010) who explored banking stability in dual banking system and concluded that big Islamic Banks have lower level of stability. Exploring the crisis effects on the overall banking stability of big banks in model (4), (5) and (6) of table 5, the period dummies are found insignificant. Therefore, no significant change in the level of stability is observed during these periods. One of the main reasons for getting insignificant results for the period dummies can be that big banks can easily adjust to adverse shocks providing their bigger asset sizes and higher equity ratios as argued by Cihák and Hesse (2010) and Liu et al (2012).

Looking at the Table 6 which presents the estimation results for the sample of Small banks. The Islamic bank dummy is highly significant at the 1% and the coefficients shows negative signs. The results are significant throughout the model specifications. This indicates that smaller Islamic banks are less stable than small conventional banks. These results are in consensus with Rajhi and Hassa (2013) and are against the conclusion of Wahid and Dar (2016) who found that small Islamic banks are more stable than small conventional banks.

Furthermore, in model (4), (5) and (6) of table 6, the period dummies (PreCrisis, DuCrisis and PosCrisis) gives the overall level of stability of small banks. The results for period dummies are found to be noteworthy. The period dummies, PreCrisis, DuCrisis and PosCrisis, presents the overall level of stability of small banks in the country in different periods. It is interesting to note that Pre Crisis dummy is highly significant at the 1% and is negative. This implies that before the crises the overall level of stability of small banks was significantly lower as compared to the rest of the time period. Furthermore, there was no significant difference observed in the level of stability during the crisis period (DuCrisis) and was to be insignificant. The results for Post crisis period are interesting and intriguing. The PosCrisis dummy is found highly significant at the 1% and is positive, which implies that the overall stability of small banks is enhanced. These results are found in contrast to the findings of Wahid and Dar (2016). Overall, it is observed that stability of small banks has got better after the financial crisis, giving relief to regulators and policy makers in the country.

CONCLUSION

Main objective of this research is to explore if Islamic banks are more stable when compared with conventional banks in a dual banking system. The study employs Panel OLS methodology for 42 banks, including 27 conventional banks and 15 Islamic banks, for the period of 2005-2016. Addressing the objectives of this research, it is found that Islamic banks have significantly lower level of stability when compared to conventional banks. Furthermore, on splitting the sample into big banks and small banks, this study found that big Islamic banks are less stable than big conventional banks and small Islamic banks are found to be less stable than small conventional banks. Exploring the change in overall level of banking stability regardless of bank type and bank size with respect to financial crises, it is observed that the overall banking stability has got better after the financial crisis. This is indeed fascinating and a sigh of satisfaction and relief for policy makers and regulators in the country.

Future research could use different measures to estimate the level of banks’ stability. This could be addressed by considering the nonperforming loans or different risk elements like liquidity and credit risks, individually. Moreover, penetration of Islamic banks in the banking sector and it effects on the banking stability can also be considered for future research. Future researchers in this area, can also consider measuring the level of stability considering the banks’ deposits and lending/financing.

This research is of contribution to policy makers and central banks in the countries with highly dual banking environment and for the central banks striving to become International Islamic financial hub. The results disapprove of the widespread understanding that Islamic banks are more stable and more resilient to adverse shocks in the financial crisis. This study recommends that Islamic banks’ management need to diversify the portfolio to avoid risks of failure. These results also suggest to further enhance the stability implications of Islamic banks and policymakers should focus on improving regulation like portfolio diversification, bank capitalization and lending behavior of Islamic banks.

REFERENCES

Abdul, K., 2017. Measuring bank stability: A comparative analysis between Islamic and conventional banks in Malaysia. Proceedings of the 2nd Advances in Business Research International Conference.

1 It does not make sense to say that crisis has not affected the level of stability of big banks. Authors believe that the change might happen because of other unobserved factors or any indirect factors which might not be captured by this estimation.
Agbabiaka-Mustapha, M. and K.S. Adebola, 2018. Exploring curriculum innovation as a tool towards attainment of self reliance of NCE graduates of islamic studies. International Journal of Emerging Trends in Social Sciences, 2(1): 21-27.

Akgun, L. and F. Tektufekci, 2017. Audit in Russian federation and the research toward the determination of the functioning of audit mechanism. Asian Journal of Economic Modelling, 5(1): 23-34.

Alam, N., B.A. Hamid and D.T. Tan, 2018. Does competition make banks riskier in dual banking system. Borsa Istanbul Review. Available at: https://doi.org/10.1016/j.bir.2018.09.002.

Alfauzan, A.A. and N. Tarchouna, 2017. The role of an aligned curriculum design in the achievement of learning outcomes. Journal of Education and e-Learning Research, 4(3): 81-91.

Altunkaya, H. and A. Ates, 2018. Sources of reading anxiety among the learners of Turkish as a foreign language. Asian Journal of Education and Training, 4(3): 161-169.

Bourkhis, K. and M. Sami, 2013. Islamic and conventional banks’ soundness during the 2007–2008 financial crisis. Review of Financial Economics, 22(2). Available at: https://doi.org/10.1016/j.rfe.2013.01.001.

Calomiris, C.W. and B. Wilson, 2004. Bank capital and portfolio management: The 1930s “capital crunch” and the scramble to shed risk. The Journal of Business, 77(3). Available at: https://doi.org/10.1086/386525.

Cihák, M. and H. Hesse, 2010. Islamic banks and financial stability: An empirical analysis. Journal of Financial Services Research, 38. Available at: https://doi.org/10.1007/s10693-010-0089-0.

Clark, E., N. Radić and A. Sharipova, 2017. Bank competition and stability in the CIS markets. Journal of International Financial Markets, Institutions and Money. Available at: https://doi.org/10.1016/j.jifs.2016.01.005.

Danisman, G.O. and P. Demirel, 2018. Bank risk-taking in developed countries: The influence of market power and bank regulations. Journal of International Financial Markets. Available at: https://doi.org/10.1016/j.jfinam.2018.12.007.

Demirgüç-Kunt, A. and H. Huizinga, 2010. Bank activity and funding strategies: The impact on risk and returns. Journal of Financial Economics, 98(3). Available at: https://doi.org/10.1016/j.jfineco.2010.06.004.

Fernández, A.I., F. González and N. Suárez, 2016. Banking stability, competition, and economic volatility. Journal of Financial Stability, 22. Available at: https://doi.org/10.1016/j.jfs.2016.01.005.

Gamaginta and R. Rokhim, 2015. The stability comparison between Islamic banks and conventional banks: Evidence in Indonesia. 5th Edn., Doha: Financial Stability and Risk Management in Islamic Financial Institutions.

Hasan, M. and J. Dridi, 2010. The effects of the global crisis on Islamic and conventional banks: A comparative study.

Jiménez, G., J.A. Lopez and J. Saurina, 2013. How does competition affect bank risk-taking? Journal of Financial Stability, 9(2). Available at: https://doi.org/10.1016/j.jifs.2013.02.004.

Kabir, M.N. and A.C. Worthington, 2017. The “competition–stability/fragility” nexus: A comparative analysis of islamic and conventional banks. International Review of Financial Analysis, 50. Available at: https://doi.org/10.1016/j.irfa.2017.02.006.

Kassim, S.H. and M.S.A. Majid, 2010. Impact of financial shocks on Islamic banks: Malaysian evidence during 1997 and 2007 financial crises. International Journal of Islamic and Middle Eastern Finance and Management, 3(4). Available at: https://doi.org/10.1108/17538391011093243.

Laeven, L. and R. Levine, 2009. Bank governance, regulation and risk taking. Journal of Financial Economics, 93(2). Available at: https://doi.org/10.1016/j.jfineco.2008.09.003.

Leroy, A. and Y. Lucotte, 2017. Is there a competition-stability trade-off in European banking? Journal of International Financial Markets, Institutions and Money, 46. Available at: https://doi.org/10.1016/j.jfinm.2016.08.009.

Liu, H., P. Molyneux and L.H. Nguyen, 2012. Competition and risk in South East Asian commercial banking. Applied Economics, 44(28). Available at: https://doi.org/10.1080/00036846.2011.579066.

Pappas, V., 2012. Failure risk : A comparative analysis of islamic banks and conventional banks. Business School of Lancaster University.

Pappas, V., 2012:2016. Failure risk : A comparative analysis of islamic banks and conventional banks. Business School of Lancaster University.
Pappas, V., 2016. A survival analysis of islamic and conventional banks. Available at: https://doi.org/10.1007/s10693-016-0239-0.

Parashar, S.P. and J. Venkatesh, 2010. How did islamic banks do during global financial crisis? Banks and Bank Systems, 5(4). Available from https://www.researchgate.net/publication/298435983_How_Did_Islamic_Banks_Do_During_Global_Financial_Crisis.

Rahim, S.R.M. and R.H. Zakaria, 2013. Comparison on stability between islamic and conventional banks in Malaysia. Journal of Islamic Economics, Banking and Finance, 9(3).

Rahman, R.A. and M.Y. Masngut, 2014. The use of “CAMELS” in detecting financial distress of islamic banks in Malaysia. The Journal of Applied Business Research, 30(2).

Rajhi, W. and S.A. Hassairi, 2013. Islamic banks and financial stability: A comparative empirical analysis between MENA and Southeast Asian Countries’, RégionetDéveloppement, 37. Available at: https://doi.org/10.2139/ssrn.2010126.

Risfandy, T., A. Tarazi and I. Trinugroho, 2018. Competition in dual markets: Implications for banking system stability. Available at: https://doi.org/10.2139/ssrn.3158510.

Shafik, S., 2014. Financial stability and liquidity: Evidence from conventional and islamic banks in the GCC Region. University of Newcastle. Available from https://nova.newcastle.edu.au/vital/access//manager/Repository/uon:14057.

Turk, A.R., 2010. On the implications of market power in banking: Evidence from developing countries. Journal of Banking and Finance, 34(4). Available at: https://doi.org/10.1016/j.jbankfin.2009.09.004.

Verbeet, M., 2014. Stability of Islamic banks: A comparison of conventional and Islamic banks. In Ahmed, H., Asutay, M., and Wilson, R. (Eds) Islamic Banking and Financial Crisis Reputation, Stability and Risks. EDINBURGH University Press.

Wahid, M.A. and H. Dar, 2016. Stability of Islamic versus conventional banks: A Malaysian case. Malaysia Economic Journal, 50(1). Available at: https://doi.org/10.17576/JEM-2016-5001-09.
### APPENDIX

#### Table 3: Comparing Stability (All Banks)

|           | (1)          | (2)          | (3)          | (4)          | (5)          | (6)          |
|-----------|--------------|--------------|--------------|--------------|--------------|--------------|
| IB_Dummy  | -0.8723***   | -0.7460***   | -0.7501***   | -0.7690***   | -0.7494***   | -0.7844***   |
|           | (0.193)      | (0.202)      | (0.203)      | (0.206)      | (0.204)      | (0.217)      |
| EQ/TA     | 0.0433***    | 0.0559***    | 0.0556       | 0.0538***    | 0.0552***    | 0.0504**     |
|           | (0.004)      | (0.004)      | (0.004)      | (0.004)      | (0.004)      | (0.003)      |
| lnTA      | 0.0076       | 0.0381       | 0.0345       | -0.0002      | 0.0272       | -0.0658      |
|           | (0.029)      | (0.022)      | (0.024)      | (0.025)      | (0.025)      | (0.030)      |
| NL/TA     | 0.3280***    | 0.1491†      | 0.1434       | 0.1690***    | 0.1294       | 0.1342       |
|           | (0.116)      | (0.082)      | (0.090)      | (0.083)      | (0.095)      | (0.083)      |
| Lerner    | 0.0393***    | 0.0383***    | 0.0359***    | 0.0387***    | 0.0351***    |              |
|           | (0.007)      | (0.007)      | (0.007)      | (0.007)      | (0.007)      |              |
| lgdp      | -0.0166      | -0.0247      | -0.0152      | -0.0268      |              |              |
|           | (0.033)      | (0.031)      | (0.032)      | (0.029)      |              |              |
| lnf       | -0.0258      | -0.0215      | -0.0168      | 0.0213       |              |              |
|           | (0.011)      | (0.010)      | (0.010)      | (0.010)      |              |              |
| PreCrisis | -0.0609      |              |              |              |              |              |
|           |              |              |              |              |              |              |
| DuCrisis  |              |              |              |              |              | -0.0283†    |
|           |              |              |              |              |              | (0.016)      |
| PosCrisis |              |              |              |              |              | 0.1212***   |
|           |              |              |              |              |              | (0.027)      |
| Constant  | 1.0090***    | 0.6345**     | 0.7240***    | 1.0449***    | 0.7901***    | 1.5256***    |
|           | (0.288)      | (0.259)      | (0.292)      | (0.276)      | (0.302)      | (0.314)      |
| Observations | 495         | 470          | 428          | 428          | 428          | 428          |
| R²        | 0.8323       | 0.8799       | 0.8824       | 0.8884       | 0.8843       | 0.9026       |

Notes: lnTA is equal to log (total assets). EQ/TA is equity ratio. NL/TA is net loans to total assets. Lerner is banks' Market power. lgdp is a GDP growth. lnf is an inflation. Robust standard errors in parentheses. *p < 0.1, **p < 0.05, ***p < 0.01

#### Table 4: Comparing Stability (Big banks)

|           | (1)          | (2)          | (3)          | (4)          | (5)          | (6)          |
|-----------|--------------|--------------|--------------|--------------|--------------|--------------|
| IB_Dummy  | -1.5877      | -1.5487      | -1.5437      | -1.5485      | -1.5443      | -1.5650      |
|           | (0.348)      | (0.350)      | (0.353)      | (0.354)      | (0.355)      | (0.355)      |
| EQ/TA     | 0.1077       | 0.1072       | 0.1077       | 0.1072       | 0.1076       | 0.1053       |
|           | (0.003)      | (0.003)      | (0.003)      | (0.003)      | (0.003)      | (0.003)      |
| lnTA      | 0.0071       | 0.0075       | 0.0134       | 0.0091       | 0.0130       | -0.0031      |
|           | (0.008)      | (0.009)      | (0.009)      | (0.010)      | (0.010)      | (0.020)      |
| NL/TA     | 0.0203       | 0.0371       | 0.0357       | 0.0433       | 0.0347       | 0.0351       |
|           | (0.031)      | (0.044)      | (0.047)      | (0.048)      | (0.048)      | (0.045)      |
| Lerner    | 0.0720       | 0.0322       | 0.0315       | 0.0307       | 0.0070       | 0.0011       |
|           | (0.059)      | (0.071)      | (0.068)      | (0.072)      | (0.072)      | (0.078)      |
| lgdp      | 0.0083       | 0.0072       | 0.0081       | 0.0038       |              |              |
|           | (0.009)      | (0.009)      | (0.009)      | (0.009)      |              |              |
| lnf       | 0.0080       | 0.0083       | 0.0082       | 0.0118       |              |              |
|           | (0.003)      | (0.003)      | (0.003)      | (0.004)      |              |              |
| PreCrisis | -0.0074      |              |              |              |              |              |
|           |              |              |              |              |              |              |
| DuCrisis  |              |              |              |              |              | -0.0010      |
|           |              |              |              |              |              | (0.005)      |
| PosCrisis |              |              |              |              |              | 0.0177       |
|           |              |              |              |              |              | (0.014)      |
| Constant  | 1.3854       | 1.3395       | 1.2749       | 1.3193       | 1.2808       | 1.4667       |
|           | (0.367)      | (0.377)      | (0.384)      | (0.380)      | (0.391)      | (0.416)      |
| Observations | 168         | 159          | 147          | 147          | 147          | 147          |
| R²        | 0.9850       | 0.9853       | 0.9859       | 0.9861       | 0.9859       | 0.9864       |
Notes: lnTA is equal to log (total assets). EQ/TA is equity ratio. NL/TA is net loans to total assets. Lerner is banks’ Market power. lgdp is a GDP growth. linf is an inflation. Robust standard errors in parentheses. *p < 0.1, **p < 0.05, ***p < 0.01

Table 5: Comparing Stability (Small Banks)

|                | (1)       | (2)       | (3)       | (4)       | (5)       | (6)       |
|----------------|-----------|-----------|-----------|-----------|-----------|-----------|
| IB_Dummy      | -0.5489***| -0.4436***| -0.4560***| -0.4661***| -0.4515***| -0.4473***|
|                | (0.162)   | (0.172)   | (0.172)   | (0.175)   | (0.174)   | (0.180)   |
| EQ/TA          | 0.0403**  | 0.0516**  | 0.0513**  | 0.0497*** | 0.0512**  | 0.0480*** |
|                | (0.004)   | (0.004)   | (0.004)   | (0.003)   | (0.003)   | (0.003)   |
| lnTA           | -0.0335   | 0.0033    | 0.0082    | -0.0269   | 0.0044    | -0.0649   |
|                | (0.035)   | (0.027)   | (0.028)   | (0.027)   | (0.030)   | (0.036)   |
| NL/TA          | 0.4102*** | 0.2047**  | 0.2497*** | 0.2569*** | 0.2423*** | 0.2223**  |
|                | (0.130)   | (0.096)   | (0.102)   | (0.096)   | (0.104)   | (0.097)   |
| Lerner         | 0.0332*** | 0.0310*** | 0.0291*** | 0.0313*** | 0.0297*** |           |
|                | (0.006)   | (0.006)   | (0.006)   | (0.006)   | (0.005)   |           |
| lgdp           | 0.0371    | 0.0294    | 0.0375    | 0.0291    |           |           |
|                | (0.044)   | (0.042)   | (0.043)   | (0.040)   |           |           |
| linf           | -0.0207   | -0.0158   | -0.0145   | 0.0217    |           |           |
|                | (0.015)   | (0.014)   | (0.014)   | (0.015)   |           |           |
| PreCrisis      | -0.0674** |           |           |           |           |           |
|                | (0.029)   |           |           |           |           |           |
| DuCrisis       |           | -0.0182   |           |           |           |           |
|                |           | (0.024)   |           |           |           |           |
| PosCrisis      |           |           |           |           |           | 0.1011*** |
|                |           |           |           |           |           | (0.034)   |
| Constant       | 1.0108*** | 0.6265**  | 0.5306*** | 0.8531*** | 0.5607*** | 1.0717*** |
|                | (0.324)   | (0.290)   | (0.304)   | (0.278)   | (0.319)   | (0.331)   |
| Observations   | 327       | 311       | 281       | 281       | 281       | 281       |
| R²             | 0.8616    | 0.8983    | 0.9029    | 0.9084    | 0.9035    | 0.9146    |

Notes: lnTA is equal to log (total assets). EQ/TA is equity ratio. NL/TA is net loans to total assets. Lerner is banks’ Market power. lgdp is a GDP growth. linf is an inflation. Robust standard errors in parentheses. *p < 0.1, **p < 0.05, ***p < 0.01