Responsiveness of Banks' Stability Towards Peak and Trough Phases of Business Cycle: A Comparative Analysis of Islamic Banks and Conventional Banks

Nosheen,[1] Lubna Maroof,[2] Asma Basit,[3] Khalil Nasir Khan[4]

[1]National University of Modern Languages,[2,3] Islamabad, Bahria University, Islamabad,
[4]BZU Bahadur sub campus, Layyah

Received: January 10, 2022
Last Revised: December 29, 2022
Accepted: December 29, 2022

Abstract

This study investigates the effect of business cycle stages on the financial stability of conventional banks and Islamic banks for the period 1995 to 2020. The data is taken from a sample of Islamic banks (62) and conventional banks (218) of twenty countries having dual banking systems. The data was analyzed using System GMM. The pertinent findings established that Islamic banks outclass conventional banks and hence have greater financial stability. The study reveals that Islamic banks exhibit better stability in comparison with the conventional banks in terms of their real-asset investments, improved real economy collaborations, real assets investment, better non-aggressive advancement, and restricted speculative actions.

Keywords: Banks stability, Business cycle, Peak phase, Trough phase, GEC countries

1. Introduction

Financial stability gained importance in inducing economic growth in the wake of turmoil in financial markets after global financial crisis (GFC). The economy dependent on the stability of the banking sector helps to sustain the internal/external financial jolts. The stability of a financial system depends on freedom from excessive volatility, stress or chaotic financial conditions. Hussein (2010) argues that during a crisis, the financial system should be strong enough to provide a pledge against chaotic situations. The financial credibility and soundness of a bank is defined as the capability of the said bank to stay solvent during severe economic circumstances (Lindgren et al., 1996).

Corresponding Author: Lubna Maroof, email, lubna.buic@bahria.edu.pk

Banking sector has witnessed 'Islamic banking (IB)' evolution as a prominent area of research after the GFC. As the aftermath of the recent Covid-19 pandemic, the entire global economy in 2021 experienced downside risk in terms of volatility in oil prices, foreign exchange rate, and weakened real sector productive capacity. Islamic banking sector showed tremendous growth of 12.7% relevant to the growth rate in 2018. Islamic banking transactions are linked with the real economy which helps them mitigates the uncertainty and promote fairness in the financial system. Islamic banking is not only popular among Muslim countries, but non-Muslim countries are also adopting Islamic banking. According to Islamic Financial Services Industry Stability Report (IFSB), Islamic Banks' total assets increased to $2.70 trillion in 2020 as compared to $2.44 trillion in the year 2019. This Sharia-based banking system is prevailing in 36 countries with dual banking systems and jurisdictions with systemically significant Islamic banking share (market share of Islamic banking exceeds 15 percent of the entire banking sector) increase of 15%. IFSB, 2021 reports that these jurisdictions comprise of approximately 92.4% of Islamic-banking assets. This rapid growth of IBs urges researcher's interest in exploring the stability of Islamic banks against their conventional competitors.

IBs adopted better risk management practices as their products are more risk sensitive and previously remained protected mainly due to their less exposure to the risky assets, risk sharing, and assets-based financing (Ibrahim & Rizvi, 2018; Mirza et al., 2015; Mobarek & Kalonov, 2014). In the embryonic phase of the financial crisis, IBs performed better regarding their liquidity, capitalization, and profitability (Miah & Uddin, 2017; Alqahtani et al. 2016; Mahdi & Abbes, 2018), efficiency (Olson & Zoubi, 2016), profitability (Rashid et al., 2018).

Islamic banking based on Shariah principles revolves around risk and return sharing principle and linkages of transactions with the economy. The underlying doctrine of the Islamic financial system states that the return earned from any investment should represent the overall productivity of the assets. Furthermore, such gain should be justifiable considering the risk inherent in the investment. Despite the strong Shariah compliance, IBs practices have raised many inquiries concerning their resemblance to conventional banking. For instance, the system of Islamic contract is aligned to Islamic philosophies; however, in substance, it is replicating the banking practices of conventional banks. This leads to contradictory views among scholars concerning the compliance of their banking practices with the Shariah principles (Obaidullah, 2005; Greuning & Iqbal, 2008; Chong & Liu, 2009; Baele et al., 2012). Zarrouk et al. (2016) argue that IBs first replace the element of interest rate element and then discount with commission-based fee-based services, hence they use different pathways heading toward a similar goal (Venardos 2005). This raises the question of

whether the diverse theoretical basis of IBs and CBs significantly leads to the relative stability of both systems.

The theoretical foundation of Islamic banks reveals risks that are unlike to the risks the conventional counterparts are exposed to (Cihak and Hesse, 2010; Bourkhis et al., 2013). Firstly, Profit-Loss Sharing (PLS) application in financing activities and deposit management by IBs is a mandatory Shariah rule. The Profit-Loss sharing principle with the depositors increases the withdrawal risk of the depositors. Likewise, PLS on the assets side encompasses agency problems where the financer (IB) retains no monitoring right over the finances. This pushes IBs to increase their monitoring, processing and administration costs leading to extra operational risk in management of non-PLS means (Bourkhis et al, 2013; Hasan and Dridi, 2010). Secondly, IBs cannot take collateral/guarantees to reduce credit risk. Hence, they suffer from major credit risk issues. Thirdly, hedging activities are also refrained by Shariah. Fourthly, IBs are not permitted for interest-based government securities for liquidity needs; therefore, they are highly prone to the liquidity risk.

Hence, they are compelled to invest in interest-based liquidity management tools e.g., Commodity Murabahah. So, to avoid liquidity issues, reserves of high capital should be maintained by IBs. Fifthly, Islamic banks lack the necessary risk management and mitigation tools. Lastly, they are severely criticized for deviating from a pure profit-sharing model, though they are adopting the PLS model on the liabilities section, but its application in the true spirit is missing. For instance, to escape from withdrawal risk, IBs avoid sharing losses with their depositors. However, in situations of low profit, the banks compensate their depositors with an economical return (Abedifar et al., 2011; Siddiqi 2006). Fixed-income models or sale-based modes are applied to the assets side, a form of non-profit sharing models that are exactly like the conventional banks' instruments with fixed returns.

IBs possess some characteristics making them less exposed to external tremors since they were more resilient than CBs during the subprime mortgage crisis. Alaro & Hakeem (2011) suggest the reasons are their financing and investment activities linkage to the economy real sectors with less or no integration with the global financial markets. The worst effects of such crises were mitigated with the best use of risk-sharing arrangements and assets-based financing (Hasan & Dridi, 2010). There are many distinct features that make them more stable. Firstly, Shariah's limitations of interest-based transactions have a positive contribution to the resilience of Islamic banking (Miah & Uddin, 2017). Furthermore, Islamic banks are protected by their risk-sharing feature by mitigating credit risk because it transfers the negative shock of the asset-side to

its depositors (Chong & Liu, 2009). The IBs are required to be more vigilant due to their commitment of compensating an economical return to investors and hence are prone to higher liquidity risk and operational risk which, in turn, helps avoid excessive risk and moral hazard. The agency problems are dealt with by observing the depositors along with curbing moral hazard issues and adverse selection. Correspondingly, the financing instruments e.g. Ijara, Istisna, Murabahah, Salam, are structured to have a built-in stability. Thirdly, Shariah also monitors and discourages speculative activities and excessive leveraging by IBs by restricting their investment in such avenues that led to the latest GFC. Lastly, Islamic banks' collection of funds is done from the demand deposits and by maintaining an adequate level of capital reserves against the deposits to endure unexpected huge withdrawals that eventually add to financial stability.

Understanding the connection amongst business cycle variability and bank stability is crucial in assessing the characteristics and the resilience of the IBs and CBs. However, the response to business cycle fluctuations remains significantly different due to the underlying principles. Both categories of banks have diverse business models, varying cost structure, and varying abilities to bear shocks owing to the inherent characteristics.

The business cycle refers to the variations in the long-term development of the economy. Different phases of the business cycle include peak, trough, expansion, contraction. Peak is the point where an economy reaches the highest level of output, income, trade, and employment with respect to the long-term growth trend line. In this stage, the banks expand their credit at cheap terms. In this way, banks benefit as they get a myriad of buyers for their money. During the expansion phase, the interest rate slowly lowers to raise the investment horizon; hence, the banks choose to expand credit. In the contraction stage, interest increases in the economy as a result of inflation raised in the peak period. Additionally, interest rates decrease investments and banks reduce credit along with that the level of borrowing also decreases. During the trough, which is the lowest point, economic activity is at its lowest. In the trough, the investment level decreases due to increase in interest rate level. The decrease in investment lowers the available business opportunities leading to a credit Islamic banking system contributing to their relative resilience to external tremors.

Previous literature reports a significant difference in the risk and stability of the two forms of banks. Samad (2004) and Janice et al. (2005) found that IBs suffer less credit risk attributable to risk-return-sharing principles in Bahrain and Malaysia respectively. Kassim et al. (2009) found greater ability to withstand monetary policy shocks in IBs. Similarly, Safiullah (2021) finds that Islamic banks show higher stability as compared to conventional banks. They remained

protected during GFC but suffered mainly due to their links with the real economy. Hasan & Dridi (2010) report higher profitability for IBs during crisis period reduces the adverse impact of the crisis. Likewise, Turk-Asis (2010) found better soundness for IBs with a credit to higher liquid reserves and capitalization maintained. Researchers suggest that the stability of Islamic Banks is attributable to well-capitalizing and less risky investment (Taktak et al. 2010), diversification of assets (Ghassan & Taher 2013), product-portfolio (Chaffai and Hassan, 2019), institutional conditions and better governance (Safiullah and Shamsuddin, 2019).

Furthermore, researchers report that IBs suffer less credit risk (Mirza et al. 2015), and more stability (Khediri et al.2015). Mobarek & Kalonov (2014) found that IBs were more financially stable during GFC. Ramlana &Adnan (2016) suggested greater profitability for IBs in Malaysia. Olson & Zoubi (2016) argue that IBs were stable before GFC but noticeably underperform when the crisis spreads. Additionally, Aman et al. (2016) showed higher stability for IBs in Pakistan. Alqahtani et al. (2016) showed that IBs are superior to CBs in their capitalization ratios. Likewise, Miah and Uddin (2017) found higher stability of IBs during the crisis period. Yanikkaya et al. (2018) suggested that financing structure based on risk sharing can enhance performance of IBs. Nosheen & Rashid (2019) established IBs higher stability during economic downturns. Nosheen & Rashid (2021) found Islamic banks to be comparatively stable and provide stability to the system in which they are operating. Rashid et al. (2017) found higher Z-score for IBs and found them productive in establishing a sound financial system for the Pakistani market.

Contrary to these findings, Abedifar et al. (2011) report no significant difference for insolvency risk faced by both types of banks. Moreover, Trada et al. (2017) fail to report any significant difference for IBs and CBs for profitability, credit risk, and insolvency risk. [Bourkhis & Nabi, 2013; Parsa 2022] report the same impact of GFC on soundness for both categories of banks. Gamaginta & Rokhim crunch due to an increase in borrowing cost and scarcity of funds. Banks also contract the level of credit because banks cannot find buyers for their money (Claessens et al., 2011; Vosvrda, 2002).

How do IBs differ from CBs and how much IBs regard Shariah principles in their operations? How have Shariah principles predicted IBs behavior during changing macroeconomic conditions? The current research study aims to provide an answer to these empirical questions. The study considers the behavior of IBs and CBs in terms of their stability in different economic segments of the business cycle. The analysis is conducted considering different theoretical models of IBs and CBs, so, it is expected that IBs are noticeably

different from CBs in terms of their stability. Existing literature on Islamic finance is mainly focused on comparison with respect to the impact of GFC, GDP growth, or other macroeconomic variables for both types of banks. Furthermore, previous studies have largely investigated the difference directly ignoring the impact of the outside factor on the behavior of the two types of banks.

Extant literature shows that IBs outclassed the CBs during GFC. The resilience of IBs requires further investigation and comparison with CBs in the dynamic macroeconomic environment. Henceforth, the study explores the effect of business cycle phases on IBs and CBs to address the gap in the existing literature and offers novel implications for theory and practice. The study compares the extent to which the two types of banking systems model is sensitive to economic fluctuations.

2.Literature Review

With the increasing volatility in the global financial crisis, research has now been diverted towards exploring those characteristics that are integral to (2015) found lower stability for IBs in Indonesia, [Hassan et al. 2018; Kabir & Worthington, 2017] found more stability of CBs, while Mahdi and Abbes (2018) found excessive risk taking in IBs in the MENA region. Several studies documented that a growing economy tends to stimulate higher profitability of IBs (Zeitun (2012); Zarrouk et al. (2016)]. Ali (2022) finds that a higher growth leads to more economic activity and hence increases the stability of banks. Pham et al. (2022) concludes that growth in macro-economic factors increases the stability of the banks and it is adversely affected during the crises times (Phan et al. 2019). In contrast to the above-cited studies, Rashid & Jabeen (2016) found a negative link between GDP and the performance of both IBs and CBs. Furthermore, Rashid et al. (2018) found a negative effect of GFC on the profitability of both IBs and CBs.

Researchers arguing for higher stability of IBs state that they remained protected during the GFC due to their less interaction to risky assets, risk-return-sharing arrangements, and assets-based financing. However, IBs rely upon leverage and undertake risks, making them more vulnerable when the crisis spreads. Nonetheless, larger reserves of equity-capital enhance their shock-absorbing capability; therefore, they perform better than banks with less capital reserves (Samad & Hassan, 2006). Furthermore, Beck et al. (2013) claim that IBs can better cater negative shocks due to higher capitalization.

To the best of the author's knowledge, a substantial gap is found as the literature is limited either to the comparison of IBs' and CBs' stability or stability during GFC. Hence, the study specifically fills the literature gap by

examining the differential effect of the business cycle stages, i.e. peak and trough, on the stability of conventional and Islamic banks.

3. Data & Variable Construction

3.1 Sample selection and Data Sources

The dataset of the study consists of countries where conventional banks and Islamic banks operate simultaneously. Therefore, the dataset comprises of 218 conventional banks and 62 Islamic banks across 20 countries[1]. The study uses annual panel data for the time period 1995-2020. Banks included in the sample have at least two observations and countries included have data of at least two banks. The data set consists of full-fledged Islamic and conventional banks. Further, the conventional banks are selected based on their assets size matched to IBs in the given country. Bank-level data has been obtained from Bank Scope and DataStream, and the country-level data is extracted from the IMF database (IFS), World Bank, and DataStream.

3.2 Variable Construction

For empirical investigation, the stability of both banks type is compared during peak and trough stages of the business cycle. Stability measures the banks' ability to remain solvent under adversative circumstances. The study uses Z-score, a measure of stability, as a dependent variable. It represents the bank solvency, i.e. the degree of standard deviation to an extent return on asset decreases to achieve a negative return (loss). Z-score negatively relates to probability of bank solvency, measured using the following equation:

$$Z = (\mu + K)/\sigma \, (1)$$

In the above equation, $'\mu'$ represents the bank's average return as percentage of assets (%), K represents the equity-capital and reserves as percentage (%) of total assets, and σ a proxy for volatility is the standard deviation of return on assets (ROA). A high value of Z-score shows the low probability of insolvency risk.

Z-Score is used empirically by Kabir et al. (2015). Z-score is an accounting measure of stability and it has an edge over other measures as it can be used for institutions facing issues with the availability of sophisticated market data (Hesse & Cihak, 2007). Secondly, it can be used to compare default in different groups of institutions. Z-score is the best and improved measure of stability specifically for cross-country comparison as each country varies in terms of reporting requirements.

1 The sample comprises countries having dual-banking system, (Number. of Conventional Banks: Number. of Islamic Banks)
Bahrain (12:6), Bangladesh (22:7), Brunei-Darussalam (1:1), Egypt (10:2), Gambia (8:1), Indonesia (37:1), Iraq (12:7), Jordan (11:3), Kuwait (5:5), Maldives (1:1), Mauritania (9:2), Oman (6:1), Pakistan (19:2), Palestine (3:2), Qatar (7:3), Saudi Arabia (8:4), Syria (13:2), Turkey (12:1), United Arab Emirates (17:7), Yemen (5:4).

The literature suggests that control variables should be used to control the bank-level differences. Hence, the study uses two control variables, ratio of fixed assets to total assets and Log of total assets to fix effect for bank size and the opportunity costs simultaneously (Beck et al. 2013).

To categorize the varying business cycle phases, firstly the country-wise GDP is divided into three quartiles for the entire time period i.e. Q1, Q2, and Q3. The peak phase for every country and year is categorized if GDP of that specific country is above third quartile (Q3), expansion phase is categorized if GDP of any specific country happens between third quartile (Q3) and second quartile (Q2), contraction phase is categorized if the GDP of a particular country exists between second quartile (Q2) and first quartile (Q1), and trough phase is categorized if GDP of any specific country is lower than first quartile (Q1). Then, a dummy variable is introduced taking a value of 1 for country-year observations where the market is experiencing peak phase, else assigned a value of 0. Similarly, the dummy variable for expansion phase is assigned the value of 1 for country-year observations where expansion phase occurs, otherwise 0. For the contraction phase, the dummy variable is assigned a value of 1 for country-year observations where the contract phase exists, else 0. Similarly, for the country-year observations, the dummy variable is assigned a value of 1 where trough phase exists, otherwise assigned 0. Here, it is important to note that a country can simultaneously have multiple business cycle phases.

4 Framework of the Study

4.1 Empirical Model

The study investigates differences in stability of both categories of banks in peak and trough periods of a business cycle. Peak and trough phase dummies are introduced in the model to explore the differential effect of different stages of a business cycle. Exploring the effect of these dynamic business-cycle phases on the stability is ascertained by extending the methodological framework [Beck et al. 2013]; whereas, the effect of business cycle phases is incorporated into this study as suggested by Akhtar (2012).

4.1.1 Baseline Empirical Model: Comparison of Islamic and Conventional Banks

Baseline empirical model is estimated to explore the differences in stability for the two types of banks as suggested by following regression model:

$$BANK_{ijt} = \alpha\, BANK_{ijt-1} + \beta_1 D_{ij}^{Islamic} + \beta_2 D_{ij}^{Conventional} + C_j + B_i + Y_t + \varepsilon_{ijt}$$

where $BANK_{ijt}$ is the measure of stability at time 't' of bank i for country 'j'. $D_{ij}^{Islamic}$ is a dummy variable taking value of 1 for an Islamic Bank 'i' in country 'j', else 0. $D_{ij}^{Conventional}$ is a dummy variable taking value of 1 for a conventional Bank 'i' in country 'j', else 0.

Next, this similar relationship is examined by introducing a set of control variables as suggested by following regression model:

$$BANK_{ijt} = \alpha\, BANK_{ijt-1} + \beta_1\, D_{ij}^{Islamic} + \beta_2 D_{ij}^{Conventional} + \beta_3 \sum X_{ijt} + C_j + B_i + Y_t + \varepsilon_{ijt}$$

For any particular bank i in country j at time t, the bank-specific variables are *measured by* X_{ijt} , including fixed assets shared to total assets and size.

4.2.2 Differential Impact of Business Cycle phases: Islamic and Conventional Banks

As discussed earlier, the Islamic banking structure and notion of Shariah-compliant products enables these banks to respond differently to changing dynamic macroeconomic circumstances as compared to their conventional counterparts. The effect of business cycle stages is measured by adding phase-dummies which later interacted with bank dummies of Islamic and conventional banks to examine the differential effect of these changing phases.

The impact of peak phase on stability is measured by equation (4.3).

$$BANK_{ijt} = \alpha\, BANK_{ijt-1} + \beta_1 D_{ij}^{Islamic} + \beta_2 D_{ij}^{Conventional} + \beta_3 \sum X_{ijt} + \beta_4 Peak_{jt} + C_j + B_i + Y_t + \varepsilon_{ijt}$$

In equation (4.3), $Peak_{jt}$ is a dummy variable which represents the peak stage in a country *'j'* at time *'t'*. It takes the value of '1' if the year corresponds to a peak phase, else 0. β_4 shows a change in stability during peak phase.

Next, the peak dummy is interacted with bank dummy to measure the differential effect of this time period.

$$BANK_{ijt} = \alpha\, BANK_{ijt-1} + \beta_1 D_{ij}^{Islamic} + \beta_2 D_{ij}^{Conventional} + \beta_3 \sum X_{ijt} + \beta_4 Peak_{jt} \times D_{ij}^{Islamic} + \beta_5 Peak_{jt} \times D_{ij}^{Conventional} + C_j + B_i + Y_t + \varepsilon_{ijt}$$

Here, $Peak_{jt} \times D_{ij}^{Islamic}$ and $Peak_{jt} \times D_{ij}^{Conventional}$ terms ascertain the differential effect of peak phase on the stability of Islamic and conventional banks measured by the estimator β_4 and β_5 respectively. The test of differential effect tests whether the impact of $Peak_{jt}$ on stability is similar both for Islamic and conventional banking ($\beta_4 = \beta_5$).

Impact of trough phase and the differential behavior of Islamic and conventional bank are given by following equations:

$$BANK_{ijt} = \alpha\, BANK_{ijt-1} + \beta_1 D_{ij}^{Islamic} + \beta_2 D_{ij}^{Conventional} + \beta_3 \sum X_{ijt} + \beta_4 Trough_{jt} + C_j + B_i + Y_t + \varepsilon_{ijt}$$

$$BANK_{ijt} = \alpha\, BANK_{ijt-1} + \beta_1 D_{ij}^{Islamic} + \beta_2 D_{ij}^{Conventional} + \beta_3 \sum X_{ijt} + \beta_4 Trough_{jt} \times D_{ij}^{Islamic} + \beta_5 Trough_{jt} \times D_{ij}^{Conventional} + C_j + B_i + Y_t + \varepsilon_{ijt}$$

$Trough_{jt}$ is the dummy variable for trough phase in the particular country '*j*' at time '*t*', it takes the value of '1' if the year corresponds to a peak phase, else 0. Test of differential effect shows if the impact of $Trough_{jt}$ on stability is indifferent both for Islamic and conventional banks ($\beta_4 = \beta_5$).

4.3 Estimation Technique

The econometric framework used in this study consists of dynamic panel models which require use of an instrumental variable technique whereby the error term will no longer be correlated with the lagged dependent variable. This paper employs "Two-Step Robust System GMM" estimation technique [Blundell & Bond 1998]. "System GMM model takes lag of variables as instruments for difference equations and lag of the first-difference for equations in level" (Bond et al., 2001). There are added advantages that system GMM has over conventional estimation techniques i.e., ordinary least square, fixed effects, and first difference GMM estimators. Firstly, it eliminates the time-invariant firm-specific fixed effect by getting the first difference of all the variables. Secondly, it controls the heterogeneity across individual banks by estimating the model both at levels and first differences and allows use of different instruments with different lag structure for both equations. Thirdly, it employs suitable lag of independent variables, used as instrumental variables to mitigate endogeneity problems.

5 Results and Findings of the study

5.1. Instrument Validity

To certify the correctness of the system GMM process, overidentifying restriction and second-order serial correlation tests are employed. Overidentifying restrictions test, is asymptotically distributed, chi square value having degree of freedom equivalent to the amount of overidentifying restrictions (*J*-statistic-Hansen, 1982), The null hypothesis of *J-statistics* test proposes instruments are valid i.e. uncorrelated with error term in the estimated equation. Furthermore, the study uses AR(2) test (Arellano & Bond 1991) to check the occurrence of second-order serial correlation in the residual term for all the underlying models. The null hypothesis proposes no serial correlation in the residual term. As this model is dynamic in nature, there is a probability that the model might possess first-order serial correlation, hence, there is no second-order serial correlation recorded in the residuals.

The estimated values generated from the above diagnostic tests are presented in Panel 'B' of every table reported in the results section. In results, it is established that system GMM estimates are efficient and consistent as the *J*-statistic-Hansen test states that the instruments are valid. Secondly, the AR(2) test postulates that the residual term lacks second-order correlation.

5.2 Descriptive Analysis

Table 5.1 presents descriptive statistics for IBs, CBs and for the entire sample. The average value of Z-score is 18.69 with higher mean value for IBs relatively to CBs. The values of Z- score are 23.61%. for IBs and 16.15% for CBs and the difference is statistically significant. With regards to controlled variables, the mean value of Size is 15.22. IBs are comparatively smaller in size than CBs and the difference is statistically significant. Fixed assets ratio of IBs is also higher than CBs and there exists a significant difference reported for both bank types in terms of FAR.

Table 5.1: Descriptive Statistics-Islamic Banks and Conventional Banks

	Stability	Control Variables	
	Z-SCORE	SIZE	FAR
Observation	7280	7280	7280
Mean	18.69	15.22	2.32
Standard Deviation	28.02	1.665	2.40
Type of banks			
Islamic	23.61	13.10	2.6
Conventional	16.15	14.65	2.1
Difference t-test	0.00***	0.00***	0.00***
(p-value)			

Notes: Mean values for entire sample, Islamic and conventional Banks. (* p<0.1, ** p<0.05, *** p<0.01)

5.3 Results & Discussion

In this section, findings of comparison of IBs and CBs in terms of stability are reported.

5.3.1 Comparative analysis of Islamic and Conventional Banking system

Table 5.2 presents stability of IBs in comparison to CBs by controlling for country-specific and year-specific effects. IB are comparatively more stable as shown by higher values of Z-score for IBs as compared to CB consistent with the findings of Nosheen & Rashid (2021), Safiullah (2021), Ali (2022), and Pham et al. (2022). Islamic banks are more stable because they are not permitted for risky trading business investments. Secondly, risk-sharing practice is also a risk reducing factor. According to Zarrouk et al. (2016), IB cannot issue debt to finance their assets due to the prohibition of Ribah, instead they depend on shareholders equity for essential sources of funds. This practice discourages IBs to create leverage, and thus, makes them less risky. Thirdly, they also maintain large capital to compensate for the lack of risk management tools (Ahmed, 2009).

Table 5.2: Comparing Islamic and Conventional Banking

REGRESSORS	STABILITY Z-SCORE
Panel A: Estimation Results	
$BANK_{ijt-1}$	0.467*** (0.052)
$Islamic_{ij}$	14.01** (5.433)
$Conventional_{ij}$	8.22*** (2.01)
Panel B: Diagnostic Tests	
Observations	7000
Banks	270
AR(2)	-0.13
p-value	0.711
J-statistic	192.01
p-value	0.211

Standard errors in parentheses
(* p<0.1, ** p<0.05, *** p<0.01)

Table 5.3 shows the difference in the stability of the two bank types controlling for size and asset structure (Equation 4.2). Larger banks have lower stability which is consistent with the evidence provided by [Beck et al. (2013), Mirza et al. (2015), and Alqahtani et al. (2016)]. Fixed assets ratio also has a negative relationship with the bank's stability.

Table 5. 3: Comparative analysis of Islamic and Conventional Banking – Controlling Bank Characteristics

REGRESSORS	STABILITY Z-SCORE
Panel A: Estimation Results	
$BANK_{ijt-1}$	0.8112*** (0.076)
$Islamic_{ij}$	39.11*** (12.10)
$Conventional_{ij}$	37.00*** (11.29)
$SIZE_{ijt}$	-3.12*** (0.677)
FA_{ijt}	-0.395* (0.345)

Panel B: Diagnostic Tests	
Observations	6590
Banks	280
AR(2)	-0.04
p-value	0.890
J-statistic	199.78
p-value	0.567

Standard errors in parentheses
(* p<0.1, ** p<0.05, *** p<0.01)

5.3.2 Differential impact of Business Phases: Peak and Trough

Table 5.4 reports the effect of peak phase on stability. Overall, an increase in bank stability is recorded for the peak phase. When GDP increases, new profitable investment avenues are generated, banks reduce their liquid assets as there are fewer chances of liquidity shortages. Z-score of the banks rises for the peak phase as shown by Nosheen and Rashid (2019), Nosheen and Rashid (2021), Ashraf et al. (2016), and Rahim and Zakaria (2013). During the peak period, banks are well-equipped to absorb unexpected shocks by adopting better risk management practices which ultimately enhances stability of banks. Banks themselves enhance their financial stability by diversifying their assets significantly. According to Bikker and Hu (2002) when the economy is flourishing, a well-managed bank is likely to make more profits. Similarly, according to Bashir (2003), performance measures are affected positively because of favorable macroeconomic conditions. Rashid and Jabeen (2016) stated that a well-managed banking sector is important for economic collaboration of the different segments of the market. It helps accelerate economic growth. During favorable economic conditions, the demand for credit increases, the interest widens, and revenue increases at a higher rate than costs which results in increased profits. Banks build up capital during economic growth which helps them sustain negative shocks during economic downturn. Sufian (2009) suggested that a better capital structure is important for financial institutions as it provides more strength to absorb financial crises and provides increased security to the depositors during adverse macroeconomic conditions.

Table 5.4: Sensitivity of Banks towards Peak Phase

REGRESSORS	STABILITY Z-SCORE
Panel A: Estimation Results	
$BANK_{ijt-1}$	0.654***
	(0.012)
$Islamic_{ij}$	12.12*
	(5.766)
$Conventional_{ij}$	19.22**
	(12.53)
$SIZE_{ijt}$	-2.334*
	(0.812)
FA_{ijt}	-2.122
	(2.021)
$Peak_{jt}$	2.055**
	(0.570)
Panel B: Diagnostic Tests	
Observations	6554
Banks	265
AR(2)	25.00
p-value	0.876
J-statistic	53.44
p-value	0.622

Standard errors in parentheses
(* p<0.1, ** p<0.05, *** p<0.01)

Next, the stability across two bank types during peak phase is estimated Table 5.5. During peak phase, Islamic banks show more stability (Z-score) and the differential is statistically significant. IBs better use their idle fund more in investments and financing activities. According to Beck et al. (2013), Islamic banks' unique nature, which is based on equity and risk-sharing, helps improve financial stability. Bashir (2003) proposed that favorable macroeconomic conditions are likely to enhance profitability of Islamic banks. IBs increase PLS during peak phase. Fewer PLS loans default during strong economic conditions and the bank's profit rises. Higher economic growth increases the Z-score of IBs which indicates that they have lower probability of defaults and are more stable which can be attributed to interest free system and reluctance on part of IBs to invest in derivatives, Tawaruq and loans sale. High economic growth increases Islamic banks' profitability which corresponds to an increase in real economic activity. IBs are, on average, better capitalized as they tend to build up capital to a much greater extent than CBs in order to sustain the negative shock during the economic downturns. IBs due to the nature of PLS arrangements are provided with inherent protection.

Table 5.5: Sensitivity of Banks towards Peak Phase

REGRESSORS	STABILITY Z-SCORE
Panel A: Estimation Results	
$BANK_{ijt-1}$	0.5332***
	(0.234)
$Islamic_{ij}$	18.65**
	(6.600)
$Conventional_{ij}$	16.03**
	(15.22)
$SIZE_{ijt}$	-1.622*
	(0.233)
FA_{ijt}	-2.652
	(3.870)
$Peak_{jt} \times Islamic_{ij}$	3.225**
	(4.257)
$Peak_{jt} \times Conventional_{ij}$	2.001**
	(0.578)
Panel B: Tests for differential effects	
$\beta_{Peak}^{Islamic} = \beta_{Peak}^{Conventional}$	0.71
p-value	0.0001
Panel C: Diagnostic Tests	
Observations	6900
Banks	256
AR(2)	-0.71
p-value	0.918
J-statistic	46.32
p-value	0.322

Standard errors in parentheses

(* p<0.1, ** p<0.05, *** p<0.01)

Next, during the trough phase of the economy the stability of the banks decreases (Table 5.6). When GDP decreases, banks hold more liquid assets due to poor lending opportunities. Furthermore, banks capitalization decreases which leads to higher leverage, borrowing costs, and risk leading to ultimately decrease in profitability of banks. As a result, an environment of financial instability arises which deteriorates economic activity.

Table 5.6: Sensitivity of Banks Towards Trough Phase

REGRESSORS	STABILITY Z-SCORE
Panel A: Estimation Results	
$BANK_{ijt-1}$	0.655***
	(0.034)
$Islamic_{ij}$	-9.32
	(14.22)
$Conventional_{ij}$	14.44**
	(5.887)
$SIZE_{ijt}$	0.399
	(2.167)
FA_{ijt}	0.866**
	(0.787)
$Trough_{jt}$	-2.456**
	(0.811)
Panel B: Diagnostic Tests	
Observations	6824
Banks	276
AR(2)	0.67
p-value	0.233
J-statistic	45.33
p-value	0.678

Standard errors in parentheses
(* p<0.1, ** p<0.05, *** p<0.01)

The differential effect of trough phase Table 5.7 shows that the Z-score value decreases for both bank types. The Z-score decreases to greater extent in case of CBs and this statistically significant difference is in agreement with Zeitoon (2012) and Mirza et al. (2015) for IBs, and Beck et al. (2013), and Alqahtani et al. (2016) for CBs. IBs face withdrawal risk in case of PSIA deposits if the returns are not competitive. They also maintain reserves to meet unanticipated liquidity demand due to absence of Shariah compliant interbank money markets. IBs are more stable as they are focused on profit sharing investment and financing based on mutual risk sharing. Secondly, they are forbidden to indulge in speculative transactions and excessive borrowing. The equity-like nature of IBs' liabilities enables them to enjoy additional protection during economic

downturns. Alaro and Hakeem (2011) advocate that IBs are not available with specialized risk management tools still they are able to manage risk and are more stable due to the inherent features of risk sharing, prudent lending, and prohibition of interest. Islamic banking actions are related to the real economy and this linkage prohibits IB to implement speculative behavior and excessive leveraging leading to instability (Bourkhis et al., 2013). IBs are more stable as they avoid investing in derivatives, and loan sales (Siddiqi, 2006; Hassan, 2006).

Table 5.7: Sensitivity of Islamic and Conventional Banks towards Trough Phase

REGRESSORS	STABILITY Z-SCORE
Panel A: Estimation Results	
$BANK_{ijt-1}$	0.442***
	(0.456)
$Islamic_{ij}$	24.02***
	(19.33)
$Conventional_{ij}$	17.8***
	(7.099)
$SIZE_{ijt}$	-5.898***
	(0.888)
FA_{ijt}	-2.077***
	(0.123)
$Trough_{jt} \times Islamic_{ij}$	-2.257***
	(0.890)
$Trough_{jt} \times Conventional_{ij}$	-4.155***
	(1.344)
Panel B: Tests for differential effects	
$\beta_{Trough}^{Islamic} = \beta_{Trough}^{Conventional}$	8.34
p-value	0.0000
Panel C: Diagnostic Tests	
Observations	6700
Banks	265
AR(2)	-6.32
p-value	0.456
J-statistic	56.22
p-value	0.456

Standard errors in parentheses
(* p<0.1, ** p<0.05, *** p<0.01)

6. CONCLUSION

As mentioned earlier, this study expects some variance in their behavior based on their different business dynamics. The findings conclude that IBs tend to maintain their stability even during economic fluctuations and perform better on their stability indicators during economic downturns. Shariah restricts IBs from investing in speculative activities which provides them an edge over their conventional counterparts. Their better performance is attributable to the changed composition of non-aggressive borrowing, provisioning strategies, and real assets investment. The findings attempt to provide meaningful insights into the policy-making of IBs and will be of great interest to the investors and the depositors as well. This study offers strong policy suggestions to the regulators. It supports the designing and formulation of strategies keeping in view the variant business model adopted by these banks. Based on their diverse underlying principles, the development and application of banking regulations should be enforced accordingly.The Islamic banking sector could be a helpful policy tool to promote economic activity. To increase the impact of Islamic banking assets to total banking assets has to be set to some limits. dditionally, while devising growth-oriented policies, the banking sector development proxy should be considered with due diligence.

Certain issues remained unaddressed in this study and addressing these issues may open more areas for future research. IBs can be studied more extensively by examining their behavior by incorporating more dimensions of varying business cycle phases. The effect of the GFC can be accounted for to get a better understanding of the stability or resilience behavior of IBs. In DBS, the sample dataset embraces only those countries where Islamic banking comprises a major fraction of the entire banking industry. Interestingly, Islamic banking nowadays is evolving in African and European countries also. Hence, the study can be conducted on the banking sector of these countries as well. The applicability of the results is limited as there exists a cross country-variance in terms of Shariah compliance of products, and also in the structure of Shariah-compliant products. Moreover, the time frame and the sample size can be enlarged to achieve added generalizable results.

References

Abedifar, P., Molyneux, P., Tarazi, A., (2011), “Risk and Stability in Islamic Banking”, Working Paper. Bangor Business School.

Abedifar, P., Molyneux, P., Tarazi, A., (2013). Risk in Islamic Banking. Review of Finance, 17, 2035–2096

Ahmed, H., (2009), “Financial Crisis: Risks and lessons for Islamic finance”, ISRA International Journal of Islamic Finance, 1, 7–32.

Akhtar, S., (3012), “Capital Structure and Business Cycles.” Accounting & Finance, 52(1), 25–48.

Alaro, A.R., Hakeem, M., (2011), "Financial Engineering and Financial Stability: The Role of Islamic Financial System", Journal of Islamic Economics, Banking and Finance, 7(1), 25-38.

Alqahtani et al., (2016), "Economic turmoil and Islamic banking: Evidence from the Gulf Cooperation Council", *Pacific-Basin Finance Journal*, 39(2016), 44-56.

Arellano, M. and Bond, S., (1991). Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations. The Review of Economic Studies, 58(2), 277-297.

Arellano, M., Bover, O., (1995), "Another look at the instrumental variables estimation of error components models", *Journal of Econometrics,* 68 (1), 29–51.

Ashraf et al., (2016), "A net stable funding ratio for Islamic banks and its impact on financial stability: An international investigation", *Journal of Financial Stability*, 25(2016), 47-57.

Baele, L., Farroq, M., and Ongena, S., (2012), "Of Religion and Redemption: Evidence from Default on Islamic Loans", Center Discussion Paper Series No. 2012-014. Tilburg University.

Bashir, A., (2003), "Determinants of Profitability in Islamic Banks: Some Evidence from the Middle East", *Islamic Economic Studies*, 11(1), 31-57.

Beck, T., Demirguç-kunt, A., & Merrouche, O. (2013), "Islamic vs. Conventional banking: business model, efficiency and stability", *Journal of Banking & Finance*, *37*(2), 433–447.

Bikker, J.A., Hu, H. (2002), "Cyclical patterns in profits, provisioning and lending of banks and procyclicality of the new Basel capital requirements", BNL Quarterly Review, 55, 143-75.

Blundell, R., Bond, S., (1998), "Initial conditions and moment restrictions in dynamic panel data models", *Journal of Econometrics*, 87 (1), 115–143.

Bond, S. R., Hoeffler, A., & Temple, J. R. (2001). GMM estimation of empirical growth models. CEPR Discussion Paper No. 3048.

Bourkhis, K., & Nabi, M. S. (2013), "Islamic and conventional banks' soundness during the 2007–2008 financial crisis", *Review of Financial Economics*, *22*(2), 68–77.

Chong, S., & Liu, M. (2009), "Islamic Banking : Interest-free or interest-based?", *Pacific-Basin Finance Journal*, 17(1), 125-144.

Cihak, M., & Hesse, H. (2010), "Islamic banks and financial stability: an empirical analysis", *Journal of Financial Services Research*, *38*(2-3), 95–113.

Claessens, S., Kose, M., and Terrones, M., (2011), "How Do Business and Financial Cycles Interact?" IMF Working Paper.

Ghassan, Hassan B. and Taher, Farid B. (2013), "*Financial Stability of Islamic and Conventional Banks in Saudi Arabia: Evidence using Pooled and Panel Models", Gulf Research Center*, 2(2013), 1-33.

Hansen, L. P., (1982), "Large sample properties of generalized method of Moments estimators", *Econometrica*, 50 (4), 1029-1054.

Hasan, M., & Dridi, J. (2010), "The effects of the global crisis on Islamic and conventional banks: a comparative study", Journal of International Commerce, Economics and Policy, 02(02), 163–200.

Hussein, K., (2010), "Bank-level stability factors and consumer confidence – a comparative study of Islamic and conventional banks' product mix", *Journal of Financial Services Market*, 15 (3), 259–270.

Lindgren, C. J., Garcia, G., & Saal, M. I. (1996), "Bank soundness and macroeconomic policy", International Monetary Fund.

Mirza et al., (2015), "Business dynamics, efficiency, asset quality and stability: The case of financial intermediaries in Pakistan", *Economic Modelling*, 46 (2015), 358–363.

Mobarek, A., Kalonov, A. (2014), "Comparative performance analysis between conventional and Islamic banks: empirical evidence from OIC countries", *Applied Economics*, 46(3), 253-270.

Nosheen, & Rashid A., (2019), Business orientation, efficiency, and credit quality across business cycle: Islamic versus conventional banking. Are there any lessons for Europe and Baltic States?, Baltic Journal of Economics, 19:1, 105-135

Nosheen, & Rashid A., (2021), Financial soundness of single versus dual banking system: explaining the role of Islamic banks, Portuguese Economic Journal, 20(1), 99-127

Obaidulla, M. (2005), "Islamic Financial Services", Islamic Economic Research Centre, King Abdulaziz University, SA.

Olson, D., & Zoubi, T., (2016), "Convergence in bank performance for commercial and Islamic banks during and after the Global Financial Crisis", Quarterly Review of Economics and Finance.

Ozili, K., (2015), "Determinants of Bank Profitability and Basel Capital Regulation: Empirical Evidence from Nigeria", Research Journal of Finance and Accounting, 6(2).

Parsa, Mirwais., (2022), Efficiency and stability of Islamic vs. conventional banking models: a meta frontier analysis, Journal of Sustainable Finance & Investment, 12(3), 849-869, DOI: 10.1080/20430795.2020.1803665

Rahim, S. R. M & Zakaria., H. (2013), "Comparison on stability between Islamic and conventional banks in Malaysia', *Journal of Islamic Economics, Banking and Finance*, 9(3), 131-148.

Rashid, A., and Jabeen, S., (2016), "Analyzing performance determinants: Conventional versus Islamic Banks in Pakistan", Borsan Istanbul Review, 16(2), 92-107.

Rokhim, R. & Gamaginta., (2015), "The stability comparison between Islamic banks and conventional banks : Evidence in Indonesia", *Financial stability and risk management in Islamic financial institutions*, Doha, Qatar: Bloomsbury Qatar Foundation.

Samad, A. (2004), "Performance of interest-free Islamic banks Vis-A-Vis interest-based conventional banks of Bahrain", *IIUM Journal of Economics and Management*, 12(2), 1-25.

Samad, A., & Hassan, M. K. (2006). The performance of Malaysian Islamic bank during 1984–1997: An exploratory study. International journal of Islamic financial services, 1(3).

Siddiqi, M. N. (2006), "Islamic banking and finance in theory and practice", *Islamic Economic Studies*, 13(2), 2-48.

Turk-Ariss, R. (2010a), "Competitive conditions in Islamic and conventional banking: A global perspective", *Review of Financial Economics*, 19 (2010), 101-108.

Van Greuning, Hennie; Iqbal, Zamir. (2008), "Risk Analysis for Islamic Banks", Washington, DC: World Bank. https://openknowledge.worldbank.org/handle/10986/6923. License: CC BY 3.0 IGO.

Venardos, A.M. (2005), "Islamic Banking & Finance in South-East Asia: Its Development & Future", World Scientific Publishing Co, Singapore.

Zarrouk, H., Jedidia, K., & Moualhi, M. (2016), "Is Islamic bank profitability driven by same forces as conventional banks?" *International Journal of Islamic and Middle Eastern Finance and Management*, 9(1), 46-66.

Zeitun, R., (2012), "Determinants of Islamic and conventional banks performance in GCC countries using panel data analysis", Global Economy and Finance Journal, 5(1), 53-72.