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Capital Decision of Islamic Banks in Developing Countries

Nur Syahirah Rokeman[1], Wahida Ahmad[2*]
*Corresponding Author

[1] Department of Postgraduate and Professional Studies, Faculty of Business and Management, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia
[2*] Arshad Ayub Graduate Business School, Universiti Teknologi MARA, 40450 Shah Alam, Selangor, Malaysia

syahirah35@gmail.com, wahida@uitm.edu.my
Tel: +60193321069

Abstract

The study investigates capital decisions of Islamic banks in developing countries. The study uses 96 Islamic banks in developing countries from period of 2007 to 2021. By applying the random effect model with cluster regression, the findings reveal that all variables are found to be negatively correlated with the capital buffer. The results recommend regulators in developing countries to ensure Islamic banks maintain consistent capital ratios at all times to address the moral hazard issue that is apparent in larger banks. In response to economic cycles, Islamic banks are also encouraged to manage their capital buffers in a counter-cyclical manner.

Keywords: Capital buffer; Capital risk; Islamic banks; Developing countries;

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1.0 Introduction

The interest-free Islamic banking institutions have gained a lot of attention worldwide and are the fastest-growing in the Islamic financial industry. This is because of their distinctive features that attract depositors and investors to deposit or invest their money in Islamic banks. Fundamentally, the Islamic banks are established to accommodate the needs of Muslim people who want to avoid engaging in interest-based transactions as prohibited by Shariah law. At the same time, Islamic banks adopt profit and loss sharing principles within their operational frameworks as a means to foster equality among individuals. This led to a significant growth in Islamic banking assets where approximately US$3,306 billion is expected to be reached by 2025 (Islamic Finance Development Indicator, 2021). Furthermore, the presence of a double-layer governance structure in Islamic banks, comprising a board of directors and a Shariah supervisory board, considerably boosts customers' and investors' confidence as well as trust in these financial institutions (Mollah & Zaman, 2015).

Nevertheless, during periods of crisis, Islamic banks have been observed to face significant challenges particularly in developing countries. This is primarily due to the less developed financial markets in several developing countries, which makes it difficult for Islamic banks to raise funds in times of crisis. As a result, Islamic banks choose to improve their liquidity position instead of holding a higher amount of capital buffer. This is because the latter can be perceived as costly due to the presence of informational and transactional costs resulting from less developed financial markets (Yin, 2021). Thus, inadequate capital buffer holdings of Islamic banks could potentially exacerbate the impact of systemic risk on developing countries, given the fragility and underdevelopment of their financial markets (Diallo, 2015). However, some studies found that Islamic banks exhibit greater resilience in the face of unexpected crises, highlighting their significant role as an economic stabilizer (Bilgin et al., 2021).

Due to that reason, it is crucial to understand the variables that underpin a healthy banking sector, particularly the capital adequacy ratios due to the critical role that a strong and stable banking system plays in promoting economic growth (Trinh et al., 2015). Evidently, an unstable and risky financial environment is prone to trigger a financial and economic crisis that can potentially hinder the growth and stability of a country's economy (Guru & Yadav, 2019). As a result, the Basel Committee on Banking Supervision has mandated that all banks, whether conventional or Islamic, maintain a minimum capital level of 8 percent. Hence, the study seeks to investigate the factors that affect the capital decision of Islamic banks in developing countries. The study however, faced limitations in accessing past literature related to the capital decisions of Islamic banks. Thence, this study adds to the inadequate literature on Islamic banking and finance literature particularly related to the Islamic bank's capital decision. In addition, the study expanded the period of study starting from the major banking crisis in 2007 up to the most recent available data.

2.0 Literature Review

This section discussed on the importance of having an adequate capital ratio for banks including the theories related to the bank capitalization and the empirical literature associated with the capital buffer. Regulators began to focus on the capital buffer of banks following the disastrous Global Financial Crisis in 2008, that exposed the vulnerabilities of banks and highlighted the potential for the sudden bankruptcy of banks. It has been noted as the biggest banking crisis that caused a major bank collapse. Henceforth, the Basel Committee on Banking Supervision (BCBS) required all banks to hold at least an 8 percent capital adequacy ratio or penalties would be imposed.

The study specifies three (3) pertinent theories to be discussed, namely, the risk absorption hypothesis, the capital buffer theory, and the moral hazard theory. The risk absorption hypothesis stipulates that higher amount of capital buffer is required when the banks are engaged into a high-risk activities. This is because a bigger amount of capital buffer helps to increase the bank's risk bearing capacity, resulting in a positive relationship (Bhattacharya & Thakor, 1993). Similarly, the capital buffer theory assumes that banks are expected to increase their capital buffer proportionately with the increase in risk level (Marcus, 1983). The moral hazard theory, on the other hand, posits that risk and capital buffer have a negative relationship due to the size of the bank. This is because the 'Too Big To Fail' phenomenon tends to be advantageous towards bigger banks as they are considered to be interconnected to the whole economy and thus, their bankruptcy may impose dangers to the country's economy. They frequently receive government assistance during difficult times therefore, larger banks take it for granted by consuming additional risk with a lower capitalization ratio. Contrary to smaller banks where, higher amount of capital buffer is maintained at all times as they do not benefit from the 'Too Big To Fail'. Ergo, this study focuses on the credit risk, size, crisis period and business cycles among the other potential bank-specific as well as macroeconomic factors that may influence the bank's capital buffer.

Credit risk is one of the main risks faced by all banking institutions given their primary business activities are accepting deposits and providing financing. Clearly, banks must expand their capital buffer in parallel with their risk-taking activities. This is because the capital buffer is boost to anticipate the unexpected financial shocks that could harm the bank's stability. The capital buffer acts as a safety net for the banks to any unexpected risks. This is evident in many previous literature such as Basher et al. (2017) and Bitar et al. (2018). Nevertheless, there are past studies that reveal a negative influence of credit risk on the capital buffer of Islamic banks. The authors believe that the profit and loss sharing (PLS) mechanism embraced in Islamic banks makes them less exposed to the changes in the level of asset risk. The fact that PLS contracts do not require Islamic banks to guarantee capital or customer rates of return make Islamic banks more incentivized to take additional risks even with lower capital buffers. This is supported by El-Ansary et al. (2019) and Alqahtani and Mayes (2018) who reveal an inverse relationship between the credit risk and capital buffers of Islamic banks in MENA and GCC respectively.

The size of banks is also presumed to be one of the bank-specific factors that could affect the capital buffer of banks. This is because as banks expand, naturally, it is expected that the capital buffer should also increase with size as the risk may increase. However, most prior literature found a negative significant relationship between size and capital buffer. This means that larger banks would take on greater risks while maintaining lower capital buffers, raising the issue of moral hazard. Even so, the government is often compelled to rescue larger banks in times of crisis because the potential systemic risk they pose by going bankrupt is alarming, as it can inflict significant harm on the economy (Adesina & Mwamba, 2018). Furthermore, larger banks can enter the market easily and diversify their risk asset portfolio due to economies of scale (Ahmed et al., 2022). In fact, Sharifi et al. (2016) claimed that less capital buffer holding by larger banks is credited to their advanced operational risk management system, which makes them less susceptible to risk. Meanwhile, smaller banks are highly likely to face unexpected risks thus, a higher capital ratio is required to absorb the risk.

Besides that, the study includes a crisis period to investigate if there is a significant difference of Islamic bank's capital buffer in normal and bad times. Much previous literature documented that the capital buffer of banks is negatively affected in the crisis period. This is due to the sudden materialization of non-performing loans during the recession which stems from excessive financing activities by banks during periods of economic expansion when the likelihood of borrower defaults is perceived to be lower (Le et al., 2022; Lin, 2020). As a result, the capital buffer is depleted to absorb the increase in risk and prevent banks from becoming insolvent. Nonetheless, Akkas and Al Samman (2022) found the opposite where Islamic banks in GCC countries are revealed to be resistant during crisis periods despite the increase in risk and this is because of the profit and loss sharing principles practiced by the Islamic banks. This demonstrates that Islamic banks have strong asset capitalization, making them more resilient to unpredictable financial shocks. This proven that Islamic banks are better in terms of asset quality and capital relative to conventional banks, especially in difficult circumstances.

The study takes into account business cycles as a control variable. This is to control the different of economic environments in various developing countries. Certainly, good economic growth does enhance the quality of financing assets as the borrower's financial conditions improve in good times, resulting in fewer credit losses. However, several studies unveil that banks often underestimate their risk level in prosperous times therefore, they end up reducing the capital buffer to support more financing activities and to capitalize on promising business opportunities (Ovi et al., 2020). Consequently, when a recession sets in, the banks are unable to absorb the unexpected loan losses, forcing them to inject new capital by curtailing their financing activity during a recession rather than infusing costly new capital into the banks (Akinsola & Ikhide, 2018). Some studies found that bank's capital buffers acting counter-cyclically. This indicates that banks tend to boost their capital in normal times to be drawn during weak economic conditions (Turguttopbas, 2018). According to Mahdi and Abbes (2018), the undeveloped Islamic financial market forces Islamic banks in particular to keep larger capitals because it is challenging for them to raise money. Correspondingly, the study proposes the following hypotheses based on the previous literature:

H1A: There is a significant relationship between credit risk and capital buffer.
H2A: There is a significant relationship between bank size and capital buffer.
H3A: There is a significant difference in the capital buffer of Islamic banks in developing countries during crisis and non-crisis periods.
H4A: There is a significant relationship between business cycles and capital buffer.

3.0 Methodology
The study focuses on Islamic banking institutions in the developing countries. Therefore, the sample is taken from 96 Islamic banks in developing countries that span from 2007 to 2021. A total of 1113 observations is gathered over those 15 years. Overall, the data is obtained from the Fitch Connect database except for the annual growth rate of gross domestic product (GDP) which is collected from the World Bank indicator. As the study is intended to investigate the determinants of capital decisions in Islamic banks within developing countries hence, credit risk, size and crisis period are believed to be the potential drivers that may influence the capital buffer, among others. A crisis period dummy is included to examine if there is a significant difference of Islamic bank's capital buffers in the developing countries between crisis and non-crisis times. Additionally, the study includes business cycles as a control variable. Table 1 presents the proxy for dependent and independent variables of the study.

Table 1: Proxy of the variables

	Notation	Proxy
Dependent Variable		
Capital Buffer	CAP	Equity to the total asset (%)
Independent Variables		
Credit Risk	RISK	Non-performing loan to gross loans (%)
Size	SIZE	Total assets (US$ billion)
Crisis Period	CRISIS	1 for crisis period, 0 for non-crisis period
Control Variable		
Business Cycles	CYCLES	Annual gross domestic products growth rate (%)

To answer the research objectives of the study, the following equation is established accordingly.

$$CAP_{it} = \alpha_0 + \alpha_1 RISK_{it} + \alpha_2 SIZE_{it} + \alpha_3 CRISIS_{it} + \alpha_4 CYCLES_{it} + \mu_{it} \qquad (1)$$

The study performed the F-Chow test, Breusch Pagan Lagrange Multiplier (BPLM) test and Hausman test to determine the best model for equation (1). Based on the panel data testing, the random effect model (REM) is the appropriate model to be employed in this study. In addition, prior diagnostic tests such as outlier test, multicollinearity test, heteroscedasticity test, and serial correlation test are conducted beforehand to ensure the data sample is free from any issues and so provides valid outcomes after the estimation. All the testing and estimation are executed using the STATA statistical package.

4.0 Findings
The diagnostic testing reports no serious issue of multicollinearity since the variance inflation factor is below 5. Nevertheless, there is a serious issue of heteroscedasticity and serial correlation in the data sample. As a result, cluster regression is executed to rectify both

issues. Moreover, based on the panel data testing, the random effect model is proved to be the best model suited for this study. Table 2 presents the random effect estimation with cluster regression of the Islamic bank's capital buffer in the developing countries. The significant results of chi-squared at the 1 percent level validate that the model used in this study is best fitted and valid. 29 percent of the variance of the capital buffer can be explained by the independent variables in the model. Additionally, the results show that all independent variables are influencing the capital buffer negatively at a 1 percent significance level.

Table 2: Random Effect Estimation of the Islamic Bank's Capital Buffer

	Capital Buffer
Credit Risk	-0.115***
	(0.039)
Size	-0.16***
	(0.029)
Crisis Period	-0.574***
	(0.147)
Business Cycles	-0.148***
	(0.024)
_cons	12.907***
	(0.908)
Chi-squared	66.51***
Within R^2	0.159
Overall R^2	0.286
Between R^2	0.418
Observations	372
N_g	42
g_min	3
g_avg	8.9
g_max	15

Standard errors are in parentheses
*** $p<0.01$, ** $p<0.05$, * $p<0.1$

5.0 Discussion

Credit risk is shown to be negatively influencing the capital buffer of Islamic banks in developing countries. This means Islamic banks do not enhance their capital buffers when the risk level is increasing. This indicates that Islamic banks can offer high-quality financing while minimizing capital risk. This is true as confirmed by El-Ansary et al. (2019) that the adoption of the profit and loss sharing (PLS) mechanism by Islamic banks renders them to be less vulnerable to fluctuations in the level of asset risk. In addition, Islamic banks are driven to take on more risks despite of holding lower capital buffers because the guarantee on customer's capital and return rates is not mandatory under the PLS contracts. A similar relationship is found by Alqahtani and Mayes (2018). This concludes that the risk absorption hypothesis does not provide support for the capital decisions of Islamic banks in developing countries when taking extra risks. Even the capital buffer theory is also not adopted by Islamic banks in developing countries when determining the capital adequacy ratio. As expected by many previous findings, bank size is affecting the capital buffer negatively. This proves that there is a serious issue of moral hazard among larger Islamic banks in developing countries. However, despite taking high risks while holding lower capital buffers, the government would still give support to these larger Islamic banks when facing any calamity. This is because the potential cost of their systemic risk and interconnectedness to the entire economy would be very costly if the government did not bail them out (Adesina & Mwamba, 2018). It is indisputable that the likelihood for larger banks to face risk is lower since they have easier access to the market and can diversify their risks accordingly, due to economies of scale (Ahmed et al., 2022). Hence, this gives the privilege for the larger banks to hold lower capital while taking more risks. Contrary to smaller banks, high amount of capital buffers are necessary to absorb any unexpected risk because of their less sophisticated operational risk management system relative to larger banks (Sharifi et al., 2016).

The empirical findings also reveal that there is a significant difference in the capital buffer of Islamic banks in the developing countries, in times of crisis and non-crisis. This implies that the capital buffer of Islamic banks is significantly lower by 0.574 percent during the recession than in normal times. Indirectly, this proves that the deterioration of asset financing quality that occurred during a recession can negatively influence the capital buffer of Islamic banks. As a result, the capital buffers of banks are diminished to accommodate abrupt increases in non-performing loans and at the same time ensure their solvency to avoid the risk of bankruptcy (Le et al., 2022; Lin, 2020). The sudden increase of non-performing loans in a recession is clearly due to the excessive financing activities by banks during good times which may lead to capital risk if not adequately maintained.

This further strengthens the negative relationship between business cycles and capital buffers. The negative relationship infers that the capital buffer of banks behaves pro-cyclically with the business cycles. In good times, banks are motivated to provide more financing activities and invest in good business ventures by reducing their capital buffer (Ovi et al., 2020). This is because borrower's credit quality increased during favourable economic periods, making them less likely to default. Hence, banks are lenient in their funding standards which may potentially lead to giving financing to borrowers with lower credit quality. This heightened the likelihood of capital risk when banks depleted their capital buffer to extend financing for low-quality borrowers. Oppositely, during recessions, banks are required to increase their capital buffer to absorb the unexpected surge in risks associated with the improper financing activities provided during boom time. The need to infuse additional capital is to guarantee the stability and solvency of banks during times of crisis. Nonetheless,

since injecting new capital is expensive during a recession, therefore, banks choose to reduce their financing activities to prevent capital from falling below the minimum statutory adequacy ratio (Akinsola & Ikhide, 2018).

6.0 Conclusion and Recommendations

A strong capital ratio indeed ensures the solvency and stability of the banks in the long term. Thus, capital adequacy ratios are closely monitored by regulators to guarantee that banks remain solvent at all times. This is also to ensure that banks can withstand losses during challenging periods without their capital buffer breaching the minimum capital adequacy requirement. The result of the study reveals that credit risk, size, crisis period and business cycles are significant factors in determining the capital buffers of Islamic banks in developing countries.

Thence, the study recommends that Islamic banks in developing countries to incorporate the risk absorption hypothesis and capital buffer theory when undertaking substantial risks. This is to ensure that Islamic banks are resilient towards any unexpected losses that may jeopardize their stability. On the other hand, to address the moral hazard problem, regulators in developing countries are suggested to implement mandatory measures to ensure that Islamic banks maintain sufficient capital ratios consistently, especially among larger banks. On top of that, the study also suggests that Islamic banks adopt a forward looking approach, where the capital buffer should behave in a counter-cyclical manner. In essence, Islamic banks are emphasized to establish adequate capital buffers during good economic conditions that can be reduced later when the recession hits. This is because the tendency for non-performing loans to materialize is higher in bad economic conditions.

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