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Capital Decision of Islamic and Conventional Banks: Evidence from ASEAN Countries

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Abstract
Inadequate holding of capital buffer were the factors that led to banks going bust during the Global Financial Crisis. Accordingly, this study aims to investigate the capital decision of Islamic and conventional banks in ASEAN countries. The random effect model is utilized to analyze the unbalanced panel data of 1647 observations over 14 years from 2007 until 2020. The results reveal that all variables except for credit risk are significantly influencing the capital decision of the full sample comprising both Islamic and conventional banks in ASEAN countries. However, the individual Islamic banks model shows that the capital buffer is significantly affected by the credit risk. Regardless of the models, the study discovers a consistent relationship between the potential drivers and bank capital. Bank size and liquidity levels are negatively associated with the capital buffer of Islamic and conventional banks whereas bank profitability is positively related. In addition, the crisis period dummy and bank dummy are also revealed to be significant with the capital buffer. This indicates that there is a significant difference in capital levels between the crisis period and non-crisis period and between Islamic banks and conventional banks. The study suggests for policy-makers in ASEAN ensure banks increase capital buffer during good times to offset the pro-cyclicality effects on the economy. Strict action by regulators is required to ensure banks hold a high capital buffer while managing their liquidity level wisely. The regulators also need to address the issue of moral hazard which is prevalent among larger banks.

Keywords: Capital buffer, Capital adequacy ratio, Islamic banks, Conventional banks, ASEAN

I. Introduction

A dual banking system is where conventional banks and Islamic banks coexist and compete in the same banking arena despite being governed differently. Islamic banks are more constrained in terms of resources and banking activity than conventional banks. This is because Islamic banks need to comply with the Shariah rules in terms of their business operation. Unlike conventional banks, Islamic banks are ban from accepting or charging interest in any of their business activities in accordance to Surah Al-Baqarah verse 275 (Ullah, 2016). Conventional banks on the other hand are free to engage in any business activities without any limitations and they can freely charges interest. This is because conventional banks treat money as a commodity with a stored value. When a product is sold or rented, the goods and services sold are charged and rented at a higher price, resulting in profit (Omar et al., 2017). In an Islamic financial system, profits are produced from charges made on services given through banking

activities. In this scenario, money is not a commodity however it has value and serves as a good means of trade. Even the sources of profits need to be identify and must be from lawful and legal business only.

Despite these restrictions, Islamic banking is growing rapidly parallel to conventional banks and gaining prominence on a global scale. Islamic banking is expected to reach US$3,306 billion in asset growth in 2025 as it continues to expand (Islamic Finance Development Indicator, 2021). Yet, Gobat (2012) stresses that gaining public confidence and trust in banking is important to avoid a bank run that could lead to liquidation. Considering this, bank stability is essential for the growth of a country's economy since the bank acts as a bridge between those that have a surplus of money to channel it to those that are deficit in money. However, insufficient capital can cause bank instability and may turn into a nightmare where banks may face a tendency to bankrupt. Regardless of Islamic banks or conventional banks, capital risk is considered to be one of the major problems that a banking institution going to face.

As a result, banking institutions had been the sector that is strictly being regulated worldwide. This is to ensure that the fragility characteristics of the banking system are preserved and the banks can remain stable in facing any unforeseen dangers. Inadequate holding of capital buffers by banking institutions during the chaos of the financial turmoil from 2007 to 2009 was detected as the root cause that led to banks going bankrupt overnight at those times. Capital buffers play a role in absorbing any unexpected shocks to the banking institutions since the banks are operating by financing illiquid assets (long-terms) with liquid liabilities (short-terms), creating a mismatch between assets and liabilities. The assets and liabilities mismatched may lead to bank instability if the optimal level of a capital buffer is not being maintained well by the banking institutions. Therefore, an initiative has been taken by the Basel Committee on Banking Supervision (BCBS) to address the issue of capital buffer management in banking institutions with the introduction of the Basel Accords. All banking institutions worldwide adhere to Basel Accords and need to maintain a minimum of eight percent capital adequacy ratio. Having an adequate capital buffer can eventually help contribute to the resilience of banking institutions by keeping them viable and surviving any challenges that may arise during an economic downturn or upturn.

Nevertheless, the right amount of capital buffers required by banking institutions is still being disputed because when various crises hit economies around the world, whether global or regional, they still cause massive economic losses (Harkati et al., 2020). In this situation, both banks appear to be under varying cost pressure when adjusting toward the target capital levels due to their different governance. As a result, banking institutions experienced a period of significant instability. Hence, to address this glaring issue, the study seeks to investigate the capital decision of Islamic and conventional banks in ASEAN countries. The aims of this study is to fill the significant gap in the literature by investigating whether capital buffer of Islamic and conventional banks in ASEAN countries were influenced by the same determinants. Additionally, the study is motivated by the sudden outbreak of Covid-19 that could potentially affect the bank's capital buffer. Thusly, this study contributes to the presentation of the latest empirical evidence on the factors that can influence the capital decision of Islamic and conventional banks in ASEAN countries from 2007 until 2020, including the current Covid-19 pandemic.

II. Review of the Literature

This section reviewed the past experts' theories and findings related to the capital decision of banks. This study includes the risk absorption hypothesis, capital buffer theory and

moral hazard theory to explain the capital decision in banking business. The risk absorption hypothesis assumes that there is a positive relationship between liquidity creation and capital buffer. The existence of inverse relationship between liquidity creation and banks liquidity level plays a role in explaining the risk absorption hypothesis. In which, a higher liquidity creation activities would drain liquidity levels thereby, causing banks to increase their capital buffers. A larger amount of capital tends to boost the bank's risk-bearing capabilities, putting the bank in a stronger position to provide more liquidity (Bhattacharya & Thakor, 1993). The capital buffer theory stipulates that capital buffer of banks is determined from the bank's behaviour. Accordingly, banks involve in risky investments need to increase their capital buffer and vice versa. As for moral hazard theory, it is expected that larger banks would hold lower capital buffer due to the reliance on 'Too Big To Fail' phenomenon. Even when they increase in risk, larger banks still operating with lower capital. In contrast, smaller banks need to maintain adequate capital buffers to reduce their risk because they do not profit from the 'Too Big To Fail' phenomenon. In light of this, the study takes into account the credit risk, bank size, liquidity level, bank profitability, crisis period and bank dummy as possible variables that could significantly influence the capital buffer of Islamic and conventional banks in ASEAN.

Daher et al. (2015) investigate the determinants that explain capital buffers in a sample of Islamic and Conventional banks in four countries namely MENAT, ASEAN, South Asia and Africa. It has been found that an increase in credit risk negatively influence the capital buffer. Nevertheless, a positively significant relationship is discovered in an empirical study by Basher et al. (2017) which focuses primarily on the Islamic banks entities. It reveals that a rise in the level of assets risk will raise the Islamic banks' overall capital. In this situation, capital buffers are raised in anticipation of an increase in non-performing loans that could threaten the stability of banks. Thusly, most banks put aside higher capital above than required by the regulators to absorb the unexpected increase in non-performing loans (Franklin et al., 2011). Ghosh (2017) also agrees that capital buffers must evolve in tandem with the bank's degree of risk to ensure bank's sturdiness in the event of an unforeseen catastrophe.

As for the bank size, most past literature documented that larger bank tends to have a lower capital buffer due to the 'Too Big To Fail' phenomenon. This is because many times, the government protects larger banks from financial troubles due to their systemic influence over other sectors of the economy (Adesina & Mwamba, 2018). Zheng et al. (2012) point out that government's overly protective attitude towards larger banks is an incentive that gives them the freedom to continue operating with lower capital without any worries. However, a significant positive relationship may exist in larger bank size as evidenced by De Jonghe and Öztekin (2015) where, larger banks are able to raise capital at a cheaper cost due to economics of scale compared to smaller banks. Yet, Laeven et al. (2016) argue that size is irrelevant because regulators are reluctant to close larger banks which then allows them to hold less capital.

Next, due to the asset-liability mismatch, liquidity level is deemed as one of the determinants of a bank's capital decision. A negative relationship between liquidity level and bank capital are found mostly in past literature (Etudaiye-Muhtar & Abdul-Baki, 2021; Vithessonthi, 2014). Stolz and Wedow (2011) opine that less capital is maintained by banks because of their ability to dispose of these liquid assets when the risks rise to improve the capital buffers. The inverse relationship explains that more liquid banks hold lower capital buffers as they are able to meet the minimum statutory capital requirement anytime with higher liquidity. Moreover, Jokipii and Milne (2011) reveal that highly liquid banks take greater risk through excessive lending while holding lower capital ratios. On the other hand, Umar et al. (2017) discover that more off-balance sheet liquidity are produce by listed banks when capital increases which supporting the risk absorption concept that resulted to a positive relationship.

This is because risk absorption hypothesis put forward that banks are in a better position to offer more liquidity with bigger amount of capital as their risk bearing capacity increases.

Besides that, bank profits are believed to be the motivation of banking institutions. This is because Etudaiye-Muhtar et al. (2017) disclose that a high-profit margin can positively influence a bank's capital buffer. According to the authors, a capital buffer helps to insure themselves against liquidation and signals good information to the market about the value of banks. Contrary to Maji and De (2015), the authors contend that an increase in competition and restrictions cause banks to become more conservative resulting in a negative relationship between bank profitability and capital buffer. This could be due to severe regulatory pressure to maintain minimum capital, which could impede a bank's capacity to generate profits.

This study includes the crisis period to study the bank's capital buffer behaviour in normal times versus bad times. It is discovered that to improve the economic condition, banks reduce capital to give out financing as they feel that the potential of consumers to repay loans rises (Repullo & Suarez, 2012). Oppositely, when the economy is doing bad, a sudden increase in non-performing loans triggers banks to increase their capital buffer as a protection to be used in absorbing any unforeseen risks (Lin, 2020). In addition, a bank dummy is added to the study to differentiate between Islamic banks and conventional banks. Islamic banks are found to be strong in surviving difficulties due to good asset capitalization and management relative to conventional banks (Abedifar et al., 2013; Fakhfekh et al., 2016). In fact, the Islamic banking practices were the reason for them to act prudently in good or bad times and avoid excessive risk-taking as it is prohibited in Islam. Past studies from Alandejani et al. (2017) however claim Islamic banks to be riskier than conventional banks because of their unique risks face.

Accordingly, the study develops six hypotheses to study the cause-and-effect relationships between the potential variables (credit risk, bank size, liquidity level, bank profitability, crisis period and bank dummy) towards banks' capital decisions in ASEAN countries.

$H1_A$ There is a significant relationship between credit risk and capital buffer.

$H2_A$ There is a significant relationship between bank size and capital buffer.

$H3_A$ There is a significant relationship between liquidity level and capital buffer.

$H4_A$ There is a significant relationship between bank profitability and capital buffer.

$H5_A$ There is a significant difference in the capital buffer during the crisis period and The non-crisis period.

$H6_A$ There is a significant difference in the capital buffer between Islamic banks and conventional banks in ASEAN.

III. Data Description and Methodology

Mostly, the data collected in this study are from the Fitch Connect database. The dataset is comprised of an unbalanced data panel of Islamic and conventional banks in ASEAN countries which is the main focus of this study. On that account, Cambodia, Myanmar, Laos and Vietnam are excluded from the data samples due to the nonexistent Islamic banks in those countries. Therefore, the samples are drawn from 6 countries namely, Thailand, Malaysia, Singapore, Indonesia, Brunei and the Philippines. The sample period is collected annually starting from 2007 until 2020 which then constitutes 1647 observations over those 14 years. Table 1 displays the proxies of dependent and independent variables. Capital buffer is regarded as our dependent variable, whereas credit risk, bank size, liquidity level, bank profitability, crisis period and bank dummy are treated as independent variables.

Table 1: The Proxies of Dependent and Independent Variables

	Notation	*Proxy Measurement*
Dependent Variable		
Capital Buffer	CAP	Equity to the total asset (%)
Independent Variables		
Credit Risk	CREDIT	Non-performing loan to gross loans (%)
Bank Size	SIZE	The logarithm of total assets (%)
Liquidity Level	LIQ	Liquid asset to total asset (%)
Bank Profitability	PROFIT	Return on asset (%)
Crisis Period	CP	1 for the crisis period, and 0 otherwise
Bank Dummy	BANK	1 for Islamic banks, and 0 for conventional banks

Under research methodology, preliminary analysis and diagnostic tests are carried out in advance to better understand the data collected and detect if there are any issues with it. The study developed three equations to achieve the research objectives. Equation 1 represents the full sample model meanwhile equation 2 and equation 3 represents the Islamic banks and conventional banks in ASEAN respectively.

$$CAP_{it} = \alpha_0 + \alpha_1 CREDIT_{it} + \alpha_2 SIZE_{it} + \alpha_3 LIQ_{it} + \alpha_4 PROFIT_{it} + \alpha_5 CP_{it} + \alpha_6 BANK_{it} + \in_{it} \quad (1)$$

$$CAP_{it} = \delta_0 + \delta_1 CREDIT_{it} + \delta_2 SIZE_{it} + \delta_3 LIQ_{it} + \delta_4 PROFIT_{it} + \delta_5 CP_{it} + \omega_{it} \quad (2)$$

$$CAP_{it} = \lambda_0 + \lambda_1 CREDIT_{it} + \lambda_2 SIZE_{it} + \lambda_3 LIQ_{it} + \lambda_4 PROFIT_{it} + \lambda_5 CP_{it} + \mu_{it} \quad (3)$$

At the same time, the study also conducted panel data testing like the F-Chow test, Breusch Pagan Lagrange Multiplier (BPLM) test and Hausman test in order to identify the best model estimator for this unbalanced panel data. All the analysis is executed using the Stata version 12.

IV. Empirical Findings and Discussion

The results of descriptive analysis based on bank dummy and crisis period dummy are provided from Table 2 and Table 3 respectively. The mean capital buffer is found to be significantly higher for conventional banks in ASEAN at a 1% significant level. This means, on average, conventional banks in ASEAN maintain a higher amount of capital buffer relative to Islamic banks. Yet in reality, the capital buffer for both groups of banks in ASEAN was still found to be affected during the recession. This is true as portrayed in Table 3, the maximum amount of capital buffer during the crisis period is decreasing to 23.22 percent compared to a non-crisis period which is 24.97 percent.

In fact, the average credit risk is revealed to be higher for conventional banks than for Islamic banks at a 5% significant level. This indicates that non-performing loans for conventional banks are high, thus answering why their capital buffers are still affected during the crisis despite higher capital buffer holdings.

In terms of bank profitability, the profit margins for conventional banks are much higher at 8.17 percent than Islamic banks which is at 2.51 percent. This is evidently supported by their mean differences which are significant at a 1% level for the two groups of banks. High profits earned by the conventional banks allow them to put additional capital buffers. Even so, a decline in profits is observed during the crisis period for banks in ASEAN. On average, only

1.09 percent of profits that banks were able to make during the crisis compared to the non-crisis period of 1.25 percent.

Furthermore, the average size of banks in ASEAN is found to be bigger for conventional banks compared to Islamic banks. The mean difference is statistically significant at a 1% level for the banks' comparison.

For liquidity level, conventional banks are found to be more liquid than Islamic banks in ASEAN countries. This is because the average mean liquidity level for conventional banks is much higher at 18.17 percent although it is not significant. Even in times of crisis, the liquidity of banks in ASEAN are still in the highest level.

Based on the results of panel data testing, the Pooled Ordinary Least Squared (POLS) model is inappropriate to be used in this study. Therefore, Random Effect Model (REM) is employed in this study instead of the Fixed Effect Model (FEM). This is because REM helps to investigate the bank dummy which is essential to answer the research objectives but not the FEM model. Under the diagnostic tests, issues of heteroscedasticity and serial correlation are detected in all models but no serious issue of multicollinearity was identified. Thus, cluster regression is executed to rectify the issues.

Table 4 summarizes the estimation of capital buffer for Islamic and conventional banks in ASEAN countries. The chi-squared are significant at a 1% level for Model A, Model B and Model C at 188.66, 147.68 and 118.33 respectively. This exhibit that the model used in this study is valid and reliable. The explanatory variables in this model had successfully explained about 28.60 percent variance of capital buffer for Model A, 47.30 percent for Model B and 21 percent for Model C. The empirical findings reveal that all the variables significantly influence the capital buffer of banks in ASEAN except for credit risk for the full sample model. On top of that, for the individual sample of Model B and C, it is discovered that credit risk only influences the capital buffer of Islamic banks but not conventional banks in ASEAN countries.

Table 2: Descriptive Analysis by Types of Banks

Conventional Banks	N	Mean	Min	Max	Median	Std. Dev.	Skewness	Kurtosis
Capital buffer (%)	1446	11.930	1.15	24.97	11.455	3.866	.544	2.947
Credit risk (%)	1446	3.182	0	30.38	2.68	2.685	2.643	16.045
Bank size (US$ bil.)	1446	15.086	.017	180	4.6	25.972	2.878	12.495
Liquidity level (%)	1446	18.170	.35	82.14	16.035	10.618	1.628	7.707
Bank profitability (%)	1446	1.240	-5.4	8.17	1.19	1.05	-.37	12.522
Islamic Banks	N	Mean	Min	Max	Median	Std. Dev.	Skewness	Kurtosis
Capital buffer (%)	201	7.942	2.93	15.45	7.76	2.198	.726	3.912
Credit risk (%)	201	2.615	.31	21.94	1.56	2.836	3.291	18.303
Bank size (US$ bil.)	201	7.767	.11	64	4.2	10.047	3.155	14.656
Liquidity level (%)	201	16.878	.34	65.46	14.14	11.385	1.317	5.018
Bank profitability (%)	201	0.728	-1.66	2.51	.75	.503	-.461	8.573
Overall	N	Mean	Min	Max	Median	Std. Dev.	Skewness	Kurtosis
Capital buffer (%)	1647	11.444***	1.15	24.97	10.93	3.926	.602	2.988
Credit risk (%)	1647	3.113**	0	30.38	2.51	2.71	2.708	16.168
Bank size (US$ bil.)	1647	14.193***	.017	180	4.5	24.701	3.05	13.867
Liquidity level (%)	1647	18.012	.34	82.14	15.9	10.719	1.575	7.297
Bank profitability (%)	1647	1.178***	-5.4	8.17	1.12	1.013	-.244	12.723

Note: Indicates the significant level of the mean difference test for each variable between Islamic and Conventional banks.
**** p<0.01, ** p<0.05, * p<0.1*

Table 3: Descriptive Analysis by Crisis Period

Crisis Period	N	Mean	Min	Max	Median	Std. Dev.	Skewness	Kurtosis
Capital buffer (%)	809	11.288	1.15	23.22	10.52	4.013	.589	2.772
Credit risk (%)	809	3.351	0	30.38	2.72	3.019	2.762	16.397
Bank size (US$ billion)	809	13.544	.017	180	4.1	24.27	3.206	14.974
Liquidity level (%)	809	18.266	.35	75.81	15.69	10.855	1.473	6.348
Bank profitability (%)	809	1.099	-5.28	7.43	1.06	1.08	-.536	12.508
Non-Crisis Period	N	Mean	Min	Max	Median	Std. Dev.	Skewness	Kurtosis
Capital buffer (%)	838	11.594	2.32	24.97	11.135	3.836	.628	3.232
Credit risk (%)	838	2.883	0	17.58	2.395	2.353	2.316	11.547
Bank size (US$ billion)	838	14.819	.063	180	4.9	25.109	2.911	12.93
Liquidity level (%)	838	17.767	.34	82.14	16.015	10.587	1.679	8.318
Bank profitability (%)	838	1.253	-5.4	8.17	1.17	.939	.261	12.391
Overall	N	Mean	Min	Max	Median	Std. Dev.	Skewness	Kurtosis
Capital buffer (%)	1647	11.444	1.15	24.97	10.93	3.926	.602	2.988
Credit risk (%)	1647	3.113***	0	30.38	2.51	2.71	2.708	16.168
Bank size (US$ billion)	1647	14.193	.017	180	4.5	24.701	3.05	13.867
Liquidity level (%)	1647	18.012	.34	82.14	15.9	10.719	1.575	7.297
Bank profitability (%)	1647	1.178**	-5.4	8.17	1.12	1.013	-.244	12.723

Note: Indicates the significant level of the mean difference test for each variable between crisis period and non-crisis period.
**** p<0.01, ** p<0.05, * p<0.1*

Table 4: Estimation of Capital Buffer for Islamic and Conventional banks in ASEAN

	(Model A) Full Sample	(Model B) Islamic Banks	(Model C) Conventional Banks
Credit Risk	0.066*	0.285*	0.041
	(0.04)	(0.146)	(0.042)
Bank Size	-.538***	-1.083***	-0.484***
	(0.161)	(0.255)	(0.168)
Liquidity Level	-0.082***	-0.056***	-0.093***
	(0.012)	(0.016)	(0.012)
Bank Profitability	0.67***	0.603***	0.718***
	(0.121)	(0.218)	(0.12)
Crisis Period	-0.357***	-0.372***	-0.293***
	(0.109)	(0.135)	(0.11)
Bank Dummy	-3.722***		
	(0.415)		
_cons	13.584***	9.56***	13.582***
	(0.437)	(0.794)	(0.419)
Observations	1647	170	1371
N_g	171	19	148
g_min	3	3	3
g_avg	9.632	8.947	9.264
g_max	14	13	14
Chi^2	188.656***	147.682***	118.332***
Within R^2	0.08	0.239	0.093
Overall R^2	0.286	0.473	0.21
Between R^2	0.38	0.721	0.281

Standard errors are in parentheses
**** p<.01, ** p<.05, * p<.1*

The empirical results show that credit risk positively influences the capital buffer, implying that an increase in the credit risk subsequently would increase the capital buffer of banks albeit it is insignificant for the conventional banks. This result is consistent with a past study by Tamimi and Obeidat (2013). To the surprise, the Islamic banks model successfully rejected the null hypothesis for credit risk. In other words, credit risk is found to be positively significant with the capital buffer of Islamic banks. If the credit risk in Islamic banks increases then, the capital buffer needs to move parallel with the risk level. This is due to the fact that increasing risk exposure might result in bank failure if there was a lack of capital buffer, especially when sudden financial shock arise and losses occurred. Due to this reason, the risk absorption hypothesis required banks to set aside a sufficient amount of capital buffer to absorb the excessive risk-taking of the banks which may threaten their stability. In this situation, capital injections are necessary for the banks to ensure banks remain stable when the value of bad debts and risky investment activities rises (Ghosh, 2017). The high amount of capital buffer is maintained by the banks to prevent any erosion in the capital when it is consumed to absorb any unexpected increase of bad debts. Ergo, banks maintain a high capital buffer in order to anticipate losses from unexpected risk. In contrast to when the credit risk is lower, Islamic banks may reduce their capital buffers because the level of risk is still manageable.

Banks' liquidity level is usually the catalyst that may increase or decrease the risk level of a bank. This is because banks with high liquidity may increase their risk level by providing

more financing relative to those banks with a lower level of liquidity. Thereby, a lower amount of capital buffer is put in reserve by the highly liquid banks to give out more financing. This study found that the liquidity level of banks in ASEAN countries is negatively significant with the capital buffer. It reflects that Islamic banks and conventional banks in ASEAN countries would react by decreasing their capital buffer when their liquidity level is increasing. The reason is well-built liquidity provides capacity for the banks to satisfy short-term obligations even with low capitalization. Ergo, too much amount of liquidity led banks to provide more financing but with a lower holding of a capital buffer. Bank liquidity can act as a buffer against any unexpected events therefore highly liquid banks can operate by holding a lower amount of capital buffer. In this scenario, in the case of unexpected arise in risk, liquid assets are used to increase the capital buffer of banks (Vithessonthi, 2014). In other situations, a fall in liquidity level causes banks to hold more capital buffers as securities for unforeseen risks that may arise as a result of their financing activities. As reported by Fungáčová et al. (2013), the likelihood of a bank failure would increase when there is an excess of liquidity creation activity which may lower the banks' liquidity level. The risk that banks won't be able to satisfy depositor demands is increased when banks are having a lower level of liquidity. In line with the risk absorption hypothesis, banks need to inject more capital to increase their risk absorption capacity to compensate for the rise in liquidity creation activity. Due to the fear of being exposed to liquidity risk, banks are encouraged to raise capital as a cushion to absorb risk. The negative relationship between liquidity level and a capital buffer is evidently supported by other literature (Distinguin et al., 2013; Etudaiye-Muhtar & Abdul-Baki, 2021).

This gives further support that the asset quality does deteriorate during a recession. As a result, a significant difference in the capital buffer during the crisis period and non-crisis period is observed. The outcomes show that the capital buffer of banks in ASEAN is found to be significantly affected during the crisis period compared to normal times regardless of Islamic banks or conventional banks. This implies that both Islamic and conventional banks reduced their capital buffer in bad times due to the increase in risks. This is true as a rise in credit risk is exhibited in Table 3 during the crisis period. The mean value for credit risk is found to be significantly higher during the crisis period by 3.35 percent compared to the non-crisis period. This is because a rise in non-performing loans occurs due to the decline in borrowers' credit rating in bad times which causes the capital to decrease (Repullo & Suarez, 2013). Correspondingly, credit growth is slower during economic downturns as the banks are trying to boost their capital ratio to meet the minimum statutory capital requirement. Penalty may be imposed to the banks if they are unable to meet the statutory capital adequacy ratios. Conversely, during an economic boom, the asset quality improves, implying a lower chance of default by the customers therefore, allowing banks to free up some buffers to provide financing. Thereby, a rise in loan growth is observed during economic upturns as banks were encouraged to provide financing because they believed that customers could repay the loans. Besides that, the liquidity of banks in ASEAN is found to be significantly higher during the crisis period than in the non-crisis period. This means banks in ASEAN are holding a lower amount of capital buffer because they rely on the liquidity level to increase the capital buffer in the case of an unexpected rise in risk. Apart from that, bank profits during a crisis were found to be decreasing compared to normal times. This adds more difficulty for banks to increase their capital buffer in a crisis period due to the lower retained earnings.

The findings also reveal that there is a highly significant difference between the capital level of Islamic and conventional banks in ASEAN countries. In which, conventional banks maintain a significantly higher level of capital relative to Islamic banks by 11.93 percent. This is due to the higher credit risk exposed to conventional banks compared to Islamic banks. The

higher risk exposure has induced conventional banks to hold additional capital than is required by the central banks. Despite lower credit risk for Islamic banks, this result however supports the assertion that Islamic banks have a higher failure rate relative to conventional banks (Mejía et al., 2014). This is because the additional risk of Shariah compliance risk, equity investment risk, rate of return risk and displaced commercial risk have made Islamic banks to be more vulnerable to risk than conventional banks. This unique risk exists because of its different banking characteristics which make them more exposed to risk. Moreover, a significant difference in bank profitability between Islamic and conventional banks is revealed from the mean difference test as in Table 2. Conventional banks are found to be making more profits than Islamic banks. The higher profit margins by conventional banks give them the privilege of maintaining higher capital buffers. Bitar and Tarazi (2019) claim that the higher amount of capital buffer reserve by the conventional banks is to ensure the depositor's trust by presenting better credit protection. This is because a likelihood of a bank run would decrease when banks can gain customers' trust due to their good capitalization.

Moving to bank profitability, a positively significant relationship is captured with the capital buffer of Islamic and conventional banks in ASEAN countries. This corroborates most findings from previous literature that report the same results as this study between the bank profitability and capital buffer (Alraheb et al., 2019; Sari et al., 2018). The results indicate that highly profitable banks hold higher capital above than required. This is because higher profits allow banks to avoid liquidation as higher retained earnings would reduce the financial distress of banks by putting aside a higher amount of capital buffer. A higher capital reserve would safeguard the bank from any bank failure. In addition, banks mostly use retained earnings to increase the capital buffers as it is much easier to grow (Kontbay-Busun & Kasman, 2015). Therefore, to earn the extra profits, banks need to increase their asset risk which simultaneously would increase their risk level too. The increase in risk would expose banks to liquidation when the losses are materializes especially when the economic is suddenly weaken. Accordingly, banks need to increase their capital buffer parallel with the risk level to anticipate any losses in the future. Thus, in favour of the capital buffer theory, banks that engage in risky activities to obtain higher profit yields would at the same time struggle to maintain their banks' capital buffers. Furthermore, banks are also motivated to obtain higher profits because a higher capital buffer held by banks would carry a good image to the markets. On the other hand, less profitable banks hold a lower amount of capital buffer due to lower retained earnings. Thus, less profitable banks are striving to build an appropriate capital buffer as a penalty would be imposed if they fail to do so. These empirical findings reveal that Islamic and conventional banks in ASEAN countries practice the capital buffer theory resulting in a positive link between bank profitability and capital buffer.

As for the bank size, a negative significant relationship is portrayed with the capital buffer. This implies that larger banks in ASEAN are most likely to hold a lower capital buffer in contrast to smaller banks that maintain a high level of capital. Obviously, moral hazard issues exist for both Islamic and conventional banks in ASEAN countries. Bigger banks fearlessly take higher risks while holding lower capital buffer as they enjoy the benefit gains from the 'Too Big To Fail' phenomenon. They are confident of being bailed out by the government from any difficulties encountered because shutting them down would certainly pose a negative systemic risk to the real economy. Besides, larger banks also have better market opportunities due to a wide range of access to the capital market which allowed them to diversify their investment by holding lower capital. They also gain benefits from the economies of scale which then lowers the bank's funding cost. This means larger banks can hold a lower amount of capital buffer despite an increase in the loan growth because of the advantage of the screening and monitoring process that the bigger banks are enjoying when giving the financing to

customers. Additionally, Sharifi et al. (2016) disclose that larger banks have more detailed and comprehensive operational risk management hence they are least likely to experience any operational risk which gives them the facility to hold lower capital buffers. Smaller banks on the other hand maintain a high amount of capital buffer because they are highly likely going to face the tendency of a bank run as they are sensitive to risk. Due to this reason, these banks need to put reserve a high amount of capital buffer while simultaneously increasing the risk. The negative result of bank size and the capital buffer is parallel to many previous studies (Adesina & Mwamba, 2018; Zhu & Chen, 2016).

V. Conclusion

The study reveals that the capital buffers of Islamic and conventional banks in ASEAN countries differ in terms of their determinants. All variables are discovered to be impacting the capital buffer of Islamic banks but the capital buffer of conventional banks is shown to be unaffected by credit risk despite being significantly affected by the other variables. This is because the two types of banks have distinct business frameworks which leads to different tactics, limitations, and priorities that need to be satisfied by Islamic and conventional banks.

The findings of this study even proves that the 'Too Big To Fail' phenomenon is practically applied among the bigger banks in ASEAN countries which raise concerns on the moral hazard issue. The study also prevails that banks with high liquidity may be more lenient when providing financing, thus reducing the bank's capital buffer. Eventually, the pro-cyclicality of a capital buffer may arise as a result of the bank's behaviour, which could harm the capital buffers, especially when a recession sets in.

Hence, the regulators in ASEAN approaching different policy enforcement related to bank capital is suggested by looking from the perspective of Islamic and conventional banks point of view. Greater emphasis on the issue of moral hazard among the bigger size of Islamic and conventional banks needs to resolve first by ensuring that a high capital buffer is maintained by them regardless of their size. Then, highly liquid banks should increase their capital buffers too instead of relying on liquid assets to increase the capital buffers when unforeseen risks arise especially during the crisis. Banks in ASEAN should ensure an appropriate capital buffer is built during good times to anticipate any non-performing loans that may arise unexpectedly during the recession.

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