

The resilience of Islamic banking efficiency in the face of the Covid-19 epidemic

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Abstract

Purpose - Since 2020, the COVID-19 pandemic has harmed the Efficiency Islamic banking industry. This study examines the effects of the COVID-19 pandemic on 33 Islamic stock-traded banks in Asia.

Method - This study includes public financial statements and stock prices of Islamic banks in Asia. This study compares peer-to-peer of how the Covid-19 pandemic affect 33 Islamic financial institutions in 2019 and 2020. A dummy-covid separated pre-pandemic and post-pandemic periods and bank efficiency was a dependent variable. Least-squares panel data regression, fixed-effects, and random-effects models determine model parameters.

Result - This panel regression analysis shows that Islamic banking's usefulness changed after the Covid-19 pandemic. Islamic financial institutions performed better than usual during the pandemic. The analysis results show this clearly.

Implication - Islamic banking appears relatively unaffected by the current economic downturn. The Islamic banking sector, which differs from its conventional counterpart in that it is based on the principle of profit sharing, will fare better during economic contractions, according to these findings.

Originality - This is the first study to use a cross-country sample of Islamic banks in Asia to analyze the efficiency of Islamic banking during COVID-19.

Keywords: pandemic; Asia; Islamic bank; efficiency; economic recession



Introduction

Multiple pandemics, including Ebola, SARS, H5N1, HIV/AIDS, and MERS, have swept the globe. COVID-19, on the other hand, is the current pandemic that has spread to many different regions of the world. Given its global scope, the World Health Organization (WHO) has declared the current COVID-19 outbreak a pandemic. According to Shaw et al. (2020), this novel virus displays specific characteristics, including a rapid rate of spread, susceptibility in older adults with low immunity, and varying recovery rates.

Many studies have examined how a country's economy reacts to a disease outbreak. The global health effects and widespread socioeconomic disruption caused by past health disasters like the Ebola virus, SARS, and the Middle East Respiratory Syndrome (MERS) are still being felt today (Ryan et al., 2006; Smith et al., 2019). The direct cost to the health service and households and the indirect cost due to productivity losses and broader detriments to the broader economy are only two components of the overall economic burden of disease (Francisco et al., 2015). The costs to society from premature deaths and chronic illness caused by the virus' spread are significant (Almond, 2006). In addition, the spread of the disease may influence the composition of social networks and even longer-term consequences for development. China's health, economy, and national security were all negatively impacted by the SARS and H7N9 pandemics (Qiu et al., 2018).

Banking, including Islamic banking, was not immune to the Covid-19 pandemic. Several studies have examined this effect's different facets (Goodell & Goutte, 2020). Bitcoin price correlation with the spread of COVID-19 is investigated by Goodell & Goutte (2020). The cryptocurrency market is studied by Conlon & McGee (2020) and Conlon et al. (2020) to see how it would fare as a haven for equity markets in the event of a pandemic. The effects of market volatility and contagion were studied by Corbet et al. (2020) and Okorie & Lin (2020).

Countries with a majority Muslim population and the largest non-Muslim populations are the most successful in developing Islamic banking (Irfan et al.,

2014). The Islamic banking sector is the fastest-growing global financial sector, with particular expansion in the Middle East and Southeast Asia (Rahman & Rosman, 2013). Since the banking industry is expanding so rapidly, tracking the efficacy of Islamic banking is crucial (Bitar et al., 2019). The extent to which Islamic banks can make the most of their available resources is directly proportional to how well they understand their efficiency (Shawtari et al., 2015). Banks will, therefore, be able to bestow even more significant benefits upon the populace. Banks that operate effectively generate higher profits, which in turn allow them to channel more money, improve their prices, services, and security, and boost the economy as a whole (Miah & Uddin, 2017; Saeed & Izzeldin, 2016; Salman & Nawaz, 2018).

It is vital to make every effort to manage banking activities that can cut costs as much as possible in order to develop the business and reach targets in order to ensure the company's continued existence when the situation and conditions of competition are highly severe (Kaleka & Morgan, 2019; Mirzaei & Moore, 2014; Morrish & Jones, 2020). One of the most important metrics by which banks can be evaluated is their efficiency (Sufian et al., 2016). Banking performance evaluations rely on efficiency measurement tools (Rizvi & Arshad, 2016). This efficiency principle is as important in the banking industry as in any other (Aluko & Ajayi, 2018). Given the level of effectiveness achieved, the result is very satisfactory.

The problem of Islamic banking efficiency in Asia is a crucial issue faced by Islamic financial institutions in the region. Although the Islamic banking industry in Asia has experienced rapid growth in recent years, there are still challenges in achieving optimal efficiency levels. One of the problems is the relatively small economies of scale of most Islamic banks in Asia, making it difficult to capitalize on operational efficiency. In addition, limited infrastructure and investment in information and communication technology (ICT) are also obstacles to achieving the desired efficiency. Lack of accessibility and effective ICT integration can slow operational processes and services, thus affecting the bank's efficiency.

Another constraint is the need for more specialized expertise in Islamic banking and the shortage of skilled human resources in Islamic banking products and services. More significant efforts are needed in developing competent human resources to achieve optimal efficiency. In addition, an immature regulatory framework and ineffective supervision may also affect the efficiency of Islamic banking in Asia. Clear and supportive policies and a robust supervisory framework are needed to ensure transparency, stability, and efficiency in Islamic banking operations. Finally, developing Shariah-compliant products and services that meet market needs is vital in achieving Islamic banking efficiency in Asia. Continuous innovation and a deep understanding of customer needs and preferences are vital to improving product and service delivery efficiency.

Achieving the long-term goals of Islamic banking requires measuring performance in various ways, including efficiency indicators (Miah & Uddin, 2017; Shawtari et al., 2015). The success of monetary policy can be partly measured by how efficiently banks operate (Djalilov & Piesse, 2019; Ekinci & Poyraz, 2019). More effective monetary policy is predicted to result from streamlined transmission due to efficient banking (Iddrisu & Alagidede, 2020; Tomuleasa, 2015). In order to assess the vitality and development of financial institutions, it is helpful to measure their efficiency performance (Jayaraman & Srinivasan, 2014; Rashid & Jabeen, 2016). Health issues and bank expansion have origins in the pursuit of efficiency. For the same reason, the trend toward consolidating financial institutions into megabanks and other behemoths is gaining momentum.

However, there has yet to be empirical research on the effects of COVID-19 on the effectiveness of Islamic financial institutions. The performance of banks during times of crisis or emergency has been the subject of a significant amount of research in academic circles. The global banking industry has been shaken to its core by recent failures and losses at financial institutions. The investigation of this illness is exciting. In light of this, this study aims to investigate the impact that Covid-19 has had on the productivity of Islamic

banking. Despite the difficulties presented by Covid-19, this study will likely show that the Islamic banking industry is robust and performs well.

Literature Review

In recent years, academic discussions about the effectiveness of Islamic banking have piqued the interest of stakeholders and other interested parties. The dynamics of efficiency play a vital role within the context of competitive advantage, and this role is highly significant. The resource-based theory of performance postulates that variations in levels of relative profitability are strongly correlated with differences in the efficiencies of various levels of business operations. Differences in technology, experience, or business models are also to blame for these varying levels of efficiency. If competitors can imitate productive production techniques, the efficiency gap will close in a relatively short amount of time. If differences continue, this may indicate an inability to locate competitors.

The practice of Islamic banking is distinguished by a low rate of profitability and an asset portfolio predominately made up of trade-based and short-term transactions. It is possible to deduce from this structure that Islamic financial institutions that engage in activities involving profit and loss sharing are less prone to risk (Majeed & Zainab, 2017; Miah & Suzuki, 2020). The environment in which Islamic banking operates is permeated by overall asymmetric information risk and is populated by users whose decisions are driven primarily by rational considerations. This makes a challenging environment to conduct business. According to Miah & Suzuki (2020), Islamic bank operations primarily focus on contracts, such as debt. This primary focus leaves little room for profit, loss, and risk-sharing contracts.

Despite the sector's rapid expansion, there is a need for more Sharia-compliant human resources, a regulatory framework, and adequate support in the Islamic banking industry. However, Islamic banking has benefits in effectiveness, efficiency, competitiveness, and stability (Abedifar et al., 2015). As demonstrated by Ibrahim & Rizvi (2018), Islamic banks guarantee a steady flow of credit even during a crisis, which helps to maintain efficiency.

Therefore, this time-sensitive offer satisfies all requirements for Islamic banking deals.

Rizvi et al. (2020) state that Islamic banks were instrumental in assisting the Indonesian banking system to remain more stable and productive throughout the crisis. A risk-sharing feature that promotes allocative efficiency and economic growth gives Islamic banks an advantage over conventional banks regarding safety. This feature is responsible for the advantage. Al-Shboul et al. (2020) and Bilgin et al. (2020) conclude that the contribution of Islamic banks to efficiency stability is similar to that of conventional banks. However, Abdulle & Kassim (2012) found that Islamic financial institutions hold more liquid assets than conventional banks. This is in contrast to conventional banks. Alqahtani et al. (2016) assert that capitalization, profitability, and efficiency are all areas of weakness for Islamic banks during the current global financial crisis. The influence that Islamic banks will have on the overall effectiveness and safety of the banking system has been exaggerated in the research thus far since the number of Islamic banks is still relatively low (Kabir & Worthington, 2017).

The cost-to-income ratio is one metric that can be used to evaluate how efficiently resources are being utilized. In addition, Beck et al. (2013) investigate the effectiveness and stability of Islamic and conventional banking systems, emphasizing how the effects of the global financial crisis 2008 have manifested themselves. They conclude that Islamic banks have an effect that is detrimental to the quality of the assets they hold. Despite this, Islamic banks outperformed their conventional counterparts in capitalization during the worldwide financial crisis of 2008.

Belanès et al. (2015) conducted research that spanned the years 2005-2011 to investigate the impact of the subprime mortgage crisis on the efficiency of Islamic banks in Gulf countries. They concluded that although some Islamic financial institutions saw a slight decrease in their efficiency levels during the subprime crisis, on the whole, Islamic financial institutions maintained high-efficiency levels. Miah & Uddin (2017) examined Islamic and conventional banks in the Gulf states from 2005 to 2014 to determine which

financial institution was more reliable and productive. It was discovered that conventional financial institutions are more efficient than their Islamic counterparts in terms of cost management. While banks with high capitalization have a lower risk of failing, they are typically less resourceful in using their money.

According to the research of Rizvi & Arshad (2016), Islamic financial institutions that are a specific size or more significant are more productive than those that are smaller. The size of a bank also plays a significant role in how well and reliably it operates. Nguyen (2018) investigated the effect that diversification had on the profitability and efficiency of commercial banks in six Southeast Asian countries. He discovered that the more diversified the banks' assets were, the less efficiently they operated. This was the case regardless of whether the banks were profitable or not. However, financial institutions that benefit from a diverse range of revenue streams are better able to turn a profit. Shamshur & Weill (2019) analyzed data collected from firms and banks across nine European countries to determine the extent to which the cost of credit is related to the efficiency of banks. They conclude that an increase in the efficiency of banks can facilitate more accessible access to credit and that a significant correlation exists between the efficiency of large banks and the cost of credit.

In an ideal world, every financial institution would adhere to a time-tested and proven business model, which would ensure the institution's long-term viability and efficiency. Many factors, including those in economics, operations, and regulation, can work against the efficiency of a process. Businesses may or may not be equally efficient due to differences in their strategies, priorities, and guiding principles, depending on their operating context. The existence of efficiency differences may be an indication of a competitive advantage that is capable of being maintained over a long period.

Research Methods

This study's objective is to investigate the impact that the Covid-19 pandemic has had on the operational efficiency of Islamic financial

institutions in Asian countries. Through peer-to-peer comparisons, this study investigates how the Covid-19 pandemic affects the operational efficiencies of 32 Islamic financial institutions which are active in the capital market between 2018Q2 and 2022Q3. This research incorporates the financial statements and stock prices of Islamic banks in Asia that are available to the public and are covered by this study.

There are 32 financial institutions represented here, including those from Indonesia (Bank of Panin Dubai Sharia, Bank of BRI Sharia, and Bank of BTPN Sharia), Jordan (Jordan Islamic Bank, Dhofar Bank, Muscat Bank, and Nizwa Bank), Pakistan (Faysal Bank, Bank Al-Habib, Bank of Punjab, MCB Bank, Habib Metropolitan Bank, Soneri Bank, National Bank of Pakistan, Bank Alfa (Mashreqbank, Dubai Islamic Bank, Abu Dhabi Islamic Bank, Abu Dhabi Commercial Bank, Commercial Bank International, Commercial Bank of Dubai, Sharjah Islamic Bank, National Bank of Ras Al Khaimah, National Bank of Fujairah, and Ajman Bank).

This research utilizes eight additional independent variables during Covid-19 pandemic, all drawn from the financial data indicators reported quarterly by Islamic banks. The research variables included a dummy-covid to separate pre-pandemic periods from post-pandemic ones and the efficiency of banks as a dependent variable. To see how each variable was measured, see Table 1. In this investigation, panel regression was employed as the method of analysis. This paper proposes the following mathematical model:

$$\begin{aligned}
 &Efficiency_{it} \\
 &= \alpha_{it} + \beta_1 P_ROA_{it} + \beta_2 P_ROE_{it} + \beta_3 Ln_TA_{it} + \beta_4 Ln_IFA_{it} \\
 &+ \beta_5 DG_{it} + \beta_6 OL_{it} + \beta_7 TBV_{it} + \beta_8 Effectiveness_{it} + \beta_9 D_Covid_{it} + \varepsilon_{it} \quad (1)
 \end{aligned}$$

Estimating the value of the research parameter is accomplished through the analysis method known as panel data regression. The model parameters are determined using the least-squares panel data regression, fixed-effects, and random-effects models. Because the intercept does not remain the same

over time, we are conducting this research utilizing panel regression in conjunction with a model that considers fixed effects. Some distinct models can be applied to this situation (common-effect model). This model has fixed coefficients, so the intercepts and slopes are unchanging. This holds for the coefficients as well. If they use this model, we can combine the currently available data and employ an ordinary least squares regression technique. The second possible approach is to use a model with a fixed effect. Variation in the intercept term of the regression model occurs across cross-sectional units as well; however, the fixed effect model takes this into account. The intercept term in this model is what is meant to stand in for the fixed-country effect.

Table 1. Variable and Measurement

No	Variable	Symbol	Measurement
1	Efficiency	Efficiency	$(\text{Non-Interest Expense} / \text{Revenue}) \times 100$
2	Pretax_ROA	P_ROA	Pretax Income /Average Total Asset
3	Pretax_ROE	P_ROE	Pretax Income /Average Total Equity
4	Total Asset	Ln_TA	Ln Total Asset
5	Islamic Financing Activity	Ln_IFA	Ln Total Islamic Financing
6	Deposit Growth	DG	$(\text{Deposit} - \text{Deposit}_{-1}) / \text{Deposit}_{-1}$
7	Operating Leverage	OL	Revenue, Chg% - Non-interest Expense, Chg%
8	Tangible Book Value	TBV	the value of a company's tangible assets divided by its current outstanding shares
9	Effectiveness	Effectiveness	Inc. Avail to Common Excl. XO item/ Avg. Common Equity
10	Dummy Pandemic Covid	D_Covid	0 before pandemic (2018Q2-2020Q2), 1 during pandemic (2020Q3-22Q3)

The third type of model we will discuss is the random effect model. In this model, the effects of the individuals are used as the cross-sectional units, and the intercept of the regression model is used to represent a constant global term to take into account the effects of the individuals. Because we have reason to believe that the intercept does not remain the same over time, we conducted this research using panel regression combined with a model that considers fixed effects (Hiestand, 2005). This study can be broken down into several stages: The first step is determining whether the assumptions are plausible and then estimating the fixed-effects model. Second, we need to decide whether we will use pooled ordinary least square, which is a common-effect model, or a fixed-effect model, and we can do this by applying the Chow test. Third, using the Hausman test as a guide, select one of the two possible models—the fixed effect model or the random effect model.

Results and Discussion

Table 2. Descriptive Statistic

Variable	Minimum		Maximum		Mean	
	Before	During	Before	During	Before	During
Efficiency	0.2491	0.1752	1.4261	0.9662	0.4851	0.4713
P_ROA	-0.1113	-0.0636	0.1060	0.0884	0.0119	0.0109
P_ROE	0.0002	-0.3020	0.3008	0.3211	0.1036	0.1101
Ln_TA	20.3955	20.3245	25.4367	25.4309	23.5739	23.5028
Ln_IFA	15.6789	16.2566	24.5418	24.2806	22.3628	22.2742
DG	-0.8113	-0.7566	3.8860	4.6651	0.0365	0.0073
OL	-130	-10	53	29	-3	2
TBV	0.0046	0.0049	32.2107	32.5506	1.7374	1.6930
Effectiveness	-0.0150	0.0023	0.2629	0.2870	0.1029	0.1118
D_Covid	0	1	0	1	0.5	0.5

Minimum, maximum, and average values of the research data processed in Stata 14.0 are provided below to provide context for the data collected from the sample of Islamic banks. The financials ratio of Islamic banking have variation conditions before the pandemic covid from quarter-2 2018, until quarter 2, 2020, as shown in Table 2; efficiency ranges from 24.9% to 142%, with an average value of 85 %. Minimum pretax ROA is -11.3%, the maximum is 10.6%, and the average is 1,19%; minimum pretax ROE is 0.02%, the maximum is 30.08%, and the average is 10.36%; and minimum effectiveness is -1.5%, maximum is 26.29%, and the average is 10.29.

While the minimum value of Ln-TA is -20.39 and the maximum value is 25.43, the values for Ln-IFA are 15.67 and 24.54, the variation value of Deposit Growth (DG) is -81.13% and the maximum value is 3.88%, with an average value of 3.65%, the minimum value of operating leverage is -130, and the maximum value is 53. The minimum value of TVB is 0.0046, and the maximum is 32.21.

Pandemic spread efficiency during Covid-19 pandemic is slightly better than before the pandemic spread efficiency during Covid-19 pandemic (50% vs 48%). However, the average during a Covid-19 pandemic (53%) is lower than before Covid-19 pandemic (47%). Covid-19 pandemic values range from -0.6% to 3.4%, with the maximum value being 3.4% and the average value being 0.04%. The lowest possible value for P pretax ROA during Covid-19 pandemic is 0.04%.

The greater spread in pretax return on equity during the pandemic than pre-pandemic levels indicates uncertainty. Compared to the effectiveness before the pandemic, the effectiveness during the pandemic shows a slightly better condition, with a minimum value of 0.2%, a maximum value of 28.7%, and an average of 11.18%. Meanwhile, Ln-TA ranges from a low of 20.39 to a high of 25.43, with an average of 23.57, indicating no change from the time before the Covid-19 pandemic; Ln-IFA ranges from a low of 15.67 to a high of 24.54, with an average of 22.27; and Ln-IFA has a minimum value of 15.67.

Since the maximum spread of an Ln-IFA during the pandemic is less than that of a conventional loan, this indicates that Islamic financing activity during the pandemic is more stringent and prudent. The range of possible values for deposit growth (DG) is between -70% and 10%, with -0.48% as the average; for operating leverage (OL), the range is between -10 and 29, with two as the mean; and for TVB, the range is between 0.0049 and 32.55, with 1.69 as the mean.

Growth in deposits and operating leverage point in the same direction, with tighter spreads and lower maximum values than before the pandemic. The multicollinearity test is described in Table 3, while the heteroscedasticity test is shown in Table 4. All of the variables in the research do not have VIF values higher than 10, so there are no signs of multicollinearity in Table 3.

Table 4 displays that the Breusch-Pagan method is free of heteroscedasticity, as indicated by the test results of homoscedasticity and the absence of autocorrelation ($\text{prob} > \chi^2 < 0.05$). If the assumption test returns a positive result, we will pick a model from the common-effect, fixed-effect, or random-effect options. We employ Chow and Hausman tests to select a model.

Table 3. Multicollinearity Test

Variable	VIF	1/VIF
Effectiveness	6.62	0.151076
P_ROE	2.79	0.357846
P_ROA	2.72	0.368219
Ln_IFA	1.96	0.632421
Ln_TA	3.44	0.290773
DG	1.03	0.973664
TBV	1.30	0.769288
OL	7.20	0.138843
D_Covid	1.02	0.976236
Mean VIF	3.27	

Table 4. Heteroskedasticity Test

Breusch-Pagan chi2(1) = 252.86 Prob>chi2 = 0.0621

Table 5. Criteria Data Panel Model Selection Test

Chow Test		Hausman Test	
chi2(32)	Prob>chi2	chi2(8)	Prob>chi2
113.24	0.0000	38.39	0.0000

The Chow test can be used to decide between the pooled least square and the fixed effects models. The pooled least square (common-effect) model (H0) is rejected in favor of the fixed effects model (H1) if the chi-squared probability value is less than alpha, which is less than 0.05. Since the chi-squared probability value of 0.0000 is less than the threshold of acceptance (alpha = 0.05), we can conclude that the fixed-effects model is more appropriate than the alternative null hypothesis (H0) and accept (H1) from Table 5.

Next, we use the Hausman test to make sure our model has the right fixed effect after the Chow test has already confirmed it. The Hausman test determines whether using fixed or random effects is the best approach. Where H0 is the random-effects model, and H1 is the fixed-effects model, H0 is rejected if the chi-sqr probability value is less than alpha, which is less than 0.05. Considering that the significance value of the Hausman test in Table 5 is 0.0000 (significance < 0.05), we reject H0 and conclude that the fixed-effects model is superior to the random-effects model.

A comparison of the common-effect model, the fixed-effect model, and the random-effect model is shown in the panel regression results presented in Table 6. The Chow test and Hausman test both favor the fixed-effect model as the most appropriate for this data, and a comparison of the results from the three models reveals that all three are statistically significant at the 0.05 level of significance. The fixed-effects model has the highest R-squared value (54.12%), indicating it is most successful at explaining the dependent

variable. Efficiency was found to be significantly impacted by D_Covid (Covid-19 pandemic), P_ROA, P_ROE, DG, OL (operating leverage), and effectiveness, while LnTA (total assets), Ln_IFA, and TBV were found to have no bearing on efficiency.

The greater the return, the greater its potential for efficiency. According to the results, return on asset have a significant effect (coefficient = 8.9794), meaning that a 1% rise will boost efficiency by 8.9794 all else being equal. Meanwhile, return on equity has a significant negative effect, which means that increasing return on equity can cause a decrease in efficiency because an increase in roe makes companies invest the funding they get into a business expansion which can reduce company efficiency in the short term. After all, it requires operational adjustments. This finding accorded with the others, so the study can be considered valid (Irman et al., 2020; Kamarudin et al., 2014; Shawtari et al., 2015).

Table 6. Data Panel Regression Result from Islamic Banking

Efficiency (obs 576)	CEM		FEM		REM	
	Coef.	Prob.	Coef.	Prob.	Coef.	Prob.
D_Covid	-3.7202	0.0128**	-1.8774	0.0824*	-2.8579	0.0286**
P_ROA	0.0953	0.8855	8.9794	0.0000***	-2.5889	0.0341
P_ROE	-0.3206	0.0174**	-1.0482	0.0012***	-0.3076	0.1335
LnTA	0.0001	0.2668	0.0056	0.7800	0.0002	0.2062
Ln_IFA	0.0126	0.1792	0.0234	0.5732	0.0310	0.2452
DG	-0.1081	0.9605	-4.5302	0.0214**	-3.3101	0.0874
OL	-0.2298	0.0000***	-0.2593	0.0000***	-0.2596	0.0000***
TBV	-1.0030	0.0000***	-0.4183	0.5451	-0.8840	0.0069***
Effectiveness	0.3740	0.0000***	0.4362	0.0000***	0.4115	0.0000***
_cons	5.9973	0.0000***	5.1042	0.0000***	5.1581	0.0000***
R-Sq	0.3392		0.5412		0.2154	
Prob > Chiq	0.000***		0.000***		0.000***	

Note: ***, **, * denote significant 1%, 5%, and 10%

Table 7. Data Panel Regression Results of Non-Islamic Banking (Robustness)

Efficiency (obs. 692)	CEM		FEM		REM	
	Coef.	P> z	Coef.	P> z	Coef.	P> z
D_Covid	0.0212	0.200	0.0764	0.000***	0.0260	0.011**
P_ROA	-28.9627	0.000***	2.2257	0.738	-11.4188	0.022 **
P_ROE	0.7332	0.220	-1.4592	0.031**	-0.8489	0.116
LnTA	-0.0526	0.000***	-0.5051	0.000***	-0.0567	0.000 ***
DG	-0.1697	0.135	-0.2662	0.006***	-0.2268	0.012**
OL	-0.0044	0.000***	-0.0035	0.000***	-0.0037	0.000 ***
TBV	0.0026	0.000***	0.0004	0.934	0.0029	0.000***
Effectiveness	-0.8625	0.000***	-0.1206	0.497	-0.5566	0.000 ***
_cons	1.9331	0.000***	12.6471	0.000***	2.0054	0.000 ***
R-Sq	0.4948		0.3158		0.4840	
Prob > Chiq	0.000***		0.000***		0.000***	

Note: ***, **, * denote significant 1%, 5%, and 10%

Furthermore, operating leverage (OL) significantly affects productivity (with a coefficient value of -0.2593). According to these findings, efficiency improves by --0.2593% for every unit increase in operating leverage (all else being equal) (Abuka et al., 2019; Dewandaru et al., 2014; Yahaya & Lamidi, 2015). High operating leverage will decrease uncertainty costs, allowing them to achieve their efficiency goals primarily through fixed costs. Islamic banking is more effective at higher levels of leverage.

We also find that variables' effectiveness substantially affects efficiency (with a coefficient of -0.4362). In this analysis, effectiveness has the most significant bearing on efficiency; a 1% improvement in effectiveness results in a 0.43% improvement (ceteris-paribus). These findings are in line with those of other researchers Al Arif et al. (2019), Beck et al. (2013) and Miah & Uddin (2017), who concluded that Islamic banking is more efficient when its management is more effective at cutting costs and bringing in more money.

The next discussion goes on the most significant discovery made by this research: the impact of the Covid-19 pandemic (D_Covid). According to the study, Covid-19 pandemic significantly impacts efficiency, as shown by a coefficient value of -0.0559. This indicates that it may impact the performance of Islamic financial institutions. The primary finding is that Covid-19 pandemic positively impacts efficiency value by -0.056%, which is a finding that runs counter to the expectations of industry professionals. It is abundantly clear from the findings of this research that Islamic banking is highly resilient even in the face of economic unpredictability. It has been demonstrated by several earlier studies, as well as the current one, that Islamic banking continues to operate normally even when the economy is in a recession.

The Islamic financial system has ample resources to weather the epidemic. Facts and circumstances indicate that Islamic financial institutions can weather the pandemic's storm. Islamic banking remains strong despite the global financial crisis (Bitar et al., 2019; Salman & Nawaz, 2018). A bank's total assets consist of its liquid and non-liquid holdings. Effortlessly, the value presented must decrease (Bawa et al., 2019; Shamshur & Weill, 2019). If it is negative, banks make more money than they spend (Tan, 2016). To be efficient, a bank needs both a high total asset value and a low efficient value (Nguyen, 2018). Efficiency is negatively correlated with total assets, at least in theory. For a bank to have a high asset value, its efficiency value must be low because that would mean its income from banking operations is sufficient to cover all of its costs (Miah & Uddin, 2017; Mosko & Bozdo, 2016; Saksonova, 2014). The banking industry is becoming more efficient if it brings in much money.

Conclusion

Some nations have temporarily suspended their economies as a precaution against the spread of the COVID-19 virus. The recent slump in economic activity is a direct consequence of the suspension of certain economic activities brought on by the pandemic caused by the Covid-19 virus.

This research aims to determine how much of an impact carbon dioxide equivalent 19 has had on the overall productivity of 33 Islamic banks all over Asia. A comparison of Islamic banks' effectiveness before and after the pandemic reveals different results, as demonstrated in this study.

According to the findings of this study, Islamic financial institutions had a better track record of success during the Covid-19 pandemic than they had in the years leading up to the outbreak. This substantiates the claim that Islamic banks are superior to their conventionally structured counterparts in their capacity to withstand the effects of economic downturns. This finding suggests that the central bank should take steps to fortify the Islamic banking sector further in order to reflect the sector's overall importance better.

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