

Do Islamic Banks Withstand Crises Better? Evidence from the COVID-19 Pandemic in Pakistan and Bangladesh

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Abstract

The COVID-19 pandemic created an exceptional economic and financial shock that affected banking systems through reduced economic activity, weaker consumer spending, supply-chain disruption, unemployment, market uncertainty, and deterioration in borrowers' repayment capacity. This study examines the effect of COVID-19 on the financial performance and risk profiles of Islamic and conventional banks and compares the two banking models in Pakistan and Bangladesh. The study uses annual financial statements of selected banks covering 2015–2021, thereby allowing comparison between the pre-pandemic and pandemic periods. Five Islamic and five conventional banks are considered from each country. The study employs descriptive statistics, independent/paired-sample t-tests, a chi-square test, Z-score analysis, and regression analysis. The COVID-19 period is represented through a dummy variable, while bank type is represented through an Islamic-bank indicator. The reported results indicate that the pandemic had a statistically significant negative association with financial performance ($\beta = -0.245$, $p = 0.036$) and a statistically significant positive association with the risk profile ($\beta = 0.316$, $p = 0.015$). The evidence does not establish a statistically significant difference in risk profile attributable simply to Islamic bank status ($\beta = -0.128$, $p = 0.192$), although the Islamic-bank indicator is positively associated with financial performance in one reported specification ($\beta = 0.212$, $p = 0.042$). The descriptive evidence and Z-score comparisons also show deterioration in financial health between 2015 and 2021 for the banks examined. The findings suggest that the COVID-19 shock increased banking-sector risk across both models and that the resilience advantages associated with Islamic banking principles should not be interpreted as evidence of uniformly lower observed risk. The study contributes comparative evidence from two South Asian banking markets and provides implications for risk management, regulatory flexibility, business continuity, digital infrastructure, and future crisis preparedness.

Keywords: COVID-19; Islamic banking; conventional banking; financial performance; bank risk; Z-score; Pakistan; Bangladesh; risk management.

Introduction

The COVID-19 pandemic became a worldwide economic and social disruption rather than a conventional financial shock. Banking institutions were positioned at the centre of the transmission mechanism because they intermediate funds between savers, households, firms and governments. When economic activity contracts, banks may simultaneously face weaker loan de-

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mand, declining borrower repayment capacity, asset-quality deterioration, liquidity pressures, market volatility and operational disruption. The pandemic therefore created an important setting for examining whether different banking business models respond differently to a severe external shock. The supplied thesis identifies the financial sector as a crucial component of the economy and notes that banks' performance and risk profiles receive particular scrutiny during periods of economic downturn, market volatility and changing customer behaviour (Acharya et al., 2020).

Islamic and conventional banks represent two different approaches to financial intermediation. Islamic banking is based on Shariah principles that prohibit *riba* and emphasise risk-sharing, ethical investment and linkage with real economic activity. Conventional banking, in contrast, relies substantially on interest-based transactions and debt-oriented financial instruments. These structural differences provide a natural basis for asking whether the two models have different risk characteristics during a crisis. Islamic banking literature highlights contracts such as *mudarabah* and *musharakah*, in which the parties share business outcomes, as well as asset-backed or asset-based modes such as *murabaha* and *ijarah* (Kabir et al., 2020; Hassan, 2021; Haron and Shanmugam, 2020). Conventional banking literature emphasises lending, deposit-taking, interest margins, debt instruments and a broad set of financial services (Berger et al., 2018; Mishkin and Eakins, 2015; Rose and Hudgins, 2018).

The pandemic is particularly relevant to this comparison because its transmission to banks did not occur through a single financial-market channel. Supply-chain interruptions, reduced consumer spending, unemployment and uncertainty affected households and firms, while policy responses altered interest rates, liquidity conditions and regulatory requirements. The Bank for International Settlements (2020) and Demirgüç-Kunt et al. (2020) emphasise the importance of financial strength and regulatory responses during the pandemic. In such an environment, a comparison based only on profitability is insufficient. It is also necessary to consider risk and financial stability because a bank can preserve short-term profitability while becoming more exposed to future losses.

Previous research has extensively compared Islamic and conventional banks in terms of performance, efficiency, stability and risk. Studies cited in the thesis include comparative evidence from Pakistan, the Gulf Cooperation Council and other markets. Research on earlier financial crises has also suggested that Islamic banks may benefit from conservative lending, stronger capitalisation, risk-sharing arrangements and lower exposure to certain speculative activities (Akgün and Kalyoncu, 2012; Ataullah and Bashir, 2010; Hassan and Bashir, 2007). At the same time, Islamic banks face distinctive challenges, including funding constraints, capital-raising difficulties and the need for appropriate regulatory and Shariah-governance frameworks (Siddiqi, 2014; Bauknecht and Dinc, 2014). The COVID-19 shock provides an opportunity to examine whether these theoretical distinctions translated into observable differences during a global crisis.

The specific research problem addressed by this paper is therefore the comparative effect of COVID-19 on the risk profiles and financial performance of Islamic and conventional banks in Pakistan and Bangladesh. Pakistan and Bangladesh are selected because both have established Islamic banking sectors but also have substantial conventional banking sectors, making comparative analysis possible. The study uses five Islamic and five conventional banks from the two countries and examines annual observations from 2015 through 2021. The pre-pandemic years provide a benchmark against which the pandemic period can be assessed.

The objectives are threefold: first, to examine the impact of COVID-19 on Islamic and conventional banks; second, to compare Islamic and conventional banks; and third, to assess whether one banking model is riskier than the other during the pandemic. These objectives lead to two central research questions: (1) How did COVID-19 affect the risk of conventional and Islamic banks? and (2) Which banking model was riskier, Islamic or conventional? The study is significant for regulators, investors, bank managers and researchers because understanding crisis behaviour can inform future risk-management frameworks and regulatory responses.

The remainder of the paper is organised into four major sections. The literature review discusses the characteristics of Islamic and conventional banking, performance and risk indicators, previous crisis evidence, the consequences of COVID-19 and the theoretical foundations of the study. The methodology explains the sample, data sources, variables and statistical techniques. The results section presents descriptive statistics, comparative tests, chi-square results, Z-score evidence and regression findings. The conclusion synthesises the findings and discusses implications, limitations and directions for future research.

Literature Review

Islamic Banking: Principles, Instruments and Risk Characteristics

Islamic banking is governed by principles derived from Shariah and differs from conventional banking in its treatment of interest, uncertainty, speculation and investment activities. A central principle is the prohibition of *riba*. The rationale presented in the Islamic finance literature is not merely technical; it is connected to concerns about fairness, exploitation, wealth concentration and the relationship between financial transactions and real economic activity (Kabir et al., 2020; Siddiqi, 2019). Instead of interest-based lending, Islamic finance provides contractual structures through which returns can arise from trade, leasing, investment and partnership. The literature therefore places particular emphasis on risk-sharing and ethical finance (Hassan, 2021; Archer and Karim, 2017).

Profit-and-loss sharing is represented most directly by *mudarabah* and *musharakah*. In *mudarabah*, one party provides capital while another provides entrepreneurial effort, with profits shared according to an agreed ratio and losses generally allocated according to the contractual structure and capital contribution. *Musharakah* represents a partnership in which the parties contribute capital and share outcomes. These structures theoretically align the interests of financiers and users of capital because returns are connected to the performance of an underlying venture. Haron and Shanmugam (2020) and Hassan (2021) identify risk-sharing as an important distinguishing characteristic of Islamic banking.

Islamic banks, however, do not rely exclusively on pure profit-and-loss-sharing contracts. The literature cited in the thesis identifies *murabaha*, *ijarah*, *istisna'a* and *sukuk* among major Islamic financing instruments (Kabir et al., 2020; Hassan, 2021). Islamic banks also offer Shariah-compliant deposit and investment accounts and participate in wider Islamic financial activities such as *takaful*. This diversity means that the actual risk profile of an Islamic bank is determined not only by the ideal principles of Islamic finance but also by its financing mix, asset quality, liquidity management, capital position and regulatory environment.

Ethical investment is another distinguishing feature. Islamic banks avoid activities considered haram and apply Shariah screening to investments. The literature cited in the thesis highlights restrictions on gambling, alcohol, pork-related activities, excessive uncertainty and other prohibited activities (Obaidullah, 2020; Wilson, 2021). Increasing attention has also been given to environmental, social and governance considerations. Ali et al. (2020), Karim et al. (2022) and Zainol et al. (2020) discuss the compatibility between Islamic ethical principles and responsible investment. These features may influence stakeholder relationships and potentially strengthen trust during crises, although ethical orientation alone does not eliminate credit, liquidity or operational risks.

Islamic banks also face distinctive risk-management challenges. Shariah compliance creates governance requirements that are not present in conventional banking in the same form, while asset-backed and partnership-based transactions can produce different operational, legal and monitoring requirements. Archer and Karim (2017) and Wilson (2021) emphasise the importance of governance and appropriate regulatory arrangements. Thus, the theoretical proposition that Islamic banking is inherently less risky should be treated cautiously. Its risk profile depends on how principles are implemented in actual banking operations and on the macroeconomic environment.

Conventional Banking: Principles and Practices

Conventional banks are predominantly based on interest-bearing transactions and debt-based financial intermediation. Interest functions as a price mechanism for borrowing and lending and is an important source of bank revenue through the difference between the rates charged to borrowers and those paid to depositors (Berger et al., 2018; Saunders and Cornett, 2020). Conventional banks undertake deposit-taking and lending, maintain reserves, provide payment and investment services, and operate within prudential regulatory frameworks. The breadth of their services allows them to serve households, firms and governments but also exposes them to multiple forms of risk.

Interest-rate risk is particularly relevant because changes in market rates can affect both the value of assets and liabilities and the bank's net interest margin. Conventional banks also use debt securities and, where permitted, derivatives such as futures, options and swaps to manage exposures or participate in financial markets (Hull, 2018; Fabozzi et al., 2020). These instruments can support risk management, but they may also create additional market, counterparty and operational risks. The literature therefore emphasises strong risk governance and regulatory supervision.

Conventional banks also rely on fractional-reserve arrangements and liquidity transformation. They accept deposits that may be withdrawable at relatively short notice and use funds to make longer-term loans and investments. This maturity transformation is economically important but creates liquidity risk. During a crisis, deposit behaviour, borrower defaults and market conditions can change rapidly. Saunders and Cornett (2020) and Mishkin and Eakins (2015) emphasise the importance of liquidity, capital and risk-management frameworks in sustaining bank stability.

The conventional model is not necessarily synonymous with high risk. Large conventional banks may have diversified portfolios, substantial capital buffers, sophisticated risk-management systems and broad access to liquidity. Consequently, comparisons between Islamic and convention-

al banks must distinguish between risks arising from the business model and risks arising from bank-specific characteristics such as size, capitalisation, management quality and market position.

Comparative Evidence on Islamic and Conventional Banks

A substantial literature compares Islamic and conventional banks. Comparative studies cited in the thesis examine business models, performance, efficiency, stability and risk in Pakistan, Malaysia, the GCC and multi-country samples. Mansur and Hassan (2004) compare the business models, sources of funds and products of Islamic and conventional banks. Hassan and Maghrebi's comparative studies consider performance across countries and the GCC. Shahbaz, Ahmad and Saleem (2013, 2014, 2015) examine risk, return and broader differences between the two systems, including evidence from Pakistan. Hassan and Al-Suwailem (2014) examine business models, efficiency and stability.

The broader literature does not produce a single, universal conclusion. Some studies report that Islamic banks demonstrate higher capitalisation, lower non-performing financing or greater stability, particularly during periods of financial stress. Akgün and Kalyoncu (2012) examine Islamic-bank performance during the global financial crisis, while the thesis also cites evidence that Islamic banks may benefit from conservative lending and risk-management practices. Other research identifies limitations associated with funding, capital raising and regulatory standardisation. This mixed evidence suggests that the relative resilience of Islamic banks may be context-dependent.

An important implication is that both banking models operate under the same broad macroeconomic conditions even when their contracts differ. A recession, unemployment shock or decline in business activity can reduce the repayment capacity of borrowers and counterparties in either system. Islamic banks may have lower direct exposure to conventional interest-bearing instruments, but they can still face credit, liquidity, operational, market and displaced-commercial risks. Conventional banks may face greater interest-rate or market-product exposure, but strong capital and risk-management systems can mitigate these exposures. The empirical question is therefore whether observable risk and performance differed significantly during COVID-19 in the selected sample.

Banking Performance and Risk Indicators

Bank performance is multidimensional. Profitability measures such as return on assets and return on equity assess the capacity to generate returns from assets and shareholder funds. Asset-quality indicators, including non-performing loans or financing and loan-loss provisions, provide information about credit deterioration. Liquidity measures assess the ability to meet short-term obligations, while capital adequacy measures capture the ability to absorb losses (Saunders and Cornett, 2020; Mishkin and Eakins, 2015). Efficiency indicators such as the cost-to-income ratio provide another perspective on operating performance (Berger et al., 2018).

Risk indicators are especially important during crises. Credit risk can rise when borrowers experience income losses or business disruption. Market risk can increase through volatility in interest rates, exchange rates and asset prices. Liquidity risk can emerge when deposits and funding conditions change unexpectedly. Operational risk can increase when physical branches are dis-

rupted, employees cannot work normally, or banks accelerate digital operations. Borio et al. (2021), Gormley et al. (2021) and Schoenmaker (2020) emphasise the broad financial-sector implications of the pandemic.

The present study focuses particularly on risk comparison through Z-score analysis while also using broader financial-performance indicators in the regression analysis. The thesis describes the Z-score as a measure of financial health and risk in which higher values indicate lower risk. The study also uses a COVID-19 dummy and an Islamic-bank indicator to examine relationships between the pandemic, bank type, financial performance and risk profile.

Financial Crises and Bank Resilience

Research on earlier financial crises provides an important benchmark for understanding COVID-19. Studies of the global financial crisis indicate that crises can weaken profitability, increase loan defaults, reduce asset quality and place pressure on capital and liquidity. Demirgüç-Kunt et al. (2018), Claessens et al. (2013) and Laeven and Valencia (2018) document the importance of bank capital, financial cycles and systemic banking conditions. Altunbas et al. (2019) examine realised bank risk during the Great Recession, while DeYoung et al. (2017) consider the cyclical-ity of regulatory capital.

Crisis resilience depends on both internal and external factors. Internal factors include capitalisation, liquidity buffers, asset quality, governance, risk appetite, management competence and operational flexibility. External factors include monetary and fiscal policy, regulatory relief, central-bank liquidity support and the broader macroeconomic environment. Coccozza et al. (2020), Haq et al. (2021) and other studies cited in the thesis emphasise strategic adaptation, cost management, asset restructuring and changes in business models as potential responses to severe economic conditions.

COVID-19 and the Banking Industry

COVID-19 differed from a conventional financial crisis because it originated as a health emergency and generated simultaneous supply and demand shocks. Baldwin and Weder di Mauro (2020) and McKibbin and Fernando (2020) describe the scale of the macroeconomic disruption. Firms faced closures and supply-chain problems, households experienced employment and income shocks, and governments introduced unprecedented policy measures. For banks, these conditions created uncertainty about future cash flows and asset quality while also requiring rapid adaptation of operating models.

The pandemic affected banks through several channels. First, borrower distress could increase non-performing loans or financing. Second, lower economic activity could reduce profitability. Third, uncertainty could raise liquidity and market risks. Fourth, physical restrictions increased the importance of digital channels and business continuity. Fifth, regulatory interventions and government support could moderate the financial consequences. Cerutti et al. (2020), Claessens et al. (2020), Igan et al. (2020), Kauko and Tölö (2021) and Rungcharoenkitkul (2020) illustrate the importance of policy, funding and macroeconomic responses during the pandemic.

For Islamic banks, the pandemic also raised questions about the operation of risk-sharing and ethical-finance principles in an economy-wide shock. Haneef et al. (2021) and Kassim and Majid

(2020) discuss Islamic banking responses and resilience. Wilson and Saad (2021) consider implications for conventional banks. The comparative literature therefore suggests that both systems faced serious challenges, but the magnitude and composition of risk may have differed.

Theoretical Background

Several theories provide complementary perspectives for the study. Agency theory highlights conflicts between shareholders and managers and suggests that governance and incentives can influence risk-taking and performance. During a crisis, managerial decisions concerning lending, provisioning, liquidity and capital become especially important. Financial contagion theory focuses on how distress can spread across institutions and markets. Because COVID-19 affected the financial system broadly, common macroeconomic shocks could influence both Islamic and conventional banks regardless of their contractual differences.

Capital structure theory is relevant because banks must balance debt-like and equity-like sources of funding while maintaining adequate capital. During economic stress, capital buffers become important for absorbing losses and maintaining confidence. Resilience theory focuses directly on the ability of organisations to absorb shocks, adapt and recover. Stakeholder theory is also relevant because banks have responsibilities to depositors, borrowers, employees, regulators and wider society. Finally, behavioural finance highlights how managers, investors and customers may alter decisions under uncertainty. Together, these perspectives support a multidimensional assessment of COVID-19 and bank risk rather than a narrow comparison of profitability.

Research Gap and Hypotheses

Although earlier studies have compared Islamic and conventional banks and examined previous financial crises, the thesis identifies a relative shortage of evidence focusing specifically on COVID-19 and comparing the two models in Pakistan and Bangladesh. The pandemic was distinctive in its global scale, simultaneous supply and demand shocks and rapid policy responses. The present study addresses this gap by examining a selected sample over 2015–2021 and combining comparative statistics, Z-score analysis and regression evidence.

The study tests six hypotheses reported in the thesis. H1 proposes that COVID-19 has a negative impact on financial performance. H2 proposes that the Islamic-bank indicator has a positive impact on financial performance. H3 proposes that the Islamic-bank indicator has a negative impact on the risk profile. H4 proposes that COVID-19 has a positive impact on the risk profile. H5 proposes a positive relationship between Islamic-bank status and financial performance in the reported specification. H6 proposes that COVID-19 has a negative but statistically insignificant impact on financial performance in an alternative formulation. Because H1 and H6 overlap in subject matter but differ in statistical expectation, their interpretation must follow the exact coefficients and p-values reported in the thesis rather than treating them as mutually identical propositions.

Research Methodology

Research Design and Sample

The study uses a retrospective comparative research design. Annual financial statements of selected Islamic and conventional banks in Pakistan and Bangladesh are examined for 2015–2021. The period contains several pre-COVID observations and the pandemic years, allowing the study to represent the pandemic through a dummy variable. The sample comprises five Islamic and five conventional banks in Pakistan and five Islamic and five conventional banks in Bangladesh, as listed in the supplied thesis.

Country	Islamic banks	Conventional banks
Pakistan	Meezan Bank; Dubai Islamic Bank; Bank Islamic; Bank Al Habib; MCB*	HLB; UBL; Al Falah; Allied Bank Limited; AB Bank Limited*
Bangladesh	Islami Bank Bangladesh; ICB Islamic Bank; Al-Arafah Islami Bank; Social Islami Bank; Shahjalal Islami Bank	AB Bank Limited; Bangladesh Commerce Bank; Bank Asia Limited; Bengal Commercial Bank; BRAC Bank Limited

*The supplied thesis contains an internal inconsistency in the Pakistan sample table because MCB is listed among the Islamic-bank column although MCB is also described throughout the analysis as the conventional comparator to UBL. The paper preserves the reported analytical pairings and results rather than silently changing the underlying sample classification. This issue should be checked against the original dataset before journal submission.

Data Sources and Collection

The principal data source is the annual financial statements of the selected banks. These statements include balance sheets, income statements, cash-flow information and related financial data. The thesis states that the researchers obtained annual statements directly from the selected banks and sought appropriate permission for research use. The data were checked and organised for the relevant years. The use of bank annual reports provides a consistent source of institution-level financial information and allows ratios and risk measures to be calculated using reported figures.

Variables and Measurement

The principal independent variable is a COVID-19 dummy. The thesis defines the dummy as 0 for the pre-COVID period and 1 for the pandemic period. In the regression specification reported later, the pandemic dummy equals 1 for 2020 and 2021 and 0 otherwise. Bank type is represented by an Islamic-bank indicator. Financial performance is represented through financial indicators, including return on assets in one reported regression specification, while risk is assessed through the study's risk-profile measure and Z-score analysis.

The thesis describes the Z-score calculation as follows. Working capital, total assets, retained earnings, EBIT, total liabilities, market value of equity and sales are used to construct five ratios: A = Working Capital/Total Assets; B = Retained Earnings/Total Assets; C = EBIT/Total Assets; D = Market Value of Equity/Total Liabilities; and E = Sales/Total Assets. These are combined as

$Z = 1.2A + 1.4B + 3.3C + 0.6D + 1.0E$. The thesis interprets a higher Z-score as indicating stronger financial health and lower risk. Because the reported formula and interpretation are retained from the thesis, readers should verify the intended Z-score framework and terminology before external publication.

Statistical Techniques

The analysis employs descriptive statistics to summarise risk levels using means, medians, standard deviations, minima and maxima. Comparative t-tests are used to assess differences between Islamic and conventional banks. A chi-square test examines the association between bank type and credit-default observations. Z-score analysis compares financial health across banks and years. Finally, regression analysis evaluates the association of COVID-19 and bank type with financial performance and risk profile. The general regression specification is Financial Indicator = $\beta_0 + \beta_1 \text{ COVID-19 Dummy} + \varepsilon$, with the broader reported hypothesis table also incorporating the Islamic-bank indicator where relevant.

Ethical Considerations and Limitations

The thesis states that ethical and confidentiality requirements were observed and that the financial statements were used for academic and research purposes. The study is subject to limitations. The sample is restricted to selected banks in two countries, annual data limit the availability of higher-frequency information, and the retrospective design does not establish causality. The thesis also acknowledges potential issues involving data availability, measurement choices, omitted variables, contextual differences, the short time horizon and regression assumptions. These limitations are important when interpreting the results as comparative associations rather than definitive causal effects.

Data Analysis and Results

Descriptive Statistics

The descriptive results indicate that the reported average risk level for Islamic banks was 0.073 compared with 0.091 for conventional banks. The median risk level was 0.069 for Islamic banks and 0.088 for conventional banks. The standard deviation was 0.012 for Islamic banks and 0.015 for conventional banks. The minimum risk levels were 0.052 and 0.072, respectively, while maximum values were 0.094 and 0.112. On the face of these descriptive measures, the Islamic-bank observations show a lower average and lower dispersion in the reported risk measure.

Statistic	Islamic banks	Conventional banks
Mean	0.073	0.091
Median	0.069	0.088
Standard deviation	0.012	0.015
Minimum	0.052	0.072
Maximum	0.094	0.112

The descriptive difference is economically suggestive, but descriptive statistics alone cannot establish that the banking model causes the difference. Bank size, country, capitalisation, portfolio composition, regulatory conditions and other factors may influence the observed risk measure.

The subsequent comparative tests therefore provide an important complement to the descriptive evidence.

Comparative t-Test Results

The reported comparative t-tests show a mixed pattern. In Pakistan, the comparison of Meezan Bank and HBL is statistically significant ($t = 2.18$, $p = 0.034$). The MCB–UBL comparison is not statistically significant ($t = 1.76$, $p = 0.096$). Dubai Islamic Bank and Al Falah show a significant difference ($t = 2.85$, $p = 0.012$), while Bank Islamic and Allied Bank Limited do not ($t = 1.42$, $p = 0.166$). Bank Al Habib and AB Bank Limited show a significant difference ($t = 2.57$, $p = 0.022$).

The Bangladesh comparisons are similarly mixed. Islami Bank Bangladesh and AB Bank Limited differ significantly ($t = 2.32$, $p = 0.042$). ICB Islamic Bank and Bangladesh Commerce Bank do not differ significantly at the 5% level ($t = 1.96$, $p = 0.074$). Al-Arafah Islami Bank and Bank Asia Limited show a significant difference ($t = 2.67$, $p = 0.018$). Social Islami Bank and Bengal Commercial Bank do not show a significant difference ($t = 2.09$, $p = 0.057$). Shahjalal Islami Bank and BRAC Bank Limited show a significant difference ($t = 3.12$, $p = 0.009$).

Country	Islamic bank	Conventional bank	t-value	p-value	Decision
Pakistan	Meezan Bank	HBL	2.18	0.034	Significant
Pakistan	MCB	UBL	1.76	0.096	Not significant
Pakistan	Dubai Islamic Bank	Al Falah	2.85	0.012	Significant
Pakistan	Bank Islamic	Allied Bank Limited	1.42	0.166	Not significant
Pakistan	Bank Al Habib	AB Bank Limited	2.57	0.022	Significant
Bangladesh	Islami Bank Bangladesh	AB Bank Limited	2.32	0.042	Significant
Bangladesh	ICB Islamic Bank	Bangladesh Commerce Bank	1.96	0.074	Not significant
Bangladesh	Al-Arafah Islami Bank	Bank Asia Limited	2.67	0.018	Significant
Bangladesh	Social Islami Bank	Bengal Commercial Bank	2.09	0.057	Not significant
Bangladesh	Shahjalal Islami Bank	BRAC Bank Limited	3.12	0.009	Significant

Chi-Square Test

The chi-square analysis examines whether bank type is associated with the occurrence of credit defaults. The reported contingency table contains 120 defaults and 380 non-default observations

for Islamic banks and 90 defaults and 410 non-default observations for conventional banks. The calculated chi-square statistic is 4.32 with one degree of freedom, compared with a critical value of 3.841 at the 5% significance level. Since 4.32 exceeds 3.841, the null hypothesis of no association is rejected. The thesis therefore concludes that the proportion of credit defaults differs significantly between Islamic and conventional banks.

Outcome	Islamic banks	Conventional banks
Defaults	120	90
No defaults	380	410

Z-Score Analysis

The Z-score results provide a bank-level illustration of changes in financial health between 2015 and 2021. The thesis reports that all selected banks in the Z-score table experienced a decline in their Z-score over the period. Since the study interprets a higher Z-score as lower risk, the decline is interpreted as a deterioration in financial health and an increase in risk.

Country	Bank	2015 Z-score	2021 Z-score	Change
Pakistan	Meezan Bank	2.18	1.96	-0.22
Pakistan	MCB	1.82	1.67	-0.15
Pakistan	Dubai Islamic Bank	2.05	1.81	-0.24
Pakistan	Bank Islamic	1.96	1.73	-0.23
Pakistan	Bank Al Habib	1.75	1.69	-0.06
Bangladesh	Islami Bank Bangladesh	2.23	2.07	-0.16
Bangladesh	ICB Islamic Bank	1.91	1.78	-0.13
Bangladesh	Al-Arafah Islami Bank	1.98	1.84	-0.14
Bangladesh	Social Islami Bank	1.87	1.76	-0.11
Bangladesh	Shahjalal Islami Bank	1.81	1.68	-0.13

Among the Pakistani banks reported, Dubai Islamic Bank experienced the largest decline in Z-score (-0.24), followed closely by Bank Islamic (-0.23) and Meezan Bank (-0.22). Bank Al Habib recorded the smallest decline (-0.06). In Bangladesh, Islami Bank Bangladesh maintained the highest reported Z-score in both 2015 and 2021, while Social Islami Bank recorded the smallest 2015 Z-score among the Bangladeshi Islamic banks shown. The common decline across the reported institutions suggests that the pandemic period coincided with a deterioration in the study's measure of financial health, but the Z-score evidence should not be interpreted as a causal estimate of COVID-19 without controlling for other changes over the six-year period.

Regression Analysis

The regression results provide the main evidence concerning the relationships among COVID-19, bank type, financial performance and risk. In one specification, the COVID-19 dummy is associated with return on assets at $\beta = -0.034$ with $p < 0.05$, indicating a statistically significant negative relationship with profitability. The same analysis reports a positive coefficient of 0.043 for non-performing loans, also statistically significant, indicating deterioration in asset quality during the pandemic. The capital adequacy ratio coefficient is -0.025 and statistically insignificant, while the loan-to-deposit ratio coefficient is 0.021 and statistically insignificant. These results suggest that profitability and asset quality were more visibly affected than capital adequacy and liquidity in the reported specification.

The formal hypothesis-testing table reports $\beta = -0.245$, $t = 2.132$ and $p = 0.036$ for the relationship between COVID-19 and financial performance. The negative and statistically significant coefficient supports the hypothesis that the pandemic adversely affected financial performance. The Islamic-bank indicator has $\beta = 0.173$, $t = 1.882$ and $p = 0.068$ in Hypothesis 2, which is positive but not significant at the 5% level. Thus, this specification does not provide sufficient evidence that Islamic-bank status alone significantly improved financial performance.

For risk profile, the Islamic-bank indicator has $\beta = -0.128$, $t = -1.345$ and $p = 0.192$. The negative sign is consistent with the expectation of lower risk for Islamic banks, but the relationship is not statistically significant. Therefore, the data do not provide sufficient evidence that Islamic banks had significantly lower risk profiles than conventional banks in the reported regression. By contrast, the COVID-19 pandemic coefficient for risk profile is $\beta = 0.316$, $t = 2.548$ and $p = 0.015$. The positive and statistically significant coefficient indicates that the pandemic was associated with an increase in the reported risk profile.

The table also reports a positive and statistically significant relationship between the Islamic-bank indicator and financial performance in Hypothesis 5: $\beta = 0.212$, $t = 2.065$ and $p = 0.042$. This result provides some evidence that Islamic-bank status was associated with better financial performance in that specification. Finally, Hypothesis 6 reports $\beta = -0.189$, $t = -1.897$ and $p = 0.074$ for COVID-19 and financial performance. The negative coefficient is consistent with deterioration in performance, but the relationship is not statistically significant at the 5% level. The apparent difference between this result and Hypothesis 1 highlights the importance of model specification and the exact dependent variable or analytical formulation used in each test.

Hypothesis	Independent variable	Dependent variable	Beta	t-value	p-value	Conclusion
H1	COVID-19	Financial performance	-0.245	2.132	0.036	Supported
H2	Islamic-bank indicator	Financial performance	0.173	1.882	0.068	Not supported at 5%
H3	Islamic-bank indicator	Risk profile	-0.128	-1.345	0.192	Not supported
H4	COVID-19	Risk profile	0.316	2.548	0.015	Supported
H5	Islamic-bank	Financial	0.212	2.065	0.042	Supported

H6	indicator COVID-19	performance Financial performance	-0.189	-1.897	0.074	Not supported at 5%
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Discussion of Results

The results indicate that COVID-19 was associated with deterioration in bank performance and an increase in risk. This is consistent with the broader crisis literature, which identifies lower economic activity, borrower distress, uncertainty and market disruption as important channels through which crises affect banks (Borio et al., 2021; Gormley et al., 2021; Haq et al., 2021). The negative performance coefficient and the increase in non-performing loans reported in the thesis are particularly consistent with the expectation that the pandemic weakened borrowers' capacity to service financial obligations.

The evidence concerning Islamic versus conventional banks is more nuanced. Descriptive statistics show lower average reported risk for Islamic banks, and several pairwise comparisons are statistically significant. The chi-square test also identifies an association between bank type and defaults. Nevertheless, the regression coefficient on the Islamic-bank indicator is statistically insignificant for risk profile. This suggests that lower observed risk in descriptive comparisons should not automatically be interpreted as a systematic, statistically established advantage of Islamic banking after accounting for the analytical structure of the study.

This finding is compatible with the argument that both banking models were exposed to the same macroeconomic shock. Even where Islamic banks avoid interest-based transactions and certain speculative instruments, their borrowers and counterparties remain embedded in the wider economy. A severe fall in economic activity can therefore affect both systems. Ariss (2010) and Godlewski and Turk-Ariss (2011), cited in the thesis discussion, support the possibility that Islamic and conventional banks can exhibit similar risk characteristics when exposed to common macroeconomic and financial conditions.

At the same time, the positive and significant coefficient of the Islamic-bank indicator in one financial-performance specification suggests that Islamic banking characteristics may have supported performance in some dimensions. The thesis links this possibility to risk-sharing, asset-backed financing and ethical practices. However, this result should be distinguished from the risk-profile result: evidence of better financial performance does not automatically mean that Islamic banks had statistically lower overall risk. Bank performance and bank risk are related but conceptually distinct outcomes.

The Z-score analysis reinforces the importance of a time dimension. Every bank listed in the Z-score table experienced a lower score in 2021 than in 2015. This broad movement is consistent with increased risk or weaker financial health, but the comparison spans six years and therefore captures more than COVID-19 alone. Interest-rate conditions, regulatory changes, economic growth, bank-specific strategy and other developments may also explain part of the change. Consequently, the regression analysis is more directly relevant to the stated COVID-19 hypothesis, while the Z-score comparison is most useful as descriptive evidence of changes in financial health.

Conclusion

This study examined the effect of COVID-19 on the financial performance and risk profiles of Islamic and conventional banks in Pakistan and Bangladesh and sought to determine whether one model was systematically riskier than the other. Using annual financial information from 2015–2021 and a combination of descriptive, comparative and regression techniques, the study provides evidence that the pandemic was an important source of financial pressure for the banks examined.

The first major conclusion is that COVID-19 was associated with weaker financial performance. The main regression coefficient for the pandemic dummy is negative and statistically significant ($\beta = -0.245$, $p = 0.036$), while the reported return-on-assets specification also shows a negative significant relationship. The increase in non-performing loans further indicates deterioration in asset quality. These results are consistent with the broader literature on pandemic-related economic disruption and bank risk.

The second conclusion is that COVID-19 increased the reported risk profile of banks. The coefficient of 0.316 for the pandemic variable is positive and statistically significant ($p = 0.015$). The Z-score evidence also shows lower scores in 2021 than in 2015 for every institution included in the reported Z-score table. Taken together, the evidence suggests that the pandemic period coincided with a weakening of financial health and greater risk exposure.

The third conclusion concerns the comparison between Islamic and conventional banks. The study does not find statistically significant regression evidence that Islamic-bank status alone reduced the risk profile. Although Islamic banks have a lower mean risk value in the descriptive statistics and several pairwise comparisons are significant, the Islamic-bank coefficient in the risk regression is not significant. Therefore, the study does not support a broad claim that Islamic banks were systematically less risky during COVID-19. At the same time, one reported regression specification finds a positive and significant association between Islamic-bank status and financial performance ($\beta = 0.212$, $p = 0.042$). The appropriate conclusion is therefore nuanced: Islamic banking may have provided performance or resilience advantages in some dimensions, but these advantages did not translate into statistically lower overall risk in the reported regression.

The findings have implications for bank management and regulators. Both banking models should maintain strong capital, liquidity and credit-risk management systems and should conduct regular stress testing and scenario analysis. Islamic banks require risk-management frameworks that recognise their specific contractual and Shariah-governance characteristics, while conventional banks should continue to manage interest-rate, market and complex-product exposures. The experience of COVID-19 also highlights the importance of business continuity, digital infrastructure and cybersecurity.

The study has several limitations. The sample is restricted to selected banks in two countries and may not generalise to other markets. Annual data provide fewer observations than quarterly or monthly data and may conceal short-term changes in risk. The study also relies on secondary financial information and does not fully control for all bank-specific and macroeconomic factors. The cross-sectional or retrospective nature of parts of the analysis limits causal interpretation. In addition, the thesis contains some inconsistencies in terminology and hypothesis formulation, including the use of the Z-score measure and overlapping financial-performance hypotheses. These

should be resolved against the original dataset and statistical output before submission to a peer-reviewed journal.

Future research should extend the sample across more countries and use longer and higher-frequency panels. Panel-data methods could control for bank-specific effects and macroeconomic conditions and could distinguish the immediate pandemic shock from longer-term recovery. Further work could examine liquidity, capital adequacy, non-performing financing, financing composition, digital transformation, government support and regulatory interventions. Qualitative evidence from bank managers could also explain how Islamic and conventional institutions adapted their risk-management strategies during the pandemic. Such work would provide a more complete understanding of whether differences in banking philosophy translate into measurable differences in crisis resilience.

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