

Banks' Income Diversification and Performance During Pre and Post-COVID-19 Pandemic

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ABSTRACT

Purpose: This study examines the performance of Conventional and Islamic banks, focusing on income diversification, capital adequacy, and sensitivity to interest rate changes during the COVID-19 period (before and after).

Design/Methodology: The study examined a dataset comprising 37 banks across Pakistan, the United Arab Emirates (UAE), and Qatar, for the data period from 2012 to 2021. The study employed the Generalized Method of Moments (GMM) model to assess the impact of these factors on the comparative performance of both conventional and Islamic Banks.

Findings: . The findings show that Islamic banks have greater benefits from diversification in comparison to conventional banks. Also, having strong capital adequacy contributes to better performance and results in strong resilience during crisis periods. On the other hand, conventional banks have more impact from interest rate fluctuations, which impact their activities, especially interest-based earnings. The study further found that non-performing loans negatively affect the bank's performance in both conventional and Islamic banks. The study uses several robustness techniques to validate the results and applied models, such as using bank size as a control variable and using a COVID-19 period dummy to differentiate between crises and non-crisis periods.

Implications: The study found that Islamic banks were more resilient during crisis periods, offering valuable insights for investors, bank managers, and policymakers seeking to enhance financial stability.

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INTRODUCTION

Banking represents the fundamental function of financial institutions, serving both businesses and individuals through various financial services. These banks are crucial to the economy, as they facilitate the flow of money, provide credit, and manage deposits. Commercial banks engage in various activities that include accepting deposits, granting loans, facilitating payments, issuing credit cards, and offering a range of financial products.

They act as intermediaries, mobilize funds, and allocate them for productive purposes, contributing to economic growth and stability. The banking sector is essential for economic growth, serving as a bridge between surplus and deficit units, promoting the flow of finance, and ensuring economic stability. Conventional banking has a long history and plays a very important role in economic growth, while Islamic banking has gained importance in the last two decades and is currently contributing significantly to the global economy. Conventional banking is an interest-based system that offers many financial services to customers, such as fixed deposits, business loans, and house loans. Conventional banks invest in any kind of business activity that can generate profits, and there is no concept of profit-and-loss-sharing. During the 2008 global financial and debt crises that followed, several banks faced significant financial distress or were forced into insolvency. While the exact number of banks that defaulted or faced severe financial difficulties during this period may vary depending on the criteria used, some notable cases include Lehman Brothers, Bear Stearns, Washington Mutual, Northern Rock, and several Icelandic banks, such as Landsbanki, Glitnir, and Kaupthing. The Islamic banking system, which operates based on principles derived from Islamic law (Shariah), gained attention and experienced growth after the 2008 global financial crisis. This crisis exposed weaknesses in the conventional banking system and raised concerns about its practices, leading some individuals and institutions to seek alternatives. Islamic banking, with its emphasis on ethical and asset-backed financing, has attracted interest as a potential solution to this problem. Following the crisis, Islamic financial institutions witnessed an increased demand for their products and services (Basov & Bhatti, 2016). The crisis prompted policymakers and regulators in both Muslim-majority and non-Muslim-majority countries to recognize the potential benefits of Islamic finance and implement measures to support its development." (Archer & Karim, 2011). The Islamic banking system gained attention and experienced growth after the 2008 global financial crisis due to its emphasis on ethical and asset-backed financing." (Hossain et al. 2010).

Islamic Banking

The Islamic banking system is an innovative financial model that operates successfully in various regions worldwide, coexisting with conventional banks in many developed and emerging economies (Alam, 2003). Grounded in "profit-and-loss sharing" (PLS) principles (Ariss, 2010), it is commonly known as interest-free banking and adheres to Shariah principles dictated by Islamic economics (Baber, 2013; Botis, 2013). According to Chong and Liu (2009), adherents of Islam incorporate Shariah (Islamic law) principles into their daily lives and business transactions, placing significant emphasis on the prohibition of interest (Riba), which refers to both interest in money loans (Riba An Nasiyah) and interest in commodity bartering (Riba Al Fadl) (Elasrag, 2014). The system also strictly prohibits earnings from interest, gambling, uncertain activities, and the sale of products such as cigarettes, alcohol, and pork (Ahmad & Hassan, 2007; Chong & Liu, 2009).

The rise in adherence to Shariah has spurred the growth of Islamic banking (Abdul Majid et al., 2010), gaining momentum in the latter half of the 20th century (Kahf, 2002). The first Islamic bank, Mit Ghamr Saving Bank (later renamed Nasser Social Bank), was established in Egypt in 1963 (Sadoveanu 2011), marking a significant step in adopting Shariah principles in banking. This trend spread to regions like Dubai, with the emergence of banks such as Dubai Islamic Bank (DIB), Bahrain Islamic Bank (BIB), and Kuwait Finance House (KFH), leading to the global expansion of Islamic banking services in over seventy countries (Husain, 2005). Key features of Islamic banking include the prohibition of interest (Riba) and avoidance of unethical activities like gambling, pornography, and alcohol, considered socially and morally unacceptable (Abdul-Majid et al., 2010).

To understand the mechanism of the Islamic banking system, it is essential to study its foundational strategic trends. According to Kahf (2002), the Islamic economic system follows Shariah (Islamic Laws). The primary modes of financing in Islamic banks are Musharakah, Mudarabah, Salam, Ijarah, and interest-free loans (Qard-e-Hasna) (Kamla, 2009). The basic difference is given in Table 1.

[Insert Table 1 Here]

1.2. Impact of Crisis on Banking Sector

The Global Financial Crisis (GFC) of 2008, also known as the "Great Recession," lasted from Q3 2007 to Q4 2009 in the United States. Key causes included reduced lending standards, subprime mortgages, complex financial innovations, lack of diversification, and excessive leverage. The crisis led to reduced economic output, loss of personal wealth, and the failure of many financial institutions. The total cost of U.S. bailouts exceeded \$500 billion, or

3.5% of annual GDP (Lucas, 2019). The GFC highlighted structural weaknesses in conventional banking and increased attention toward alternative models such as Islamic banking. However, unlike the GFC which primarily affected the financial sector, the COVID-19 crisis created a broader macroeconomic shock affecting all sectors simultaneously. This study, therefore, focuses primarily on the COVID-19 pandemic while acknowledging lessons learned from previous crises.

In contrast, the COVID-19 pandemic, caused by SARS-CoV-2, emerged in December 2019 in Wuhan, China (Estrada, 2020). It quickly became a global crisis, with the WHO declaring it a pandemic on March 12, 2020. Within months, COVID-19 severely impacted sectors such as travel, tourism, hospitality, agriculture, aviation, and small and medium-sized businesses (Skare et al., 2021; Boughton et al., 2021; Suau-Sanchez et al., 2020; Shafi et al., 2020). Unlike the GFC, which primarily affected the financial sector, the COVID-19 pandemic had a broader impact, halting economic activities and disrupting money flow. Governments worldwide reduced interest rates to stimulate fund circulation and attract borrowers.

This study aims to assess the performance of Islamic banks (IBs) and conventional banks (CBs) in response to financial crises, especially focusing on the COVID-19 pandemic when many countries lowered interest rates to mitigate economic challenges. Conventional banks rely on interest-based income, whereas Islamic banks do not operate on this principle.

This study focuses on Pakistan, the United Arab Emirates (UAE), and Qatar. Although geographically located in South Asia, Pakistan shares strong institutional and financial characteristics with the Gulf region, particularly in Islamic banking development, regulatory frameworks, and Shariah-based financial systems. All three countries operate dual banking systems where Islamic and conventional banks coexist under similar regulatory environments. Moreover, Islamic finance plays a significant role in their financial sectors, making them comparable in terms of banking structure and crisis response dynamics.

This comparability is further supported by the significant market presence of Islamic banking in each country. In Pakistan, the Islamic banking sector has captured approximately 25-30% of the total banking market share, with assets nearing \$41 billion, supported by a government mandate to transition to a fully Shariah-compliant system by 2027 (State Bank of Pakistan, 2024; Pakistan & Gulf Economist, 2026). The UAE, a top-four global Islamic finance hub, holds over \$242 billion in Islamic banking assets, representing 18% of its total banking sector, with a national strategy to more than double this figure to

approximately \$697 billion by 2031 (Khaleej Times, 2025a, 2025b). Qatar's Islamic banking market is valued at over \$200 billion and is growing at 10% annually, driven by a population where more than 70% prefer Shariah-compliant products (Ken Research, 2025). The substantial scale and strategic importance of Islamic finance in all three countries make them ideal for a comparative analysis of banking performance during crisis periods.

While previous research has explored the performance of Islamic and conventional banks in various countries, our study addresses a gap by analyzing these key indicators across different economic periods. Notably, we are the first to apply direct market interest rates to both Islamic and conventional banks, providing a unique perspective on their performance across pre-crisis and post-crisis periods.

This study contributes to the literature in several ways. Firstly, it is pioneering in examining the performance of both Islamic and conventional banks during the pre- and post-COVID-19 pandemic periods, offering insights into their resilience and adaptability.

Secondly, this research is the first to investigate the impact of interest rate policy on bank performance, specifically during the pre- and post-COVID crises. While it is well-established that interest rate policy significantly affects conventional banks, this study examines how Islamic banks, which operate under a distinct set of financial principles, are affected by changes in interest rate policy. Recently, this issue has gained more importance, as Islamic banks are integral components of the capital market. Third, this study is among the few that examine the effects of diversification and risk across both pre- and post-crisis periods. Earlier studies, often confined to a single period, limit understanding of how diversification strategies and risk management evolve and impact banking performance over time, especially through successive crises, such as economic, currency, and bank crises. By analyzing data from different countries across different banks, this study provides a holistic perspective of how these factors affect both Islamic and conventional banks, contributing significantly to the field of financial stability, risk mitigation, and bank performance.

2. LITERATURE REVIEW

Although prior crises such as the 2008 GFC provide useful insights, the COVID-19 pandemic represents a distinct and unprecedented global shock affecting both real and financial sectors simultaneously.

Financial institutions, especially banks, are key constituents of the functioning of modern economies. They play vital roles, such as the role of intermediary by connecting savers and borrowers, generating credit, and managing liquidity. Previous studies spanning over several decades have explored several theoretical frameworks and empirical evidence to understand the operations of banking systems and their impact on economic stability, both on local and global levels.

Richard (2015) outlined three main theories on the function of banks in an economy. The first theory proposes banks as intermediaries that collect savings from depositors and lend them to borrowers or investors, hence facilitating investment and economic growth (Diamond and Dybvig, 1984). The second theory suggests deposit expansion as a primary means for banks to secure funds, rather than generating money independently (Tobin, 1963). The third theory challenges the conventional view of banks entirely as intermediaries, proposing that banks can generate credit and money using their lending activities (Gurley & Shaw, 1960).

These theories emphasize the multifaceted roles of banks, from mobilizing savings to influencing monetary policy and economic activity through credit creation.

Empirical studies have broadly explored factors affecting the banking system's performance and their consequences for economic stability. Studies by Beck et al. (2013), Casu & Girardone (2009), and Gropp & Heider (2010) examined the interaction of risk with bank business models, capital adequacy, and operational efficiencies. The studies further explored Effective risk management, robust capitalization, and operational agility as critical for mitigating financial instability and ensuring sustainable banking sector performance.

In the aftermath of the global financial crisis of 2007-2009, the resilience of banking systems became a central point of analysis. Imbierowicz and Rauch (2014) found weak correlations between liquidity and credit risk in U.S. banks post-crisis, with institutions showcasing varying ability to maintain lending activities depending on their liquidity and capital positions (Cornetta et al., 2011).

Several studies compare the performance of Islamic and conventional banking systems, particularly during periods of crisis. These studies indicate that Islamic banks, whose foundation is based on Sharia principles such as avoiding interest and speculation, exhibit superior stability during the global financial crisis. This resilience is the result of their higher liquidity reserves and capitalization, which safeguard them from the liquidity shocks that

generally affect conventional banks (Kaleem, 2000; Kia & Darrat, 2007; Aziz, 2009; Haque 2009; Ćihák & Hesse, 2010). Beck et al. (2013) argued that during a recession, Islamic banks often handle credit risk with more efficacy than their conventional counterparts, but sometimes they may face challenges in managing their cost. Other studies emphasize the advantage of Islamic banks in maintaining stability and risk management during the crisis periods (Miah & Uddin, 2017).

The COVID-19 pandemic created remarkable challenges to global financial markets and banking systems, especially. Several studies, such as those by Acharya and Steffen (2020), shed light on the impact of economic turbulence on borrower creditworthiness and collateral values, affecting bank asset quality and profitability. Global capital markets faced significant volatility, influencing the performance of both Islamic and conventional banks (Ashraf, 2020; Alamgir and Cheng, 2023).

Islamic financial instruments, especially sukuk, emerged as safe haven assets during the recent pandemic, contributing significantly to the outperformance of Islamic stock markets compared to conventional markets (Yarovaya et al., 2020; Alamgir and Cheng, 2023). In the same way, Bilgin et al. (2021) argued that economic uncertainty disproportionately affected default risks in conventional banks in comparison to Islamic banks, highlighting the latter's resilience in managing credit risks during crises.

Income diversification has been analyzed as a strategy to enhance bank profitability and minimize the risks associated with interest rate fluctuations and economic uncertainty. Diversification allows banks to spread revenue streams beyond traditional interest-based income to include fee or commission-based services like asset management, investment banking, and insurance (Lee et al., 2014).

While income diversification can maintain earnings and reduce dependence on interest-based income, it also creates operational challenges and risks, particularly in less-developed financial markets (Zahavi & Lavie, 2013; Lu & Beamish, 2004). Studies by De Jonghe (2010) and Fiordelisi et al. (2011) suggest that in developed economies, non-interest income can enhance risk-adjusted profitability and resilience but advise against the risks associated with fee-based activities.

This study contributes to the literature by examining the performance of Islamic and conventional banks during the pre- and post-COVID-19 periods, highlighting their resilience and adaptation to crisis conditions. The study also explores the impact of interest rate policies on banks' performance, particularly in the context of Islamic financial principles. In addition to that,

the study investigated the dynamics of income diversification and its outcomes for risk management and profitability across different banking landscapes.

3. HYPOTHESIS DEVELOPMENT

3.1. Performance

In the banking system, Profitability refers to the ability of financial institutions to generate profits, which is crucial for evaluating their operational efficiency and asset utilization. According to Chen (2004), Petronila, and Mukhlisin (2003), profitability indicates the effectiveness of bank management in employing assets and capital to generate returns. Return on Assets (ROA) and Return on Equity (ROE) are the most important and commonly used metrics to measure profitability. ROA evaluates how efficiently a bank utilizes its assets to generate profits, while ROE indicates profitability in relation to the shareholders' equity, illustrating the firm's ability to generate returns on invested capital (Hassan et al., 2019).

The Capital Adequacy Ratio (CAR) is another important metric used to assess a bank's financial health and risk management capabilities. CAR was introduced by the Basel Committee on Banking Supervision. It measures the proportion of a bank's capital to its risk-weighted assets, where a higher ratio means greater resilience to potential financial shocks and risks (Bialas and Solek, 2010; Javaid and Alalawi, 2018). Earlier studies consistently show a positive relationship between CAR and bank performance, underscoring its role in ensuring solvency and stability during economic crises (Sari & Haryanto, 2017; Iskandar et al., 2016). Based on the existing research, we propose the following hypothesis:

Hypothesis 1 (H1): Capital Adequacy ratio will positively affect banks' performance.

3.2. Bank Income Diversification

Bank income diversification denotes the strategic approach of extending revenue streams through different channels, aiming to mitigate credit risk and enhance overall financial stability by generating income from less correlated sources. This strategy provides banks with more capacity to build discretionary resources, potentially enhancing value through investments and providing flexibility to allocate resources from profitable segments to the underperforming ones. However, several challenges, such as misaligned

incentives between central and divisional managers, can arise (Fauver et al., 2003).

Contrasting views on income diversification exist in literature. While some studies, like DeYoung and Rice (2004), suggest that well-managed banks may experience slower growth in non-interest activities, others, such as Stiroh and Rumble (2006), found that non-interest income did not significantly boost the performance of U.S. financial holding companies compared to interest-related income. In contrast, Chiorazzo et al. (2008) observed a positive impact of income diversification on Italian banks' performance, and Lepetit et al. (2008) concluded similarly for European banks.

Conversely, research by Maudos (2017) highlighted a negative effect of income diversification on European banks' performance during crises, while Stiroh (2004) observed a negative impact on U.S. banks over a longer period. However, DeYoung and Roland (2001) found a positive relationship between income diversification and bank performance in the U.S. from the year 1989 to 2001.

Given these insights, our study proposed that a positive association between income diversification and bank performance. This hypothesis suggests that diversifying income sources can potentially enhance a bank's overall performance by reducing risk and increasing revenue streams from various non-interest activities.

Based on the above arguments, we propose the following hypothesis:

Hypothesis 2 (H2): Income diversification positively influences banks' performance.

3.3. Interest rate

Interest rates, referred to as the cost of funds, i.e., return on deposits or payment on borrowings, represent the additional amount paid by borrowers to lenders above the principal amount (Mushtaq and Siddiqui, 2017). These rates play an important role in different sectors of the economy, with the banking sector primarily sensitive due to its direct involvement in financial transactions. Changes in interest rates influenced by monetary policy significantly affect bank performance, which in turn impacts activities such as lending and savings.

There have been mixed findings by researchers on the relationship between interest rates and bank deposits. Studies, like those by Tariq and Masih (2016) and Hassan et al. (2016), stated that interest rates do not notably impact Islamic bank deposits or the overall performance of commercial banks in certain contexts. Meanwhile, findings by Mobin and Masih (2014) indicate

that interest rates significantly influence the success of Islamic banks in Malaysia. Kassim et al. (2009) further shed light on the same issue and argued that, while interest rates have minimal effects on Islamic banks, these banks generally exhibit greater stability compared to conventional banks in Malaysia.

Some studies, just like Mushtaq and Siddiqui (2016) stated, that in Islamic countries, interest rates don't have any impact on bank deposits; however, money supply and inflation do have a significant positive impact. While in the case of non-Islamic countries, interest rate and money supply both have a positive and significant impact on bank deposits, on the other hand, inflation seems to be insignificant. Opposing this view, other studies, such as those by Hakan & Gulumser (2011), Ojeaga et al. (2013), and Ostadi and Sarlak (2014), assert a positive and notable impact of interest rates on overall bank performance, while contrary to this, Sukmana and Kassim (2010) found a negative impact of interest rates on Islamic banks, emphasizing the variability in findings across different studies.

Based on the above diverse literature, we propose that interest rates have a significant impact on banks' performance, which varies significantly, resulting in either positive or negative outcomes depending on special circumstances and variables related to regions and economies.

Hypothesis 3 (H3): Interest rates may have a positive or negative impact on bank performance, dependent upon specific circumstances and variables.

3.4. Non-Performing Loan (NPL)

Loans are commonly used banking products, especially by the public looking to support new businesses. However, it is widely recognized that credit risk poses the most significant threat to banks (Wood & McConney, 2018). The primary source of this risk lies in borrowers who are unable to repay the principal and interest on their loans (Demirguç-Kunt, Morales, & Ruiz Ortega, 2020). When loans become non-performing, they diminish a bank's capital, which subsequently impacts lending in subsequent periods. Non-performing loans (NPLs) are indicative of a bank's credit quality and are counted as bank losses. NPLs include loans of poor quality, doubtful, or default (Tulung et al., 2016).

According to Siamat (2011), NPLs can arise because of various factors, including external or deliberate issues beyond the debtor's control. The NPL ratio reflects a bank's management's ability to handle problematic loans. A higher NPL ratio signals a greater credit risk for banks (Jazila et al., 2021). This ratio is inversely related to a bank's credit quality; a larger ratio indicates poorer credit quality, suggesting a higher likelihood of losses from bad credit.

If a bank's overall credit collectability is weak, uncertain, or poor, it is considered to have bad credit, leading to a higher number of uncollected loans and reduced bank profits.

Numerous studies have uncovered a negative and significant relationship between non-performing loans and bank performance (Sari & Haryanto, 2017; Arisandi et al., 2015; Giovanny, 2014; Brahmana et al., 2018). Based on prior research, we propose that there is indeed a negative association between bank performance and non-performing loans.

Hypothesis 4 (H4): Non-performing loans will negatively affect bank performance.

4. DATA AND METHODOLOGY

4.1. Data

We collect bank-level data for Islamic and conventional banks from Pakistan, the United Arab Emirates, and Qatar using the Econ database and published annual reports." The data covers the period from 2012 to 2021 and includes both conventional and Islamic banks, covering both local and foreign banks. Table No.2. displays bank details. Furthermore, the data were divided into two groups: pre-COVID-19, which encompassed the period from 2012 to 2019, and the post-COVID-19 period, which spanned from 2020 to 2021.

These countries were selected because they represent dual banking systems with a significant presence of Islamic finance, comparable regulatory frameworks, and similar exposure to global financial shocks. While Pakistan is geographically part of South Asia, it shares institutional and financial characteristics with the Gulf economies, particularly in Islamic banking regulation and market structure.

We acknowledge that the pre-COVID period (2012–2019) covers a longer time span than the post-COVID period (2020–2021). However, the shorter post-pandemic window reflects data availability and the relatively recent nature of the COVID-19 crisis. To mitigate potential instability concerns arising from the shorter period, we employ dynamic GMM estimation and conduct robustness tests, including dummy variables and control variables. These techniques mitigate potential small-sample bias and enhance the reliability of post-period estimates despite the shorter time horizon.

[Insert Table 2 Here]

4.2. Methodology

We employed the Generalized Method of Moments (GMM), introduced by Arellano and Bover (1995) and later refined by Blundell and Bond (1998), to address the issue of endogeneity, a common challenge when evaluating the impact of diversification on financial outcomes within the banking sector. This technique has been widely employed by several studies earlier, including Chiorazzo et al. (2008), Sanya and Wolfe (2011), Paltrinieri et al. (2021), and Maghyreh and Yamani (2022). The GMM is a useful tool when dealing with the problem of endogeneity, managing serial correlations, and enhancing the robustness of analytical findings. The basic equation for GMM is as follows:

$$g(\theta) = \frac{1}{N} \sum_i^N = W_i \cdot g_i(\theta) = 0 \quad (1)$$

In the above equation, $g(\theta)$ represents a vector of moment conditions that are theoretically expected to equal zero based on the fundamental economic model. In the same way, θ denotes the parameter of interest that must be estimated. where N shows the number of observations in the dataset. $g_i(\theta)$ denotes the individual moment condition for each observation from the data set. W_i is the weight assigned to each moment condition. In our analysis, we employ the GMM estimator, which minimizes the variations between sample moments and zero, offering robust parameter estimates particularly suitable for panel data analysis. GMM model is preferred when traditional techniques, just like Ordinary Least Squares (OLS) and GLS (Generalized Least Squares) are inadequate due to endogeneity concerns or data-related challenges. GMM is preferred because it can handle endogeneity concerns effectively, ensuring reliable outcomes across diverse research scenarios. Moreover, it fits into a variety of data patterns, controls for autocorrelation and heteroscedasticity, and allows for the inclusion of lagged dependent variables and other pertinent factors.

Our study aimed at key variables to evaluate bank performance, including Return on Assets (ROA) and Return on Equity (ROE) as proxies of profitability. Non-Performing Loans (NPL), indicating bad loans as a ratio of total loans, and the Capital Adequacy Ratio (CAR), which is a proxy to measure a bank's capital strength against risk-weighted assets, are also considered. Furthermore, we examine Bank Income Diversification, supported by prior research, as it enhances income from diverse sources.

The most important variable that we used in our study is the Interest Rate, which measures the additional amount paid by borrowers or received by lenders beyond the principal amount, influencing bank operations significantly. To account for bank size effects, we incorporate the Log of Total Assets as a control variable in our analysis.

To ensure the reliability of our findings, we introduce dummy variables distinguishing between Islamic Banks (IBs) and Conventional Banks (CBs). Detailed descriptions of these variables and their roles in our empirical analysis are provided in Table 3.

[Insert Table 3 Here]

Following Chiorazzo et al. (2008) and Stiroh and Rumble (2006), income diversification (IND) is measured using a Herfindahl-type index:

$$IND = 1 - (s_1^2 + s_2^2) \quad (2)$$

where s_1 and s_2 represent shares of the two primary income sources (summing to unity). For conventional banks, s_1 = net interest income / total income and s_2 = non-interest income / total income. For Islamic banks, s_1 = finance income / total income and s_2 = non-Islamic income / total income. The index ranges from 0 (no diversification) to 0.5 (maximum diversification between two equal sources).

[Insert Table 4 Here]

Non-interest income, such as service fees, utility bills, agent fees, and brokerage fees, originates from non-financial activities. To quantify income diversification, we divided Net Interest Income (NET) and Non-Interest Income (NI) by total income (TNET) for conventional banks, and Islamic Finance Income (FI) plus Non-Interest Income (NII) by TNET for Islamic banks. This approach, based on Herfindahl-Hirschman income specialization as per Chiorazzo et al. (2008) and Stiroh and Rumble (2006), is detailed in Table 4.

CBs:

$$\text{Income Diversification (IND)} = 1 - (\text{NET}^2 + \text{NI}^2)$$

IBs:

Income Diversification (IND) = 1- (FI2 + NII2)

Our model will look like as;

Risk-adjusted performance measures are constructed as follows: Risk-Adjusted Return on Assets (RAROA) = $ROA / \sigma(ROA)$ and Risk-Adjusted Return on Equity (RAROE) = $ROE / \sigma(ROE)$, where σ denotes the standard deviation over the sample period. For brevity throughout this study, subsequent references to "ROA" and "ROE" denote these risk-adjusted measures unless otherwise specified. This approach aligns with methodologies used in previous studies such as Chiorazzo et al. (2008), Maudos (2017), Stroh and Rumble (2006), and Brahmana et al. (2018).

$$RAROA_{i,t} = ROA / \sigma ROA_{i,t}$$

$$RAROE_{i,t} = ROE / \sigma ROE_{i,t}$$

EMPIRICAL RESULTS

Descriptive Results

Table 5 presents descriptive statistics for Islamic and Conventional banks from 2012 to 2021. Islamic banks have a higher average ROA (4.17) compared to Conventional banks (3.233). However, Conventional banks exhibit a slightly higher mean ROE (3.286) than Islamic banks (3.103), with a minimal difference. For other variables, Islamic banks have mean values of 0.167 (CAR), 0.271 (IND), 0.062 (NPL), and 0.059 (interest rate). Conventional banks, on the other hand, show higher mean values: 0.188 (CAR), 0.288 (IND), 0.086 (NPL), and 0.066 (interest rate). Although the differences in these mean values are not substantial, Conventional banks generally report higher figures.

Table 6 illustrates the correlation matrix for both bank types. The Capital Adequacy Ratio (CAR) has a negative but statistically insignificant correlation with ROA and a positive yet non-significant correlation with ROE. Bank income diversification shows a positive, non-significant correlation with ROA and a negative, non-significant correlation with ROE. Non-performing loans (NPL) negatively correlate with both ROA and ROE, and these relationships are statistically significant, indicating that higher NPL levels lower bank profitability. The interest rate is negatively and significantly correlated with ROA, but positively and significantly correlated with ROE, suggesting higher interest rates are associated with higher profitability in terms of ROE.

[Insert Table 5 Here]

[Insert Table 6 Here]

GMM Results

Table 7 presents the Generalized Method of Moments (GMM) regression results for Islamic and Conventional banks from 2012 to 2021. For Islamic banks, a higher Capital Adequacy Ratio (CAR) positively and significantly impacts performance. This suggests that Islamic banks, with robust CARs, could invest profitably, leading to higher Return on Assets (ROA) and Return on Equity (ROE), supporting our first hypothesis H1. In contrast, for conventional banks, CAR has a negative and significant relationship with ROA, indicating inefficient fund utilization and poorer performance, contrary to H1.

The results also show that income diversification positively affects both Islamic and conventional banks' performance, albeit differently. For Islamic banks, which do not engage in interest-based activities, income diversification significantly improves performance. Conversely, for conventional banks, income diversification significantly impacts ROA but not ROE. These differences arise from their distinct business models and economic conditions. For Islamic banks, diversification is crucial due to Shariah compliance, enhancing stability, and reducing investment risks. Islamic banks derive income from financing and non-financing activities, which shapes their diversification strategies. This supports our second hypothesis H2 that income diversification positively influences bank performance.

For Islamic banks, the interest rate does not significantly impact ROA but has a positive and significant effect on ROE. This indicates that while interest rates influence the broader market, their effect on Islamic banks' ROA is negligible, aligning with Shariah laws that prohibit interest-earning activities. Thus, hypothesis H3 is not supported for ROA but is supported for ROE. For conventional banks, the interest rate has a significant positive impact on performance, supporting H3. Conventional banks' reliance on interest income means that changes in interest rates significantly affect their earnings, indicating good performance.

Additionally, the regression results reveal that non-performing loans (NPL) significantly negatively impact both Islamic and conventional banks' performance. A higher NPL ratio indicates poor credit management and higher lending risks, leading to poorer performance. Conversely, a lower NPL ratio suggests effective credit risk management and better performance. This supports hypothesis H4, indicating that proficient credit risk management contributes to better performance for both bank types.

Our findings suggest that for Islamic banks, robust CARs and income diversification are key performance drivers, while interest rates primarily affect ROE. For conventional banks, CAR negatively impacts performance, while income diversification and interest rates positively influence ROA and overall performance, respectively. Both bank types are adversely affected by high NPL ratios, underscoring the importance of effective credit risk management.

[Insert Table 7 Here]

[Insert Table 8 Here]

Table 8 presents the Generalized Method of Moments (GMM) regression results for Islamic banks, comparing pre- and post-COVID-19 periods from 2012 to 2021. Before COVID-19, the Capital Adequacy Ratio (CAR) had a positive and significant impact on bank performance, supporting Hypothesis 1 and indicating efficient fund utilization. Post-COVID-19, CAR's positive impact on ROA became insignificant, but it remained significant for ROE, likely due to global stock market crises affecting equity returns.

Income diversification (IND) positively and significantly affected bank performance before COVID-19. Post-pandemic, IND positively impacted ROA but negatively influenced ROE, reflecting different impacts of business models and economic conditions. These findings support Hypothesis 2 before COVID-19, but post-COVID-19, the support waned for ROE due to stock market challenges. Interest rates showed varied effects. Pre-COVID-19, they did not significantly impact ROA but positively affected ROE, supporting Hypothesis 3 for ROE but not ROA. Post-pandemic, interest rates negatively influenced ROA but continued to positively impact ROE, suggesting strong performance in terms of equity returns. Non-performing loans (NPL) negatively impacted performance before COVID-19, indicating better credit quality and performance. Post-pandemic, NPLs had no significant impact on ROA but negatively affected ROE, supporting Hypothesis 4 for ROE but not ROA, suggesting asset management challenges.

[Insert Table 9 Here]

Table 9 shows the GMM regression results for conventional banks, comparing pre- and post-COVID-19 periods. Before COVID-19, CAR had a significant negative impact on ROA and no significant impact on ROE, not supporting

Hypothesis 1 and indicating poor performance. Post-pandemic, CAR positively and significantly impacted bank performance, supporting H1 and suggesting effective capital management during the crisis.

Income diversification (IND) had a significant positive impact on ROA pre-COVID-19 but did not significantly impact ROE. Post-pandemic, IND negatively impacted ROE and had no significant impact on ROA. These results support Hypothesis 2 for ROA but not ROE pre-COVID-19 and do not support H2 post-pandemic, highlighting challenges in income diversification for conventional banks. Interest rates had a significant positive impact on performance both pre- and post-COVID-19, supporting Hypothesis 3. Conventional banks rely heavily on interest income, significantly contributing to their earnings.

Non-performing loans (NPL) consistently had a significant negative impact on performance before and after COVID-19, supporting Hypothesis 4. Lower NPL ratios indicated lower credit risk and better performance, emphasizing the importance of credit risk management.

Concluding the discussion, we can argue that Islamic banks, CAR and income diversification were key performance drivers pre-COVID-19, while post-COVID-19, CAR's significance shifted from ROA to ROE, and income diversification's positive impact on ROA persisted. Interest rates' impact varied between ROA and ROE, while NPLs consistently negatively affected ROE.

For conventional banks, CAR negatively impacted ROA pre-COVID-19 but positively influenced performance post-pandemic. Income diversification positively affected ROA pre-COVID-19 but not post-pandemic. Interest rates positively impacted performance throughout, and NPLs consistently negatively affected performance, emphasizing effective credit risk management.

The validity of the GMM estimates is confirmed through diagnostic tests. The Arellano-Bond autocorrelation tests show first-order serial correlation [AR(1): $p < 0.05$] as expected under the null hypothesis of no second-order autocorrelation [AR(2): $p > 0.10$], satisfying the conditions for consistent GMM estimation. The Sargan test of over-identifying restrictions [$p < 0.05$] supports instrument validity, though the significance may reflect instrument proliferation given the relatively short time dimension of our panel. This issue is mitigated by lag restrictions in instrument construction.

6. ROBUSTNESS

To check the validity of the results, we include a control variable in our dataset, which is size proxied by the Log of Total Assets. To further validate our, we include a dummy variable representing before and after Covid-19

We assign the value 1 before Covid-19 otherwise zero.

To validate our findings, we conducted two robustness tests. First, we introduce a control variable into our model, Size, proxied by the log of the total assets. After introducing the control variable, we apply Equation (3). In the second test, we introduced dummy variables to assess the disparity in the impact of diversification and other variables on Islamic and conventional banks. For each bank type, we estimate Equations (3) and (4).

Table 10 shows the GMM regression results, including the control variables of Islamic and conventional banks for the entire sample from 2012 to 2021. We can see that the results for both types of banks hold their positions in comparison to the main results. The capital adequacy ratio (CAR), Bank Income Diversification (IND), and non-performing loans (NPL) all have the same significant result, while the result of interest rate is not constant in terms of ROA in comparison to our main results. This means that size has an impact on bank performance in terms of interest rate. However, size has a positive and significant impact on bank performance.

[Insert Table 10 Here]

[Insert Table 11 Here]

Table 11 shows the GMM results, including the dummy variable for the periods Before and after COVID-19, for both Islamic and Conventional banks. We split the data into Islamic and Conventional bank data. We assigned a value of 1 before the Covid-19 period otherwise, 0. We can see that the results of all variables for Islamic banks hold their positions; hence, we can claim that our results are robust. However, the before/after dummy is positive but does not have a significant effect on ROA, whereas it is negative but does not have a significant impact on ROE. Our results suggest that there is no significant difference in Islamic banks' performance before and after the COVID-19 pandemic. This means that Islamic banks were stable during crises.

We then obtain the same results for conventional banks. The results show that the dummy variables before and after have a positive and significant impact on ROA and ROE. In addition, we can see that the results for CAR and IND do not hold constant and significant positions before and after the crisis

periods. Our results suggest a significant difference in the performance of conventional banks before and after Covid-19. This means that conventional banks are not stable compared to Islamic banks; hence, we can claim that our results are robust. In addition, the results are consistent with our main findings.

7. DISCUSSION

Our key findings underscore the contrasting effects of diversification and interest rates on Islamic and conventional banks, particularly during times of crisis. Notably, interest rates have a minimal impact on Islamic banks' performance, whereas conventional banks benefit from a positive relationship with interest rates. Furthermore, our research reveals that income diversification significantly bolsters the performance of Islamic banks but has little impact on conventional banks. Overall, the Capital Adequacy Ratio (CAR) positively affects Islamic banks' performance, although some instances show a negative relationship for conventional banks. Islamic banks consistently outperform their conventional counterparts in many countries.

Before the COVID-19 pandemic, conventional banks faced challenges related to the CAR and income diversification. However, they displayed greater stability and resilience in the aftermath of a crisis. To ensure the robustness of our findings, we employed two rigorous tests.

First, we used control variables; second, we introduced a dummy variable into our model for both types of banks (Conventional & Islamic). The findings from both tests correspond with our primary findings, which confirm the reliability of our initial results.

Summarizing the discussion, this study offers valuable insights into how income diversification and interest rates distinctly affect the performance of the Islamic and conventional banks. This emphasizes the resilience of Islamic banks in terms of income diversification and CAR, while conventional banks exhibit better performance post-COVID-19. The robustness tests further support the credibility of our findings, contributing to a deeper understanding of the banking sector's dynamics during times of crisis.

8. CONCLUSION

This study examines how income diversification, risk levels, and interest rates impact the bank's performance before and after the COVID-19 pandemic. The study uses a data sample including 37 banks, which includes 24 conventional and 13 Islamic, from Pakistan, the UAE, and Qatar, spanning 2012 to 2021,

dividing the data into two periods: pre-COVID-19 (2012-2019) and post-COVID-19 (2020-2021). The study employed the Generalized Method of Moments (GMM) model to estimate the coefficients, following Chiarozzo et al. (2008) and Brahmana et al. (2018), with modifications to include the interest rate's impact on both Islamic and conventional banks.

To validate our findings, we conduct two robustness tests. The first test includes bank size by taking the log of total assets. The second introduces a dummy variable to distinguish between pre- and post-COVID-19 periods, assigning a value of 1 to the pre-COVID-19 period and 0 to the post-COVID-19 period. Our results remain consistent with these empirical tests.

Previous studies have explored the relationship between bank income diversification, profitability, and risk in conventional banks, but limited research exists on this topic for Islamic banks, especially in pre- and post-crisis periods in developing countries. Our findings suggest that diversification and the impact of interest during crises yield different outcomes for Islamic and conventional banks. Specifically, interest rates do not significantly affect Islamic banks in terms of Return on Assets (ROA), though there is a positive and significant impact on Return on Equity (ROE) both before and after COVID-19. For conventional banks, interest rates positively and significantly affect performance in both periods.

Regarding income diversification, Islamic banks outperformed conventional banks before COVID-19. Conventional banks did not perform well in terms of Capital Adequacy Ratio (CAR) and income diversification before COVID-19, but they became more stable and resilient after the pandemic. The robustness tests support these findings, confirming their validity.

The results indicate no significant difference in the performance of Islamic banks before and after COVID-19, suggesting greater stability compared to conventional banks. Conversely, conventional banks show significant performance differences between the two periods, indicating less stability. Therefore, we conclude that Islamic banks excel in risk management and income diversification, maintaining stability before and after the pandemic. Additionally, the interest rate does not affect Islamic banks' performance due to their adherence to Shariah law, which prohibits interest-based activities.

In conclusion, our robust and reliable findings demonstrate that Islamic banks perform well in terms of risk management and income diversification, showing greater stability than conventional banks before and after the COVID-19 pandemic. Conventional banks, while initially less stable, showed improved resilience post-pandemic. This study contributes to the limited research on Islamic banks, particularly in developing countries, highlighting

the distinct performance dynamics between Islamic and conventional banks during crisis periods.

8.2 Limitations and Future Research

This study has several limitations warranting consideration. First, the post-COVID period (2020-2021) comprises only two years versus eight pre-COVID years, potentially affecting estimate stability. Second, significant Sargan test statistics across GMM specifications suggest possible instrument proliferation, though mitigated through lag restrictions. Third, the sample is limited to three countries (Pakistan, UAE, Qatar¹), constraining generalizability to other regulatory environments. Future research could extend the post-COVID period and incorporate additional MENA jurisdictions.

9. Implications

This study has significant implications for investors and bankers in terms of diversification, risk exposure, and market management. Investors must consider including Islamic banks in their portfolios, especially for greater stability and resilience during economic uncertainty. The data propose that Islamic banks may be better equipped to handle financial turbulence.

To understand the risk exposure and alignment with the investment goals, investors need to evaluate the risk-return profile of Islamic banks compared to conventional banks. While Islamic banks excel in some areas, it's crucial to understand their overall risk profile.

This study also provides inspiration and guidance for bank management. Conventional bank managers can learn from Islamic banks' strategies, particularly in capital adequacy and income diversification. These insights could help enhance overall bank performance.

Strengthening risk management practices, especially in areas where conventional banks underperform compared to Islamic banks, is recommended. This includes improving capital allocation and diversification strategies. Managers should also be prepared to adapt to changing economic conditions, as indicated by the performance differences before and after the COVID-19 crisis.

The resilience of Islamic financial principles, especially during crises, highlights their potential for building more robust financial systems. Policymakers might consider integrating aspects of Islamic finance to enhance financial system stability.

These results emphasize the importance of diversification in financial institutions. Encouraging diversification can enhance overall stability and

help banks weather economic shocks. Additionally, the findings reflect broader trends in the global economy, suggesting that systems less reliant on interest-based financing, as seen in Islamic banking, may exhibit greater stability during economic turmoil.

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Appendix:

Table 1

Summarized Comparison of the Islamic banking (IBs) system and the Conventional banking (CBs) System

S. No	Islamic banking	Conventional banking
1	Money is not a commodity; rather, it is a medium of exchange and a store of value. As a result, it cannot be rented or sold for more than its initial purchase price.	Money is a commodity that may be used as both a store of value and a method of exchange. As a result, it might be rented or sold for more than its face value.
2	Earning money through the sale of things or by charging for services.	Interest Charging on capital based on Time value
3	Islamic banks operate on the principles of profit and loss sharing.	There is no concept of sharing profit and loss sharing.
4	An agreement is necessary for the exchange of goods and services under the modes of Islamic financing.	No agreement is made for the exchange of goods and services.
5	Islamic Banks focuses on investment	Conventional Bank focuses on lending
6	Apply moral criteria in investment	Apply only financial criteria

Source: Baber, H. (2013)

Table 2 reports the list and characteristics of the sampled banks."

Countries	Conventional Banks	Islamic Banks
Pakistan	13	6
Qatar	4	3
United Arab Emirates	7	4
Total	24	13

Table No. 3: Variables and Abbreviations

Dependent Variables	Independent Variables	Abbreviation
ROA		Risk Adjusted Return on Asset
ROE		Risk Adjusted Return on Equity
	CAR	Capital Adequacy Ratio
	NPL	Non-Performing Loans
	IND	Income Diversification
	Interest Rate	Interest Rate
	SIZE	Log of Total Assets
	Dummy; Before/After	Assign Value 1 before Covid-19 otherwise 0.

Table No. 4: Abbreviations

Conventional Banks	Islamic Banks
Interest Income (NET)	Islamic Finance Income (FI)
Non-interest income (NI)	Non-Interest Income (NII)
Sum of Interest Income and Non-Interest Income Ratio (TNET)	Sum of Islamic Income and Non-Interest Income Ratio (TNET)

Table No.5: Descriptive Statistics of Islamic Banks and Conventional Banks

Islamic Banks					
Variable	Obs	Mean	Std. Dev.	Min	Max
RAROA	130	4.17	2.942	-.9	12.47
RAROE	130	3.103	2.593	-2.07	9.82

CAR	130	.167	.041	0	.35
IND	130	.271	.111	-.08	.5
NPL	130	.062	.049	0	.22
Interest Rate	130	.059	.046	.01	.14
Conventional Banks					
RAROA	240	3.233	1.996	-2.97	8.81
RAROE	240	3.286	2.062	-3.17	10.34
CAR	240	.18	.078	.03	.89
IND	240	.288	.082	.09	.45
NPL	240	.086	.079	0	.68
Interest Rate	240	.066	.046	.01	.14

Table No.5 exhibits the descriptive Statistics for the whole sample of Islamic banks and Conventional Banks (Pakistan, United Arab Emirates, and Qatar) from 2012 to 2021. For variables definitions see Table 3.

Table No.6

Correlations Matrix of Islamic Banks and Conventional Banks

Variables	(1)	(2)	(3)	(4)	(5)	(6)
(1) ROA	1.000					
(2) ROE	0.597***	1.000				
(3) CAR	-0.024	0.053	1.000			
(4) IND	0.079	-0.036	0.031	1.000		
(5) NPL	-0.102**	-0.090*	-0.010	0.079	1.000	
(6) Interest Rate	-0.123**	0.125**	-0.071	-0.554***	0.057	1.000

Table No.6 exhibits the correlation matrix of Islamic and Conventional banks (Pakistan, United Arab Emirates, and Qatar) over the period of 2012 to 2021. For definition see Table 3

Table No.7: GMM Results of Islamic and Conventional Banks (2012-2021)

Variables	ROA	ROE	ROA	ROE
Car	(8.931)** 2.53	(4.509)** 2.19	(-.377)*** -2.91	(.079) 0.73
Ind	(12.559)*** 1.429	(5.005)*** 4.75	(5.895)*** 3.88	(1.182) 1.04
Interest Rate	(4.804) 1.22	(7.281)** 2.45	(9.848)*** 3.04	(9.668)*** 5.93
NPL	(-9.253)*** 3.79	(-12.528)*** -8.35	(-.235)*** -4.20	(-.325)*** -5.79
Constant	(1.542)** 1.88	(1.647)*** 2.76	(1.016)* 1.67	(2.344)*** 5.80
Number Of Obs	130	130	240	240
Chi-Square	2281.999	1861.464	3477.341	3240.397
Ar1	0.088	0.126	0.001	0.000
Ar2	0.587	0.121	0.316	0.604
Sargan Test	0.000	0.000	0.000	0.000
*** P<.01, ** P<.05, * P<.1				

Table No.7 exhibits the Generalized Method of Moments (GMM) regression results for the whole sample of Islamic and Conventional banks (Pakistan, United Arab Emirates, and Qatar) from 2012 to 2021. For variables definition see Table 3.

Table No.8: GMM Results of Islamic banks before and After Covid-19

Islamic Banks						
Variables	BEFORE COVID-19		AFTER COVID-19			
	ROA	ROE	ROA		ROE	
Car	(7.179)** 2.49	(6.175)*** 3.07	(9.828) .269		(7.864)** 2.06	
Ind	(9.463)*** 6.92	(7.192)*** 6.41	(5.037)*** .003		(-5.771)*** -1.47	
Interest Rate	(-3.764) -0.99	(9.752)*** 3.22		(-12.958) -3.74		(13.051)*** 3.37
NPL	(-28.068)*** -10.72	(-11.622)*** -7.24		(2.56) 0.38		(-25.941)*** -2.68
Constant	(2.391)*** 3.11	(.249) .67	(1.157) .368	(4.836)*** 10.95	(2.532) .202	(3.938)*** 8.42
Number of Obs	104	104	26	26	26	26
Chi-Square	2337.603	1561.696	1306.240	1112.900	386.534	554.764
Ar1	0.145	0.127	0.000	0.000	0.000	0.000
Ar2	0.905	0.622	0.244	0.150	0.110	0.202
Sargan Test	0.000	0.000	0.012	0.000	0.000	0.000
*** p<.01, ** p<.05, * p<.1						

Table No.8 exhibits the Generalized Method of Moments (GMM) regression results for the whole sample of Islamic banks (Pakistan, United Arab Emirates, and Qatar) before (2021 to 20219) and after (2020-2021) Covid-19. For variables definition see Table 3.

Table No.9: GMM Results of Conventional Banks before and After Covid-19

Table No.9 exhibits the Generalized Method of Moments (GMM) regression results for the whole sample of Conventional banks (Pakistan, United Arab Emirates, and Qatar) before (2021 to 20219)

Conventional Banks						
Variables	BEFORE COVID-19		AFTER COVID-19			
	ROA	ROE	ROA		ROE	
Car	(-.208)*** -3.23	(-.007) -0.06	(4.308)*** 6.19		(2.653)*** 3.45	
Ind	(3.745)** 2.42	(2.414) 1.64	(-3.854) -1.57		(-3.63)** -2.43	
Interest Rate	(4.456)** 1.90	(10.926)*** 6.02		(12.977)*** 6.66		(6.991)** 2.36
NPL	(-.208)*** -5.16	(-.314)*** -5.55		(-8.784)*** -11.61		(-5.658)*** -4.82
Constant	(2.05)*** .927	(1.858)*** 3.63	(3.182)*** 4.23	(2.755)*** 18.39	(4.111)*** 8.76	(3.589)*** 16.15
Number of Obs	192	192	48	48	48	48
Chi-Square	3478.013	2507.134	1469.501	1604.074	1119.700	1140.515
Ar1	0.479	0.003	0.010	0.011	0.000	0.000
Ar2	0.775	0.988	0.111	0.260	0.130	0.170
Sargan Test	0.000	0.000	0.002	0.005	0.097	0.722
*** p<.01, ** p<.05, * p<.1						

and after (2020-2021) Covid-19. For variables definition see Table 3.

Table No.10: GMM Results of Islamic Banks and Conventional Banks (2012-2021)

Table No.10 exhibits the Generalized Method of Moments (GMM) regression results for the whole sample of

	Islamic Banks		Conventional Banks	
Variables	ROA	ROE	ROA	ROE
CAR	(6.199)*** 1.25	(6.199)** 1.25	(-.074)*** -0.68	(.105) 0.97
Car	(6.496)*** 2.75	(6.496)*** 2.75	(6.348)*** 3.80	(3.804) 2.28
Ind	(21.949)*** 2.79	(21.949)*** 2.79	(2.102)*** 0.65	(11.829)*** 3.64
Interest Rate	(-22.563)*** -5.66	(-22.563)*** -5.66	(-.132)*** -1.48	(-.141)*** -1.58
Size	(3.113)*** 5.11	(3.113)*** 5.11	(.472)** 2.06	(1.002)*** 4.37
Constant	(-29.41)*** -4.49	(-29.41)*** -4.49	(.244)* 0.10	(-6.419)*** -2.66
Number of Obs	130	130	240	240
Chi-Square	4747.573	1771.050	3411.185	3366.794
Ar1	0.514	0.206	0.003	0.682
Ar2	0.547	0.248	0.348	0.840
Sargan Test	0.000	0.000	0.001	0.035
*** P<.01, ** P<.05, * P<.1				

Islamic banks and Conventional Banks (Pakistan, United Arab Emirates, and Qatar) from 2012 to 2021, including SIZE as a control variable. For variables definition see Table 3.

Table No.11: GMM Results of Islamic and Conventional Banks with Dummy Variable (2012-2021)

Table No.11 exhibits the Generalized Method of Moments (GMM) regression results for the whole sample of Islamic and Conventional banks (Pakistan, United Arab Emirates, and Qatar) from 2012 to 2021. The results

	Islamic Banks		Conventional Banks	
Variables	ROA	ROE	ROA	ROE
Car	(.678)** 0.32	(4.487)** 2.31	(-.802)*** -3.66	(-.357) -1.94
Ind	(10.005)*** 10.28	(.504)** 0.46	(1.387)** 0.45	(4.26) 1.65
Interest Rate	(-6.446) -2.69	(5.189)** 2.18	(2.83)*** 0.83	(11.361)*** 3.99
NPL	(-28.594)*** 17.46	(-4.231)** -2.27	(-.532)** 2.10	(-.523)** 2.47
Before/After	(.069) 0.35	(-.082) 0.47	(.548)** 2.47	(.484)*** 2.61
Constant	(3.442)*** 3.442	(2.236)*** 4.20	(2.311)** 2.21	(1.522)* 1.74
Number Of Obs	130	130	240	240
Chi-Square	3487.210	2043.387	1447.479	2135.975
Ar1	0.296	0.038	0.000	0.000
Ar2	0.526	0.115	0.360	0.102
Sargan Test	0.000	0.000	0.443	0.511
*** P<.01, ** P<.05, * P<.1				

are proxied by dummy variables, that hold the value 1 if the period is before the Covid-19 period otherwise, 0. For variables definition see Table 3.