Financial Performance Evaluation Using Topsis Approch: A Study Of Islamic Banks In Pakistan

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Abstract
For the duration of 2019-2021, this research study uses Topsis to examine the financial-performance and financial condition of five Islamic banks: Albarka Bank, Bank Islami Pakistan, Meezan Bank, MCB Islamic, and Bank Dubai Islamic Bank. Topsis is a methodology for evaluating the financial-performance, financial position, weaknesses, soundness, safety, and financial health of all banking activities. The study's findings suggest that Dubai Islamic Bank outperformed other banks in financial-performance in 2019 and 2021, but that the bank is now in second place in 2021. The Meezan Bank is also doing well, coming in second place in 2019 and 2020 and first place in 2021. The Dubai Islamic Bank and Meezan bank are in close competition and are the market best performers. Other banks, such as MCB Islamic, Albarka, and Bank Islami, ranked third, fourth, and fifth, respectively, in 2019, 2020, and 2021. These banks attempt to increase market share by offering consumers innovative products and services that improve the banks' financial-performance.

Key Words: Financial-performance, TOPSIS Approach, Islamic Banks,

Background of the Study
In Islamic banking there are different modes of operations in comparison of conventional banks. Islamic banking was first established in the 1970s in order to tackle the Riba's issue. Islamic banking was expected to be led by professionals such as bankers, economists from the Islamic world, and religious experts. The principles were outlined 1,400 years ago in the Sunnah of Prophet Muhammad's (P.B.U.H) and Holy Qur'an. The foundation of Islamic banking widely comes from

Islamic economic system in which there is no concept of riba. in that time there were no functional model of Islamic banking system but the only thing was to change the riba based system to profit and loss sharing. the main reason of the Islamic banking system was to eradicate the riba based system. So, at that time there were no interest free financial system except riba based system when the effort has been made for the formation of this system. in the beginning interest-free financial system were started by private institution, then the Islamic countries realized the need of riba free banking system in the ending of seventies and the beginning of eighties.

Two Islamic banking institutions between 1963 and 1967, were created in Nile Delta, specifically in Karachi and Mit Ghamr. The establishment of Dubai Islamic Bank, a full-fledged Islamic bank, in 1965 was a key step forward in this movement. By the end of 1996, there were 166 where Non-Muslim and Muslim countries were nearly 34. Islamic banking became prominent in the 1970s. Now more than 60 countries throughout the world do have Islamic banks and provide their services.

There are more than 300 Islamic financial institutions around the world, with a combined investment capital of more than $400 billion. Globally, the Islamic banking industry is expanding at a rate of around 16% each year. Islamic banking has been endorsed by international financial organizations (IFIs), professional bankers, and academics (Iqbal et al. 2020; Muhammad et al., 2020). Islamic banking has succeeded in developing its own identity and carrying out activities apart from mainstream banking (Muhammad et al., 2021). Islamic banking is a type of business that attempts to encourage and enhance the Islamic principles applications, financial transactions, traditions to banking and related economic activities and law. With these improved standards, Islamic banks will protect Islamic communities and society against actions that are prohibited in Islam.
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Study objectives

1. To evaluate the financial-performance of Islamic banks using TOPSIS approach
2. To find the differences between the financial-performance of Islamic banks.

Problem Statement

Islamic banks are the fastest-growing banks in Pakistan, and they must be analyzed to see how they compare to normal banks in modern countries. Different

methodologies are utilized to evaluate Islamic banks in Pakistan, however the TOPSIS approach has not been applied for both Islamic and conventional banks.

Significance of the Study
The financial strength, financial-performance, financial health, and soundness of Pakistani Islamic bank are examined in this study. This model in the study gives useful, trustworthy, and suitable information on the financial-performance perspectives of Islamic banks working in Pakistan.

Financial-Performance Using using Different Approches
For the period 2006–2012, Jabeen (2015) analysed the financial-performance of conventional-Islamic banks in Pakistan using the CAMEL methodology, conducted an empirical investigation for conventional and Islamic banks, and ranking each CAMEL parameter based on the created Financial-performance Index. In terms of overall performance at a given time, the author discovered that conventional banks outperformed Islamic banks by a factor of twelve. The financial ratio reveals that Islamic banks' financial-performance in 2012 was better than in 2006.

Tanveer, Bhatti, Shafi, and Shahzad (2018) analysed the performance of banks has been analysed, and numerous studies have been esteblished in order to produce a Financial-performance Index that is based on the CAMELS ratio and calculated. FPI includes a long spaned uneven data (2010-2015). The author discovered that factors such as GDP, real interest rate, and political stability have a negligible impact. Because both indicators in the current study show an insignificant and detrimental association with FPI, managers of banking sector should focus on controlling overheads and operational costs for a better and enhanced bank performance.

Mehdi (2014) used the CAMEL Approach to examine the performance of key Moroccan financial institutions from 2001 to 2011. The author uses the CAMEL grading methodology to assess the capital sufficiency, asset and management quality, earning quality, and liquidity situation of various "Moroccan financial institutions." The author assessed Moroccan financial institutions' financial-performance, operational soundness, strengths and weaknesses, and regulatory compliance. As a result, numerous research has been focused on applying the CAMEL rating to significant Moroccan financial institutions over the period (2001-2011), allowing us to derive a bank ranking. For each factor, a rating of 1 is considered the best and a rating of 05 is considered unsatisfactory. The current study used debt to equity ratio as a capital-adequacy analyzer, return on assets ratio as an earnings quality analyzer, return on equity ratio as an analysis of management quality, provisions of losses associating to loans to total loans as an

asset quality analyzer, and deposits to total assets ratio as an analysis of liquidity ability.

Zedan and Daas (2017) used the CAMEL rating model, where they assessed the soundness and financial-performance in 2015 of Palestinian commercial banking institutions. The acronym CAMEL stands for Capital-Adequacy, Asset-Quality, Management-Efficiency, Earning-Quality, and Liquidity, and it is used by examiners to grade bank institutions based on their performance in five categories. To assess liquidity management, the author used a capital adequacy ratio, a non-performing loans to total loans ratio, a non-expense ratio, a return on assets and return on equity ratio, a return on assets and return on equity ratio, a return on assets and return on equity ratio, and a total loans to total deposits ratio. Zedan and Daas (2017) use the CAMEL-rating model to assess the performance financial eprspective and soundness of Palestinian commercial banks in 2015. To assess capital adequacy, the authors used a capital adequacy ratio, a non-performing loans to total loans ratio, a non-expense ratio, a return on assets and return on equity ratio, a return on assets and return on equity ratio, and a total-loans to total-deposits ratio to assess liquidity management.

Kumar and Sharma (2014) used the ARDL technique to examine several elements of financial-performance and soundness in Indian banking sectors. They discovered that the global financial crisis occurred between 2008 and 2009. The authors conducted an econometric examination of the top eight market-capitalized banks. Econometric analysis is the study of economic and financial data using mathematics and statistics. The authors found that the research of the top 8 market capitalised banks and computes numerous parameters defining these by using an econometric study of secondary data collected from various sources over a period of six years, from fiscal year 200-2008 to fiscal year 2012-2013, was successful.

Mohammady (2019) on the basis of financial ratios, analyse the performance of financial perspective of public-private sector banks in Afghanistan with the help of the MCDM methodology during a four-year spane (2014-2017). The MCDM approach is a prominent technique for analysing bank financial-performance based on several financial metrics. They also discovered that, on average, private-sector banks outperform public-sector banks in this study, which assessed data over four years (2014-2017) and used important MCDM characteristics.

Amit (2014) uses the CAMEL-Model to evaluate the soundness of five nationalised Indian banks in order to measure the overall performance and soundness of banks in the Indian banking industry. Capital-adequacy,

management-efficiency, asset quality, earning-ability, and liquidity are all important CAMEL characteristics. According to the findings, Bank of India was ranked first, Union Bank of India and Dena Bank were second, State Bank of India was fourth, and UCO Bank was fifth.

Kamrul (2016) used the analysis using CAMEL Methodology to examine the financial-performance of about three nominated Islamic banking sectors in Bangladesh over an eight-year period (2007-2014). In their composite grading approach, they discovered that all of the selected Islamic banks are in a strong position. A score of 1 denotes excellent performance, while a score of 5 denotes poor performance. The banks chosen are strong in every way, including capital sufficiency, asset quality, managerial quality, earning ability, and liquidity situation.

A comperative study of two Islamic banks in the United Arab Emirates conducted by Ibrahim (2015) for a period of five years. He used the CAMEL method (2003-2007). The liquidity of banks, profitability, managerial aspect, capital structure, and shared performance have all been measured using a variety of factors. In the United Arab Emirates, he conducted a financial-performance comparison between conventional-Islamic banking. The performance will be measured using descriptive measurement, which will take into account the stability-variability and dispersion of the Variables. The financial soundness of the two banks was measured using the Z-core (also known as a standard score) indicator Using descriptive statistical analysis, where these were ranked to show a comperison of their performance. The performance of each individual bank was described using descriptive analysis based on basically three measuring criterias that include overall stability, mean, and coefficient of variation.

Mohiuddin (2014) says that in today's economy, the banking sector is extremely essential. The author has chosen two large banks operating in Bangladesh, one of which is NCB and the other is PCB, to evaluate their financial-performance using CAMEL characteristics over a period of time (2009-2013). Individual banks are rated based on five criteria: capital adequacy, asset quality, management capability, earnings analysis, and analysis regarding its liquidity as per the author. On a scale of 1-5, each of the five dimensions of performance evaluation is assessed. This concept was tested on two selected Bangladeshi banks.

Charles and Kenneth (2013) used time series data and cross-sectional data to examine the impact of management associated to credit risk and regarding capital adequacy on bank financial position in Nigeria (2004-2009). For his

research, he used entirestatistics from the financial accounts of six commercial banks operating in Nigeria. In Nigeria, empirical evidence showing the relationship between risk associated with credit and profitability of the banking industry is limited. The role of capital sufficiency in line with the Base l1 and 11 accord in a integrated framework was overlooked in empirical studies that investigated the relationships. They also utilised a panel data model to predict the association between LLP (loan loss provisions), LA (loans and advances), NPL (non-performing loans), CA (capital adequacy), and ROA (return on assets). With the exception of loans and advances, they discovered that excellent credit risk management and capital have a beneficial impact on a bank's financial-performance. It was discovered that has a negative impact on the profitability of banks.

Kouser and Saba (2012) evaluated how full fledge Islamic Banks are performing including Mixed and Conventional Banking institutions in Pakistan using the CAMEL methodology in their paper exploring the performance regarding Financial perspective of the Banking Sector with the help of CAMEL Model. The purpose of using this model was to analyse the performance of full fledge Islamic banks, both islamic and conventional banks during 2006 and 2009. Statistical tests such as ANOVA, Levine's, and the test for mean validity were used by the writers. To see if there are any statistically significant variations in the means of the CAMEL ratios, the ANOVA (Analysis of Variance) test is used. The outcomes of the tests are analysed using SPSS. As per their observations it is claimed that Islamic banking sector had adequate capital and enhance asset quality in contrast to the brances under Islamic setups of normal and conventional banks. In addition, Islamic banks, in contrast to traditional banks, have greater management capabilities. In Pakistan, Islamic branches operating under conventional banks outperform full-fledged Islamic financial institutions and conventional financial institutions in terms of earnings. They came to the conclusion that Islamic banks are even now in their formative phases.

Sangmi and Nazir (2010) look at two northern Indian commercial banks' financial-performance. Over a five-year period, the TOPSIS Model was used to perform this research (2001-2005). Asset Quality while measuring on the scale of five showed performance analysis parameters, where 1 was indicating a bank's fundamentally strong position and 5 indicating a bank's fundamentally bad position.

Alemu and Aweke (2017) believe that the CAMEL grading technique should be used to evaluate Ethiopian private commercial banks' overall performance. The authors assessed the financial-performance of six private banks

using an audited financial report covering a 10-year period (2007-2016). The data was analysed using descriptive and inferential statistical methods. The panel regression model was used to examine the influence of CAMEL measures, such as ROA and ROE, on bank performance, while descriptive statistics methods were utilised to describe/rate the banks' overall performance. They noticed that NIB bank was at the top of the CAMEL composite rating system. , United Bank, Awash Bank, and Bank of Abyssinia are the next three banks. According to the panel regression model, the LEVRAGE, NIEGE, NPEP, TDBRA, TLBRA, NIITA, and LATD elementary variables were also significant for the profitability indices ROA and ROE. There was no substantial impact of asset quality indicators in calculating profitability ratios.

Sharma and Chopra (2018) used the CAMEL Model and parametric and non-parametric hypothesis testing techniques to examine and compare the financial-performance of 15 private and 15 public sector banks operating in India. For a period of four years, the writers collected data from the website of the Indian Banking Association and audited annual financial reports of Indian banks (2014-2017). To achieve the aims, the authors used three major statistical tools: ranking, t-test, and Mann-Whitney U test. The authors discovered that the performance of private sector banks is superior than that of public sector banks. In comparison to private sector banks, the soundness of public sector banks is low.

Uddin, Ahsan, and Haque (2017) examined and contrasted the financial-performance of selected Islamic banking sectors and conventional banking sectos in Bangladesh over a duration of three years (2010-2014). To perform the comperison of five banks from each domain, the authors used a sample of five Islamic and five conventional banks. The authors looked at typical CAMEL methodology. For a period of five years, data was collected from the annual reports of five Islamic and five conventional banks in Bangladesh (2010-2014). To justify the data, the authors employed t-tests. Except for management quality, they discovered no major differences between Islamic and conventional banks. They also discovered that conventional banks have superior management and asset quality than Islamic banks, and that Islamic banking sectors have even better liquidity and capital adequacy than that of the conventional banking sectors.

Majumder and Mizanur (2016) while examining the financial credibility used the Topsis framework for banks in Bangladesh and determine whether there is a highlighted difference in the performance of the selected banks from 2009 to 2013. The CAMEL model is a model that is used to determine the selected institutions' weaknesses and financial strength. The authors used SPSS to conduct in order to conduct different comperative analysis based upon the Topsis

parameters (05) and used Composite Ratings, Average, and ANOVA-test to arrive at a result. They discovered that IBBL was at a higher rank of capital adequacy ranking, while IFICBL was at a lower rank of same.

Rouf (2017) used the CAMEL model to compare the financial-performance of two state-owned and private commercial banking sectors in Bangladesh. During a 5-year period, the author gathered data from audited annual reports of state-owned and private commercial banks (2011-2015). Liquidity ratios such as the current and quick ratios, Assets Quality, Loan Quality ratios, and Profitability ratios were used along the dimensions of Return on Assets, Return on Equity, and Net Interest Margin by the author. They discovered that private commercial banks outperform state-owned banks in terms of financial-performance.

Khatik and Nag (2015) examined the performance of five private and five foreign banks using the CAMEL model, a comparative research was conducted to measure the performance of the banking sector functioning in India. For a period of five years, the authors gathered data from the audited annual reports of five private and five international banks in India (2007-2008 to 2011-2012). ANOVA tests are used to analyse data. Capital Adequacy, Asset Quality, Management Efficiency, Earning Quality, and Liquidity Analysis are the CAMEL method parameters. They observed that ICICI Bank had the greatest financial-performance among private banks, whereas Antwerp Diamond Bank had the best financial-performance among international banks.

Usman and Khan (2012) assess the financial-performance of Pakistani Islamic and conventional banks. The authors compared the profitability and liquidity ratios of three Islamic and three conventional banks in Pakistan during a three-year period (2007-2009). In this investigation, the authors utilised a paired sample t-test. They also observed that Islamic-banks had a faster rate of development and profitability than conventional banks, as well as a greater liquidity power.

Similarly, Saikrishna (2020), with the help of CAMEL model examined financial credibility and compare the financial positions of top two selected banks operating in India i.e., one public sector (SBI), and one private sector (HDFC), during a five-year period (2015-2019). In his CAMEL research, the authors examined the financial-performance of two selected banks using the ratios associated with financial perspective. It was concluded that HDFC bank had stronger capital adequacy, asset quality, managerial capacity, and earning quality, while SBI only had good liquidity ratios.

Yusuf et al., (2019) took a decision to use a payment mechanism is based on a number of factors. Previously, it was determined based on a few parameters and subjective opinion. A case study on the payment mechanism for accessing Universitas Indonesia's main gate decision was undertaken to demonstrate the hybrid methodology of Fuzzy AHP and Fuzzy TOPSIS. The fuzzy AHP method was utilised to establish the weighting of each decision-making factor in this investigation. It has the ability to combine all of the necessary payment method parameters while also considering their relative importance. After getting the criterion weights, the authors use the TOPSIS technique to calculate the rating for each option. In the study, autistic people can choose from three options.

Jahanshahloo et al., (2006) TOPSIS has been expanded to include interval data in this study due to the difficulty of determining the exact value of features in some cases and the fact that their values are handled as intervals. When the data is delivered, an algorithm is also provided for choosing the most desirable option among all possible options. This algorithmic technique considers not only the distance between a DMU and the positive ideal solution, but also the distance between the DMU and the negative ideal solution. To put it another way, the closer the DMU under consideration is to the positive ideal solution, the better, and the farther it is from the negative ideal solution, the better.

İslamoğlu et al., (2015) study's goal was to evaluate the financial-performance of REITs whose securities are publicly traded on Borsa Istanbul using the same data that was available at the time. Because real estate developers are a driving force in the economy, many industries partner with them. As a result, a slew of industries contributes to an uptick in economic activity, which aids national progress. As a result, the Entropy Based TOPSIS Technique is utilized in the real estate market to evaluate the financial-performance of REITs.

Deng and Yeh (2000) offer a flexible framework for comparing competitor businesses' total performance across a variety of metrics, known as "monetary ratios." We present a simple and straightforward elective MA technique for dealing with the inter-company comparison problem in this paper. The methodology simulates the TOPSIS technique by using weighted Euclidean distances to ensure a reasonable interpretation of the comparison results.

Kazan and Ozdemir,(2011) the Turkey's most well-known actors, utilized TOPSIS, a multi-criteria decision-making tool, to analyze the financial-performance of 14 ISE-listed corporations between 2009 and 2011. The TOPSIS approach was used to convert these estimated financial ratios into a single score that demonstrates overall financial-performance of the conglomerate. The first stage of the analysis involved calculating each holding's financial ratios to identify

their financial-performance. The derived scores were used to rank these conglomerates in order of performance.

Chien-Ta Ho, (2006) focused on using the GRA technique to extract ratios that are commonly used in financial research to address sample size and distribution uncertainty issues. This could help to avoid wasting resources due to the uncertainty of the ratio connections while using them for analysis. Because the GRA methodology has extracted the representative ratios from the original 38 ratios and turned them into 17 ratios, the empirical investigation undertaken in this work reveals that the GRA method is superior to the FSA method.

Alptekin (2009) used monthly fund returns to assess the performance of Turkish pension stock mutual funds and Type A stock mutual funds from January 2007 to December 2008. The stationary status of the returning series is first determined. After ensuring that all of the series are stationary, the Sharpe ratio, Sortino ratio, Treynor index, and Jensen's alpha performance assessment techniques are used to give performance assessments of the series. There is no clear winner, according to the results of the performance review. As a result, factor analysis is used to determine which tactics for performance evaluation should be emphasized. Certain factors are used to categories these variables together.

According to Asghar et al., (2014), the FAHP approach was used to compute the weights of the major and sub criteria in the performance evaluation hierarchy. The TOPSIS method was used to rank the branches according to their financial, non-financial, and overall performance. Because of the competitive environment, decision makers consider financial-performance to be more important than non-financial success in these comparisons. Furthermore, the Keshavarz branch was ranked first, followed by Ghadir and Shahid Bazaz, based on the results of the overall performance review. The method given in this paper can be used in a variety of circumstances.

Shaverdi et al., (2016) suggested technique FAHP, that was used to determine the weights of financial ratios, and fuzzy TOPSIS was used to estimate the rank of petrochemical enterprises. The petrochemical industry in Arak was chosen as the best in terms of financial-performance indicators. This paper was made possible by the contributions of the following individuals: 1. The proposed approach included a mixed multi-criteria decision-making model that assessed business rankings using two methodologies at the same time in order to arrive at a more accurate and exact assessment of each firm's performance. 2. The performance evaluation method offered is based on a financial index. The vast majority of evaluation models, as many prior studies have revealed, were based on indices other than financial criteria. 3. Previous research reveals that certain performance evaluation systems are based on financial measures, but that this is insufficient.

To assess the sustainability performance of South Asian nations, Sun et al. (2019) used a common weighted mathematical composite indicator approach to combine all of these features into a single index. (ii) Adding new sets of indicators, such as environmental, energy, and economic indicators, that are important and comprehensive. (iii) Proposal of a common weight MCDA–DEA model with stronger discriminating power than the optimal set of weights and no requirement for parameter adjustment prior assumptions. (iii) Using sustainability performance ratings to grade countries (each country's performance in relation to others) to assist governments and policymakers.

Wang et al. (2019) apply the Fuzzy AHP technique to rank viable RE resources for long-term energy generation in Sindh and Baluchistan provinces. According to Fuzzy AHP's conclusions, the most valuable resource is wind, which is followed by solar and biomass in that order. Wind energy has the potential to reduce dependency on existing energy sources while also enhancing energy security and providing new opportunities for rural communities. Wind energy has the potential to lessen reliance on existing energy sources while simultaneously improving energy security and expanding opportunity for rural populations. Wind energy has the potential to lessen reliance on existing energy sources while also improving energy security and expanding opportunities in rural areas. Wind energy offers the potential to minimize reliance on existing energy sources while also improving energy security and extending rural prospects. As a result, it is recommended that the government investigate the use of wind energy for long-term development. Scientists also recommended energy planning and solutions for long-term expansion in the paper.

Measure of Financial-performance in banking system:
In a study conducted by Oral (2016), financial indicators were used to analyse the financial-performance of privately held Turkish banks. It's crucial to be able to recognise and compare fair value. The financial-performance of ten banks was determined using ten financial ratios and data from ten banks for three years, 2012, 2013, and 2014. The TOPSIS technique was then used to convert the financial ratios into a single score.

Froelich and Hajek (2018) Credit rating agencies conducted a credit risk assessment in the study to reduce form asymmetry in financial markets. The useful procedure was programmed in early research with a system based on machine learning. These systems are subject to problems and do not efficiently use expert knowledge. To answer these questions, an interval-assessed intuitional fuzzy set is utilized as an MCGDM model for credit risk assessments, utilized for the imprecise assessment criteria, and interactions between criteria are described using smooth cognitive maps.

Tunay and Akhisar (2015) used TOPSIS priority for banks directly engaging with performance based on raw data is the primary criterion and sub-criteria weights, and AHP prioritization is the major criterion and sub-criteria weights. The higher the capital adequacy ratio, the better the degree of depositor protection, according to study. In general, a large bank requires more capital than a small bank. Supervisors, decision-makers, and global and local investors who are responsible for preventing bank failures may find this report incredibly beneficial.

Banu and Santhiyavalli, (2019) Banks are judged on their long-term viability, financial planning effectiveness, and resource utilization gains. However, financial institutions must maintain adequate liquid resources to cover the needs of their clients and the economy. The disbursements given by the banks should be guaranteed in particular to avoid adverse credit losses. As a result, the bank's strategies must be able to balance the risks associated with the company's operations. Using a multi-criteria decision-making approach, the current study results have taken into account essential factors of financial-performance to comprehend the managerial competency of banks.

Akkoç and Vatansever (2013) Two distinct techniques, such as fuzzy multi-criteria methods to decision making for the same objective. While the Fuzzy AHP technique uses an equal matrix to assess performance in a hierarchical structure, the Fuzzy TOPSIS approach uses a fuzzy-negative and fuzzy-positive ideal principle to assess performance. In comparison with the other approaches these two approaches are often utilized in literature. In consequence, we see that the banks' performance rating for both techniques is identical. The research will contribute to literature since it presents the broad perspective of the Turkish banking industry following the 2008 global crisis.

Sedaghat and Pourhossein (2013) The weights of the primary performance assessment hierarchy and sub-criteria are determined using the FAHP approach. The TOPSIS technique is used to evaluate banks' financial, non-financial, and worldwide performance. In addition to financial criteria, non-financial-performance characteristics for the three institutions described above were investigated. In terms of financial-performance, Persian Bank placed after the Melli Bank, but as far as its non-financial-performance is concerned, Persian has the top performance level in terms of its overall performance. Due to Melli's second ranking, the bank's performance is second in terms of non-financial value.

Dincer and Hacioglu (2017) The researchers concluded that the hypothesis that customer satisfaction and banking performance have a considerable beneficial effect on Figure 1 is significant. The proposed performance assessment methodology Identify the issue, choose the policymakers and choose the options. academicians Industry professionals Set out the criteria weight calculation via

AHP Flexible approach structure Performance results with final classification 1081 stock market performance assessment validated. The traditional performance evaluation methodology focuses on financial indicators, while non-financial factors such as behavior are frequently overlooked.

Wanke et. al, (2016) The performance of FAHP, TOPSIS, and neural networks of ASEAN banks has been examined. TOPSIS allows for the analysis of the banks' efficiency rankings and a substantial difference in financial efficiency is proven on the basis of this rating. This may be caused by the operating methods of the analyzed or adopted banks. Consequently, there can be no final conclusion. If the outcomes are based exclusively on the proceedings of the banks, they should reformulate them and benchmarked their practice in order to enhance efficiency versus US and European banks.

Mandic et al., (2014), concluded that results of their study are not surprising, because profitability is at the center of all banks' business policies, and equity acts as a risk cushion, EBT is a very important financial statistic. The primary purpose of a bank's capital is to reduce the risk associated with its operations, which is why capital is so important in attaining a risk-return balance. Equity, Portfolio, Sources, Liquid Assets, Cash, Net Interest Income, Core Business Net Income, and Earnings before Tax were used to evaluate the banks, with Banca Intesa obtaining the highest score among the ranking institutions.

Using the Yalcin et al., (2009) FAHP technique, the weights of the major and sub-criteria of the performance assessment hierarchy are established. In the study's last phase, the TOPSIS technique is used to evaluate banks based on their financial, non-financial, and overall performance. Fuzzy AHP is a simple and effective approach for mixing qualitative and quantitative data that has been applied to the evaluation of banking system performance. In addition to financial requirements, non-financial-performance measurements such as customer satisfaction and service quality have been evaluated for commercial banks.

Research Methodology

This section outlines the research approach that was utilized to collect data and estimate various financial ratios in this study. This section also includes the definitions of several variables.

Data Collection

Data for five Islamic banks registered on the Pakistan Stock Exchange over a three-year period, from 2019 to 2021 was selected. The information was gathered from the State Bank of Pakistan's financial statement (SBP).

Techniques

Financial-performance has been evaluated by using different ratios which are discussed below;

1. **Current Ratio:**

The current ratio, also known as the working capital ratio, is a measure of how well a company manages its cash flow. It compares assets that can be converted into cash in a year against commitments that must be paid off in a year.

Current ratio= (Current Assets)/ (Current Liabilities)

2. **Acid Test Ratio:**

The Acid Test Ratio is another name for the Quick Ratio, it is a liquidity indicator. This ratio determines if a bank has sufficient liquidity to satisfy its short-term obligations It compares a bank's most liquid assets to current obligations, such as cash, accounts receivable, and short-term marketable securities.

Acid Test Ratio= (Current Assets-Stock)/ (current Liabilities)

3. **Total Debt Ratio:**

The total debt ratio is a helpful indicator of the extent of which your banks rely on debt. The debt ratio formula is simply your total short-term and long-term liabilities divided by your total assets.

Debt ratio= (Total Debts)/ (Total Assets)

4. **Debt to Equity Ratio:**

Debt to Equity Ratio= (total liabilities)/ (total shareholders' equity)

5. **Return on Equity:**

The debt-to-equity ratio measures how much debt a bank has compared to how much equity it has. The debt-to-equity ratio is a measurement of a bank's ability to borrow money from creditors and investors. A high debt-to-equity ratio implies that a bank has made several loans and received contributions from shareholders or owners.

Return on Equity= (Net Income or Profits)/ (Shareholder's Equity)

6. **Return on Assets:**

The return on assets (ROA) statistic is a type of return on investment (ROI) indicator that compares a company's profitability to its total assets. To measure how well a bank is performing, this ratio compares its profit (net income) to the capital it has invested in assets.

ROA= (Net Income)/ (Total Assets)

7. Current Assets Turnover:

The Current Assets Turnover Ratio reflects how frequently current assets are turned over in the form of sales. A high current assets turnover ratio demonstrates the organization's capacity to achieve maximum sales with the least amount of current assets. The situation will be better if the present ratio is higher.

Total asset= (Net sales)/ (Total assets)

8. Fixed Assets Turnover:

The fixed asset turnover ratio is an efficiency ratio that compares net sales to fixed assets to determine a bank's return on investment in property, plant, and equipment. In other words, it defines the efficiency with which a bank's machinery and equipment generate sales. Creditors and investors use this calculation to assess how successfully the bank is utilizing its equipment to generate sales.

Fixed Asset Turnover= (Net sales)/ (Net fixed assets)

9. Net Profit Margin:

After all expenses have been removed from sales, the net profit margin is the proportion of revenue left. The calculation illustrates how much profit a bank can make from its overall sales. Gross sales minus all sales deductions, such as sales allowances, is the net sales half of the equation.

Net Profit Margin= (Net Income)/ (Revenue)

10. Working Capital Turnover:

Working capital turnover is a formula that is used to determine how effectively a bank is utilizing its present working capital. This form of measurement can assist a bank avoid excessive expenditure while also boosting the bank's ability to divert resources towards projects that have the potential to strengthen the bank in some way.

Working capital turnover= (Net annual sales)/ (Working capital)

TOPSIS Approach

TOPSIS is a multi-criteria decision analysis method that stands for Technique for Order of Preference by Similarity to Ideal Solution. It compares a set of options using a pre-defined criterion. Every time we need to make an analytical conclusion based on obtained facts, we employ this strategy in business across many industries.

Consider the following scenario: we want to compare many organizations to see which one has the best financials. These businesses make up our list of options. We'll need some trustworthy measurements to mix them and determine which one is the most powerful. In this instance, we can utilize financial statement indicators such as ROA (return on assets), ROE (return on equity), DR (debt ratio), or CG (cost of capital) (capital gearing). Our criteria will be based on these indicators.

TOPSIS' secret reasoning is founded on the idea that the best solution should be the shortest geometric distance away, while the worst solution should be the longest geometric distance away. Isn't it simple?

Such a methodology allows for the discovery of trade-offs between criteria, where a poor performance in one might be offset by a good performance in another. Because we are not eliminating other solutions based on pre-defined thresholds, this provides a rather thorough kind of modelling.

In general, the TOPSIS method can be broken down into seven steps:

1. Making a matrix with M different options and N different criteria. This matrix is commonly referred to as a "assessment matrix."

$$\left(a_{ij}\right) M x\, N$$

For instance, M will be the number of organizations, and N will be the number of metrics (ROA, ROE, DR, CG).

2. Make the evaluation matrix normal: $\propto_{ij} = \dfrac{a_{ij}}{\sqrt{\Sigma_{i=1}^{M}\ a_{ij}{}^{2}}}$

Each statistic j is normalized to a value between 0 and 1 for each company i. The better the metric, the higher its value.

3. Determine the decision matrix's weighted normalized weights. It's vital to remember that each criterion should be given its own weight so that the total is 1. The weights can be calculated at random (which is not advised) or using professional knowledge (industry standard).

$$X_{ij} = \alpha_{ij} * w_j$$
$$w_j = \frac{w_j}{\sqrt{\Sigma_{j=1}^{N} \ w_j}}$$
$$\sum_{j=1}^{N} w_j = 1$$

After we've given each financial statistic a weight, we'll need to normalize them such that they add up to 1. The normalized weight is then multiplied by each normalized metric from step 2.

4. For each criterion, determine the best and worst options:

$$\chi_j^b = \max_{i=1}^{M} \chi_{ij}$$
$$\chi_j^w = \min_{i=1}^{M} \chi_{ij}$$

Across all organizations, we're looking for the top and lowest values of each financial metric.

5. Determine the Euclidean distance between the goal option and the best/worst option:

$$d_i^b = \sqrt{\sum_{j=1}^{N} \ \left(X_{ij} - X_j^b\right)^2}$$

$$d_i^w = \sqrt{\sum_{j=1}^{N} \ \left(X_{ij} - X_j^w\right)^2}$$

It measures the geometric distance between the value of each financial metric for an explicit firm I and the best/worst value of that metric across all companies.

6. For each possibility, determine how similar it is to the worst option. Our TOPSIS scores are the results.

$$S_i = \frac{d_i^w}{d_i^w + d_i^b}$$

We calculate a score for each organization depending on the distance obtained in the previous steps.

7. This sorts the options in descending order based on their TOPSIS score. The firm with the most comparable measures will receive the greatest score and, as a result, will be at the top of our list.

Data Analysis
TOPSIS approach has its own six step process which are adopted in this study for evaluating the financial-performance of Islamic banks. Each step is discussed in details below;

Step 1. Matrix Construction

Matrix for the ten financial ratios which are discussed in details in chapter 3. The average values matrices ate given in table 1, 2 and 3 for year 2019, 2020 and 2021.

Table 1 Calculated Ratios for year 2019

Average Calculation for Year 2019											
S.NO	**Banks**	**FC1**	**FC2**	**FC3**	**FC4**	**FC5**	**FC6**	**FC7**	**FC8**	**FC9**	**FC10**	**Average**
1	ALBK	3.24	3.24	0.91	10.57	-0.04	0.00	0.87	4.38	-0.04	1.26	2.44
2	BIPL	3.20	3.74	0.94	16.46	0.13	0.01	0.82	0.02	0.15	1.20	2.67
3	DIBP	3.15	3.15	0.92	11.30	0.11	0.01	0.93	7.20	0.15	1.36	2.83
4	MBL	4.04	4.04	0.96	21.95	0.18	0.01	0.52	3.21	0.17	0.70	3.58

| 5 | MCBI | 19.39 | 19.39 | 0.81 | 4.28 | -0.03 | -0.01 | 0.34 | 0.96 | -0.13 | 0.36 | 4.54 |

Table 2   Calculated Ratios for year 2020

Average Calculation for Year 2020

S.NO	Banks	FC1	FC2	FC3	FC4	FC5	FC6	FC7	FC8	FC9	FC10	Average
1	ALBK	4.27	4.27	0.92	11.41	-0.02	0.00	0.77	5.28	-0.02	1.01	2.79
2	BIPL	4.67	5.29	0.93	15.89	0.02	0.00	0.81	0.02	0.02	1.03	2.87
3	DIBP	6.76	6.76	0.93	12.24	0.14	0.01	0.78	10.79	0.17	0.92	3.95
4	MBL	3.09	3.09	0.96	22.23	0.22	0.01	0.66	3.70	0.18	0.98	3.51
5	MCBI	6.45	6.45	0.89	8.54	-0.11	-0.01	0.50	1.61	-0.26	0.59	2.46

Table 3   Calculated Ratios for year 2021

Average Calculation for Year 2021

S.NO	Banks	FC1	FC2	FC3	FC4	FC5	FC6	FC7	FC8	FC9	FC10	Average
1	ALBK	9.05	9.05	0.92	12.93	-0.02	0.00	0.81	4.85	-0.01	0.91	3.85
2	BIPL	4.53	2.14	0.93	17.48	0.07	0.00	1.43	0.02	0.05	1.84	2.85
3	DIBP	6.95	6.95	0.92	11.60	0.16	0.01	1.26	6.10	0.13	1.48	3.56
4	MBL	6.26	6.26	0.95	21.41	0.31	0.01	0.88	4.05	0.16	1.04	4.13
5	MCBI	19.59	19.59	0.90	9.41	-0.02	0.00	0.52	1.70	-0.02	0.54	5.22

Step 2. Normalization of alternative values

Normalized matrix for alternatives has been calculated by the formula which is given in methodology section. The results of normalized matrices are given in Tables 4, 5 and 6.

Table 4 Normalized Matrix 2019

S.NO	Banks	FC1	FC2	FC3	FC4	FC5	FC6	FC7	FC8	FC9	FC10
1	ALBK	0.157	0.157	0.449	0.332	0.146	0.212	0.532	0.483	0.122	0.539
2	BIPL	0.156	0.181	0.461	0.518	0.502	0.477	0.501	0.002	0.495	0.510
3	DIBP	0.153	0.153	0.452	0.355	0.424	0.576	0.567	0.794	0.488	0.582
4	MBL	0.196	0.196	0.470	0.691	0.732	0.530	0.319	0.353	0.572	0.297
5	MCBI	0.943	0.939	0.400	0.135	0.106	0.338	0.206	0.106	0.419	0.152

Table 5 Normalized Matrix 2020

S.NO	Banks	FC1	FC2	FC3	FC4	FC5	FC6	FC7	FC8	FC9	FC10
1	ALBK	0.365	0.357	0.442	0.344	-0.085	-0.105	0.483	0.416	-0.055	0.490
2	BIPL	0.399	0.442	0.450	0.479	0.058	0.053	0.504	0.001	0.047	0.499
3	DIBP	0.578	0.564	0.448	0.369	0.496	0.580	0.491	0.851	0.465	0.447
4	MBL	0.263	0.257	0.462	0.670	0.771	0.516	0.415	0.292	0.509	0.476
5	MCBI	0.551	0.539	0.431	0.257	-0.385	-0.618	0.313	0.126	-0.721	0.287

Table 6 Normalized Matrix 2021

S.NO	Banks	FC1	FC2	FC3	FC4	FC5	FC6	FC7	FC8	FC9	FC10

1	ALBK	0.377	0.383	0.446	0.380	-0.048	-0.062	0.350	0.542	-0.037	0.326
2	BIPL	0.189	0.090	0.450	0.514	0.203	0.198	0.619	0.002	0.212	0.659
3	DIBP	0.290	0.294	0.443	0.341	0.451	0.659	0.547	0.681	0.600	0.529
4	MBL	0.261	0.265	0.458	0.630	0.865	0.712	0.379	0.452	0.761	0.374
5	MCBI	0.817	0.829	0.435	0.277	-0.068	-0.124	0.223	0.190	-0.115	0.195

Step 3: Weighted Normalized matrix with Positive and Negative Ideals

It the third step that there are some weightages given to each ratio based on the priority of the ratios. The positive idles and negative ideals are identified from the weighted normalized matrix. The results are given in tables 7, 8 and 9 contains the positive and negative idle values. Positive idle is the ration value which is considered good if it has higher value and negative idles are the value which can be considered small as a good ratio.

Table 7 Weighted Normalized Matrix and Positive and Negative Idles for Year 2019

Banks	FC1	FC2	FC3	FC4	FC5	FC6	FC7	FC8	FC9	FC10
ALBK	0.0157	0.0157	0.0449	0.0332	0.0147	0.0212	0.0532	0.0483	0.0122	0.0539
BIPL	0.0156	0.0181	0.0461	0.0518	0.0502	0.0477	0.0501	0.0002	0.0495	0.0510
DIBP	0.0153	0.0153	0.0452	0.0355	0.0424	0.0576	0.0567	0.0794	0.0488	0.0581
MBL	0.0197	0.0196	0.0470	0.0691	0.0732	0.0530	0.0319	0.0353	0.0571	0.0297
MCBI	0.0943	0.0939	0.0400	0.0135	0.0106	0.0338	0.0206	0.0106	0.0419	0.0152
Positive ideal	**0.0943**	**0.0939**	**0.0400**	**0.0135**	**0.0732**	**0.0576**	**0.0567**	**0.0794**	**0.0571**	**0.0581**
Negative Ideal	**0.0153**	**0.0153**	**0.0470**	**0.0691**	**0.0106**	**0.0212**	**0.0206**	**0.0002**	**0.0122**	**0.0152**

Table 8 Weighted Normalized Matrix and Positive and Negative Idles for Year 2020

Banks	FC1	FC2	FC3	FC4	FC5	FC6	FC7	FC8	FC9	FC10
ALBK	0.0365	0.0357	0.0443	0.0344	-0.0085	-0.0108	0.0483	0.0417	-0.0055	0.0490
BIPL	0.0399	0.0443	0.0451	0.0479	0.0058	0.0054	0.0505	0.0001	0.0047	0.0499
DIBP	0.0578	0.0565	0.0448	0.0369	0.0496	0.0581	0.0491	0.0851	0.0465	0.0447
MBL	0.0264	0.0258	0.0462	0.0670	0.0772	0.0516	0.0415	0.0292	0.0510	0.0477
MCBI	0.0552	0.0539	0.0432	0.0257	-0.0383	-0.0618	0.0313	0.0127	-0.0720	0.0288
Positive ideal	**0.0578**	**0.0258**	**0.0432**	**0.0670**	**0.0772**	**0.0581**	**0.0505**	**0.0851**	**0.0510**	**0.0499**
Negative Ideal	**0.0264**	**0.0565**	**0.0462**	**0.0257**	**-0.0383**	**-0.0618**	**0.0313**	**0.0001**	**-0.0720**	**0.0288**

Table 9 Weighted Normalized Matrix and Positive and Negative Idles for Year 2021

Banks	FC1	FC2	FC3	FC4	FC5	FC6	FC7	FC8	FC9	FC10
ALBK	0.0378	0.0383	0.0446	0.0380	-0.0047	-0.0063	0.0351	0.0542	-0.0038	0.0327
BIPL	0.0189	0.0091	0.0450	0.0514	0.0203	0.0199	0.0620	0.0002	0.0213	0.0659
DIBP	0.0290	0.0294	0.0444	0.0342	0.0451	0.0660	0.0547	0.0682	0.0601	0.0530
MBL	0.0261	0.0265	0.0459	0.0630	0.0865	0.0712	0.0379	0.0453	0.0761	0.0374
MCBI	0.0818	0.0830	0.0436	0.0277	-0.0068	-0.0120	0.0223	0.0191	-0.0113	0.0195
Positive ideal	**0.0818**	**0.0830**	**0.0459**	**0.0630**	**0.0865**	**0.0712**	**0.0620**	**0.0682**	**0.0761**	**0.0659**

Negative Ideal	0.0189	0.0091	0.0436	0.0277	-0.0068	-0.0120	0.0223	0.0002	-0.0113	0.0195

Step 4: Separation Indices from the Weighted Normalized Matrix

The separation indices are calculated from the weighted indices of the average ratios calculated. Table 10 contains the separation indices from year 2019-2021. The procedure of calculating the separation indices was already above.

Table 10 Separation Measures from 2019-2021

Banks	2019		2020		2021	
	Si+	Si-	Si+	Si-	Si+	Si-
ALBK	0.021	0.006	0.018	0.005	0.027	0.006
BIPL	0.024	0.006	0.018	0.009	0.025	0.009
DIBP	0.014	0.014	0.002	0.081	0.008	0.022
MBL	0.023	0.009	0.006	0.072	0.009	0.029
MCBI	0.098	0.017	0.039	0.006	0.029	0.010

Step 5 Calculation of the relative closeness to the ideal solution (C*) and Ranks

In closeness to the ideal solution is calculated by the formula which is discussed in detailed in chapter three. The results of closeness to the ideal solution and the ranks based on the closeness for five banks are given in table 11 below;

Table 11 Rank of Banks from 2019-2021

Banks	2019		2020		2021	
	CI*	Rank	CI*	Rank	CI*	Rank
ALBK	0.226	3	0.227	4	0.172	5
BIPL	0.203	4	0.330	3	0.259	3
DIBP	0.500	**1**	0.977	**1**	0.735	**2**
MBL	0.272	**2**	0.923	**2**	0.757	**1**

MCBI	0.146	5	0.134	5	0.258	4

Based on the results of Table 11 in 2019 the overall rank based on the TOPSIS approach Dubai Islamic Bank has the 1 rank and Meezan bank has the second rank among the selected Islamic banks. Where as in 2020 again the Dubai Islamic Bank has the top position among the Islamic banks and Meezan bank has the second rank. In 2021 the Meezan bank has 1st rank and Dubai Islamic Bank the second rank in the selected Islamic Banks.

Conclusion

Basic purpose of this research endeavor is to measure the financial-performance of Islamic Banks (i.e., Albarka Banka, Bank Islami, Dubai Islamic Bank, Meezan Bank and MCB Islamic bank) using a more comprehensive method TOPSIS (Technique for Order Preference by Similarity to Ideal Solution). Which is evaluated by using different ratios and then a matrix is constructed from the give ration for different banks and then the matrix is transformed into normalized matrix for each year. The weights are being given to each ratio and then evaluated the weighted normalized matrix for year 2019, 2020 and 2021. Then the positive idles and Negative idles are found in the ratio list and then the separation indices are calculated which is the distance between positive idles and negative idles. At the last the rank has been given according the distance found in the previous step.

The result of Table 11 for the year 2019 the rank order is given that the Dubai Islamic Bank has the 1st rank among the Islamic banks, Meezan bank has the second, Albarka bank has the 3rd rank, Bank Islami has the 4th and MCB Islamic has the 5th rank. This shows that the Dubai Islamic Bank has higher performance than other Islamic Banks in Pakistan.

The result of Table 11 for the year 2020 the rank order is given that the Dubai Islamic Bank has the 1st rank among the Islamic banks, Meezan bank has the second, Bank Islami has the 3rd rank, Albarka bank has the 4th and MCB Islamic has the 5th rank. This shows that the Dubai Islamic Bank has higher performance than other Islamic Banks in Pakistan. While Bank Islami got the 3rd position which is higher than the previous year 2019.

The result of Table 11 for the year 2021 the rank order is given that the Meezan bank has the 1st rank among the Islamic banks, Dubai Islamic Bank has the second, Bank Islami has the 3rd rank, MCB Islamic has the 4th and Albarka bank has the 5th rank. This shows that the Meezan Bank has higher performance than other Islamic Banks in Pakistan. But there is alarming point for the Albarka Bank that they lost their rank position in 2021 and they may cause a loss in the next financial years.

Recommendation

There are a number of recommendations suggested for different banks based the ranks;

Albarka Bank

Albarka bank has a negative trend in the financial-performance by using the TOPSIS approach so the management must concentrate on the financial statements and adopt the new ideas and processes (innovation) are to be implemented to boost the financial-performance otherwise in future the bank will face serious consequences in the market.

MCB Islamic Bank

The Bank started operation in 2019 so in the initial years it has low performance as usual every business has but after two year it got the 4th position based on TOPSIS approach and if the management maintain the pace of growth so it will get a good financial-performance in the banking sector. The performance is almost same with the Dubai Islamic Bank and in the next year it will be among the top Islamic bank in the country.

Bank Islami Pakistan

Bank Islami Pakistan is the first bank which are continuously working on innovation in the market. The bank must concentrate on other processes and products and also focus on the customer demands as well.

Limitation of the Study

Only Islamic Banks were selected on the basis of data availability. All other banks are not included and especially conventional banks are excluded from the study.

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