

UNDERSTANDING THE GROWTH AND IMPACT OF ISLAMIC BANK BRANCH OFFICES IN PAKISTAN: AN EMPIRICAL ANALYSIS

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Abstract: *The global presence of the Islamic finance sector has grown as a significant alternative to traditional finance. Islamic banking has grown quickly in Pakistan thanks to its foundation in Sharia law, which places a strong emphasis on moral behaviour and equitable revenue distribution. An empirical examination into the spread and socioeconomic effects of Islamic bank branch offices throughout Pakistan is conducted in this paper. The trend parabolic model was applied in order to get more precise results and it was predicted how many branches will be in Pakistan in 2025.*

Key words: *Islamic finance, Islamic banking, Parabolic model, RMSE, MAE, Branch office growth.*

Introduction The Islamic finance industry has developed to the point that it is acknowledged as a viable replacement for traditional finance. Currently, Islamic financial foundations serve both Muslim and non-Muslim countries with a wide range of services (Islamic Economics, 2021). Within Pakistan's financial environment, Islamic banking is a unique and rapidly expanding industry driven by Sharia-based values that prioritize moral behavior and just distribution of income. Its development within the framework of the nation's economy has changed the banking sector and spurred debates about its future direction and social implications. The physical growth and geographic dispersion of Islamic bank branch offices, which act as concrete indicators of the industry's penetration and reach across many geographies, are crucial to this discussion.

Being a prominent member of international Islamic finance foundations that were formed to provide the necessary legal, regulatory, supervisory, and Shariah compliance infrastructure for Islamic finance foundations, Pakistan has continued to be at the forefront of promoting Islamic finance. The growth of the Islamic banking sector both domestically and globally has been aided by Pakistan's proactive agreements with the Islamic Financial Services Board (IFSB), the Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), the International Islamic Financial Market (IIFM), and other central banks (Islamic Economics, 2021). Pakistan has been a leader in the adoption of Islamic banking, with a regulatory environment that supports the industry's expansion. Empirical indications of the concrete impact of this moral financial system on the national economy are the quantity and distribution of Islamic bank branch offices across the nation.

With over 1,100 branches and a resource base of over Rs. 900 billion, Islamic banking in Pakistan has grown significantly over the past ten years and currently

accounts for over 10% of the nation's banking sector. Considering the interest of all parties involved and the nation's comparatively high degree of financial exclusion (Islamic Economics, 2021). The objective of this article is to conduct an empirical investigation and analyze the spread and effects of Islamic bank branch offices in Pakistan.

Review of the topic (Importance of Analyzing Branch Office Growth)

An objective indicator of the acceptance and penetration of Islamic banking in a particular area or nation is the growth of branch offices. Examining this expansion offers valuable perspectives on the industry's position in the financial market. Moreover, the expansion of branch offices is correlated with economic development since the money they receive is invested in Sharia-compliant securities and supports industries that follow the rules of Islamic finance. Understanding the financial effects of Islamic banking on regional economies is made easier by analyzing this growth.

The rise of branch offices can be analyzed to determine which regions have a growing need for financial goods that adhere to Sharia law. Banks use this data as a guide for creating customized goods and services to successfully address consumer demands. To summarize, there are many advantages to Islamic banking in Pakistan that go much beyond traditional financial systems. Islamic banking promotes social responsibility, financial inclusion, and economic progress through emphasizing ethical standards, risk-sharing, and asset-backed finance (Baloch, 2023).

Data and methodology

For this present analysis that studies the growth of Islamic banks in Pakistan, Islamic Financial Services Board (IFSB) has been applied. The IFSB, by publishing global prudential standards and guiding principles for the industry—which is broadly defined to include the banking, capital markets, and insurance sectors—is an international standard-setting organization, promotes and strengthens the soundness and stability of the Islamic financial services sector (IFSB, 2019). Data type is time-series, quarterly, and includes data starting from 2014 till 2022.

In this article, it has been used different analyzing methods to perform analysis part. The following methods are applied: trend analysis (linear/parabolic), moving average (MA) smoothing, exponential smoothing, autoregressive (AR), and moving average (MA) models. These are statistical tools that are frequently used in time series analysis, particularly for financial or economic data like the expansion of Islamic bank offices, to comprehend and foresee patterns in data. Applying these techniques could help in determining underlying growth trends, projecting future growth rates, and comprehending the variables impacting branch office expansions in the context of examining the expansion of Islamic bank branch offices in Pakistan. Since every technique has advantages and disadvantages of its own, combining different methods can yield more accurate projections and a more thorough analysis.

For analyzing the data, R studio has been applied. It's an integrated development environment (IDE) that facilitates data analysis, visualization, and modeling through R.

Results and analysis

As mentioned above trend analysis (linear/parabolic), moving average (MA) smoothing, exponential smoothing, autoregressive (AR), and moving average (MA) models have been used to get the best results. Accordingly, to the results, it was chosen the best option.

Trend analysis, to be more precise parabolic model has been defined as the best model according to the results obtained from the R studio.

According to the results, the intercept represents the estimated value of X when both trend and trend² are zero. For each unit increase in the trend variable, the estimated value of X increases by 44.6972 units, assuming other variables are held constant. Whereas, The coefficient for the quadratic term trend² suggests a downward trend in the relationship between X and the squared term of trend For every unit increase in trend², x is estimated to decrease by 0.4330 units, while other variables are held constant. Coming to statistical significance all coefficients statistically significant with very small p-values <0.001 indicating strong evidence against the null hypothesis. The coefficient of determination (R-squared) is 0.9738, suggesting that approximately 97.38% of the variability in X is explained by the linear and quadratic terms of trend.

Residuals:				
Min	1Q	Median		
-79.799	-35.879	21.146	144.044	
Coefficients				
	Estimate	Std. Error	t value	Pr(> t)
(Intercept)	840.0922	27.2706	30.81	2e-16***
trend	44.6972	3.3987	13.15	1.13e-14 ***
l(trend ²)	-0.4330	0.0891	-4.86	2.78e-05 ***
Residual standard error	51.54 on 33 degrees of freedom			

By checking for error by using the MAE, RMSE, MPE, and MAPE, results showed that RMSE (Root Mean Squared Error), is 49.35, indicating the model's predictions are, on average, about 49.35 units away from the actual values. and MAE (Mean absolute Error), is 38.18, suggesting the average absolute deviation of predictions from the actual values is 38.18 units. Also, it has been done prediction for the next three years starting from 2023 until 2026. According to prediction, the number of Islamic banks in Pakistan will be around 1987.

Conclusion and recommendations

The examination of the growth of Islamic bank branch offices in Pakistan highlights the noteworthy advancements achieved by Islamic finance within the nation's financial sector. The empirical study, which makes use of a variety of statistical techniques and a time-series dataset covering the years 2014 to 2022, shows the industry's impressive development trend.

The results highlight how important Islamic banking is to advancing moral finance concepts, encouraging financial inclusion, and advancing economic growth. The growth of branch offices is a concrete measure of the industry's acceptance and penetration in different parts of Pakistan. Furthermore, with significant statistical significance and high explanatory power (R-squared value of 97.38%), the statistical models—particularly the parabolic model—have clarified important trends.

Recommendations for this could be strategic expansion. To be exact Islamic banking institutions can strategically expand into regions that exhibit a growing demand for financial products that comply with Sharia law by utilizing the insights gathered from the growth of their branch offices. Moreover, the creation of new financial products will be facilitated by research and innovation in Islamic finance, which will broaden offers and draw in a larger clientele.

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