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Factors that Support Revenue Generation in Banking Industry from 2019 to 2023

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This research paper investigates how banking sector generates its income on which factor revenue and profitability of banking sector depends. And it also investigates the income streams fund income, fee income, & revenue generates from interest income and its impact on bank's performance. The results of study suggest bank's profitability and its contribution to economic development of Pakistan. This study reveals that how Interest Income & Fee based income have a large variation in Assets to GDP & Deposits to GDP. Deposits are influenced by two independent variables. Interest income has positive impact on inflation. We have discussed several modes of income of banks in this study. We have observed fee-based income does not depend on fluctuating interest rates. But as per this research Deposits have a positive relationship with Interest income & Fee based income. In this research Interest income & Fee based income shows variation in inflation. Higher inflation is source of high earning for banks.

1. Introduction

The banking sector plays a pivotal role in Pakistan's economy by mobilizing savings, facilitating investments, and driving economic growth. This study investigates the sources of revenue generation in Pakistani banks and their impact on the sector's expansion, with a particular focus on assets as a key growth indicator. Historically, Pakistan's banking sector has undergone significant transformations, from nationalization in 1974 to privatization in the 1990s, each phase shaping its current structure and performance. Post-liberalization reforms revitalized the sector, enabling it to withstand global financial crises and emerge as one of the economy's most profitable segments. Today, the sector boasts robust growth, with total assets surging from PKR 34 trillion to PKR 44 trillion, reflecting strong public confidence despite macroeconomic challenges like high inflation and rising policy rates. Banks generate revenue through two primary streams: traditional interest-based income (loans, deposits) and fee-based services (ATM transactions, digital banking, and credit card fees). Notably, non-intermediation activities contribute nearly 80% of total revenue (Ahsan, 2004), underscoring a shift toward service-oriented models.

The rise of digital banking (Maliuha & Gavriluk, 2023) has further revolutionized revenue generation, enhancing convenience for customers while reducing operational costs for banks. As financial intermediaries, banks leverage their capital (Suresh et al., 2014) to attract investments, extend loans, and fund new ventures, thereby reinforcing their profitability and economic impact. The sector's performance is influenced by both internal and external factors. Internally, asset quality, interest rates, and operational efficiency determine profitability (Gisycki, 2001). Externally, macroeconomic variables like inflation, economic growth, and government policies play a critical role (Athanasoglou et al., 2008).

The evolution of Pakistan's banking sector can be divided into three distinct phases. The pre-nationalization era (1947–1974) saw the establishment of foundational institutions like the State Bank of Pakistan (SBP) and National Bank of Pakistan (NBP) (Usman, 2021). The nationalization phase (1974–1990) consolidated the sector under government control, aiming to address economic disparities (Mustapha, 2006). The post-nationalization phase (1990–present) marked a return to privatization, fostering competition and innovation through private-sector participation. These reforms not only improved governance but also expanded financial inclusion, aligning with global banking trends. This study seeks to identify the key drivers of revenue generation and their implications for growth, offering insights for policymakers and stakeholders. By analysing historical trends, current performance, and future challenges, it aims to provide actionable recommendations to sustain the sector's upward trajectory in an increasingly complex economic landscape. The main objective of this study is to find out on what factors growth of banking industry depends upon. And how these factors could help in revenue generation for banks. And how these were effected by macroeconomic factor Inflation? (Khan et al., 2020).

3. Methodology

This study employs a quantitative research methodology to examine the relationship between banking sector revenue generation and economic performance in Pakistan. The research follows a positivist philosophy, focusing on measurable and objective data analysis to establish empirical relationships between variables (Bryman, 2016). A deductive approach is adopted, where theoretical frameworks guide hypothesis testing using collected data. The study analyses annual data from 2019 to 2023 for 10 major Pakistani banks listed on the Pakistan Stock Exchange, with data sourced from State Bank of Pakistan reports, World Bank databases, and Wall Street Journal publications (Creswell, 2014). The independent variables include fee-based income and interest income, while the dependent variables comprise assets-to-GDP ratio, deposits-to-GDP ratio, and inflation rate (Sekaran & Bougie, 2016).

For data analysis, ordinary least squares (OLS) regression is employed to examine the relationships between these variables. Additional statistical tests including correlation analysis, multicollinearity checks, and heteroskedasticity tests are conducted to ensure the robustness of the findings (Gujarati, 2015). These methods are well-established in financial research for investigating such relationships. The sample selection focuses on top-performing banks to ensure data quality and relevance to the research objectives. The analysis aims to quantify how different revenue streams in banking contribute to broader economic indicators, while controlling for potential confounding factors (Wooldridge, 2016).

The methodological approach ensures that the findings are statistically valid and can provide meaningful insights into banking sector performance and its economic impact. By using standardized financial data and established econometric techniques, the study maintains academic rigor while addressing its core research questions about revenue generation and economic contribution in Pakistan's banking sector (Saunders & Thornhill, 2019). The results are expected to offer valuable implications for policymakers and banking professionals regarding strategies for sustainable growth and economic stability (Kothari, 2014).

3. Findings

3.1 Statistical reporting & data analysis:

Table No 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.937[a]	.878	.873	469024.572

a. Predictors: (Constant), Fee based income, Interest income

Table No 2: ANOVA[a]

Model		Sum of Squares	Do	Mean Square	F	Sig.
1	Regression	74644314106005.900	2	37322157053002.950	169.658	<.001[b]
	Residual	10339250322494.514	47	219984049414.777		
	Total	84983564428500.420	49			

a. Dependent Variable: Assets to GDP

b. Predictors: (Constant), Fee based income, Interest income

Table No 3: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	422567.242	103286.750		4.091	<.001
	Interest income	5.021	.911	.565	5.509	<.001
	Fee based income	62.745	15.928	.404	3.939	<.001

a. Dependent Variable: Assets to GDP

3.2 2nd dependent variable Deposits to GDP

Table No 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.962[a]	.925	.922	235742.680

a. Predictors: (Constant), Fee based income, Interest income

Table No 5: ANOVA[a]

Model		Sum of Squares	Do	Mean Square	F	Sig.
1	Regression	32446537360584.120	2	16223268680292.060	291.919	<.001[b]
	Residual	2612006725262.383	47	55574611175.795		
	Total	35058544085846.504	49			

a. Dependent Variable: Deposits to GDP

b. Predictors: (Constant), Fee based income, Interest income

Table No 6: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	274620.003	51914.328		5.290	<.001
	Interest income	1.541	.458	.270	3.365	.002
	Fee based income	71.667	8.006	.718	8.952	<.001

a. Dependent Variable: Deposits to gdp

3.3 3rd Dependent Variable Inflation

Table No 7: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.755[a]	.570	.552	4.265804804965947

a. Predictors: (Constant), Fee based income, Interst income

Table No 8: ANOVA[a]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	1133.570	2	566.785	31.147	<.001[b]
	Residual	855.263	47	18.197		
	Total	1988.833	49			

a. Dependent Variable: Inflation

b. Predictors: (Constant), Fee based income, Interst income

Table No 8: Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	10.470	.939		11.146	<.001
	Interst income	5.988E-5	.000	1.393	7.224	<.001
	Fee based income	-.001	.000	-.905	-4.695	<.001

a. Dependent Variable: Inflation

Table No 9: Corealtions

		Assets to GDP	**Deposits to GDP**	**Interest income**	**Fee based income**	**Inflation**
Assets to GDP	Pearson Correlation	1	.958**	.916**	.894**	.373**
	Sig. (2-tailed)		<.001	<.001	<.001	.008
	N	50	50	50	50	50
Deposits to GDP	Pearson Correlation	.958**	1	.894**	.953**	.309*
	Sig. (2-tailed)	<.001		<.001	<.001	.029
	N	50	50	50	50	50
Interest income	Pearson Correlation	.916**	.894**	1	.868**	.607**
	Sig. (2-tailed)	<.001	<.001		<.001	<.001
	N	50	50	50	50	50
Fee based income	Pearson Correlation	.894**	.953**	.868**	1	.304*
	Sig. (2-tailed)	<.001	<.001	<.001		.032
	N	50	50	50	50	50
Inflation	Pearson Correlation	.373**	.309*	.607**	.304*	1
	Sig. (2-tailed)	.008	.029	<.001	.032	
	N	50	50	50	50	50

**. Correlation is significant at the 0.01 level (2-tailed).
Association is significant at the 0.05 level (2 tailed).

Table No 10: Descriptive Statistics

	N	Min	Max	Mean	Std. Deviation	Variance	Skewness		Kurtosis	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
Assets to gdp	50	287020	5904675	1875828.46	1316950.439	173435845 7724.498	1.258	.337	1.482	.662
Deposits to GDP	50	217785	3947752	1233100.70	845860.799	7154804 91547.887	1.167	.337	1.336	.662
Interest income	50	7460	714646	167280.00	148170.387	2195446 3623.429	1.625	.337	3.057	.662
Fee based income	50	9.03633484 1705070	40330.00000 0000000000	9776.50369 9094155000	8477.237436 608090000	71863554.557	1.263	.337	2.342	.662
Inflation	50	9.03633484 1705070	25.9997683 35560148	13.8369909 41560273	6.3709056 42151654	40.588	1.302	.337	.001	.662
Valid N (list wise)	50									

4. Results and Discussion

4.1 Relationship of 1st dependent variable Assets to GDP with independent variable Fee based income& Interest income:

The value of R (0.937) indicates very strong linear relationship between predictors (Fee based income & Interest income). The value of R square (0.878) explain by the fee based income & interest income indicates a good fit model. The value of Adjusted R square (0.873) indicates the strong fit model (Wooldridge, 2016). Even after considering no of predictors. The value of the standard error (469024.572) indicates standard deviation of the residuals (Gujarati, 2015). The ANOVA table tests whether the model is significant or not.

The value of sum of squares (74644314106005.900) explains the variation of independent variables in the model. The value of the residual sum of square 10339250322494.514this variation not explained by the model. The value of total sum of squares (84983564428500.420) explains the variation in dependent variable. The value of regression mean square (37322157053002.950) represents the average amount of variation explain by each predictor. The F- value (169.658) is very high indicates model is highly statistically significant. The P-value tells the null hypothesis A P-value of less than 0.5 shows model is significant. The value <0.001 is quite less than 0.5 it shows that independent variables Fee based income & Interest income are significantly related to dependent variables.

4.2 Relationship of 2nd dependent variable Deposits to GDP with Fee based income & Interest income:

The value of R (0.962) indicates the correlation between predicted values of dependent variable .and R value indicates very strong relationship between dependent (Deposits to GDP) & independent variables (Fee based income & Interest income). The value of R square (0.925) indicates a strong relationship between deposits, Fee based income & Interest income. This value shows how deposits in banks depends heavily on Fee based income & Interest income. The value of Adjusted R square (0.922) measures a goodness of fit. The value of standard error (235742.680).

The value of regression sum of squares (3244537360584.120) shows variation in dependent variables which are influenced by independent variables. The value of residual sum of squares indicates how deposits to GDP are depends on changing in Fee based income & interest income. The F- value is (291.919) which is very high. higher F- value indicates model is highly significant. The P- value shows model is statistically significant the P- value is less than 0.001 so null hypothesis is rejected because independent variables are not affected by dependent variables.

4.3 Relationship of 3rd dependent variable Deposits to GDP with Fee based income & Interest income:

The value of R 0.755 is the correlation coefficient indicates strong positive relationship between independent variables like Fee based income & Interest income and Inflation. The value of R square 0.570 shows 57% of variation in inflation by Fee based income & Interest income. The value of adjusted R square is 0.552 is not much strong. The value of standard error is 4.27 a much smaller value shows better accuracy.The ANOVA table indicate good fit model.

The f -value is 31.47 is < 0.001 indicates significance in overall model. The P-value is < 0.001 indicates statistically significant.

4.4 Correlations

This table shows how Fee based income, Interest income and Inflation are correlated with each other. Interest income, Fee based income has a moderate correlation with Inflation. The value of Inflation 0.607 and 0.304 indicates Fee based income has a weaker effect but when two dependent variables increase inflation also increase.

5. Conclusion

From the following study and gathered data we found that Fee based income & Interest income have a positive relationship with Assets to GDP, Deposits to GDP & Inflation. I have gathered data from top 10 banks of Pakistan. The Fee based income has a large no of variation in Assets to GDP. Same as deposits are influenced by these two independent variables. Interest income has a positive impact on Inflation but Fee based income impacts negative on inflation. This study tells us how banking related income from different sources like Fee based income & Interest income influences inflation. Banks also generates income through trading activities like trading in foreign exchange, and other financial instruments. Banks also gets income through asset management in which they provide management services, and provide advisory services for investment in corporate and investment banking sector. As we found that deposits are greatest source of income for banks and these deposits and their interest income are contributed to economy. According to this research these deposits have a positive relationship with interest income & fee-based income. These deposits enhance banking sector ability to generate income and support economy of a country. These deposits increase liquidity in banking sector which helps and support other banking activities liker investment. Facilitating loans. Which further contributes to overall GDP growth of Pakistan. In this research Interest income & Fee based income shows variation in inflation. Higher inflation leads to high interest rate and huge amount of earnings for banks. The SBP rises interest rates to control inflation. The impact of inflation on income generation of banks is if banks get more income from interest rates, it does not cause inflation in a country but its effects environment continuous rising inflation can be controlled through monetary policy. The Fee based income does not depend on fluctuating interest rates. The Fee based income banks get from ATM fees. Cash withdrawal fees Annual charges, and transaction fees. This income is more stable for banks. Higher Fee based income tells how customers are engaged in financial products offered by banks. According to this research Fee based income does not have much impact on inflation. Because increased amount of fee of banking services which have an indirect impact of higher inflation in a country.

5.1 Limitations and Recommendations

The study has several limitations, including its narrow focus on only two predictor variables (interest income and fee-based income), which overlooks other macroeconomic, social, and political factors influencing assets, deposits, and inflation. The low R^2 value for inflation (0.570) further suggests the model fails to capture its full complexity. Additionally, the small sample size (n=50) and cross-sectional approach limit the analysis, while high

correlations between variables raise concerns about multicollinearity. To improve future research, recommendations include incorporating additional variables (e.g., government expenditure, exchange rates), using time-series data for trend analysis, addressing multicollinearity via techniques like PCA or Ridge Regression, and expanding the dataset to enhance generalizability. These adjustments would strengthen the model's explanatory power and predictive accuracy.

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