"THE IMPACT OF INTEREST RATE FLUCTUATIONS ON BANK PROFITABILITY IN INDIA: A COMPARATIVE ANALYSIS OF PUBLIC AND PRIVATE SECTORS"

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ABSTRACT

The purpose of this study was to examine the impact of market interest rates on the profitability of Indian public and private banks. To enhance understanding of this effect, the sample was divided into two groups: 1) Public Banks, which includes four state-owned banks, and 2) Private Banks, consisting of five private banks. Interest rates were represented by bank lending rates, while bank profitability was measured using return on equity (ROE) and return on assets (ROA). A regression model was employed to analyse the relationship between interest rates and profitability. The findings reveal that interest rates have a greater influence on ROA and ROE for private banks compared to public banks.

KEYWORDS: Interest rate, ROA, ROE, private sector, public sector

INTRODUCTION

In financial markets, interest rates are considered one of the most volatile factors. The liberalization of global financial markets has contributed to increased economic instability worldwide. Consequently, the impact of interest rate fluctuations on bank profitability has garnered significant interest from researchers, practitioners, and policymakers. The trade-off between the stability of market interest rates and related policies has become increasingly important. Different policymakers may prioritize interest rate strategies alongside other factors in their assessments.

This article employs a regression analysis to examine the effect of interest rates on bank profitability within the Indian banking sector from 2008 to 2012. Unexpected fluctuations in interest rates play a critical role in financial markets, leading to increased volatility for institutions. According to English (2002), evaluating the overall effects of interest rate changes on the economy and understanding how these rates influence cash flows are essential for determining their impact on bank profitability. Thus, this study uses regression analysis to assess the overall effect of interest rates on the profitability of commercial banks in India.

LITERATURE REVIEW

In early literature, interest rates were often used as indicators of a bank's financial health. The net interest margin of banks is highly susceptible to fluctuations. Samuelson (1945) and Shiller and McCulloch (1987) noted that bank interest rates tend to rise in tandem with bank earnings. Samuelson observed that "an increase in the interest rate would not hinder the banking system as a whole; in fact, it would benefit commercial banks more than savings banks." Similarly, Hancock (1985) provided relevant evidence, stating that rising interest rates lead to declines in output and employment

even at the aggregate level.

Ben Naceur and Goaied (2008) analyzed macroeconomic data and the effects of financial structure on bank profitability, focusing on Tunisia's commercial banks between 1980 and 2000. They concluded that bank size negatively impacts profitability, while the capital ratio has a positive effect. Their findings suggested that macroeconomic factors largely do not influence profitability in Tunisia. Advances in money markets have been beneficial, as banks in the Middle East and North Africa have diversified their revenue streams through stock arrangements and loan intermediation, offsetting decreased margins associated with ownership structures (Naceur and Omran, 2011). Additionally, Sufian and Habibullah (2009) argued that privately held banks outperform others.

Athanasoglou et al. (2008) examined the productivity of Greek banks from 1985 to 2001, focusing on internal bank factors and industry-specific elements related to the macroeconomic environment. Their findings indicated that while size negatively affects profitability, factors such as capital, credit risk, working capital, inflation, industrial growth, and the business cycle all have positive and significant effects (Delis and Kouretas, 2011).

Banks are particularly sensitive to net interest margins, profitability, and the term structure across product specializations. Hanweck and Ryu (2005) found that bank portfolios are highly responsive to changes in interest rates, which in turn relate to net interest margins. The Basel Committee on Banking Supervision (2004) reported that fluctuations in net interest margins are negatively correlated with interest rate

changes but positively correlated with rising yield curves. The impact's extent varies based on the composition of banks' assets and liabilities.

Dietrich and Wanzenried (2011) evaluated the determinants of profitability—industry-specific, macroeconomic, and bank-specific—across 372 commercial banks during the Swiss crisis from 1999 to 2009. They defined the pre-crisis period as 1999–2006 and the crisis period as 2007–2009, using average ROA, ROE, and net interest margin as profitability metrics. Their analysis revealed that well-capitalized banks are more profitable than their less-capitalized counterparts, with a significant increase in loan volume positively impacting profitability. They noted that pre-financing costs negatively affect bank profitability, while diversification has a positive effect.

Sufian (2011) explored the impact of internal and macroeconomic factors on the profitability of Korean banks from 1992 to 2003. He found that lower liquidity levels negatively affected profitability, while banks that focused on diversification experienced positive outcomes. Interestingly, while the financial crisis negatively impacted profitability, Korean banks showed improved profitability post-crisis compared to pre-crisis levels.

Studies by English (2002) and Hanweck and Ryu (2005) demonstrate that interest rate fluctuations significantly impact banks' net interest income. The slope of the yield curve also plays a positive role, which is widely acknowledged in financial market analysis. Short-term interest rates are closely related to banks' loan returns and quickly adjust to shifts in financial market rates. In contrast, banks' return on assets is more closely linked to long-term

interest rates, adjusting more slowly to changes in market interest rates. During periods of maintenance, net interest margins are expected to increase as the yield curve steepens. Notably, an increase in both short-term and long-term interest rates typically results in a temporary decrease in earnings, as returns on assets and liabilities reach their optimal adjustments.

METHODOLOGY

Sample:The banking sector of India serves as the population for this study. The sample is divided into two categories:

1. **Public Sector Banks**: The sample includes major banks such as State Bank of India (SBI), Bank of Baroda, Punjab National Bank (PNB), and Canara Bank.

2. **Private Sector Banks**: The sample comprises prominent private banks including HDFC Bank, ICICI Bank, Axis Bank, Kotak Mahindra Bank, and Yes Bank.

Variables:
Return on Assets:
The return on assets is treated as the dependent variable of the study
Return on Equity:
The return on equity is also the second dependent variable of the study.
Hypothesis
H_1: The interest rate has a significant effect on return on assets of the bank.
H_2:The interest rate has a significant effect on return on equity of the bank.

Public Sector Banks:

Table 1: Regression analysis of Interest Rate and Return on assets

Return on Assets						
	B	T-value	F-statistics	P-value	R^2	R
Constant	.812	2.129		.012		
Interest Rate	.873	7.604	51.993	.000	.251	.449

The table above presents the regression results for interest rates and return on assets of public sector banks. The beta (β) value for interest rates is 0.873, indicating that a one-unit change in interest rates results in an approximate 0.873 unit change in return on assets. The F-statistic value is 51.993, demonstrating that the model is highly significant. The standard threshold for the F-statistic is 4; values above this indicate that the model is suitable for the study, while values below suggest a need for modification.

The p-value for interest rates is 0.000, indicating a significant effect of interest rates on the return on assets of public sector banks in India. The R^2 value is 0.251, meaning that interest rates account for 25% of the variation in return on assets. This suggests that changes in market interest rates impact the profitability of public sector banks in India by approximately 25%. Additionally, the correlation value of R is 0.449, indicating a 45% correlation between interest rates and return on assets.

Table 2: Regression analysis of Interest Rate and Return on equity

Return on Equity						
	B	T-value	F-statistics	P-value	R^2	R
Constant	2.444	6.385		.000		
Interest Rate	.344	4.665	22.568	.000	.138	.398

The table above presents the regression results for interest rates and return on assets of public sector banks. The beta (β) value for interest rates is 0.344, indicating that a one-unit change in interest rates leads to an approximate 0.344 unit change in return on assets. The F-statistic value is 22.568, which demonstrates that the model is highly significant. The standard threshold for the F-statistic is 4; values above this indicate that the model is suitable for the study, while values below suggest a need for modification.

The p-value for interest rates is 0.000, signifying a significant effect of interest rates on the return on assets of public sector banks in India. The R² value is 0.138, indicating that interest rates account for 14% of the variation in return on assets. This suggests that fluctuations in market interest rates impact the profitability of public sector banks in India by approximately 14%. Additionally, the correlation value of R is 0.398, meaning that interest rates and return on assets are 40% correlated with each other.

Private Sector Banks

Table 3: Regression analysis of Interest Rae and Return on assets

Return on Assets						
	B	T-value	F-statistics	P-value	R^2	R
Constant	1.471	6.116		.000		
Interest Rate	.608	9.455	91.042	.000	.344	.515

The table above presents the regression results for interest rates and return on assets of public sector banks. The beta (β) value for interest rates is 0.608, indicating that a one-unit change in interest rates results in an approximate 0.608 unit change in return on assets. The F-statistic value is 91.042, demonstrating that the model is highly significant. The standard threshold for the F-statistic is 4; values above this indicate that the model

is suitable for the study, while values below suggest a need for modification.

The p-value for interest rates is 0.000, indicating a significant effect of interest rates on the return on assets of public sector banks in India. The R² value is 0.344, meaning that interest rates account for 34% of the variation in return on assets. This suggests that changes in market interest rates impact the

profitability of public sector banks in India by approximately 34%. Additionally, the correlation value of R is 0.515, indicating a 52% correlation between interest rates and return on assets.

Table 4: Regression analysis of Interest Rae and Return on equity

Return on equity						
	B	T-value	F-statistics	P-value	R^2	R
Constant	2.421	11.125		.000		
Interest Rate	.362	6.469	41.171	.000	.192	.413

The table above presents the regression results for interest rates and return on assets for state-owned banks. The beta value for interest rates is 0.362, indicating that a one-unit change in interest rates results in an approximate 0.362 unit change in return on assets. The F-statistic is 41.171, demonstrating that the model is highly significant. The default threshold for the F-statistic is 4; values above this indicate that the model is suitable for the study, while values below suggest the need for modification.

The p-value for interest rates is 0.000, signifying that interest rates have a significant impact on the return on equity of private banks in India. The R² value indicates that interest rates account for 19% of the variation in return on equity. Furthermore, fluctuations in market interest rates affect the profitability of private banks in India by approximately 19%. The correlation value of R is 0.413, indicating a 41% correlation between interest rates and return on equity..

Conclusion

The goal of this study was to investigate the impact of interest rates on market performance and profitability within the Indian banking sector. The sample was divided into two categories: public and private banks.

The regression analysis for public sector banks indicates that interest rates significantly influence their return on assets (ROA). The R² value suggests that interest rates account for 25% of the variation in ROA. Additionally, interest rates have a notable effect on the return on equity (ROE) for public sector banks, explaining 14% of the variability in ROE.

In contrast, private banks demonstrate a stronger correlation between interest rates and profitability. The R² value for private banks indicates that interest rates explain 34% of the variation in ROA. For return on equity, interest rates impact profitability by nearly 19%.

Overall, the findings suggest that interest rates primarily affect the private sector more significantly, as evidenced by the differing profitability metrics between public and private banks.

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