

Impact of Basel Accord-III Implementation on Performance of Banks

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Abstract

Purpose

This study analyzed the impact of Basel-III implementation on banks' operational efficiency and financial soundness. The banks from public, private, and foreign segments were selected to understand the magnitude of the impact of Basel-III on different types of banks in India.

Design/methodology/approach

The paper went through pre- and post-diagnostic checks before finalizing the model, spanning from March 2001 to March 2012 (Pre Basel-III) and March 2013 to March 2023 (Post Basel-III). Data analysis was conducted using SPSS software. Pearson Correlation was utilized to check the interdependency of all selected variables. Hypotheses testing was performed using Paired Sample T-tests and regression models.

Findings

The study found that the increased requirement for capital maintenance by banks impacted their profitability, asset-liability composition, and return on assets.

Research limitations/implications

The accord was implemented in 2010 in different phases, and the banking sector perceived the impact accordingly.

Practical implications

The study's practical implications suggest that to safeguard their profit margins, In addition to adhering to regulations, banks need to take proactive steps including assessing their funding strategy, risk profiles, business lines, and capital efficiency.

Originality/value

As Basel implementation is an ongoing process that will help shape future strategies. This paper adds substantial value by offering a comprehensive perspective from banking specialists on Basel III in India, necessary adjustments, its effects, and the future directions of this field of study.

Scope of further study

JEL: G01, G20, G28

Keywords: Basel-III, Capital Adequacy Ratio (CAR), Return on equity, Profitability, Net profit

Introduction

Immediately after the global financial crisis in 2008, the financial stability of the banking sector received prime attention from all corners and more so, the regulatory authorities. The Basel Committee on Banking Supervision introduced a comprehensive plan to arrest and control a recurrence of the global financial crisis. The regulatory body banking supervision redesigned the Basel 3 norms intending to strengthen the financial stability. The objective of these measures aimed to improve the financial strength, financial stability, and soundness of the banking system to bear future shocks if any, and prevent the potential crisis to protect the whole financial system all across the globe **BCBS (2010b)**. It was suggested that the implementation of Basel III will have an impact on individual banks over a while to visualize the positive impact. In general, an increase in the capital requirement adds to the cost of capital of a bank since equity is a costly source of financial resources.

The Basel accord-III was established in 2010 to address the shortcomings discovered during the global financial crisis that will help to an extent the banks' financial stability and strengths to withstand stress and losses while continuing as an ongoing concern in the event of an isolated or systemic loss occurrence. Basel III has implemented measures to achieve these goals, including increased capital requirements, safer capital and liquidity buffers, leverage restraints, and the existence of contingent capital requirements that could help recapitalize banks and help them avoid resolution or liquidation situations. Capital adequacy is a tool to determine the solvency of a bank and whether the bank has adequate capital support to face unexpected risks, external crises, etc.

But for a variety of reasons, the banking industry is not in a solid position. Significant improvements have occurred since 2012, including a decrease in leverage, increased capital requirements, the implementation of stress testing for the entire company, and strong liquidity profiles. Even so, Basel III's capital requirements will continue to put pressure on businesses to raise more capital because buffers will phase out in 2016.

Rojas-Suarez (2015), the study observes that Basel III may be instrumental in strengthening portfolio management and risk management strategies in banks. The study also reveals that in addition to the direct impact of Basel III, it will also have unintended effects in terms of investments on account of the implementation of revised Basel norms more so, in developed countries. Implementation of Basel III will increase and upgrade the capital quantity and quality, leverage, and liquid assets. Nevertheless, the norms are controlled with the guidelines of BCBS and were expected to be implemented by 2029 which was not the case as the COVID – 19 had adversely impacted the banking sector. Some banks are currently having difficulty satisfying Basel III capital requirements, and they have not yet discovered sustainable, profitable business models for the new environment. These difficulties relate to making a revenue greater than their cost of capital. Conversely, other banks will have less difficulty gaining more strategic freedom because they are ready to meet Basel III capital requirements.

Implementing Basel III, Problems and Difficulties for Indian Banks **M. Jayadev (2013)** discussed the difficulties Indian banks encountered in putting Basel III standards into

practice and examined the idea of Basel III and its elements. The study found that banks will struggle to raise the extra capital and that rising credit costs will have an impact on growth. The study discovered that the profitability of banks and the return to shareholders will be impacted by the higher capital requirements. Determining the time in the economic cycle at which buffers can be released is the RBI's largest difficulty. It is possible to research the areas of risk management on which the bank should concentrate and on ways to enhance the risk architecture. This will assist the banks in meeting Basel III compliance by improving their risk oversight and risk management skills.

Mahapatra (2012) examined Basel III standards and how they will affect Indian banks. According to the study, Basel III contains both macro- and micro-prudential measures that will support the development of a robust and resilient banking industry. Basel III will have an impact on Indian banks' capital, liquidity, and profitability. Although it would be expensive at first, there would be significant long-term benefits. According to the researcher, certifying that Basel III rules are being implemented consistently across institutions and jurisdictions is the main challenge.

The Indian Banking Sector and Basel Norms In 2013, **Pasha** conducted a study on how the Basel Rules affected the Indian commercial banking industry. The study report concluded that Basel standards will support the bank's efforts to oversee and streamline its operations. The workers should receive training on the Basel norms. The adoption of sophisticated risk assessment techniques ought to exist. More investigation can be done to compare the short-term preventative impact of a drop in losses or NPA with the long-term asset creation benefit of the Basel rules. The study's conclusions demonstrate that Indian banks are better equipped to withstand sudden shocks because their CAR is kept above 9%. It has been requested of banks to maintain CAR above the bare requirements. CAR is crucial to bank ratings since it exposes banks to higher levels of financial risk. When computing CAR, it is necessary to design ideal risk-weighting algorithms that are highly uniform among banks **Pasha, T. and K. Swamy (2012)**

Mirchandani and Rathore (2013) looked into the capital adequacy frameworks of the five largest public banks in India as well as the steps the banks took to comply with Basel III's capital adequacy standards. By sustaining the 16% credit growth, the researcher determined that these banks have sufficient capital to meet Basel III's capital adequacy criterion. The analysis concluded that implementing the Accord over the next six years will be difficult, with a focus on common equity capital.

Literature Review

The largest regulation shift to hit the banking sector in decades is represented by Basel III. It is wise to keep in mind that it is but one, albeit a very significant, part of a series of connected reforms that are altering banking, regulation, oversight, and the dynamic between banks and the government.

More focus has been placed on bank liquidity after the global financial crisis of 2007. More than that, a large number of empirical research have looked into the tenuous relationship between liquidity and bank profitability. On this correlation, there are still differing opinions. **Kozarevic & Polic (2016), Ayadi R.et al. , (2012), Bilal & Salim (2016), Boora & Jangra, (2019), Nucu (2011), Tanna (2016), Maria & Eleftheria**

(2016). Effective risk and financial supervision, transparent financial statements, high sensitivity to risk, and balanced risk returns were among the advantages of implementing Basel III. Implementing Basel III had several unfavorable effects and/or costs in the various regions of the global financial sector, such as increased capital maintenance costs, difficulties raising funds, which led to higher bank costs, problems with technical skill availability, stricter capital requirements that were correlated with bank performance, lack of resources required for the implementation, challenges with reporting data, and problems with data quality. These investigations concluded that competent personnel, proficient management participation, cost-effective resources, and awareness of and familiarity with the Basel III framework. The aforementioned research has determined that the successful implementation of the Accord requires the engagement of competent management, efficient resource allocation, awareness and knowledge of the Basel III framework, and competence. **Kombo & Njuguna (2017)** analyzed Kenyan banks and found that to adopt Basel III, banks have to change the way they lend money and pay dividends.

The bank's capital structure is due to regulatory provisions, and therefore, adding debt will increase the risk if it is not balanced with the addition of equity to meet the portion determined by the regulator **Amorello L (2016)**. According to research by **Soyemi et al. (2014)**, risk management efficiency significantly affects bank performance. On the other hand, research by **Olamide et al. (2015)** and **Masood & Fry (2012)** revealed no association in managing the risk and performance of banks.

To create a more robust global regulatory framework, the Basel III Accord in 2010, according to Rama **Rezq Aljaber et al(2021)**. This accord includes new rules for measuring and monitoring capital and liquidity risk. Basel III has two distinct phases, the 2010 framework and the 2017 revisions. The 2010 phase of Basel III concentrated on improving the minimum leverage ratio, raising the level of capital requirements to guarantee resilience during bank stress, improving the risk-weighted capital framework's risk capture, introducing capital buffers and exposure systems to mitigate risks, and strengthening the quality of bank regulatory capital. **Kant, Jain(2013)** Conversely, the removal of discretionary buffers does not, by itself, result in a rise in cash flows or liquidity necessary for credit expansion; rather, it merely enhances leverage. Furthermore, it would not increase the profits of banks. The study is significant not only for the banks in the home nations but also for the banks and businesses in advanced economies. Additionally, because it focuses on an emerging economy, it will serve as a framework for future study in this field and add to discussions about the merits of Basel regulations. It is a crucial component of the current discourse surrounding the reforms of the global banking industry. **Rizvi, et al. (2021)**The study found that credit risk had the most effect on bank profitability (ROE) out of capital sufficiency, credit risk, and liquidity problems. In addition, ROE was positively influenced by other independent parameters like TCTA, LE, and AGE. Additionally, it was discovered that bank size significantly moderates the relationship between risk and profitability, which negatively affects ROE across the board for all risk categories. **Chakraborty (2024)** Basel III aims to establish a worldwide regulatory structure that guarantees stronger banks and banking systems by enhancing

the industry's capacity to withstand financial shocks from any source and mitigating the likelihood of adversely affecting the economy.

According to **Thomas et al. (2022)**, investors ought to take into account a bank's BASEL compliance level before investing in its stock. It is anticipated that banks with higher compliance levels will be safer than those with lower Basel compliance levels. To ascertain the influence of macroeconomic and bank-specific factors on the profitability of 26 public & 19 private banks the random effect model was applied to balanced panel data covering the years 2010 to 2016. According to the findings, public sector banks did not perform as well as private sector banks did. The model's conclusions showed that, while the capital adequacy ratio remained negligible, bank-specific indicators such as NPAs, profit per employee, operating profit to total assets, and investment to total assets explained a substantial portion of the profitability of commercial banks. **Jain et al. (2019)**

Research Gap:

1. The liquidity parameters in banks have added focus in the Basel Accord III where banks are required to maintain additional capital, the impact of these parameters needs to be assessed.
2. It is important to understand the impact of Basel III implementation on banks' profitability, asset quality, and liquidity.

Objectives:

1. To assess the association between capital adequacy and profitability in banks.
2. To assess the influence of CAR as prescribed in the Basel III Accord on banks' future profitability.

Hypothesis formulation:

Hypothesis 1: There is no significant influence of CAR as prescribed in the Basel III Accord On the profitability of banks before the implementation of Basel III. (Pre Basel 3)

H0a: CAR has no significant effect on Operational Efficiency before the implementation of Basel III.

H0b: CAR has no significant effect on ROA before the implementation of Basel III.

H0c: CAR has no significant effect on Bank diversification before the implementation of Basel III

H0d: CAR has no significant effect on Market profit opportunity before the implementation of Basel III.

H0e: CAR has no significant effect on Deposits before the implementation of Basel III.

H0f: CAR has no significant effect on Net Interest Income before the implementation of Basel III.

H0g: CAR has no significant effect on Net Profit before the implementation of Basel III.

Hypothesis 2, There is no significant influence of CAR as prescribed in the Basel III Accord

On profitability of banks after implementing Basel III. (Post Basel 3)

H0h: CAR has no significant effect on Operational Efficiency after the implementation of Basel III.

H0i: CAR has no significant effect on ROA after the implementation of Basel III.

H0j: CAR has no significant effect on Bank diversification after the implementation of Basel III

H0k: CAR has no significant effect on Market profit opportunity after the implementation of Basel III

H0l: CAR has no significant effect on Deposits After implementing Basel III

H0m: CAR has no significant effect on Net Interest Income after the implementation of Basel III

H0n: CAR has no significant effect on Net Profit after implementation of Basel III

Study Period :

March 2001 through March 2023 is the sampling time frame for this study. The idea of event studies guided the selection of this time frame. Basically, to assess the influence of implementation of Basel-III norm on banks profitability therefore to check the impact the study period is extended to the period March 2001 to March 2012 (Pre Basel 3) and March 2013 to March 2023(Post Basel -3). Basel III was released in 2010 with a 2013–2019 implementation period.

Table 1: **Tabular Representation of Sample Banks**

TIME PERIOD	PUBLIC BANKS	PRIVATE BANKS	FOREIGN BANKS
2001-2012(Pre Basel III)	PNB	HDFC	STANDARED CHARTERED BANK
2013-2023(Post Basel III)	CANARA	ICICI	CITI BANK

Variables for study:

Dependent variable: CAR(Capital adequacy Ratio) as prescribed in Basel III Accord

1. To examine the effects of Basel III regulations on the bank's profitability following indicators were taken, Return on Assets(ROA), Operational efficiency(OE), Net Interest Income(NII), Bank diversification(BD), Market profit opportunity(MPO), Net profit(NP), Deposits.

2. It has gone through pre- and post-diagnostic checks finalizing the model.

Research Methodology: Analysis of data is by SPSS software. Pearson Correlation to check the inter-dependency of all selected variables. The testing of hypotheses has been done by using the Paired sample T-test and regression model.

Data Analysis and Interpretation

To assess the association between CAR and profitability in banks

Table 2: Association between CAR with profitability in public banks in before and after implementation of Basel- III norms.

	Public Sector Banks			
	Pre Basel III		Post Basel III	
	Capital Adequacy Ratio (CAR)			
	Pearson Correlation	Interpretation	Pearson Correlation	Interpretation
Operational Efficiency (OE)	0.077	There's a very weak positive correlation between Capital Adequacy Ratio and operational Efficiency , and it's not statistically significant.	0.068	There's a very weak positive correlation between Capital Adequacy Ratio and operational Efficiency , and it's not statistically significant.
Net Interest Income (NII)	0.252	There's a moderate positive correlation between Capital Adequacy Ratio and Net Interest Income, but it's not statistically significant.	-0.267	There's a moderate negative correlation between Capital Adequacy Ratio and Net Interest Income, but it's not statistically significant.
Deposits	-0.275	There's a moderate negative correlation between Capital Adequacy Ratio and Deposits, but it's not statistically significant.	-0.172	There's a weak negative correlation between Capital Adequacy Ratio and Deposits, and it's not statistically significant.
Return on Assets (ROA)	0.436	There's a moderate positive correlation between Capital Adequacy Ratio and Return on Assets, but it's not statistically significant.	0.251	There's a moderate positive correlation between Capital Adequacy Ratio and Return on Assets, but it's not statistically significant.

Bank Diversification(BD)	0.541	There's a moderate positive correlation between Capital Adequacy Ratio and Bank Diversification, and it approaches statistical significance.	0.128	There's a weak positive correlation between Capital Adequacy Ratio and Bank Diversification, and it's not statistically significant.
Market Profit opportunity (MPO)	0.341	There's a moderate positive correlation between Capital Adequacy Ratio and Market Profit opportunity, but it's not statistically significant.	-0.11	There's a weak negative correlation between Capital Adequacy Ratio and Market Profit opportunity, and it's not statistically significant.
Net Profit (NP)	0.077	There's a very weak positive correlation between Capital Adequacy Ratio and Net Profit, and it's not statistically significant.	0.244	There's a moderate positive correlation between Capital Adequacy Ratio and Net Profit, but it's not statistically significant.

In Pre-Basel III Overall, these results suggest some relationships between the Capital Adequacy Ratio and other financial variables in public-sector banks. However, many of these correlations are not statistically significant, indicating that they could be due to chance rather than meaningful relationships. However, some moderate correlations, particularly with Bank Diversification, might warrant further investigation. In Post-Basel III, Similar to the Pre-Basel III results, these correlations indicate some relationships between Capital Adequacy Ratio and other financial variables in public sector banks post-Basel III implementation. However, most of these correlations are not statistically significant, suggesting that they may not be meaningful or could be due to random chance.

Table 3: Association between CAR with profitability in private banks before and after the implementation of Basel-III norm

	Private Sector Banks			
	Pre Basel III		Post Basel-III	
	Capital Adequacy Ratio (CAR)			
	Pearson Correlation	Interpretation	Pearson Correlation	Interpretation
Operational	-0.15	There's a weak negative correlation	-0.124	There's a weak negative correlation between

Efficiency (OE)		between Capital Adequacy Ratio and operational Efficiency , but it's not statistically significant.		Capital Adequacy Ratio and operational Efficiency , but it's not statistically significant.
Net Interest Income (NII)	.694**	There's a strong positive correlation between Capital Adequacy Ratio and Net Interest Income, and it's statistically significant at the 0.01 level.	0.025	There's a very weak positive correlation between Capital Adequacy Ratio and Net Interest Income, and it's not statistically significant.
Deposits	.738*	There is a strong positive correlation between the Capital Adequacy Ratio and Deposits, which is statistically significant at the 0.01 level.	-0.052	There's a very weak negative correlation between Capital Adequacy Ratio and Deposits, but it's not statistically significant.
Return on Assets (ROA)	-0.65	There's a moderate negative correlation between Capital Adequacy Ratio and Return on Assets, and it's statistically significant at the 0.05 level.	-0.556	There's a moderate negative correlation between Capital Adequacy Ratio and Return on Assets, indicating that as the capital adequacy ratio increases, the return on assets tends to decrease. This correlation is statistically significant.
Bank Diversification(BD)	0.179	There is a very weak positive correlation between the Capital Adequacy Ratio and Bank Diversification, and it is not statistically significant.	-0.045	There's a very weak negative correlation between Capital Adequacy Ratio and Bank Diversification, but it's not statistically significant.

Market Profit opportunity (MPO)	0.196	There is a very weak positive correlation between the Capital Adequacy Ratio and the Market Profit opportunity, but it is not statistically significant.	0.731	There's a strong positive correlation between Capital Adequacy Ratio and Market Profit opportunity suggesting that as the capital adequacy ratio increases, the Market Profit opportunity tends to increase. This correlation is statistically significant.
Net Profit (NP)	.690**	There's a strong positive correlation between Capital Adequacy Ratio and Net Profit, and it's statistically significant at the 0.01 level.	0.256	There's a weak positive correlation between Capital Adequacy Ratio and Net Profit, but it's not statistically significant.

Overall, these results suggest several significant correlations between Capital Adequacy Ratio and other financial variables in Private sector banks' Pre-Basel III implementation. Notably, there are strong positive correlations with Net Interest Income, Deposits, and Net Profit, indicating potential interdependencies between these variables and the bank's capital adequacy. Additionally, there's a moderate negative correlation with Return on Assets, suggesting a trade-off between capital adequacy and profitability. In post-Basel III implementation Notably, there's a significant negative correlation with Return on Assets, suggesting a potential trade-off between capital adequacy and profitability. Additionally, there's a strong positive correlation with Market Profit opportunity, indicating that investors may perceive higher capital adequacy positively. However, many of the correlations are weak and not statistically significant, suggesting that further analysis may be needed to understand the relationships fully.

Table 4: Association between CAR with profitability in Foreign sector banks before and after the implementation of Basel-III norm

Foreign Sector Banks				
Pre Basel III			Post Basel III	
Capital Adequacy Ratio (CAR)				
Pearson Correlation	Interpretation		Pearson Correlation	Interpretation

Operational Efficiency (OE)	<p>-0.731*</p>	<p>There's a strong negative correlation between Capital Adequacy Ratio and operational Efficiency . This suggests that as the Capital Adequacy Ratio increases, operational Efficiency tend to decrease. The asterisk (*) denotes statistical significance, indicating that this correlation is significant at the 0.05 level.</p>	<p>0.428</p>	<p>There's a moderate positive correlation between Capital Adequacy Ratio and operational Efficiency . This suggests that as the Capital Adequacy Ratio increases, operational Efficiency tend to increase as well.</p>
Net Interest Income (NII)	<p>-0.016</p>	<p>There's a very weak negative correlation between Capital Adequacy Ratio and Net Interest Income. However, this correlation is not statistically significant.</p>	<p>0.17</p>	<p>There's a weak positive correlation between Capital Adequacy Ratio and Net Interest Income. This indicates that as the Capital Adequacy Ratio increases, Net Interest Income tends to increase slightly.</p>
Deposits	<p>-0.011</p>	<p>There's a very weak negative correlation between Capital Adequacy Ratio and Deposits. This correlation is not statistically significant.</p>	<p>-0.351</p>	<p>There's a moderate negative correlation between Capital Adequacy Ratio and Deposits. This suggests that as the Capital Adequacy Ratio increases, Deposits tend to decrease.</p>
Return on Assets (ROA)	<p>0.075</p>	<p>There's a weak positive correlation between Capital Adequacy Ratio and Return on Assets. This indicates that as the Capital Adequacy Ratio increases, Return on Assets tends to increase slightly. However, this correlation is not statistically significant.</p>	<p>0.071</p>	<p>There's a very weak positive correlation between Capital Adequacy Ratio and Return on Assets. This indicates a slight tendency for Return on Assets to increase as the Capital Adequacy Ratio increases.</p>

Bank Diversification(BD)	-0.189	There's a weak negative correlation between Capital Adequacy Ratio and Bank Diversification. This suggests that as the Capital Adequacy Ratio increases, Bank Diversification tend to decrease slightly. However, this correlation is not statistically significant.	-0.502	There's a strong negative correlation between Capital Adequacy Ratio and Bank Diversification. This suggests that as the Capital Adequacy Ratio increases, Bank Diversification tend to decrease significantly.
Market Profit opportunity(MPO)	0.544	There's a moderate positive correlation between Capital Adequacy Ratio and Market Profit opportunity. This indicates that as the Capital Adequacy Ratio increases, Market Profit opportunity tends to increase. However, this correlation is not statistically significant.	0.104	There's a very weak positive correlation between Capital Adequacy Ratio and Market Profit opportunity. This indicates a slight tendency for Market Profit opportunity to increase as the Capital Adequacy Ratio increases.
Net Profit (NP)	-0.236	There's a moderate negative correlation between Capital Adequacy Ratio and Net Profit. This suggests that as the Capital Adequacy Ratio increases, Net Profit tends to decrease. However, like other correlations, this is not statistically significant.	0.134	There's a weak positive correlation between Capital Adequacy Ratio and Net Profit. This suggests that as the Capital Adequacy Ratio increases, Net Profit tends to increase slightly.

These results suggest a strong negative correlation between Capital Adequacy Ratio and operational Efficiency for foreign banks Pre Basel- III, indicating potential cost-saving benefits associated with higher capital adequacy. However, most other correlations are weak and not statistically significant, suggesting that the relationship between Capital Adequacy Ratio and other financial variables may be less pronounced

in this context. In Post Basel- III Notably, there's a significant positive correlation with operational Efficiency and a strong negative correlation with Bank Diversification. These correlations suggest potential impacts of Basel regulations on foreign banks' financial operations and structures.

Table 5; Influence of Basel-III norm on Public sector banks' future profitability Public sector bank

		Before implementation of Basel III				After implementation of Basel III			
		t	df	Sig. (2-tailed)	Remarks H0 supported	t	df	Sig. (2-tailed)	Remarks H0 supported
Pair 1	CAR - OE	1.991	10	.075	Y (>0.05)	-.338	10	.742	Y(> 0.05)
Pair 2	CAR - NII	-4.354	10	.001	N (<0.05)	-1.341	10	.210	Y(> 0.05)
Pair 3	CAR - Deposits	-4.908	10	.001	N (<0.05)	-1.858	10	.093	Y(> 0.05)
Pair 4	CAR - ROA	-.317	10	.757	Y (>0.05)	1.932	10	.082	Y(> 0.05)
Pair 5	CAR - BD(1.130	10	.285	Y(>0.05)	-.822	10	.430	Y(> 0.05)
Pair 6	CAR - MPO	.818	10	.433	Y(>0.05)	.275	10	.789	Y(> 0.05)
Pair 7	CAR - NP	-.988	10	.346	Y (>0.05)	1.850	10	.094	Y(> 0.05)

CAR - NII and Deposits, 0.001 (< 0.05). The Alternative hypothesis cannot be rejected therefore it can be interpreted that NII as well as Deposits have significant association/influence over CAR before the implementation of the Basel III norm.

Table 6: Regression Model Fitness for Public Sector Banks in pre and post-implementation of Basel III

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of Estimate
Before implementing Basel-III	.985 ^a	.970	.899	2.60160%
After implementing Basel-III	.435 ^a	.189	-1.702	18.05631%

a. Predictors, (Constant), NP, MPO, Deposits, OE, BD, NII, ROA

The linear regression model interprets the adjusted R² of pre-Basel III as .899 with the R² =.970 the independent variables explain 97% of the variance of the CAR. Where in post Basel III is adjusted R² =-1.702 with the R² =.189 the independent variables explain only 19% of the variance of the CAR.

Table 7, Analysis of variance for Public sector banks in pre and post-implementation of Basel III

ANOVA ^a						
Model		Sum of squares	df	Mean Square	F	Sig.
Before implementing Basel-III	Regression	647.459	7	92.494	13.666	.028 ^b
	Residual	20.305	3	6.768		
	Total	667.764	10			
After implementation of Basel-III	Regression	228.382	7	32.626	.100	.994 ^b
	Residual	978.091	3	326.030		
	Total	1206.473	10			
a. Dependent Variable, CAR						
b. Predictors, (Constant), NP, MPO, Deposits, OE, BD, NII, ROA						

The F-test value (7, 3=13.666) p value< 0.05 that shows Model is more significant, thus we can assume that there is a linear relationship between the variables before the implementation of Basel-III and after implementation of Basel-III. The F-test value (7, 3=.100) p value> 0.05 that shows Model is insignificant, thus we can assume that there is no linear relationship between the variables.

In a nutshell profitability indicators like Return on Assets (ROA), Bank Diversification (BD), Market profit opportunity (MPO), and Net Profit (NP) do not show significant changes before and after Basel III implementation in public banks, Basel III norms appear to have a significant impact on Net Interest Income (NII) and Deposits only in before implementation of Basel III.

Table 8; Influence of Basel-III norm on Private sector banks' future profitability

Before implementation of Basel- III					After implementation of Basel III				
		t	df	Sig. (2-tailed)	Remarks H0 supported	t	Sig. (2-tailed)	Remarks H0 supported	
Private banks	Pair 1	CAR – OE	-.646	10	.533	Yes(> 0.05)	.918	.380	YES(>0.05)
	Pair 2	CAR – NII	-4.548	10	.001	N(< 0.05)	.153	.881	Y(>0.05)

Pair 3	CAR - Deposits	-4.602	10	.001	N(< 0.05)	.505	.624	Y(>0.05)
Pair 4	CAR - ROA	-1.047	10	.320	Y(> 0.05)	1.095	.299	Y(>0.05)
Pair 5	CAR - BD	-1.127	10	.286	Y(> 0.05)	1.389	.195	Y(>0.05)
Pair 6	CAR - MPO	-.511	10	.620	Y(> 0.05)	1.581	.145	Y(>0.05)
Pair 7	CAR - NP	-2.726	10	.021	N(< 0.05)	.437	.671	Y(>0.05)

Table 9, Regression Model Fitness for Private Sector Banks in pre and post-implementation of Basel III

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of Estimate
Pre Basel III	.709 ^a	.503	-.658	33.88596%
Post Basel III	.927 ^a	.859	.529	42.10096%

a. Predictors, (Constant), NP, ROA, MPO, Deposits, OE, BD, NII

The linear regression model summary and overall fit statistics before and after implementation Basel-III interprets the adjusted R² as -.658, .529 respectively with the R² =.503, .859 means independent variables explains 50 %,86% respectively of the variance of the CAR.

Table 10, Analysis of variance for Private sector banks in pre and post-implementation of Basel III

ANOVA ^a						
Model		Sum of squares	df	Mean Square	F	Sig.
Before implementation of Basel- III	Regression	3479.407	7	497.058	.433	.837 ^b
	Residual	3444.775	3	1148.258		
	Total	6924.182	10			
After implementation of Basel III	Regression	32352.711	7	4621.816	2.608	.232 ^b
	Residual	5317.471	3	1772.490		
	Total	37670.182	10			
a. Dependent Variable, CAR						
b. Predictors, (Constant), NP, ROA, MPO, Deposits, OE, BD, NII						

The F-test value in Pre and Post Basel III (7, 3=.433)(7, 3=2.608) respectively p value> 0.05 that shows Model is insignificant, which means no linear relationship was found between the variables.

While other profitability indicators like Return on Assets (ROA), Bank Diversification (BD), and Market profit opportunity (MPO), do not show significant changes before and after Basel III implementation in private banks, Basel III norms appear to have a significant impact on Net Interest Income (NII), Deposits only in before implementation of Basel III.

Table 11, Influence of Basel-III norm on Foreign sector banks future profitability

		Before implementation of Basel-III				After implementation of Basel-III		
Foreign banks		t	df	Sig. (2-tailed)	Remarks H0 supported	t	Sig. (2-tailed)	Remarks H0 supported
Pair 1	CAR - OE	1.268	10	.233	Y(>0.05)	.386	.707	Y(>0.05)
Pair 2	CAR - NII	-3.565	10	.005	N(<0.05)	-.994	.344	Y(>0.05)
Pair 3	CAR - Deposits	-3.818	10	.003	N(<0.05)	-1.928	.083	Y(>0.05)
Pair 4	CAR - ROA	1.757	10	.109	Y(>0.05)	-.468	.650	Y(>0.05)
Pair 5	CAR - BD	.361	10	.725	Y(>0.05)	-.054	.958	Y(>0.05)
Pair 6	CAR - MPO	1.338	10	.210	Y(>0.05)	-.464	.653	Y(>0.05)
Pair 7	CAR - NP	-2.130	10	.059	Y(>0.05)	-1.243	.242	Y(>0.05)

Table 12, Regression Model Fitness for Foreign Sector Banks in pre and post-implementation of Basel III

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
Pre Basel III	.811 ^a	.657	-.143	8.97754%
Post Basel III	.732 ^a	.535	-.550	7.13106%

a. Predictors, (Constant), NP, MPO, ROA, BD, NII, OE, Deposits

The linear regression model summary and overall fit statistics before the implementation of Basel-III and after the implementation of Basel III interpret the adjusted R² of our model as -.143, -.550 respectively with the R² =.657,.535. This means that independent variables explain 65% and 54% of the variance of the CAR.

Table 13, Analysis of variance for Foreign sector banks in pre and post-implementation of Basel III

ANOVA						
Model		Sum of squares	df	Mean Square	F	Sig.
Before implementation of Basel III	Regression	463.120	7	66.160	.821	.628 ^b
	Residual	241.789	3	80.596		
	Total	704.909	10			
After implementation Basel III	Regression	175.626	7	25.089	.493	.801 ^b
	Residual	152.556	3	50.852		
	Total	328.182	10			
a. Dependent Variable, CAR						
b. Predictors, (Constant), NP, MPO, ROA, BD, NII, OE, Deposits						

The F-test values before and after implementation Basel III (7, 3=.821), (7, 3=.493) respectively value of p is > 0.05 that Model is insignificant, which means no linear relationship was found in the selected variables.

Conclusion

If banks must retain a minimum capital of 7% in reserve, their profitability will decline. To guard against financial instability, most banks would try to maintain a higher capital reserve even if they cut back on the number of loans they provide to customers. They would need to hold more capital against their assets, which would result in thinner balance sheets. These results are consistent with those of other investigations. Additionally, more capital lowers the credit risk in banks' portfolios, which lowers profitability **Giordana & Schumacher, (2017)**. The 3% leverage level mandated by Basel III has a detrimental impact on return on equity (ROE) and raises capital requirements.

Thi et al. (2023) Tighter capital ratios boost operational profits but don't boost bank efficiency or profitability. Conversely, According to **Mahapatra (2012)**, raising the capital requirements through a new stock offering would raise the ACC but raising lending rates at the same time would help to stabilize profitability.

Tilavat and Kumar(2015) To adhere to the recently implemented regulations, a considerable proportion of banks must obtain capital from the market in addition to government support. As a result, interest rates will rise, increasing the cost of capital but decreasing the return on equity. Banks may raise lending rates to offset the loss of ROE. However, this will negatively impact interest income as well as the effective demand for loans. Furthermore, as the effective cost of capital rises, the relative inaction of Indian banks in terms of obtaining new funding is probably going to have a long-term negative impact on loan offtake. Each of these has an impact on banks' profitability. The study's practical implications imply that to safeguard their profit margins, banks

must look beyond regulatory compliance and adopt proactive measures, such as evaluating their business lines, risk profiles, capital efficiency, and funding strategies.

Abbreviations

CAR - Capital Adequacy Ratio

ROA - Return on Assets

OE - Operational efficiency

NII - Net Interest Income

BD - Bank diversification-

MPO -Market profit opportunity

ROE - Return on Equity

ACC- Average Cost of Capital

BCBS - Basel Committee on Banking Supervision

NPA - Non-performing Assets

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