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Sustainability-Driven Performance Evaluation: Extending the Balanced Scorecard with ESG — A Regression Analysis of Indian Private Sector Banks

Dr. Vinay H V.[1], Dr. Deepak Kumar D.[2], Sai Ramakanth T.[3], Bharath Bhushan B. [4], Chandan L.[5]

[1]Associate Professor, Department of MBA, BMSITM, Bengaluru- 560119, ORCID: 0000-0002-9660-038X

[2]Professor, Department of MBA & Research Center, RNSIT, Visvesvaraya Technological University, Belagavi – 590018, India. ORCID: 0000-0002-9218-6636

[3]Assistant Professor, Department of MBA & Research Center, RNSIT, Visvesvaraya Technological University, Belagavi – 590018, India. ORCID: 0009-0000-1345-1749

[4]Associate Professor, Department of MBA, KSSEM, Bengaluru- 560109, ORCID: 0000-0003-0956-8252

[5]Assistant Professor, Department of MBA & Research Center, RNSIT, Visvesvaraya Technological University, Belagavi – 590018, India. ORCID: 0000-0002-4321-0505

Abstract

This study employed the Balanced Scorecard (BSC) framework developed by Kaplan and Norton (1992) to evaluate the performance of three leading private sector banks in India, namely Axis Bank, ICICI Bank, and HDFC Bank, by incorporating an extended Balanced Scorecard comprising the Financial, Customer, Internal Business Process, Learning and Growth, and Environmental, Social and Governance (ESG) perspectives. The performance of the selected banks was examined for the period 2016–2025, while profitability was measured using Return on Assets (RoA) and Return on Equity (RoE). Further, the study investigated the relationship between profitability and the selected BSC variables through Pearson's correlation and multiple regression analysis. The results indicated noticeable variations in the performance of the selected banks across different dimensions of the Balanced Scorecard. Correlation analysis revealed that GII, TANB, DER, GCE, and PCENP exhibited statistically significant relationships with RoA, whereas DER, GII, CR, TANB, ITAR, GCE, and PCENP showed significant relationships with RoE. The multiple regression results demonstrated that DER, GCE, and PCENP significantly influenced RoA, while DER, GII, ITAR, GCE, and PCENP significantly affected RoE. The regression models explained 71.1 per cent of the variation in RoA and 83.9 per cent of the variation in RoE. The findings suggest that the profitability of private sector banks is determined not only by financial indicators but also by customer, operational, learning, and ESG-related factors. Hence, the adoption of an extended Balanced Scorecard framework provides a comprehensive approach for assessing the strategic and financial performance of private sector banks and identifying the key determinants of profitability.

Keywords: Balanced Scorecard, Private Sector Banks, Bank Performance, Return on Assets, Return on Equity, ESG, Banking Profitability

JEL Classification: G21, G28, M41.

The Indian banking industry has experienced substantial transformation over the past decade due to rapid digitalization, regulatory reforms, technological advancements, and changing customer expectations. Among scheduled commercial banks, private sector banks have emerged as major

contributors to India's financial system through innovation, customer-centric services, operational efficiency, and technology-driven banking solutions.

Traditionally, bank performance has been assessed using financial indicators such as profitability, liquidity, and operational efficiency. However, financial measures alone do not adequately capture important aspects such as customer satisfaction, process efficiency, innovation, employee development, and sustainability. To overcome these limitations, Kaplan and Norton (1992) introduced the Balanced Scorecard (BSC), a strategic performance measurement framework that integrates both financial and non-financial indicators.

The Balanced Scorecard evaluates organizational performance through four interrelated perspectives—Financial, Customer, Internal Business Process, and Learning and Growth—thereby providing a comprehensive assessment of strategic and operational performance. In the banking sector, this framework enables institutions to evaluate profitability alongside customer service, operational excellence, and organizational capability.

With the growing emphasis on sustainable banking, Environmental, Social and Governance (ESG) practices have become an integral component of corporate performance. Accordingly, the present study extends the traditional Balanced Scorecard by incorporating an ESG Perspective to provide a more comprehensive evaluation of bank performance.

The study examines the performance of Axis Bank, ICICI Bank, and HDFC Bank during the period 2015–2025 using an extended Balanced Scorecard framework comprising five perspectives.

The five perspectives adopted in the study are briefly explained below.

1. Financial Perspective

This perspective evaluates a bank's financial performance through measures related to profitability, efficiency, and financial stability, reflecting the outcomes of strategic and operational decisions.

2. Customer Perspective

The Customer Perspective assesses the bank's ability to attract, satisfy, and retain customers through service quality, accessibility, relationship management, and customer value creation.

3. Internal Business Process Perspective

This perspective focuses on the efficiency of internal operations, including credit management, investment decisions, risk management, and operational processes that support customer satisfaction and financial performance.

4. Learning and Growth Perspective

The Learning and Growth Perspective emphasizes employee development, technological advancement, innovation, and organizational capability as key drivers of long-term competitiveness and continuous improvement.

5. Environmental, Social and Governance (ESG) Perspective

The ESG Perspective incorporates sustainability into performance evaluation by examining environmental responsibility, social commitment, and sound governance practices. Integrating ESG with the Balanced Scorecard provides a broader assessment of organizational performance and long-term value creation.

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Review of Literature:

Kaplan and Norton (1992) introduced the Balanced Scorecard as a multidimensional performance measurement framework comprising four interrelated perspectives: Financial, Customer, Internal Business Process, and Learning & Growth. They argued that financial measures alone are insufficient for evaluating organizational success and proposed a balanced approach that links strategic objectives with performance indicators. Subsequently, Kaplan and Norton (1996) expanded the framework by demonstrating how the Balanced Scorecard could function as a strategic management system that translates organizational vision into measurable outcomes through cause-and-effect relationships among the four perspectives.

Hoque and James (2000) examined the relationship between the adoption of the Balanced Scorecard and organizational performance among Australian firms. The study analyzed the effectiveness of integrating financial and non-financial performance measures into strategic management. The findings revealed that organizations implementing the Balanced Scorecard achieved superior performance by aligning operational activities with strategic objectives. The authors concluded that the Balanced Scorecard enhances organizational effectiveness through a comprehensive performance measurement system.

Davis and Albright (2004) investigated the impact of the Balanced Scorecard on branch performance in a banking institution. Using an experimental research design, the study compared branches implementing the Balanced Scorecard with those following conventional performance measurement systems. The findings indicated that branches adopting the Balanced Scorecard demonstrated significantly better financial performance and operational efficiency. The study confirmed the effectiveness of the Balanced Scorecard as a strategic management tool in the banking sector.

Ittner, Larcker, and Randall (2003) examined the role of strategic performance measurement systems in improving organizational performance. The study emphasized that integrating financial and non-financial indicators provides managers with better information for strategic decision-making. The findings suggested that organizations using comprehensive performance measurement systems achieved improved operational and financial outcomes.

Athanasoglou, Brissimis, and Delis (2008) analyzed the determinants of bank profitability using panel data from commercial banks. The study identified capital adequacy, operating efficiency, asset quality, and management effectiveness as significant factors influencing profitability. The findings concluded that efficient internal management practices contribute substantially to improving bank performance and profitability.

Hoque (2014) reviewed the evolution and application of the Balanced Scorecard as a strategic performance management framework. The study highlighted that the Balanced Scorecard has evolved beyond a measurement system into an integrated strategic management tool capable of linking organizational objectives with performance evaluation. The findings reinforced its applicability across diverse industries, including banking.

Dietrich and Wanzenried (2011) examined the factors affecting the profitability of commercial banks using empirical evidence from the banking industry. The study reported that operational efficiency, credit quality, capitalization, and cost management significantly influence financial performance. The authors concluded that effective management of internal resources plays a crucial role in enhancing bank profitability.

Friede, Busch, and Bassen (2015) conducted a meta-analysis of more than 2,000 empirical studies examining the relationship between Environmental, Social, and Governance (ESG) practices and corporate financial performance. The findings revealed that the majority of studies reported a positive association between ESG performance and financial outcomes. The study concluded that sustainable business practices contribute to long-term organizational value creation.

Weber (2017) examined the integration of sustainability into banking operations and performance evaluation. The study highlighted that sustainable banking practices improve stakeholder confidence, strengthen risk management, and enhance long-term competitiveness. The findings emphasized the growing importance of incorporating ESG indicators into strategic performance measurement systems.

Buallay (2019) investigated the impact of ESG disclosure on the financial performance of banking institutions across different countries. The study found that stronger ESG practices positively influence operational performance and market valuation while improving stakeholder confidence. The research concluded that integrating ESG dimensions into organizational performance assessment supports sustainable growth in the banking industry.

Al-Homaidi, Tabash, Farhan, and Almaqtari (2020) analyzed the determinants of commercial bank profitability using multiple financial and operational indicators. The study reported that operational efficiency, asset quality, capital adequacy, and management effectiveness significantly influence bank profitability. The findings suggested that both financial and non-financial factors should be considered for evaluating banking performance comprehensively.

Existing studies have extensively examined the Balanced Scorecard framework, banking profitability, operational efficiency, and sustainable banking practices. However, most research has focused either on the traditional four perspectives of the Balanced Scorecard or on financial performance indicators alone. Empirical studies integrating the Environmental, Social and Governance (ESG) Perspective with the Balanced Scorecard framework for evaluating the performance of Indian private sector banks remain limited. Therefore, the present study attempts to bridge this gap by assessing the performance of Axis Bank, ICICI Bank, and HDFC Bank through an extended five-dimensional Balanced Scorecard framework and examining the relationship between the selected performance indicators and profitability measured by RoA and RoE.

Objectives of the Study

1. To evaluate the performance of selected private sector banks using the five perspectives of the Extended Balanced Scorecard (Financial, Customer, Internal Business Process, Learning & Growth, and ESG) during the period 2015–2025.
2. To compare the performance of Axis Bank, ICICI Bank, and HDFC Bank across the selected Balanced Scorecard indicators and examine whether significant differences exist among them.
3. To analyse the relationship between the selected Balanced Scorecard variables and the profitability measures (RoA and RoE) of the selected private sector banks.
4. To assess the impact of the selected Balanced Scorecard variables on the profitability (RoA and RoE) of the selected private sector banks using multiple regression analysis.

Methodology:

The present study evaluates the performance of selected Indian private sector banks using the Balanced Scorecard (BSC) framework proposed by Kaplan and Norton (1992). The study focuses on Axis Bank, ICICI Bank, and HDFC Bank, which operate under a similar regulatory and competitive environment.

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Secondary data were collected from the annual reports, sustainability reports, corporate governance reports, official websites of the respective banks, publications of the Reserve Bank of India (RBI), and other reliable banking sources. The analysis covers a ten-year period from 2015–16 to 2024–25.

To comprehensively assess bank performance, fifteen indicators were classified under the five perspectives of the Extended Balanced Scorecard, namely Financial, Customer, Internal Business Process, Learning & Growth, and Environmental, Social and Governance (ESG). In addition, Return on Assets (RoA) and Return on Equity (RoE) were used as measures of profitability. The performance of the selected banks was analysed using mean and standard deviation, while one-way ANOVA was employed to examine whether significant differences existed among the selected banks with respect to the chosen performance indicators.

Table 1: Balanced Scorecard Framework for Private Sector Banks

BSC Perspective	Measure	Formula
Financial Perspective	Growth in Profits(GP)	(Current Year Profit – Previous Year Profit)/Previous Year Profit) × 100
	Cost to Income Ratio(CIR)	(Operating Expenses/Operating Income) × 100
	Debt to Equity Ratio(DER)	Total Debt /Shareholders' Equity
Customer Perspective	Growth in Interest Income(GII)	((Current Year Interest Income – Previous Year Interest Income)/Previous Year Interest Income) × 100
	CASA Ratio(CR)	((Current Account Deposits + Savings Account Deposits)/Total Deposits) × 100
	Growth in Branches(GB)	((Current Year Branches – Previous Year Branches)/Previous Year Branches) × 100
Internal Business Process Perspective	Total Advances to Number of Branches(TANB)	Total Advances/Number of Branches
	Investment to Total Assets Ratio(ITAR)	(Total Investments/Total Assets) /100
	Growth in Non-Performing Assets (GNPAs)	(Current Year NPA – Previous Year NPA)/ Previous Year NPA) × 100
	Growth in Number of Mobile Transactions(GNMT)	(Current Year Mobile Transactions – Previous Year Mobile Transactions)/ Previous Year Mobile Transactions) × 100
Learning and Growth Perspective	Growth in Number of Net NEFT Transactions(GNNT)	((Current Year NEFT Transactions – Previous Year NEFT Transactions)/Previous Year NEFT Transactions) × 100
	Growth in Capital Expenditure(GCE)	(Current Year Capital Expenditure – Previous Year Capital Expenditure) /Previous Year Capital Expenditure) × 100

Environmental, Social, and Governance (ESG) Perspective	Percentage of CSR Expenditure to Net Profits(PCENP)	(CSR Expenditure/Net Profit) × 100
	Growth in Number of Beneficiaries of PMJDY Accounts(GNBPA)	((Current Year PMJDY Beneficiaries – Previous Year PMJDY Beneficiaries)/ Previous Year PMJDY Beneficiaries) × 100
	Ratio Of Priority Sector Advances To Total Advances(RPSATA)	(Priority Sector Advances/Total Advances)*100

Source: Developed by the author based on BSC devised by Kaplan & Norton(1992)

Further, Pearson's correlation analysis was used to examine the relationship between the fifteen Balanced Scorecard variables and the profitability measures (RoA and RoE). Multiple regression analysis was subsequently employed to assess the influence of the selected Balanced Scorecard variables on bank profitability. The significance of the regression coefficients was tested using the t-test, whereas the overall fitness of the regression models was evaluated using the F-statistic and the coefficient of determination (R^2). The data were compiled and analysed using Microsoft Excel and IBM SPSS Statistics, and the Extended Balanced Scorecard framework adopted for the study is presented in Table 1.

Analysis and Results:

1.Financial Perspective:

Table 2: Performance of Select Private Sector Banks with respect to Financial Perspective of the BSC Framework

Year	GP			CIR			DER		
	Axis	**ICICI**	**HDFC**	**Axis**	**ICICI**	**HDFC**	**Axis**	**ICICI**	**HDFC**
2016	12.29	-15.47	19.89	38.64	34.80	44.38	219.31	136.70	149.25
2017	-52.44	3.88	19.57	41.06	35.87	43.46	206.34	179.64	125.07
2018	-88.20	-19.65	21.28	47.38	38.92	41.12	250.09	203.04	149.86
2019	987.82	-37.38	21.03	45.54	43.65	39.75	243.20	181.29	106.97
2020	-62.67	97.41	21.71	42.57	43.57	38.73	183.86	169.32	109.98
2021	286.05	81.52	16.81	41.78	37.30	36.42	153.60	93.88	90.44
2022	96.00	30.42	19.86	48.93	40.61	36.98	175.83	93.01	96.88
2023	-23.04	33.72	21.06	66.80	40.20	40.46	165.84	91.74	92.54
2024	142.72	30.05	41.91	48.77	40.33	40.27	149.23	81.67	158.59
2025	71.89	31.40	27.61	54.83	40.38	39.24	163.63	88.81	116.00
Mean	137.04	23.59	23.07	47.63	39.56	40.08	191.09	131.91	119.56
Std.dev	319.67	42.89	7.16	8.24	2.93	2.51	36.61	47.32	25.19

Source: Annual Reports of the banks during 2016-2025

Table 3: Results of ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
GP	Between Groups	86203.023	2	43101.511	1.242	0.305
	Within Groups	936712.623	27	34693.060		
	Total	1022915.646	29			
CIR	Between Groups	407.824	2	203.912	7.392	0.003
	Within Groups	744.809	27	27.586		
	Total	1152.634	29			
DER	Between Groups	29241.766	2	14620.883	10.410	0.00045
	Within Groups	37921.902	27	1404.515		
	Total	67163.668	29			

Table 2 and Table 3 present the performance of Axis Bank, ICICI Bank, and HDFC Bank under the Financial Perspective during 2016–2025. Axis Bank recorded the highest average GP (137.04), ICICI Bank reported the lowest average CIR (39.56), and HDFC Bank maintained the lowest average DER (119.56). The ANOVA results indicate no significant difference in GP ($p = 0.305$), whereas CIR ($p = 0.003$) and DER ($p = 0.00045$) show significant differences among the selected banks. Thus, the banks exhibited similar performance in GP but differed significantly in terms of CIR and DER during the study period.

2. Customer Perspective:

Table 4: Performance of Select Private Sector Banks with respect to Customer Perspective of the BSC Framework

Year	GII			CR			GB		
	Axis	ICICI	HDFC	Axis	ICICI	HDFC	Axis	ICICI	HDFC
2016	15.63	7.53	24.35	47.43	45.92	43.34	12.27	9.98	12.71
2017	8.77	2.79	15.19	51.51	50.46	48.13	13.87	9.09	4.41
2018	2.88	1.59	15.88	53.85	51.78	43.59	12.18	0.45	1.63
2019	20.21	15.45	23.44	44.47	49.71	42.47	9.47	0.24	6.70
2020	14.01	18.08	16.11	41.29	45.21	42.33	11.90	9.33	6.23
2021	1.71	5.88	5.37	45.02	46.38	46.21	1.56	-0.99	3.65
2022	5.96	9.27	5.80	45.09	48.79	48.26	3.67	2.99	13.19
2023	26.50	26.56	26.58	47.25	45.93	44.48	3.29	9.00	23.42

2024	28.52	30.91	59.98	43.08	42.27	38.28	16.29	10.66	11.82
2025	20.33	22.25	30.79	45.14	45.66	43.67	7.75	7.55	16.14
Mean	14.45	14.03	22.35	46.41	47.21	44.08	9.23	5.83	9.99
Std.dev	9.50	10.22	15.65	3.79	2.89	2.96	4.99	4.61	6.71

Source: Annual Reports of the banks during 2016-2025

Table 5: Results of ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
GII	Between Groups	438.942	2	219.471	1.497	0.242
	Within Groups	3958.014	27	146.593		
	Total	4396.956	29			
CR	Between Groups	53.085	2	26.543	2.530	0.098
	Within Groups	283.264	27	10.491		
	Total	336.349	29			
GB	Between Groups	98.124	2	49.062	1.615	0.218
	Within Groups	820.293	27	30.381		
	Total	918.417	29			

Table 4 and Table 5 present the performance of Axis Bank, ICICI Bank, and HDFC Bank under the Customer Perspective during 2016–2025. HDFC Bank recorded the highest average GII (22.35) and GB (9.99), while ICICI Bank achieved the highest average CR (47.21). The ANOVA results indicate that there is no statistically significant difference among the selected banks with respect to GII ($p = 0.242$), CR ($p = 0.098$), and GB ($p = 0.218$), as all significance values exceed 0.05. Therefore, the null hypothesis is accepted, indicating that the selected banks exhibited comparable performance under the Customer Perspective during the study period.

3. Internal Business Process Perspective:

Table 6: Performance of Select Private Sector Banks with respect to Internal Business Process Perspective of the BSC Framework

Year	TANB			ITAR			GNPAs		
	Axis	ICICI	HDFC	Axis	ICICI	HDFC	Axis	ICICI	HDFC
2016	116.76	97.91	102.89	0.33	0.32	0.33	91.65	107.33	47.42
2017	113.01	95.82	117.72	0.31	0.31	0.35	242.13	94.63	39.76
2018	118.83	105.38	137.63	0.32	0.33	0.33	92.44	10.44	41.15

2019	122.27	120.46	160.67	0.32	0.32	0.33	10.70	-51.56	23.69
2020	126.30	121.30	183.58	0.27	0.33	0.36	-48.89	-26.12	10.30
2021	135.87	139.43	202.10	0.33	0.33	0.35	-25.19	-8.02	28.68
2022	148.84	158.65	215.93	0.33	0.32	0.32	-21.08	-23.88	-3.13
2023	172.26	172.92	204.75	0.32	0.33	0.31	-35.34	643.14	-0.79
2024	169.26	181.67	284.47	0.32	0.35	0.29	303.17	-89.46	85.33
2025	163.45	171.08	235.05	0.33	0.33	0.31	82.25	176.60	27.14
Mean	138.69	136.46	184.48	0.32	0.33	0.33	69.18	83.31	29.95
Std.dev	22.96	32.77	55.92	0.02	0.01	0.02	120.75	212.91	25.97

Source: Annual Reports of the banks during 2016-2025

Table 7: Results of ANOVA

		Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
TANB	Between Groups	14692.043	2	7346.021	4.661	0.018
	Within Groups	42551.527	27	1575.982		
	Total	57243.570	29			
ITAR	Between Groups	0.00047	2	0.0002	0.830	0.447
	Within Groups	0.0077	27	0.0003		
	Total	0.0081	29			
GNPAs	Between Groups	15284.554	2	7642.277	0.378	0.689
	Within Groups	545264.940	27	20194.998		
	Total	560549.494	29			

Table 6 and Table 7 present the performance of Axis Bank, ICICI Bank, and HDFC Bank under the Internal Business Process Perspective during 2016–2025. HDFC Bank recorded the highest average TANB (184.48), while ICICI Bank achieved the highest average ITAR (0.33) and GNPAs (83.31). The ANOVA results indicate a significant difference among the selected banks with respect to TANB ($p = 0.018$), whereas ITAR ($p = 0.447$) and GNPAs ($p = 0.689$) show no significant difference, as their significance values exceed 0.05. Therefore, the selected banks differed significantly in terms of TANB, while exhibiting comparable performance with respect to ITAR and GNPAs during the study period.

4. Learning and Growth Perspective:

Table 8: Performance of Select Private Sector Banks with respect to Learning and Growth Perspective of the BSC Framework

Year	GNMT			GNNT			GCE		
	Axis	ICICI	HDFC	Axis	ICICI	HDFC	Axis	ICICI	HDFC
2016	180.58	140.04	425.77	48.44	11.65	41.60	177.58	24.05	-87.71
2017	88.33	88.13	345.10	75.38	103.97	71.92	-48.13	55.30	-115.77
2018	63.56	28.84	-19.23	-11.61	45.01	29.43	10.60	-20.75	-160.81
2019	291.03	152.04	92.05	46.94	72.78	42.10	3.07	10.27	-162.06
2020	72.03	96.14	157.82	12.82	-13.05	8.63	25.53	63.27	-163.58
2021	193.83	66.85	85.19	6.28	66.64	-18.02	-14.92	-9.79	-169.61
2022	96.29	87.13	114.39	26.56	-0.20	-9.93	50.24	10.27	-223.62
2023	95.71	58.74	81.48	70.17	-58.86	-23.89	-1.29	32.77	-346.65
2024	-62.37	14.39	27.20	591.52	294.20	-93.20	71.78	49.17	-428.67
2025	43.21	53.42	74.36	229.42	78.38	-42.34	40.24	30.74	-332.98
Mean	106.22	78.57	138.41	109.59	60.05	0.63	31.47	24.53	-219.15
Std.dev	96.19	43.98	139.76	182.15	96.02	48.40	61.68	27.48	112.19

Source: Annual Reports of the banks during 2016-2025

Table 9: Results of ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
GNMT	Between Groups	17938.734	2	8969.367	0.876	0.428
	Within Groups	276470.116	27	10239.634		
	Total	294408.851	29			
GNNT	Between Groups	59527.368	2	29763.684	1.996	0.155
	Within Groups	402690.349	27	14914.457		
	Total	462217.717	29			
GCE	Between Groups	3209973587.457	2	1604986793.729	38.247	1.32×10^{-8}
	Within Groups	1133034771.339	27	41964250.790		
	Total	4343008358.797	29			

Table 8 and Table 9 present the performance of Axis Bank, ICICI Bank, and HDFC Bank under the Learning and Growth Perspective during 2016–2025. HDFC Bank recorded the highest average GNMT (138.41), Axis Bank achieved the highest average GNNT (109.59), while Axis Bank also reported the highest average GCE (31.47). The ANOVA results indicate no statistically significant difference among the selected banks with respect to GNMT ($p = 0.428$) and GNNT ($p = 0.155$). However, a significant difference is observed in GCE ($p = 0.0000000132$), as the significance value is less than 0.05. Therefore, the selected banks exhibited comparable performance in GNMT and GNNT, while differing significantly with respect to GCE during the study period.

5. Environmental, Social and Governance Perspective:

Table 10: Performance of Select Private Sector Banks with respect to Environmental, Social and Governance Perspective of the BSC Framework

Year	PCENP			GNPBA			RPSATA		
	Axis	ICICI	HDFC	Axis	ICICI	HDFC	Axis	ICICI	HDFC
2016	0.116	0.100	0.119	-0.430	0.981	1.785	0.341	0.100037	0.405
2017	0.134	0.100	0.120	3.144	4.905	0.187	0.352	0.100036	0.393
2018	0.388	0.287	0.120	0.207	0.300	1.847	0.324	0.100033	0.363
2019	0.100	0.309	0.120	0.216	0.267	-0.400	0.340	0.100046	0.365
2020	0.154	0.213	0.120	0.135	0.111	0.144	0.352	0.100041	0.363
2021	0.113	0.107	0.120	0.112	0.041	0.122	0.400	0.100044	0.334
2022	0.110	0.105	0.119	0.502	0.099	0.120	0.459	0.100043	0.384
2023	0.118	0.100	0.100	0.077	0.094	0.227	0.463	0.100039	0.433
2024	0.100	0.100	0.100	0.163	0.105	10.368	0.375	0.100040	0.383
2025	0.109	0.102	0.106	0.247	0.100	3.572	0.432	0.100041	0.400
Mean	0.144	0.152	0.114	0.437	0.700	1.797	0.384	0.100040	0.382
Std.dev	0.087	0.084	0.009	0.979	1.503	3.246	0.052	0.000004	0.028

Source: Annual Reports of the banks during 2016-2025

Table 11: Results of ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
PCENP	Between Groups	0.008	2	0.004	0.812	0.454
	Within Groups	0.133	27	0.005		
	Total	0.141	29			
GNPBA	Between Groups	10.404	2	5.202	1.134	0.336
	Within Groups	123.813	27	4.586		

	Total	134.217	29			
RPSATA	Between Groups	0.534	2	0.267	233.746	9.0×10^{-18}
	Within Groups	0.031	27	0.001		
	Total	0.565	29			

Tables 10 and 11 present the performance of Axis Bank, ICICI Bank, and HDFC Bank under the ESG Perspective of the Balanced Scorecard framework during the period 2016–2025. Axis Bank recorded the highest average PCENP (0.144), HDFC Bank reported the highest average GNPBA (1.797), while Axis Bank achieved the highest average RPSATA (0.384), marginally ahead of HDFC Bank (0.382). The ANOVA results indicate that there is no statistically significant difference among the selected banks with respect to PCENP ($p = 0.454$) and GNPBA ($p = 0.336$), as the significance values exceed 0.05, leading to the acceptance of the null hypothesis. However, a statistically significant difference is observed in RPSATA ($p = 0.0000000000000000090$), since the significance value is less than 0.05, resulting in the rejection of the null hypothesis. Therefore, the selected private sector banks exhibited comparable performance in terms of PCENP and GNPBA, while differing significantly with respect to RPSATA during the study period.

6. Profitability of Private Sector Banks(RoA & RoE)

Table 12: Profitability Analysis of Private Sector Banks

Year	RoA			RoE		
	Axis	**ICICI**	**HDFC**	**Axis**	**ICICI**	**HDFC**
2016	1.82	1.59	1.99	15.56	11.29	17.01
2017	0.75	1.45	1.98	6.69	10.21	16.36
2018	0.14	0.97	2.03	0.53	6.73	16.55
2019	0.73	0.49	2.00	7.11	3.29	14.22
2020	0.30	0.91	2.11	2.01	7.09	15.45
2021	0.80	1.52	2.07	6.58	11.31	15.37
2022	1.31	1.94	2.13	11.40	14.04	15.49
2023	1.92	2.26	2.17	7.73	16.23	15.84
2024	1.16	1.50	2.12	16.55	17.47	13.91
2025	1.46	1.90	2.14	11.89	15.91	15.08
Mean	1.04	1.45	2.07	8.61	11.36	15.53
Std.dev	0.60	0.53	0.07	5.27	4.66	0.98

Source: Annual Reports of the banks during 2016-2025

Table 13: Results of ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
RoA	Between Groups	5.428	2	2.714	12.516	0.00014
	Within Groups	5.854	27	0.217		
	Total	11.282	29			
RoE	Between Groups	242.971	2	121.485	7.237	0.003
	Within Groups	453.269	27	16.788		
	Total	696.240	29			

Table 12 and Table 13 present the profitability performance of Axis Bank, ICICI Bank, and HDFC Bank during the period 2016–2025 based on RoA and RoE. HDFC Bank recorded the highest average RoA (2.07) and RoE (15.53), indicating superior profitability performance among the selected private sector banks, while Axis Bank reported the lowest average RoA (1.04) and RoE (8.61). The ANOVA results reveal statistically significant differences among the selected banks with respect to both RoA ($p = 0.00014$) and RoE ($p = 0.003$), as the significance values are less than 0.05. Therefore, the null hypothesis is rejected, indicating that the selected private sector banks differ significantly in terms of profitability performance during the study period.

7. Relationship between dependent (RoA & RoE) and Independent Variables of the BSC Framework:

Table 12: Correlation Matrix

		RoA	RoE	GP	CIR	DER	GII	CR	GB	TANB	ITAR	GNPAs	GNMT	GNNT	GCE	PCENP	GNPBA	RPSATA
RoA	Pearson Correlation	1																
	Sig. (2-tailed)																	
RoE	Pearson Correlation	.872**	1															
	Sig. (2-tailed)	0																
GP	Pearson Correlation	-0.196	-0.085	1														
	Sig. (2-tailed)	0.299	0.656															
CIR	Pearson Correlation	-0.183	-0.265	0.098	1													

	Sig. (2-tailed)	0.333	0.157	0.608											
DER	Pearson Correlation	-.709**	-.700**	0.264	0.321	1									
	Sig. (2-tailed)	0	0	0.159	0.084										
GII	Pearson Correlation	.388*	.391*	0.057	0.197	-0.198	1								
	Sig. (2-tailed)	0.034	0.033	0.764	0.296	0.295									
CR	Pearson Correlation	-0.355	-.436*	-0.204	0.015	.363*	-.685**	1							
	Sig. (2-tailed)	0.054	0.016	0.28	0.936	0.049	0								
GB	Pearson Correlation	0.091	0.203	-0.024	-0.083	0.02	.405*	-0.214	1						
	Sig. (2-tailed)	0.631	0.282	0.902	0.662	0.918	0.026	0.257							
TANB	Pearson Correlation	.552**	.456*	-0.068	-0.015	-.518**	.641**	-.520**	0.286	1					
	Sig. (2-tailed)	0.002	0.011	0.721	0.939	0.003	0	0.003	0.126						
ITAR	Pearson Correlation	0.327	.455*	0.019	-0.069	-0.322	-0.227	0.111	-.368*	-0.084	1				
	Sig. (2-tailed)	0.077	0.011	0.921	0.719	0.083	0.228	0.558	0.045	0.657					
GNPAs	Pearson Correlation	0.165	0.231	-0.063	-0.069	-0.061	0.174	0.081	0.246	0.027	0.02	1			
	Sig. (2-tailed)	0.384	0.219	0.74	0.716	0.748	0.357	0.671	0.19	0.887	0.918				
GNMT	Pearson Correlation	0.035	0.006	0.321	-0.001	0.156	-0.125	0.052	-0.042	-.375*	0.199	-0.194	1		
	Sig. (2-tailed)	0.853	0.975	0.084	0.995	0.41	0.509	0.787	0.826	0.041	0.292	0.304			
GNNT	Pearson Correlation	-0.19	0.17	0.074	0.302	0.01	0.094	-0.073	0.118	-0.118	0.167	0.133	-0.278	1	
	Sig. (2-tailed)	0.316	0.368	0.699	0.105	0.959	0.621	0.702	0.535	0.534	0.379	0.483	0.137		
GCE	Pearson Correlation	-.572**	-.431*	0.117	0.262	0.355	-.529**	.446*	-.391*	-.754**	0.152	0.128	0.046	.374*	1
	Sig. (2-tailed)	0.001	0.018	0.538	0.162	0.054	0.003	0.013	0.032	0	0.422	0.501	0.81	0.042	
PCENP	Pearson Correlation	-.633**	-.680**	-0.238	0.101	.518**	-0.318	.572**	-0.174	-0.346	-0.061	-0.148	-0.063	-0.128	0.233	1
	Sig. (2-tailed)	0	0	0.206	0.595	0.003	0.087	0.001	0.357	0.061	0.748	0.434	0.742	0.5	0.216	
GNPBA	Pearson Correlation	0.164	0.063	-0.088	-0.17	0.12	.508**	-0.249	0.220	.387*	-.442*	0.089	-0.124	-0.213	-.531**	-0.157	1

	Sig. (2-tailed)	0.386	0.74	0.644	0.37	0.526	0.004	0.185	0.243	0.035	0.014	0.64	0.514	0.258	0.003	0.407	
RPSATA	Pearson Correlation	0.145	0.104	0.112	.439*	0.171	0.209	-0.303	0.3	0.308	-0.075	-0.149	0.207	-0.004	-.434*	-0.221	0.093	1
	Sig. (2-tailed)	0.445	0.584	0.555	0.015	0.367	0.268	0.104	0.108	0.098	0.693	0.433	0.273	0.984	0.016	0.241	0.627	

Note: *. Correlation is significant at the 0.05 level (2-tailed).

The relationship between profitability (RoA and RoE) and the BSC variables of the selected private sector banks is examined using Pearson correlation and multiple regression analysis. The correlation results presented in Table 12 show that five variables, namely DER, GII, TANB, GCE, and PCENP, have a statistically significant association with RoA. GII and TANB are positively correlated with RoA, whereas DER, GCE, and PCENP are negatively correlated. The remaining variables do not show a significant relationship with RoA.

Similarly, seven variables, namely DER, GII, CR, TANB, ITAR, GCE, and PCENP, are significantly associated with RoE. Among them, GII, TANB, and ITAR exhibit a positive relationship with RoE, while DER, CR, GCE, and PCENP show a negative relationship with RoE. The remaining variables are not significantly correlated with RoE.

The regression analysis is performed using the following equations:

$$\mathbf{RoA = \alpha + \beta_1(DER) + \beta_2(GII) + \beta_3(TANB) + \beta_4(GCE) + \beta_5(PCENP) + \varepsilon}$$

$$\mathbf{RoE = \alpha + \beta_1(DER) + \beta_2(GII) + \beta_3(CR) + \beta_4(TANB) + \beta_5(ITAR) + \beta_6(GCE) + \beta_7(PCENP) + \varepsilon}$$

where **RoA** and **RoE** are the dependent variables.

The results of the multiple regression analysis for RoA are presented in Table 13. The critical value of 't' at the 5 percent level of significance is 2.06. The calculated t-values reported in Table 13 reveal that DER (t = –3.103), GCE (t = –2.447), and PCENP (t = –2.478) are statistically significant explanatory variables of RoA, as their calculated t-values exceed the critical value in absolute terms and their significance values are less than 0.05. However, GII and TANB are not statistically significant explanatory variables since their calculated t-values fall within the acceptance region. Further, the positive beta coefficients of GII (β = 0.077) and TANB (β = 0.159) indicate a direct relationship with RoA, whereas the negative beta coefficients of DER (β = –0.459), GCE (β = –0.411), and PCENP (β = -0.330) indicate an inverse relationship with RoA. To examine whether the regression model as a whole is statistically significant, the coefficient of determination (R^2) is calculated. Table 14 reports that 71.1 percent of the variation in RoA is explained by the selected BSC variables included in the regression model.

Table 13: Summary of multiple regression

a. Dependent Variable: RoA				
Model 1		**Beta(Standardized Coefficients)**	**t**	**Sig.**
Balanced Scorecard Framework	(Constant)		5.467	0.000013

Financial Perspective	DER	-0.459	-3.103	0.005
Customer Perspective	GII	0.077	0.509	0.616
Internal Business Process Perspective	TANB	-0.159	-0.769	0.450
Learning & Growth Perspective	GCE	-0.411	-2.447	0.022
Environmental, Social, and Governance (ESG) Perspective	PCENP	-0.330	-2.478	0.021

Table 14: Model Summary(RoA)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.843a	0.711	0.651	0.368459	0.711	11.821	5	24	0.0000077

a. Predictors: (Constant), PCENP, ITAR, GCE, GII, DER, CR, TANB

The calculated **F-value of 11.821** is greater than the critical **F-value of 2.62**. Hence, the regression model is statistically significant at the 5 percent level of significance and provides a good explanation of variations in RoA.

Table 15: Summary of multiple regression

a. Dependent Variable: RoE

Model 1		Beta(Standardized Coefficients)	t	Sig.
Balanced Scorecard Framework	(Constant)		-2.294	0.032
Financial Perspective	DER	-0.305	-2.433	0.024
Customer Perspective	GII	0.371	2.644	0.015

Customer Perspective	CR	0.194	1.405	0.174
Internal Business Process Perspective	TANB	-0.222	-1.366	0.186
Internal Business Process Perspective	ITAR	0.421	4.333	0.00027
Learning & Growth Perspective	GCE	-0.330	-2.488	0.021
Environmental, Social, and Governance (ESG) Perspective	PCENP	-0.489	-4.226	0.00035

Table 16: Model Summary(RoE)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.916a	0.839	0.788	2.257335	0.839	16.377	7	22	0.000000220

a. Predictors: (Constant), PCENP, ITAR, GCE, GII, DER, CR, TANB

Multiple regression analysis is also conducted to examine the influence of the selected BSC variables on RoE, and the results are presented in Table 15. The critical value of 't' at the 5 percent level of significance is 2.07. The calculated t-values indicate that DER (t = –2.433), GII (t = 2.644), ITAR (t = 4.333), GCE (t = –2.488), and PCENP (t = –4.226) are statistically significant explanatory variables of RoE, as their calculated t-values exceed the critical value in absolute terms and their significance values are less than 0.05. However, CR and TANB are not statistically significant explanatory variables since their calculated t-values fall within the acceptance region. The positive beta coefficients of GII (β = 0.371), CR (β = 0.194), and ITAR (β = 0.421) indicate a direct relationship with RoE, whereas DER (β = –0.305), TANB (β = –0.222), GCE (β = –0.330), and PCENP (β = –0.489) exhibit an inverse relationship with RoE.

The overall significance of the RoE regression model is examined through the coefficient of determination and F-statistic. Table 16 reports an R^2 value of 0.839, indicating that 83.9 percent of the variation in RoE is explained by the selected BSC variables. The calculated F-value of 16.377 exceeds the critical F-value of 2.46, suggesting that the regression model as a whole is statistically significant

at the 5 percent level of significance. Therefore, although CR and TANB do not significantly influence RoE individually, the combined effect of the selected BSC variables significantly explains variations in profitability measured through RoE.

Discussion and Conclusion

The findings of the study demonstrate that the Balanced Scorecard (BSC) framework, extended with an ESG perspective, provides a comprehensive approach for evaluating the performance of selected Indian private sector banks. The descriptive analysis indicates that HDFC Bank consistently outperformed Axis Bank and ICICI Bank across most financial and profitability indicators, whereas significant inter-bank differences were observed in selected measures such as Cost-to-Income Ratio (CIR), Debt-to-Equity Ratio (DER), Total Advances to Total Business (TANB), Growth in Capital Expenditure (GCE), Return on Assets (RoA), Return on Equity (RoE), and Revenue per Share to Total Assets (RPSATA). However, the remaining indicators exhibited statistically similar performance among the banks during the study period.

The correlation and regression analyses further reveal that the factors influencing profitability differ between RoA and RoE. For RoA, DER, GII, TANB, GCE, and PCENP were significantly correlated, while the regression results confirmed that DER, GCE, and PCENP significantly influenced profitability. The regression model explained 71.1% of the variation in RoA and was statistically significant. In the case of RoE, DER, GII, CR, TANB, ITAR, GCE, and PCENP showed significant correlation. Multiple regression analysis identified DER, GII, ITAR, GCE, and PCENP as significant determinants of RoE, with the model explaining 83.9% of the variation in profitability. The significant F-statistics for both models confirm that the selected BSC and ESG variables jointly provide strong explanatory power for bank profitability.

Overall, the study concludes that the integration of financial, customer, internal business process, learning and growth, and ESG perspectives offers a holistic assessment of private sector bank performance beyond conventional financial measures. The findings suggest that profitability is influenced not only by financial efficiency but also by operational effectiveness, customer-related factors, and sustainability practices. Therefore, the extended Balanced Scorecard framework serves as an effective strategic performance evaluation tool for Indian private sector banks and can assist bank management, policymakers, and stakeholders in formulating strategies for improving long-term competitiveness and sustainable growth.

Research Implications

The findings of the present study provide valuable insights for the strategic management of private sector banks by demonstrating the applicability of the Balanced Scorecard (BSC) framework as a comprehensive performance evaluation tool. The results indicate that profitability cannot be assessed solely through conventional financial measures such as Return on Assets (RoA) and Return on Equity (RoE), but should also incorporate customer-centric, operational, learning, and sustainability dimensions. The significant influence of variables such as Debt-Equity Ratio (DER), Growth in Interest Income (GII), Total Advances to Total Business (TANB), Investment to Total Assets Ratio (ITAR), Growth in Capital Expenditure (GCE), and Percentage of CSR Expenditure to Net Profits (PCENP) highlights the importance of integrating both financial and non-financial indicators into performance measurement systems for effective strategic decision-making.

The study also offers practical implications for bank management, policymakers, and regulators. The evidence suggests that improving operational efficiency, optimizing capital structure, strengthening

credit deployment, and enhancing technological investments can significantly contribute to profitability. Furthermore, the inclusion of the Environmental, Social, and Governance (ESG) perspective within the Balanced Scorecard extends the traditional framework by emphasizing sustainable banking practices. This enables bank executives to align business strategies with long-term sustainability objectives while meeting increasing stakeholder expectations regarding responsible corporate governance and environmental accountability.

From an academic perspective, the study contributes to the existing literature by extending the traditional four-dimensional Balanced Scorecard into a five-dimensional framework incorporating ESG indicators for evaluating the performance of Indian private sector banks. The research provides an empirical foundation for future studies examining the relationship between multidimensional performance indicators and bank profitability. It also offers a methodological framework that can be replicated across different banking groups, financial institutions, or international contexts, thereby encouraging further research on sustainable performance measurement and strategic management in the financial services sector.

Limitations of the Study and Scope for Further Research

The present study is subject to certain limitations. First, the analysis is confined to only three selected Indian private sector banks, namely Axis Bank, ICICI Bank, and HDFC Bank, over the period from 2015–16 to 2024–25. Consequently, the findings may not be generalized to the entire Indian banking industry or to other financial institutions. In addition, the study relies exclusively on secondary data collected from annual reports, sustainability reports, RBI publications, and official bank websites, which may limit the analysis to the accuracy and availability of the reported information.

Second, the study evaluates bank performance using fifteen indicators classified under the five perspectives of the Balanced Scorecard framework. Although these indicators provide a comprehensive assessment of financial and non-financial performance, other important variables such as customer satisfaction, employee engagement, service quality, digital innovation, corporate culture, and risk management practices could not be incorporated due to data constraints. Furthermore, the analysis is restricted to descriptive statistics, ANOVA, Pearson correlation, and multiple regression techniques, and therefore does not capture dynamic or causal relationships over time.

Future research may overcome these limitations by expanding the sample to include a larger number of public and private sector banks, foreign banks, or cross-country banking institutions. Researchers may also extend the study period and incorporate additional financial, operational, digital, and ESG-related indicators to obtain a broader evaluation of banking performance. Moreover, advanced analytical techniques such as panel data regression, Structural Equation Modeling (SEM), Data Envelopment Analysis (DEA), or machine learning approaches may be employed to provide deeper insights into the determinants of bank profitability and the strategic effectiveness of the extended Balanced Scorecard framework.

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