Indian Banks: Transformation

Through E-Delivery Channels - Challenges and Opportunities

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ABSTRACT

The severe crises of 1991 gave birth to the new economic thought in the country. A bundle of measures were taken to remove the various deficiencies and rigidities in the Indian economy. Hence, new economic policy was introduced to mold the Indian economy to the right path. Financial sector reforms and banking sector reforms are the part and parcel of economic reforms, which strengthen the economic reforms. Under the regime of banking sector reforms, IT Act of 1999 gave new dimensions to the Indian banking sector. IT has created transformation in banking structure, business process, work culture and human resource development. It affected the productivity, profitability and efficiency of the banks to a large extent.

The present paper analyzes the major parameters of productivity, profitability of major banks in the pre and post e-banking period. The paper concludes that performance of all the banks under study is much better in post-e-banking period and further foreign banks are at the top position, whereas the performance of the public sector banks is comparatively very poor.

The paper suggests some measures to tackle the challenges faced by the banks particularly public sector banks. At the end, paper suggests how public sector banks can convert the emerging challenges into opportunities?

Keywords: E-delivery Channels, Bank Transformation, Process of Transformation

1. INTRODUCTION

Strengthening the financial sector and improving the functioning of financial markets have been the core objective of the financial sector reforms in India. The significant transformation of the financial system in the country is clearly evident from the changes that have occurred in the financial markets, institutions and products.

The country witnessed in 1990 an economic crisis leading to a fast decline in the GDP, a high rate of inflation, adverse BOPs due to a widening gap in the current account deficit and a decline in the foreign exchange reserves. The country had to borrow resources from foreign central banks and other foreign government agencies against the pledge of gold so as to avoid a default on international indebtedness. There were some banking sector deficiencies ahead the economy, which were adversely affecting the economic growth of our country such as low productivity and profitability, some public sector banks have been incurring losses year after year, poor customer service, outdated work technology etc.

Keeping in mind all these distortions in the economic, financial and banking sectors, the government of India and the RBI thought it was necessary to introduce reforms in the financial and baking sector also, so as to promote rapid economic growth and development with stability through the process of globalization, liberalization and privatization in the financial system to make the financial system more competitive and gets integrated with the world economy through internationalizations of financial markets in the world.

2. BANKING SECTOR REFORMS

The government of India, under the chairmanship of Sh. M. Narasimham, an Ex-Governor of RBI, appointed the Narasimham Committee-I (NC-I) in April 1991. The committee examined all the aspects relating to the structural organization, functions and procedures of financial system and submitted its report on November 16, 1991. A number of reform initiations have been taken to improve or minimize the distortions impinging upon the efficient and profitable functioning of banks.

These reforms have improved the banks' performance in an excellent way but due to the cataclysmic changes taking place in the world economy towards globalization, there was need to inject other doze of reforms. Hence, second phase of banking sector reforms are initiated by NC-II in 1998 and these reforms are continuously regulating the entire banking system till date.

3. SCHEME OF THE PAPER

This paper has been divided into four sections. After the brief introduction, second section deals with the objectives, research methodology and data base. Third section relates with findings and whereas last section conclude the paper.

4. OBJECTIVES

The present paper analyzes the impact of IT on the transformation of banks during the second phase of banking sector reforms. The specific objectives of the paper are:

1. To study the process and contents of bank transformation in the regime of post-second banking sector reforms.
2. To analyze the comparative performance of public sector banks, new private sector banks and foreign banks in pre and post e-banking period.
3. To study the challenges and opportunities for the banking industry particularly to the public sector banks.

5. HYPOTHESIS

1. The performance of all the banks under study is significantly better in post-e-banking period than pre-e-banking period.
2. The performance of foreign banks is significantly better than new private sector banks and public sector banks.
3. The performance of new private sector banks is significantly better than public sector banks.

6. RESEARCH METHODOLOGY

The present paper is concerned with the Indian banking industry. Total nine top banks have been selected on the basis of their market share in business in 2003-04, three banks from each bank group i.e. public sector banks, new private sector banks and foreign banks.

SELECTED BANKS

Public Sector Banks	New Private Sector Banks	Foreign Banks
State Bank of India (SBI)	HDFC Bank	Citibank
Bank of Baroda (BOB)	ICICI Bank	Standard Charted Bank (SCB)
Canara Bank (CB)	UTI Bank	The Hongkong and Shanghai Banking Corporation (HSBC)

To compare the performance of selected banks in pre and post e-banking period, ratio analysis method is used. The following ratios are analyzed to examine the performance of the selected banks.

Labour Productivity Ratios

(a) Deposits per Employee (b) Credits per Employee (c) Business per Employee

Branch Productivity Ratios

(a) Deposits per Branch (b) Credits per Branch (c) Business per Branch

Profitability Ratios

(a) Spread as Percentage of Working Funds (b) Burden as Percentage of Working Funds
(c) Net Profit as Percentage of Working Funds

The study is concerned with the second-post banking reforms period i.e. 1998-99 to 2003-04. The time period is further divided into two parts i.e. pre-e-banking period (1998-2001) and post-e-banking period (2001-04).

7. BANK TRANSFORMATION AND INFORMATION TECHNOLOGY

The second banking sector reforms gave much importance to the modernization and technology up gradation. The IT Act, 1999 started the speedy process of e-banking. Transformation started to take place in number of aspects such as structure, HRD, IT etc.

7.1 BANK TRANSFORMATION

The term transformation in Indian Banking Industry relates to intermediately stage when the industry is passing from the earlier social banking era to the newly conceived technology based customer - centric and competitive banking. The activities of banks have grown in multi-directional as well as in multi-dimensional manners. During transformation, all known parameters of the earlier regime continuously change like:

(i) Capital Restructuring (ii) Financial Re-engineering
(iii) Information Technology (iv) Human Resource Development

Fig I & II

7.2 INFORMATION TECHNOLOGY

Delivery of bank's services to a customer at his office or home by using electronic technology can be termed as e-banking. The quality, range and price of these e-services decide a bank's competitive position in the industry. The virtual financial services can be largely categorized as follows:

Automated Teller Machines:

- Cash withdrawals
- Details of most recent balance of account
- Mini-statement
- Deposit facility
- Payments to third parties

EFTPoS: EFTPoS card used to initiate transactions:

- Authorization and transaction capture processes take place electronically.
- Transaction confirmed manually.
- Funds not debited electronically.

Remote Banking Services:

- Balance enquiry
- Statement ordering
- Funds transfer (payment) to third parties
- Funds transfer between customer's different accounts
- Order traveler's cheques and other financial instruments.

Smart Cards:

- One smart card can contain the functionality of several different types of cards issued by different banks while running different types of networks.
- Smart card a truly powerful financial token, giving user access
- Debit facility
- Charge facilities
- Credit facilities
- Electronic purse facilities at national and international level.

Internet Banking:

The latest wave in IT is Internet banking. It is becoming more obvious that the Internet has unleashed a revolution that is affecting every sphere of life. Being an interactive two-way medium, the Net, through innumerable websites, enables participation by individual in B2B and B2C commerce, visits to shopping malls, books-stores, entertainment sides, and so on cyberspace.

8. RESULTS AND DISCUSSION

8.1. LABOR PRODUCTIVITY:

8.1.I Public Sector Banks

Labor productivity brings in light employee's capacity to produce. The productivity in terms of business per employee of all the three public sector banks is increased almost double time in all the three banks during partially e-banking period i.e. 2001-04 as compared to that in non-e-banking period i.e. 1998-2001, whereas variations in terms of co-efficient of variations are maximum in non-e-banking period. From all the three public sector banks, Bank of Baroda shows the highest productivity in both the durations i.e. Rs.1.53 lakhs during 1998-2001 and Rs.2.57 lakhs during 2001-04 as compared to that of other two banks.

8.1.II New Private Sector Banks
All the three new private sector banks show increase in their productivity in partially e-banking period from non-e-banking period except UTI Bank, which shows decrease in its productivity. Variations are maximum in non-e-banking period in all the selected banks. Although, productivity of UTI Bank is decreased, even it shows the highest labor productivity in both the durations i.e. Rs.11.41 lakhs during 1998-2001 and Rs.9.79 lakhs during 2001-04 whereas ICICI Bank is following UTI Bank with labor productivity of Rs.7.83 lakhs and Rs.9.53 lakhs respectively during both the durations.

8.1.III Foreign Banks
Labor productivity is increased in all the selected foreign banks in all the years under study and variations are maximum in non-e-banking period. It shows increase almost of Rs.2-3 lakhs during the e-banking period as compared to that during non-e-banking period. It is the highest in Citibank i.e. Rs.12.70 lakhs during 1998-2001 and Rs.17.32 lakhs during 2001-04 with the major difference from the other banks whereas SCB shows Rs.8.05 lakhs and HSBC Rs.6.86 lakhs during 2001-04.

8.2 BRANCH PRODUCTIVITY:

8.2.I Public Sector Banks
The branch productivity of public sector banks, which depicts the capacity of a branch to produce, is also higher during partially e-banking period in all the banks as compared to non-e-banking period, whereas variations are maximum in non-e-banking period in all the banks under study. It is the highest in SBI i.e. Rs.33.29 cr. during 1998-2001 and Rs.47.93 cr. during 2001-04 and Canara Bank is following the SBI with Rs.47.01 cr. business per branch during 2001-04 where Bank of Baroda shows Rs.37.65 cr. productivity ratio.

8.2.II New Private Sector Banks
The branch productivity of new private sector banks is higher during e-banking period as compared to non-e-banking period in case of HDFC Bank i.e. Rs.148.39 cr. during 2001-04 that comes up from Rs.102.42 cr. during 1998-2001, where ICICI Bank shows increase from Rs.127.22 cr. to Rs.242.03 cr. almost double, but UTI Bank shows decrease in its branch productivity from Rs.166.32 cr. to Rs.164.21 cr. during the non-e-banking and partially e-banking period respectively. Overall, branch productivity is the highest in case of UTI Bank during 1998-2001 i.e. Rs.166.32 cr. but during 2001-04 ICICI Bank leads to other banks with Rs.242.03 cr. with an excellent growth in its productivity.

8.2.III Foreign Banks
The branch productivity shows fluctuations in all the three foreign banks in all the years but in case of Citibank it is decreased from Rs.1631.34 cr. during 1998-2001 to Rs.1396.22 cr. during 2001-04 with 12.82 pc fluctuations in terms of co-efficient of variations. SCB and HSBC shows increase in their branch productivity during the e-banking period over the non-e-banking period. Overall, it is the highest in both the durations in Citibank i.e. Rs.1396.22 cr. in 2001-04 even it shows decrease in its productivity, both the other banks followed this bank.
Overall, it can be concluded that labor productivity and branch productivity is better, showing excellent growth during the e-banking period as compare to non-e-banking period. New electronic techniques are used to attract more and more customers especially, e-channels are used to meet the increasing expectations of the customer. On the other hand, labor and branch productivity is the highest in all the foreign banks with Citibank at the top position, new private sector banks are following foreign banks even in case of ICICI Bank & UTI Bank, and labor productivity is more as compared to that of SCB & HSBC. Public sector banks are far behind the foreign banks and new private sector banks with large extent of difference, which cannot be ignored, mainly due to their non-electronic work culture.

8.3 PROFITABILITY RATIOS:

8.3.I Public Sector Banks
Profitability of public sector banks is decreasing during 1998-2001 i.e. non-e-banking period, but it shows increasing trend in the partially e-banking period i.e. 2001-04, resulting more profitability in partially e-banking period as compared to that in non-e-banking period. But profitability of Canara Bank is increased almost three times, it shows the highest profitability during 2001-04 i.e. 1.20 pc, even it is the least during 1998-2001 i.e. 0.44 pc, one reason is decrease in its burden, where Bank of Baroda shows the highest 0.70 pc during 1998-2001 following Canara Bank with 0.97 pc profitability

ratio in 2001-04. Overall, Canara Bank shows much better profits having positive impact of technology.

8.3.II New Private Sector Banks

Profitability of all the three new private sector banks shows fluctuating trend, it is more in e-banking period in ICICI Bank & UTI Bank but lesser in case of HDFC Bank as compared to the profitability during non-e-banking period. Profitability variations are the highest during non-e-banking period. Profitability of HDFC Bank is decreased during partially e-banking period i.e. from 1.42 pc to 1.24 pc mainly due to decrease in spread which is further witnessed by falling interest income, but even shows the highest profitability as compared to ICICI Bank i.e. 0.90 pc and UTI Bank i.e. 1.02 pc during 2001-04.

8.3.III Foreign Banks

Profitability of selected foreign banks shows fluctuating trend during the study period but with tremendous increase in their profitability during partially e-banking period. Profitability of all the three banks is higher during 2001-04 as compared to that during 1998-2001. Fluctuations are maximum during non-e-banking period in Citibank but these are the highest during 2001-04 in case of other banks. Profitability of SCB is the highest during 1998-2001 i.e. 1.84 pc and during 2001-04 i.e. 2.22 pc followed by Citibank with 1.37 pc and 1.66 pc profitability respectively during both time periods. Overall, profitability of all the foreign banks is increased mainly due to their check on burden.

It can be concluded that profitability of foreign banks is the highest with SCB at the top position, where new private sector banks are following foreign banks, initiated to fill this gap but profitability of public sector banks is far behind the profitability of foreign banks and new private sector banks. Even then all the three bank groups show increase in their profitability during e-banking period.

9. TESTING OF HYPOTHESES

Table 10 indicates that performance of almost all the banks is significantly better in the e-banking period except some banks.

Table 11 indicates that the performance of foreign banks is better than new private sector banks and also public sector banks. Similarly, the performance of new private sector banks is better than public sector banks.

10. CHALLENGES AND OPPORTUNITIES

Although a lot of reforms have been made in banking sector, still there is a need to modify the policies of public sector banks. At present they are facing many internal and external challenges, which are hindering their performance, but these banks can convert these challenges into opportunities with care and some modifications. With globalization and changes in the technology, financial markets, world over have become closely integrated. Customers can access their accounts anywhere and banks' customer base is also spread across the world. Deregulation and liberalization has opened up new opportunities for banks but at the same time the pressure of competition have led to narrowing spreads, shrinking margins, consolidation and restructuring.

Increasingly, banks are focusing on core competencies, synchronizing strengths and shedding activities that are not remunerative. The winds of change sweeping across global markets will impact India also, and the Indian financial sector is set to see tremendous transformation in the coming millennium. The face of banking is set to change as banks adopt technology to reduce costs, widen product range for customer convenience and to manage risks. Greater market access to foreign banks, post-WTO will increase competition and as we move towards full capital account convertibility, banks will need to be equipped to handle large and sensitive volatile-capital flows.

Competition*:* Due to LPG banks are facing a severe competition. To stay ahead in the race, therefore, banks will have to leverage technology for innovative product development including developing sophisticated financial products. While some banks have taken lead in developing new tech-savvy products to beat the competition, also the public sector banks in particular will have to speed up their efforts in this area.

Greater customer-Orientation*:* Greater customer-orientation is the only way to retain customer loyalty and stay ahead of competition. In a market-driven strategy of development, consumer preference is paramount. Gone are the days when customers used to come to the doors of the banks and now banks are required to chase the customers. Thus, only banks that are customer-centric and

extremely focused on the needs of their clients will succeed and there is need to change the mindset of banks at all levels on this issue.
Public sector banks in particular need to bring about total customer-orientation not only in their products/services but their policies and strategies should also be customer-focused. In fact, they must realize that customer is the only profit center and all others are overheads. Identification of profitable customers, understanding their needs and preferences, improving the delivery systems and reducing the transaction costs for them should become important strategic issues for banks, if they want to survive in the fiercely competitive environment. Enhancing the customer base, cross selling of products/services and strengthening the customer relationship management will be the most important aspect.

Technology: In the deregulated environment, managing a wide range of products on shrinking margins in a fiercely competitive environment and offering top class customer services will create new challenges. In this context, technology will be the key to reduce transaction cost, offering customized products and managing risks. Growing consumer acceptance of e-channels is compelling banks to provide Internet-banking facilities and increasingly, customers are demanding fast, convenient and glitch-free banking services.
However, as banks expand into virtual banking, they will need to pay greater attention to foolproof security arrangements and systems to safeguard against frauds. Supervision and audit of e-banking will have to be strengthened and vigilance against hackers stepped up. Our public sector banks are lagging behind in technology when we compare them with their counterparts. There is a need for vision, strategy, planning and coordination at all levels of the organization.

New Credit Assessment Skills: So far the focus of attention in the Indian banking industry has largely been extending finance to agriculture and manufacturing sectors covering small, medium and large industries. But now banks should capture service class also. Through IT, banks therefore, have to sharpen their credit assessment skills and lay more emphasis in providing finance to the wide range of activities in the services sector.

Management of NPAs: The level of NPAs in the Indian banking industry is a greater concern and thus urgent cleaning up of banks balance that has become a crucial issue. NPAs will have to be reduced drastically and adequate provisioning for bad and doubtful debts will have to be made.
There is a need to have long-term solutions for overcoming this challenge. The internal control systems, risk management systems and systems of catch early warning signals for timely detection of NPAs have to be strengthened by banks. In addition, the role of legal reforms in bringing down the level of NPAs is crucial for speedy settlement of disputes and realization of banks' dues. Also, strengthening the Debt Recovery Tribunals and empowering banks to enforce their change without court intervention will result in expedition recovery of bad debts.
New Basel Capital Accord: The new Basel Accord to modify the existing capital adequacy framework is currently under discussion. Under the revised capital adequacy framework, banks will have to provide for market risk and operational risk besides credit risk. Against the background of government decisions to reduce its shareholding in nationalized banks to 33 pc, maintaining the required level of capital adequacy by the banks could come under strain.
Strong banks will be able to access the capital markets for raising additional equity, but weak banks could face sever problems. But in any case, there will be tremendous pressure on banks to improve their financial performance if they have to attract additional capital.
Profitability will thus have to be improved so that higher dividends are paid to shareholders, capital market perception about public sector banks changes and there is a positive impact on the valuation of shares so that the shares of public sector banks fetch attractive market prices.

WTO and Indian Banking Industry: As WTO provisions came into force, countries including India have to provide greater market access to other countries by eliminating Quantitative Restrictions (QR), regarding tariff barriers and liberalizing the market for financial services. The impact of these developments on various sectors of the Indian economy would be critical.
The banks will have to keep themselves updated on sector specific developments taking place in the world, particularly in countries that are India's major trading partners and advise their corporate clients to help them to prepare for competition with multinational companies.

Corporate Governance*:* Deregulation and self-regulation go hand-in-hand. RBI has also asked banks to set up specialized committees like Risk Management Committee, Audit Committee, Compensation

Committee, Narasimham Committee etc., to ensure the uppermost standards of corporate governance and development of best practices.
A good fiscal management and clear-cut policies affecting various sectors of the economy, can promote corporate governance. The public sector banks, new private sector banks & foreign banks should ensure corporate governance in all the activities and to win the heart of shareholders.

Issue of HRM: Training, development and retaining talented and committed staff is a major emerging challenge before the public sector banks. Today, our employee performance review systems are neither objective nor transparent. They do not differentiate high performers, risk takers and innovators lot from amongst the total staff. Time has come to measure the value of human capital and take urgent steps to ensure it to its optimum level.

Lack of Risk Management: Today, instead of banks managing the risk, risk is managing the banks. A clear understanding of the risk-return profile of each activity of the bank is crucial to ensure the soundness and solvency of the organization. Skill upgradation and preparing a cadre for the risk organization is a major challenge for public sector banks particularly in the wake of high labor turnover.

Lack of Actionable Planning: Lack of planning or ineffective planning is very relevant to public sector banks. Though all the banks have established elaborate performance budgeting system and created MIS, it does not meet the management's present requirements. Basically, the entire planning process is still deposit and credit oriented, that too, without any cost and yield linkages.
To tackle this challenge an actionable strategic plans which are systematically broken-up into annual plans and performance is strictly reviewed in terms of the targets and accountability is fixed for non-performances.

Non- Accountability: In case of public sector banks, there is non-accountability of profits. No one is responsible. Every bank should fix the responsibility and good performer employees should be honored.

Public Perception: In the ultimate analysis it is the public perception that will decide the future of public sector banks. The perception of customers regarding public sector banks is very poor. Public sector banks should improve their perception by all means to remain competitive in the market.

Customers Expectations: In the era of e-banking and severe competition, the expectations of the bank customers have increased. Due to this banks should offer a broad range of deposits, investment and credit products through diverse distribution channels including upgraded branches, ATMs, telephone and Internet. For this banks should become more customer centric, offering a wide range of products through multiple delivery channels, become proficient in managing assets and liabilities according to risk and return and pay greater attention to profitability including cost-reduction and increasing fee-based income.
All these changes require vision, determination and extensive communication across all levels in the organization so that the vision and mission of the banks is communicated and understood down the line and receiver unqualified support.

Mergers and Acquisitions: Today 'size' has become an important issue in financial market world over. Merger on commercial considerations and strategic mergers are the order of the day. One of the possible ways to remain in competition would be mergers and acquisitions. The privately/foreign banks have already set in the trend.
We can say that a constructive and serious measure should be initiated for:
better and cheaper access to basic infrastructure requirements such as power, telecommunications i.e. VSAT, leased lines etc.
creation of customers awareness and education for technology adoption are imperative.
The IT, Act 200 should be implemented in totality to handle legal issues.
Converting branches into boutiques catering to the requirements of clients and re-engineering the functions of branch banking using technology and delivery channels.
Setting up an e-banking group to provide grid principles for risk management of e-banking activities.

11. FUTURE AREAS OF INDEPTH RESEARCH

1. Study of performance of each e-channel at bank and bank group level separately.

2. Study of cost-benefit analysis of IT related aspects.
3. Study of quality of customer service through e-banking services.
4. Feasibility of e-banking in rural and semi-urban areas especially the management of transformation.

CONCLUSION

The paper concludes that transformation is taking place almost in all categories of the banks. This transformation will helpful to cope with new economic and financial policies of the banks. IT is playing a crucial role to create the drastic changes in the banking industry particularly in the new private sector and foreign banks. The private banks take a big share of cake; our public sector banks are still lagging behind regarding the various financial parameters. The immense opportunities are also available for the public sector banks if they change/modify and adopt new policies to combat the different recent challenges.

It can be concluded that mere introduction of IT alone will no be sufficient to bring necessary performance improvement and to get the competitive edge. Intelligent people are required to use such intelligent tools. Thus, even though IT management is a challenge flow in future banking scenario, marketing not technology is going to be the challenge.

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Fig. I BANK TRANSFORMATION/ STAGES OF TRANSFORMATION IN INDIAN BANKS

Stage of Transformation	Structure of Banks	Objectives of the Banks	Nature of Technology Used
Pre-Nationalization of Banks (before 1969)	Private Control of Banks	Higher Profitability	Manual Work
Post-Nationalization of Banks (1969 - 90)	Control of Govt.	Social banking	Limited Computerization
Economic Reforms (1991- 2000)	ntry of Foreign and NPSBs ocial Banking to IT Based banks	- Higher Profitability - Fierce Competition	E - Banks
Current Stage	Implementation of various committees reports	New Products and Services Entry in Insurance RM with IT	aximum use of IT obile ATMs

Fig. II PROCESS OF TRANSFORMATION

Parameters of Transformation	Process	Implications
Structure Business Re-engineering Human Resource development Work Culture Information Technology System, Process and Procedures Ethos/Philosophy	IT as the catalyst of Transformation	- Improved and efficient structure - Improved vision for business -Productivity, profitability and efficiency has increased - Innovations are taking place - International outlook - Inspire employees - More ethical work culture - Vision for global economy

Tables

Table I: Labour Productivity of Public Sector Banks **(Rs. In Lacs)**

Years	SBI			BOB			CB		
	D/E	C/E	BUS/E	D/E	C/E	BUS/E	D/E	C/E	BUS/E
(A) Non – E-Banking Period									
1998-99	0.71	0.35	1.06	0.97	0.46	1.43	0.76	0.55	1.11
1999-2000	0.84	0.42	1.26	0.97	0.52	1.49	0.87	0.43	1.30
2000-01	1.13	0.53	1.66	1.09	0.59	1.68	1.22	0.58	1.80
Average	0.89	0.43	1.32	1.01	0.52	1.53	0.95	0.45	1.40
S.D.	0.22	0.02	0.31	0.02	0.02	0.13	0.24	0.12	0.36
C.V.(%)	24.72	4.65	23.48	1.98	3.85	8.50	25.26	26.67	25.71
(B) Partially – E-Banking Period									
2001-02	1.29	0.58	1.87	1.59	0.87	2.46	1.34	0.69	2.03
2002-03	1.42	0.66	2.08	1.65	0.88	2.53	1.52	0.85	2.37
2003-04	1.54	0.74	2.30	1.83	0.89	2.72	1.81	1.00	2.81
Average	1.42	0.66	2.08	1.69	0.88	2.57	1.56	0.85	2.40
S.D.	0.13	0.02	0.22	0.12	0.02	0.13	0.24	0.16	0.39
C.V.(%)	9.15	3.03	10.58	7.10	2.27	5.06	15.38	18.82	16.25

Source: Performance Highlights, Various Issues, 1998-2004, IBA, Mumbai

Table II: Labour Productivity of New Private Sector Banks

Years	**HDFC Bank**			**ICICI Bank**			**UTI Bank**		
	D/E	**C/E**	**BUS/E**	**D/E**	**C/E**	**BUS/E**	**D/E**	**C/E**	**BUS/E**
(A) Non – E-Banking Period									
1998-99	2.96	1.42	4.38	6.83	2.37	9.20	5.84	4.17	10.01
1999-2000	4.21	1.73	5.94	7.34	2.72	9.06	7.74	4.75	12.49
2000-01	4.24	1.69	5.93	3.65	1.57	5.22	7.67	4.07	11.74
Average	3.80	1.61	5.42	5.94	2.22	7.83	7.08	4.33	11.41
S.D.	0.73	0.17	0.90	2.00	0.59	2.26	1.08	0.37	1.27
C.V.(%)	19.21	10.56	16.61	33.67	26.58	28.86	15.25	8.55	11.13
(B) E-Banking Period									
2001-02	4.72	1.82	6.54	4.15	6.09	10.24	7.14	3.11	10.25
2002-03	4.67	2.45	7.12	4.17	4.61	8.78	7.26	3.07	10.33
2003-04	5.36	3.13	8.49	5.00	4.56	9.56	6.08	2.72	8.80
Average	4.92	2.47	7.38	4.44	5.09	9.53	6.83	2.97	9.79
S.D.	0.38	0.66	1.00	0.49	0.87	0.73	0.65	0.21	0.86
C.V.(%)	7.72	26.72	13.55	11.04	17.09	7.66	9.52	7.07	8.78

Source: Same as Table I

Table III: Labour Productivity of Foreign Banks *(Rs. In Lacs)*

Years	**Citibank**			**Standard Charted Bank**			**HSBC**		
	D/E	**C/E**	**BUS/E**	**D/E**	**C/E**	**BUS/E**	**D/E**	**C/E**	**BUS/E**
(A) Non – E-Banking Period									
1998-99	6.14	3.26	9.40	2.01	1.27	3.28	2.35	1.03	3.38
1999-2000	7.80	5.06	12.86	3.09	2.66	5.75	3.15	1.60	4.75
2000-01	9.52	6.32	15.84	3.08	3.14	6.22	3.28	2.06	5.34
Average	7.82	4.80	12.70	2.73	2.36	5.08	2.93	1.56	4.49
S.D.	1.69	1.54	3.22	0.62	0.97	1.58	0.50	0.52	1.11
C.V. (%)	21.61	32.08	25.35	22.71	41.10	31.10	17.06	33.33	22.49

(B) E-Banking Period									
2001-02	10.37	7.74	18.11	3.38	4.22	7.60	3.68	2.34	6.02
2002-03	10.99	7.82	18.81	4.90	3.55	8.45	3.83	2.46	6.29
2003-04	8.61	6.42	15.03	4.47	3.62	8.09	5.20	3.08	8.28
Average	9.99	7.33	17.32	4.25	3.80	8.05	4.24	2.62	6.86
S.D.	1.23	0.79	2.01	0.78	0.37	0.43	0.84	0.40	1.23
C.V. (%)	12.31	10.78	11.61	18.35	9.74	5.34	19.81	15.27	17.93

Source: Same as Table I

Table IV: Branch Productivity of Public Sector Banks *(Rs. In Lacs)*

Years	SBI			BOB			CB		
	D/B	**C/B**	**BUS/B**	**D/B**	**C/B**	**BUS/B**	**D/B**	**C/B**	**BUS/B**
(A) Non – E-Banking Period									
1998-99	18.82	9.17	27.99	17.34	8.20	25.54	17.64	8.21	25.85
1999-2000	21.77	10.85	32.61	19.35	9.20	28.54	20.03	9.82	29.85
2000-01	26.75	12.51	39.26	20.26	10.27	30.53	24.53	11.57	36.13
Average	22.45	10.84	33.29	18.98	9.22	98.20	20.74	9.87	30.61
S.D.	4.01	1.67	5.67	1.49	1.04	2.51	3.51	1.68	5.18
C.V. (%)	17.86	15.41	17.03	7.85	11.28	8.90	16.92	17.02	16.92
(B) Partially – E-Banking Period									
2001-02	29.78	13.30	43.08	23.07	12.57	35.64	26.58	13.75	40.33
2002-03	32.76	15.24	48.00	24.13	12.84	36.97	29.74	16.70	46.44
2003-04	35.25	17.47	52.72	27.11	13.22	40.33	34.97	19.29	54.26
Average	32.60	15.34	47.93	24.77	12.88	37.65	30.43	16.58	47.01
S.D.	2.74	2.09	4.82	2.09	0.33	2.42	4.24	2.77	6.98
C.V. (%)	8.40	13.62	10.06	8.44	2.56	6.43	13.93	16.71	14.85

Source: Same as Table I

Table V: Branch Productivity of New Private Sector Banks *(Rs. In Lacs)*

Years	HDFC Bank			ICICI Bank			UTI Bank		
	D/B	**C/B**	**BUS/B**	**D/B**	**C/B**	**BUS/B**	**D/B**	**C/B**	**BUS/B**
(A) Non – E-Banking Period									
1998-99	51.16	24.58	75.74	110.42	38.36	148.78	86.89	62.00	148.89
1999-2000	75.93	31.19	107.12	121.79	45.15	166.94	116.73	71.57	188.30
2000-01	88.99	35.40	124.39	46.14	19.81	65.95	105.72	56.06	161.78
Average	72.03	30.39	102.42	92.78	34.44	127.22	103.11	63.21	166.32
S.D.	19.21	5.45	24.66	40.79	13.12	53.84	15.09	7.82	20.09
C.V. (%)	26.67	17.93	24.08	43.96	38.10	42.32	14.63	12.39	12.08
(B) E-Banking Period									
2001-02	103.23	39.85	143.08	89.62	131.38	221.00	110.69	48.22	158.91
2002-03	96.87	50.89	147.76	108.00	119.46	227.46	121.18	51.29	172.47
2003-04	97.46	56.88	154.34	145.22	132.40	277.62	111.46	49.80	161.26
Average	99.19	49.21	148.39	114.28	127.75	242.03	114.44	49.77	164.21
S.D.	3.51	8.64	5.66	28.33	7.19	30.99	5.85	1.54	7.25
C.V. (%)	3.54	17.56	3.81	24.79	5.63	12.80	5.11	3.09	4.42

Source: Same as Table I

Table VI: Branch Productivity of Foreign Banks *(Rs. In Lacs)*

Years	Citibank			Standard Charted Bank			HSBC		
	D/B	C/B	BUS/B	D/B	C/B	BUS/B	D/B	C/B	BUS/B
(A) Non – E-Banking Period									
1998-99	1179.63	626.63	1806.26	223.04	140.88	363.92	255.44	111.80	367.24
1999-2000	927.55	601.82	1529.37	278.69	239.94	518.55	336.73	170.58	507.31
2000-01	936.73	621.67	1558.40	267.79	273.68	541.47	355.68	223.03	578.75
Average	1014.64	616.71	1631.34	256.48	218.17	476.31	315.95	168.48	484.43
S.D.	142.96	13.13	152.18	29.46	69.03	93.71	53.25	55.66	107.51
C.V. (%)	14.09	2.13	9.33	11.49	31.64	19.67	16.85	33.04	22.21
(B) E-Banking Period									
2001-02	846.78	632.50	1479.28	402.44	501.83	904.27	411.37	261.20	672.57
2002-03	887.1	631.45	1518.55	276.97	200.34	477.31	387.94	248.55	636.49
2003-04	682.2	508.63	1190.83	302.26	244.73	546.99	451.92	267.44	719.36
Average	805.36	590.86	1396.22	327.22	315.63	642.88	417.08	259.06	676.14
S.D.	108.55	71.22	178.95	66.36	162.77	229.03	32.37	9.62	41.55
C.V. (%)	13.48	12.05	12.82	20.28	51.57	35.63	7.76	3.71	6.15

Table VII: Profitability of Public Sector Banks (Percent)

Years	SBI			BOB			CB		
	S/WFs	B/WFs	NP/WFs	S/WFs	B/WFs	NP/WFs	S/WFs	B/WFs	NP/WFs
(A) Non – E-Banking Period									
1998-99	2.73	2.26	0.47	3.01	2.20	0.81	3.17	2.70	0.47
1999-2000	2.65	1.86	0.79	2.85	1.99	0.86	2.64	2.21	0.43
2000-01	2.66	2.15	0.51	3.06	2.62	0.44	2.83	2.40	0.43
Average	2.70	2.09	0.59	2.97	2.27	0.70	2.88	2.44	0.44
S.D.	0.02	0.21	0.17	0.11	0.32	0.23	0.27	0.25	0.02
C.V. (%)	0.74	10.05	28.81	3.70	14.10	32.86	9.38	10.25	4.55
(B) Partially – E-Banking Period									
2001-02	2.61	1.91	0.70	2.65	1.88	0.77	2.52	1.50	1.02
2002-03	2.65	1.83	0.82	2.75	1.74	1.01	2.76	1.52	1.24
2003-04	2.74	1.84	0.90	3.02	1.89	1.13	2.69	1.35	1.34
Average	2.67	1.86	0.81	2.81	1.84	0.97	2.66	1.46	1.20
S.D.	0.02	0.02	0.10	0.19	0.02	0.18	0.12	0.02	0.16
C.V. (%)	0.75	1.08	12.35	6.76	1.09	18.56	4.51	1.37	13.33

Table VIII: Profitability of New Private Sector Banks (Percent)

Years	HDFC Bank			ICICI Bank			UTI Bank		
	S/WFs	B/WFs	NP/WFs	S/WFs	B/WFs	NP/WFs	S/WFs	B/WFs	NP/WFs
(A) Non – E-Banking Period									
1998-99	3.38	1.49	1.89	1.69	0.79	0.90	1.84	1.05	0.79
1999-2000	2.61	1.59	1.02	1.54	0.67	0.87	1.35	0.60	0.75
2000-01	3.23	1.89	1.34	2.05	1.23	0.82	0.92	0.12	0.80
Average	3.07	1.66	1.42	1.76	0.90	0.86	1.37	0.59	0.78
S.D.	0.41	0.21	0.44	0.26	0.29	0.02	0.46	0.47	0.02
C.V.	13.36	12.65	30.99	14.77	32.22	2.33	33.58	79.66	2.56

(%)									
(B) E-Banking Period									
2001-02	2.64	1.40	1.24	0.57	0.32	0.25	1.38	0.45	0.93
2002-03	2.70	1.43	1.27	1.33	0.20	1.13	1.65	0.67	0.98
2003-04	3.16	1.96	1.20	1.50	0.19	1.31	2.34	1.19	1.15
Average	2.83	1.60	1.24	1.13	0.24	0.90	1.79	0.77	1.02
S.D.	0.28	0.32	0.02	0.50	0.02	0.57	0.50	0.38	0.12
C.V. (%)	9.89	20.00	1.61	44.25	8.33	63.33	27.93	49.35	11.76

Source: Same as Table I

Table IX: Profitability of Foreign Banks *(Percent)*

Years	Citibank			Standard Charted Bank			HSBC		
	S/WFs	B/WFs	NP/WFs	S/WFs	B/WFs	NP/WFs	S/WFs	B/WFs	NP/WFs
(A) Non – E-Banking Period									
1998-99	3.44	2.52	0.92	3.57	1.50	2.07	2.69	2.10	0.59
1999-2000	4.56	2.77	1.79	4.24	2.22	2.02	2.75	1.78	0.97
2000-01	3.78	2.39	1.39	3.59	2.15	1.44	2.79	1.60	1.19
Average	3.93	2.56	1.37	3.80	1.96	1.84	2.74	1.83	0.92
S.D.	0.57	0.19	0.44	0.38	0.40	0.35	0.02	0.25	0.30
C.V. (%)	14.50	7.42	32.12	10.00	20.41	19.02	0.73	13.66	32.61
(B) E-Banking Period									
2001-02	3.75	2.24	1.51	3.51	1.49	2.02	2.62	1.75	0.87
2002-03	3.76	2.21	1.55	3.87	0.96	2.91	2.88	2.16	0.72
2003-04	4.58	2.65	1.93	4.23	2.49	1.74	2.73	1.18	1.55
Average	4.03	2.37	1.66	3.88	1.65	2.22	2.74	1.70	1.05
S.D.	0.48	0.25	0.23	0.34	0.78	0.61	0.13	0.49	0.44
C.V. (%)	11.91	10.55	13.86	8.76	47.27	27.48	4.74	28.82	41.90

Source: Same as Table I

Table X: Testing of Hypothesis in Employee Productivity, Branch Productivity and Profitability during Pre and Post e-banking Period (t-test)

Banks	Employee Productivity	Branch Productivity	Profitability
SBI	12.96*	24.43*	2.08
BOB	311.00*	18.37*	1.22
CB	22.94*	15.50*	7.05*
HDFC	4.80*	4.14*	0.69
ICICI	1.24	2.37	0.10
UTI	1.69	0.28	3.95*
Citibank	1.63	2.09	1.10
SCB	4.12*	0.90	1.39
HSBC	5.58*	3.37*	0.68

Note: * Significant at 5 percent level (2-tailed)

Table XI: Statistical Analysis of Comparative Performance of Selected Banks of Three Bank Groups (t-test)

Banks	Employee Productivity	Branch Productivity	Profitability
Citibank & HDFC	5.85*	11.76*	2.81*
Citibank & SBI	12.09*	12.07*	9.55*
HDFC & SBI	11.58*	171.98*	6.14*

Note: * Significant at 5 percent level (2-tailed)