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IMPACTOFINFORMATIONTECHNOLOGYONEFFICIENCY OF BANKING SECTOR

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ABSTRACT
In the present globalized environment, a huge competition (inter and intra-bank groups), global forces are compelling the banks to make radical change in their day to day functioning. World Trade Organization, another dimension forcing the banks to make internal and external change to meet the e-age challenges. IT is a crucial parameter for transformation in bank structure, work culture, functioning, human resource development and business re- engineering. Ebanking services are replacing the traditional services and creating a new scale in transformation. In the initial stage, e-channels where introduced in metropolitan cities and urban areas but recently some banks especially new private sector banks have started capturing rural and semi-urban areas too. In this paper we throw the light on statistical analysis for the impact of IT on profitability and overall efficiency of the Indian banking industry.

KEYWORD- Globalized Environment, E-banking.

INTRODUCTION
IT has transformed the business environment, the world over. It has a major impact in helping banking services and their customers with the introduction of number of e-channels like ATMs, EFTs, Credit Cards, Internet banking, Mobile banking, Tele banking etc. It has bridged the gaps in terms of the reach and the coverage of systems and enabled better management of banking business. Hanson and Kalyanam [1] also points out that ebanking grew rapidly, ATMs made costumer visits to a branch less necessary, and then in the late 1990s the rapid growth in banking web sites made a wide range of services available from almost everywhere. New private sector banks and foreign banks are attracting the customers in a different way. Uppal and Kaur[2] analyze that the efficiency of all the bank groups has increased in the second post banking sector reforms period but these banking sector reforms are more beneficial for new private sector banks and foreign banks. The potential customers and big companies are shifting their accounts from traditional banks to ebanks[4]. If traditional banks, mostly public sector banks and old private sector banks will not transform their business with introducing IT, their survival will become difficult as now days IT is not a matter of convenience but a survival factor. Therefore, ebanking services are potent factors for transforming the banking business in this e-age banking[5].

Uppal R.K. [3]analyzes the profitability of four major bank groups that is SBI and its associates (G-I), Nationalized banks(G-II), New private sector banks (G-III) and foreign banks (G-IV) in the second post banking sector reforms era and concludes that there is a significant difference in the profitability of various major bank groups.

PROFITABILITY BEHAVIOUR
Interest Earned
Interest earned as percentage of Working Funds represents a contribution of interest income in working funds. Table 1 shows that about all the bank groups along with industry witness 9 pc average and more in pre-ebanking period where G-II is at the top with 9.82 pc average and G-III is at the lowest level which records 8.80 pc average. Same is the situation in post- ebanking period but here stability is lesser than the pre-ebanking period mainly due to open competition for interest rates that cause decline in average ratio in all bank groups and industry.

Combined average depicts that all bank groups even industry have average above 8 pc where G-III has lesser average i.e. 7.43 pc. It is mainly due to the more concentration of partially IT- oriented banks towards interest bearing business rather non-interest bearing business. The average interest earned of the whole banking industry in India proves decline of nearly 1 to 3 pc throughout the post-ebanking period, a testimony of banks' changing attitude towards non- banking business where G-IV steals a look with 2.90 pc decline and industry also turn down by 2.77 pc. It is evident from the declined average of interest income ratio that post-ebanking period substantiates an impressive effect of IT, a more productive stick of transformation where partially IT-oriented banks, although having higher average also succeed to shift from interest to non-interest income bearing business.

Table 1: Interest Earned as Percentage of Working Funds(Percent)

Period	Years	G-I	G-II	G-III	G-IV	Industry
	1996-97	9.06	9.96	9.28	9.91	9.20
	1997-98	9.10	10.10	9.78	10.45	9.27
	1998-99	9.01	9.91	9.23	10.27	9.18
	1999-2000	8.92	9.58	7.53	9.93	8.97
Pre –Ebanking	2000-01	8.85	9.54	8.17	8.28	8.81
	Average	8.99	9.82	8.80	9.77	9.09
	S.D.	0.10	0.25	0.92	0.86	0.19
	C.V. (%)	1.11	2.55	10.45	8.80	2.09
	2001-02	8.72	9.36	4.48	8.47	8.5
	2002-03	8.34	8.48	8.14	7.67	8.28
	2003-04	7.44	7.51	6.83	6.59	7.29
	2004-05	6.79	6.94	5.76	5.95	6.61
Post – Ebanking	2005-06	6.83	6.94	5.75	6.07	6.62
	2006-07	6.92	7.21	6.76	6.48	6.87
	Average	7.51	7.74	6.29	6.87	7.32
	S.D.	0.84	0.98	1.25	0.99	0.77
	C.V. (%)	11.19	12.66	19.87	14.41	10.52
Combined Average		8.18	8.68	7.43	8.19	8.12
Avg. Profitability Gap		-1.48	-2.08	-2.51	-2.90	-2.77

Source:1. Performance Highlights of IBA (1996-97 to 2006-07)

Table.2: Interest Paid as Percentage of Working Funds(Percent)

Period	Years	G-I	G-II	G-III	G-IV	Industry
	1996-97	6.11	7.22	6.64	6.22	6.20
	1997-98	6.19	7.99	7.45	6.47	6.32
	1998-99	6.21	7.78	7.21	6.76	6.40
	1999-2000	6.22	7.24	5.65	6.01	6.25
Pre –Ebanking	2000-01	5.99	7.00	6.03	5.98	6.05
	Average	6.14	7.45	6.60	6.29	6.24
	S.D.	0.10	0.42	0.76	0.33	0.13
	C.V. (%)	1.63	5.64	11.52	5.25	2.08
	2001-02	5.99	6.97	3.33	5.93	5.73
	2002-03	5.43	6.02	6.43	4.33	5.51
	2003-04	4.47	4.95	4.73	3.13	4.43
	2004-05	3.88	4.28	3.58	2.62	3.78
Post –Ebanking	2005-06	3.98	4.20	3.60	2.55	3.84
	2006-07	4.19	4.38	4.41	2.74	4.11
	Average	4.66	5.13	4.35	3.55	4.57
	S.D.	0.86	1.13	1.16	1.34	0.85
	C.V. (%)	18.45	22.03	26.67	37.75	18.60
Combined Average		5.33	6.18	5.37	4.79	5.33
Avg. Profitability Gap		-1.48	-2.32	-2.25	-2.74	-1.67

Source: Same as in Table 4.1

Interest Paid

The ratio of interest paid represents the share of interest expenditure in working funds that means how much portion of assets is to be paid for interest on deposits, borrowings and other liabilities. It is seen from table 2 that during pre-ebanking period, G-II creeps a look with the highest average i.e. 7.45 pc where others even industry has little bit lesser burden around 6 pc. But during post-ebanking period, situation is different where G-IV has the least average i.e. 3.55 pc but G-II is continued to have the highest average i.e. 5.13 pc.

It is important to note that post-ebanking period proves more variations as compare to pre- ebanking period which shows higher competition prevailing in the banking industry due to globalization that cause fall of 1 to 3 pc in average. Combined average also supports the said results. All the bank groups and industry have successfully reduced the share of interest paid in Working Funds where G-IV creep a look by way of 2.74 pc decline. It is concluded that banks during post-ebanking period due to IT advancements, are continuously reducing interest paid and enjoying benefits of non-banking business were fully IT-oriented banks gaining the most and partially IT-oriented banks also predicts decline in average interest paid though having the highest average. In due course, IT with other factors, transforming the attitude of business from interest to non-interest type business where G-IV enjoys a lead.

Non-Interest Expenditure

Non-interest expenditure represents commission, brokerage, discounts etc. Table 3depicts a comparative picture of non-interest expenditure's share from working funds for pre and post- ebanking period. Unlike interest paid, which was least in G-IV, non-interest expenditure is the highest in the same group i.e. 5.29 pc in pre-ebanking period where industry shows 3.64 pc average still more than that of G-III which proves the least average i.e. 2.75 pc. Similarly in post-ebanking period also G-IV steel a look with 4.70 pc average though declined by 0.59 pc, industry is at a second position but G-III capture a look by way of the least average i.e. 2.86 pc. Combined average also depicts the same picture. It is evident from the data that average share of non-interest expenditure from Working Funds throughout the post-Ebanking period show decline in average of G-I, IV and industry whereas it is increased in G-II and III. It is important to note that G-III, even show increase but take a lead with the least average. This is due to increasing competition, again a transformation effect because banks are continuously venturing towards ebanking and non-banking business. It is concluded that although industry has succeeded to decline its share of interest paid from Working Funds at an impressive rate, still its share of non-interest expenditure is comparatively lesser which gives a sign of further need of initiatives to concentrate more on non-banking business, a strength of current market competitiveness.

Non-Interest Income

Non-interest income is an income from non-banking business which gains a leading share in working funds. It is evident from table 4 that although interest earned has larger share in Working Funds but turn down by 1 to 3 pc during the study period whereas non-interest income has gained improvement in its share in Working Funds. It can be seen that G-II witnesses the highest growth i.e. 0.18 pc where industry shows 0.17 pc growth. But on an average, G-IV is at the top by means of 2.52 pc average in pre-ebanking period and increased to 2.68 pc in the post-ebanking period. Industry shows comparatively lesser average, however prove 0.17 pc growth in post-ebanking period. Partially IT-oriented banks are laggards of fully IT-oriented banks, having nearly 2 times lesser average in pre and post-ebanking period however show improvement. Post-ebanking period is less stable due to increased competition, motivates the banks to explore non-banking business opportunities. Combined average also confirms that G-IV is at the top by way of 2.61 pc average but partially IT-oriented banks even industry witness below 2 pc. Overall, it is concluded that whole banking industry in India is now capturing non-banking business increasingly where fully IT-oriented banks creep a look with attractive figures. This is whole a transformation affect through various factors where IT is the catalyst of recent bank transformation and is a survival factor in the current competitive environment.

Table 3: Non-Interest Expenditure as Percentage of Working Funds (Percent)

Period	Years	G-I	G-II	G-III	G-IV	Industry
	1996-97	3.67	3.25	2.92	4.86	3.72
	1997-98	3.47	2.88	3.07	5.98	3.66
	1998-99	3.60	2.99	2.53	4.99	3.63
	1999-2000	3.42	3.17	2.57	5.21	3.49
Pre –Ebanking	2000-01	3.64	3.14	2.67	5.40	3.68
	Average	3.56	3.09	2.75	5.29	3.64
	S.D.	0.11	0.15	0.23	0.44	0.09
	C.V. (%)	3.09	4.85	8.36	8.32	2.47
	2001-02	3.44	3.70	1.92	5.30	3.41
	2002-03	3.60	3.54	3.38	4.42	3.63
	2003-04	3.76	3.40	3.02	4.77	3.74
	2004-05	3.39	3.41	2.79	4.54	3.39
Post – ebanking	2005-06	3.17	3.15	2.99	4.57	3.24
	2006-07	2.74	3.06	3.08	4.59	2.97
	Average	3.35	3.38	2.86	4.70	3.40
	S.D.	0.36	0.24	0.50	0.32	0.28
	C.V. (%)	10.74	7.10	17.48	6.81	8.24
Combined Average		3.45	3.24	2.81	4.97	3.51
Avg. Profitability Gap		-0.21	0.29	0.11	-0.59	-0.24

Source: Same as in Table 1

Table 4: Non-Interest Income as Percentage of Working Funds(Percent)

Period	Years	G-I	G-II	G-III	G-IV	Industry
	1996-97	1.24	1.38	1.86	2.23	1.35
	1997-98	1.33	1.41	2.33	2.97	1.52
	1998-99	1.22	1.33	1.56	2.47	1.34
	1999-2000	1.29	1.68	1.66	2.54	1.42
Pre –Ebanking	2000-01	1.20	1.22	1.35	2.38	1.30
	Average	1.26	1.40	1.75	2.52	1.39
	S.D.	0.05	0.17	0.37	0.28	0.09
	C.V. (%)	3.97	12.14	21.14	11.11	6.47
	2001-02	1.43	2.38	1.17	2.90	1.56
	2002-03	1.65	2.25	2.58	2.64	1.86
	2003-04	1.91	2.00	2.14	2.95	2.01
	2004-05	1.36	0.97	1.73	2.51	1.46
Post –Ebanking	2005-06	1.16	0.95	1.83	2.58	1.35
	2006-07	0.85	0.93	1.65	2.50	1.13
	Average	1.39	1.58	1.85	2.68	1.56
	S.D.	0.37	0.70	0.48	0.20	0.33
	C.V. (%)	26.62	44.30	25.95	7.46	21.15
Combined Average		1.33	1.50	1.81	2.61	1.18
Avg. Profitability Gap		0.13	0.18	0.18	0.16	0.17

Source: Same as in Table 4.1

Burden

Burden is a difference between non-interest expenditure and non-interest income. Burden's share from working funds represents the part of assets to be paid for non- banking business creditors. Table 5 depicts the comparative picture where during pre-ebanking period, G-IV records the highest average burden i.e. 2.77 pc, industry and G-I with little difference follows, whereas G-III witnesses the least average burden i.e. just 1.01 pc. During post-ebanking period also, G-IV draws an attention with the highest average burden i.e. 2.02 pc but witness the largest decline of 0.75 pc mainly because of much higher non-interest expenditure while non-interest income is also higher in the same bank group. Industry proves 1.84 pc average but G-III is still at the same level i.e. 1.01 pc average as was during pre-ebanking period. Combined average also depicts the similar picture. There is a decrease in average burden of G-I, IV and industry where G-IV records the highest decline. It is imperative to note that G-II is the only group with increased burden as stability is also much lesser in the same bank group. Generally, it is concluded that burden is more in G-IV but the same group has higher spread also. Partially IT-oriented banks have more burden than other bank groups but equally succeeded to turn down their burden where G-III steals a look with greater control on burden and G-II witness 0.12 pc boost in burden mainly because of more increase in non-interest expenditure as compare to non-interest income. The increasing competition leads the banks to concentrate more on lowering burden rather to expand spread because non-banking business is more productive against interest bearing business.

Net Profits

Net profit, a resulting difference of spread and burden, is an important tool to measure the financial efficiency and this ratio represents the share of assets occupied by net profits. It is seen from table 6 that G-III is at the top having 1.20 pc average in pre-ebanking period where industry is at lower level with 0.59 pc average. But during post-ebanking period, G-IV takes a lead with 1.30 pc average profitability and industry records 0.92 pc average incompatible of G-I and II. It is important to note that G-II is at the lowest by means of 0.81 pc average profitability mainly because of increase in burden. Combined average portrays different picture where fully IT-oriented banks have the highest average recording more than 1 pc average profitability whereas partially IT-banks even industry proves below 1 pc average. Positive average profitability gap is a testimony of improved performance in whole banking industry during post-ebanking period where G-IV is at the top by means of 0.59 pc growth but G-III proves decline of 0.27 pc due to higher decline in interest income still have good amount of average profitability. Although partially IT-oriented banks have improved their performance but record a notable gap from fully IT-oriented banks.

On the whole, it is concluded that post-ebanking period is a testimony of improved profitability with the utmost effect of IT along with other factors of transformation. Fully IT- oriented banks are gaining the most because of the greater attention towards electronic banking business.

TOTAL PRODUCTIVITY

Total productivity represents collective effect of all the factors of branch, employee and financial productivity. Table 7 shows that productivity on an average, is the highest of G- IV (52 score) where industry as well as partially IT-oriented banks show nearly 45 average score with greater stability in pre-ebanking period. During post-ebanking period also, G-IV is at a peek with 58.48 average score where partially IT-oriented banks and industry prove nearly 48 average score. Combined average also predicts the similar picture where fully IT- oriented banks gain a lead of almost 5 to 10 scores against partially IT-oriented banks. It is so because employee and branch productivity both are much higher in fully IT-oriented banks more particularly of G-IV that has minimized the effect of greater financial productivity in partially It-oriented banks, ultimately total productivity also favours fully IT-oriented banks. Total productivity is improved at an excellent rate of growth in all bank groups and industry in post-ebanking period where G-IV captures a look by growing at 6.48 score but other groups and industry witness nearly 2 points growth. Although partially IT-oriented banks have gained improvement but still are laggards of fully IT-oriented banks. Improved productivity of banking industry in post-ebanking period is a result of more use of advanced IT along with some other factors where fully IT-oriented banks are the most benefited though partially IT-oriented banks also following with successive efforts.

Table 5 Burden as Percentage of Working Funds (Percent)

Period	Years	G-I	G-II	G-III	G-IV	Industry
	1996-97	2.43	1.87	1.08	2.63	2.38
	1997-98	2.14	1.48	0.74	3.01	2.14
	1998-99	2.38	1.66	0.97	2.52	2.29
	1999-2000	2.12	1.49	0.91	2.67	2.06
Pre –ebanking	2000-01	2.44	1.92	1.33	3.02	2.38
	Average	2.30	1.68	1.01	2.77	2.25
	S.D.	0.16	0.21	0.22	0.23	0.14
	C.V. (%)	6.96	12.50	21.78	8.30	6.22
	2001-02	2.01	1.32	0.75	2.40	1.85
	2002-03	1.95	1.29	0.81	1.77	1.77
	2003-04	1.85	1.40	0.88	1.82	1.73
	2004-05	2.02	2.44	1.06	2.03	1.93
Post –ebanking	2005-06	2.01	2.20	1.16	1.99	1.89
	2006-07	1.89	2.13	1.42	2.09	1.84
	Average	1.96	1.80	1.01	2.02	1.84
	S.D.	0.07	0.52	0.25	0.22	0.07
	C.V. (%)	3.57	28.89	24.75	10.89	3.80
Combined Average		2.11	1.75	1.01	2.36	2.02
Avg. Profitability Gap		-0.34	0.12	0.00	-0.75	-0.41

Source: Same as in Table 4.1

Table 6: Net Profits as Percentage of Working Funds(Percent)

Period	Years	G-I	G-II	G-III	G-IV	Industry
	1996-97	0.53	0.91	1.57	1.06	0.62
	1997-98	0.77	0.63	1.59	0.98	0.81
	1998-99	0.42	0.48	1.05	0.99	0.50
	1999-2000	0.57	0.84	0.97	1.25	0.66
Pre –ebanking	2000-01	0.42	0.62	0.81	-0.72	0.38
	Average	0.54	0.70	1.20	0.71	0.59
	S.D.	0.14	0.18	0.36	0.81	0.16
	C.V. (%)	25.93	25.71	30.00	114.08	27.12
	2001-02	0.72	1.08	0.41	0.13	0.67
	2002-03	0.96	1.17	0.90	1.57	1.01
	2003-04	1.12	1.16	1.22	1.65	1.13
	2004-05	0.89	0.22	1.13	1.30	0.90
Post - ebanking	2005-06	0.83	0.54	0.99	1.52	0.89
	2006-07	0.85	0.70	0.92	1.65	0.92
	Average	0.90	0.81	0.93	1.30	0.92
	S.D.	0.14	0.39	0.28	0.59	0.15
	C.V. (%)	15.56	48.15	30.11	45.38	16.30
Combined Average		0.73	0.76	1.05	4.03	0.77
Avg. Profitability Gap		0.36	0.11	-0.27	0.59	0.33

Source: Same as in Table 4.1

Table 7: Total Productivity Index

Period	Years	G-I	G-II	G-III	G-IV	Industry
	1996-97	43.46	43.01	46.43	49.35	43.00
	1997-98	45.35	44.07	48.00	50.58	45.16
	1998-99	45.44	44.60	49.75	51.58	45.23
	1999-2000	45.42	44.89	50.90	52.62	45.25
Pre –ebanking	2000-01	46.11	44.88	49.17	55.89	45.80
	Average	45.16	44.29	48.85	52.00	44.89
	S.D.	1.00	0.79	1.71	2.49	1.09
	C.V. (%)	2.21	1.78	3.50	4.79	2.43
	2001-02	45.98	45.15	49.76	58.25	45.80
	2002-03	46.21	46.04	51.69	56.98	45.91
	2003-04	46.68	46.47	50.23	55.95	46.46
	2004-05	47.19	46.53	50.55	59.60	47.02
Post - ebanking	2005-06	47.70	47.34	51.02	58.33	47.77
	2006-07	48.24	48.54	53.08	61.75	48.58
	Average	47.00	46.68	51.06	58.48	46.92
	S.D.	0.88	1.16	1.19	2.03	1.09
	C.V. (%)	1.87	2.49	2.33	3.47	2.32
Combined Average		46.16	45.59	50.05	55.53	46.00
Avg. Productivity Gap		1.84	2.39	2.21	6.48	2.03

Source: Computed from all the factors of Employee, Branch and Financial Productivity

CONCLUSION

Post-ebanking period is testimony for improvement in profitability mainly because of decrease in interest based business and increase in non-interest income. Total productivity is also improved in post-ebanking period where fully IT-oriented banks are the most benefited though partially IT-oriented banks also follow with successive efforts. Partially IT-oriented banks except SBI and FB witness poor management of IT while fully IT-oriented banks except HDFC get success. Industry as a whole shows impressive improvement in profitability with greater input of G-IV. Consequently, IT amounts immense contribution in all Indian banks except G-IV though its total productivity is the highest among all bank groups. G-III shows insignificant impact mainly because of decrease in some e-channels' usage and a major turn down in HDFC bank's efficiency. G-II is poor because of inappropriate use of IT. If the banks utilize IT in efficient way, they can also gain fruits of transformation through IT.

It is very difficult to conclude the situation of profitability just on IT basis, it is also affected by number of other factors some are controllable and others are uncontrollable. But still IT is the most dominating one which has changed the banking business in whole and managed their change on the other hand. The poor performance demonstrates that IT is not adopted in its efficient manner that's why it is affecting the profitability negatively in most of the banks in terms of number of e-channels but on the other hand it has improved the total productivity also at an excellent rate of growth.

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