Impact of Information Technology on Banking Accounting System
"A Case Study of State Bank of India (Rajasthan)"

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Abstract

The impact of information technology on work life has been one of the most talked about issues over the recent years. Chief executive officers spending millions of dollars on information technology face the critical issue of assessing the impact of this technology on work. In this study, the data collected from the financial statement of the State Bank of India have been analyzed with the help of different accounting and statistical tools. The techniques used are Trend analysis and ratios analysis to record the performance of SBI particularly during pre and post Introduction of IT.

Key Words: State Bank of India, Information technology (IT), Ratio analysis.

1. Introduction

Information technology (IT), such as online banking, and relationship marketing are becoming increasingly important to marketers. Information system managers are increasingly required to justify technology investment in terms of its impact on the individual and his/her work. Measures of impact of information technology have narrowly focused on productivity impacts.

In view of these two effects above, it should be surprising to know that the evidence, however, shows some inconsistency in concluding the contribution of IT to banks' profit. Some studies echo the so-called Solow Paradox in concluding that IT will actually decrease productivity. As stated by (Solow, 1987), "you can see the computer age everywhere these days, except in the productivity statistics". Shu and Strassmann 2005 studied 12 banks operating in the US for the period of 1989-1997 and found that although IT has been one of the most marginal productive factors among all inputs, it cannot increase banks' profit. On the other hand, there are some studies agreeing with the positive influence of IT spending to business value. (Kozak, 2005) examines the impact of the progress in IT on the profit and cost efficiencies of the US banking sector during the period of 1992-2003. The research shows a positive correlation between the levels of implemented IT and both profitability and cost savings.The IT industry in India is rapidly amount to USD 17.9 billion/year and are growing at 35 percent per year. India's $23.4 billion outsourcing industry accounts for most of the country's software and services industry, which makes up nearly 5 percent of gross domestic product. The industry employs 1.2 million workers and accelerating at more than 30 percent a year.

State Bank of India is the largest commercial bank in India in terms of assets, deposits, profits, branches and employees. At the end of 2006-07 (April'06-March 07), the Bank had total assets of Rs.5, 665.65 billion (US $130.33 billion), total deposits of Rs.4, 355.21 billion (US $100.19 billion) and recorded a net profit of Rs.45.41 billion (US $1.04 billion). The Bank has a vast domestic network of 9,517 branches and staff strength of 185,388. The State Bank is the only Indian bank to rank among the top 100 banks in the world and is among the top 20 banks in Asia according to The Banker (UK) annual survey. SBI is the sixth Indian company to feature in the Fortune Global 500 companies.

2. Objective of the study

The research work Impact of IT on Banking Accounting System: A case study of SBI in the state of Rajasthan is examining the performances of state bank of India and its subsidiaries through IT. The following are the important objectives of the study.

1- To explore whether IT has an impact on profitability in the banking sector in India.
2- To explore the relationship between IT and capital structure of the banks in India
3- To assess the extent to which IT is utilized to service efficiency of the bank

3. Methodology

The study "Impact of IT on Banking Accounting System: A case study of SBI in the state of Rajasthan" is based on the following methodology. Most of the information collected for the study is secondary data has been collected from the following sources:

1-Information relating to scheduled commercial bank offices has been obtained from the Reserve Bank of India publications.

2-Annual reports of the State Bank of India have been collected from the State Bank of India, Head Office, Mumbai.

3-Publications of National Institute of Banks Management, Pune.

3.1. Techniques of analysis

The data collected from the financial statement of the State Bank of India have been analyzed with the help of different accounting and statistical tools. The used techniques are Trend analysis and ratios analysis to record the performance of SBI particularly during pre and post Introduction of IT.

3.2. Ratio Analysis

Ratio analysis is the handiest accounting tolls used by financial analyst to reveal the shed of financial affairs. The ratios used in the study are in the following section: Profitability ratio, stability ratio, and other financial ratios.

4. Previous Research

(Brynjolfsson and Wilson, 1993) provide reviews of this literature on the business value of IT. Some studies have drawn on statistical correlation between IT spending and performance measures such as profitability or stock value for their analyses.

(Dos Santos *et al*. 1993, Strassman 1990), and have concluded that there is insignificant correlation between IT spending and profitability measures, implying thereby that IT spending is unproductive. (Brynjolfsson and Hitt ,1996), however, caution that these findings do not account for the economic theory of equilibrium which implies that increased IT spending does not imply increased profitability. (Morrison and Berndt, 1991), which found that in the manufacturing industry, "estimated marginal benefits of investment in [IT] are less than marginal costs, implying over investment". More specifically, they determined that for each additional dollar spent on IT, the marginal increase in measured output was only 80 cents. (Loveman, 1994), used the data from the Management Productivity and Information Technology (MPIT) Database in a Cobb-Douglas production function framework.

5. Fixed and Variable Working Capital

In every business, there is always a need for the minimum level of current assets required permanently to carry on its business operations. This minimum level of current assets is known as permanent or fixed working capital. Professor C.W. Gerstenberg defines the fixed working capital as "the amount of capital that normally will be found in the circulating system.(H.G,Guthmann,1996). On the other hand, the variable working capital is the funds needed to support the changing and sales activities.

6. Analysis of Working Capital of the State Bake of India:

The analysis of the working capital is the touchstone to test the efficiency with which the short-term funds are employed. It helps the management to evaluate the productivity of the short-term funds employed. A corporation as a general policy wants to hold in balance as small a quantity of the working capital so long as undue solvency risks are not imposed on it. This is a logical approach indicating that the working capital is a means to an end and not an end in itself.

For proper study of the working capital of State Bank of India the following analysis have been made:
(i)   Working Capital Trend Analysis;
(ii)   Efficiency Analysis; and
(iii)   Analysis of Liquidity Position

6.1. Working Capital Trend Analysis

The working capital trend analysis represents a picture of variation in current assets, current liabilities and working capital over a period. Such an analysis enables us to study the upward and downward trend in current assets and current assets and current liabilities and its effect on the working capital position. The trend analysis is a tool of financial appraisal where the changes in the factors are compared with the base year, keeping the base year as 100.

6.2. Efficiency Analysis

Efficiency analysis in the context of working capital means to examine the efficiency with which different components of working capital are used in an enterprise. Efficient relation of the working capital will lead to higher profitability. To measure efficiency in the use of working capital, the following ratios are considered useful:

a)   Current Assets Turnover Ratio;
b)   Debtors Turnover Ratio;
c)   Interest Income to Working Capital Ratio;
d)   Interest Expenses to Working Capital Ratio;
e)   Interest Spread to Working Capital Ratio
f)   Operating expenses to Working Capital Ratio; and
g)   Return of Management cost to Working Capital.

6.2.1. Current Assets Turnover Ratio

Insert table 1 about here

The current assets turnover ratio ascertains the efficiency with which current assets are used in a business. Professor Guthmann observes, "Current assets turnover is to give an overall impression of how rapidly the total investment in current assets is being turned this ratio is strongly associated with efficient utilization of costs, receivables and inventory. In the case of State Bank of India this ratio will be obtained by dividing operating revenue by the current assets. A higher value of this ratio indicates operates circulation of current assets while a low ratio indicates a stagnation of the flow of current assets. The formula for the computation of current assets turnover ratio is $= \dfrac{\text{Operating Revenue}}{\text{Current Assets}}$

6.2.2. Debtors Turnover Ratio:

Insert table 5 about here

Whenever a business extends credit to its customers, outstanding debts (debtors) are created in the accounts. A firm's liquidity position and working capital position would be considered as efficiently managed when the debtor's turnover is very high and the number of days of the outstanding credit is fewer. To manage a firm efficiently a trade off is to be maintained between the excess profits received from the debtors outstanding and the amount of interest incurred on the blocked funds. Eugene M. Lerner defines this ratio as "The ratio of total sales to outstanding receivables."[15] This ratio in the case of air-corporations is obtained by dividing operating revenue by debtors. The formula for derivation of this ratio is: $= \dfrac{\text{Operating Revenue}}{\text{Debtors}}$

Generally, the higher the value of the debtor's turnover, the more efficient is the management of sales and in turn the more efficient the management of liquidity position. The values obtained by such relationship have great significance when contrasted with the corporation's own prior history.

6.2.3. Ratio of Interest Income to Working Capital

Insert table 6 about here

This ratio is the measure of interest income over the working capital of the bank. If the ratio is more it reveals that interest earned over the working capital funds is also more. This indicates that the management of the bank has utilized its working capital in a profitable manner. In other way if the ratio is less, that show the management fails to utilize the resources in a profitable manner.

The ratio of interest income to working capital can be determined by the following method:

$$= \frac{\text{Interest Income}}{\text{Working Capital}} \times 100$$

Interest income here means to income from interest and discount and working capital is the net working funds used by the bank in operation.

6.2.4. Interest Expenses to Working Capital Ratio

Insert table 7 about here

This ratio shows the comparison between the working capital funds borrowed in the form of deposits borrowings and equity capital and total interest paid on such funds. If the ratio is more it means interest paid over the net working capital funds are more. Hence high cost of these funds. Hence, profitability of the bank will be poor on the other hand if the ratio is minimum, it indicate the efficiency of the management to procure bank funds at low interest rate. The ratio of interest expenses to working capital funds can be determined as follows:

$$= \frac{\text{Interest Paid on Deposit and Borrowing}}{\text{Net Working Capital Funds}} \times 100$$

6.2.5. Ratio of Interest Spread to Working Capital Funds:

Insert table 8 about here

The interest spread is the net difference of the interest income and interest expenses for a specific period denoted an accounting year. This difference between the interest earned and interest paid must be maximized. Maximization of the spread depends upon how the management efficiently procure the bank funds and how effectively invest them in a profitable manner the ratio of interest spread to working capital fund is determined as follows :

$$= \frac{\text{Interest Spread}}{\text{Working Capital Funds}} \times 100$$

6.2.6. Ratio Operating expenses to Working Capital Fund:

Insert table 9 about here

The operating cost is one of the main items affecting the profitability of the bank. This cost comprises such expenses, which are supposed to have been incurred in earning operating income in bank. The operating cost in State Bank of India has been worked out by adding all the expenses excluding the interest cost and all kinds of reserves viz., Salaries, rent, depreciation of fixed assets, directors auditors fee, law charges, postage, telegram and telephone charges, stationery, printing and advertisement and other expenses which have been incurred in earning revenue.

The ratio of operating expenses to Working capital fund of the bank is a measure of the productivity and efficiency of the management to use their working capital with minimum operating expenses. If the ratio is low it shows the productivity efficiency of management to earn more interest income. The percentage ratio of operating the expenses to working capital fund is determined as follows : i.e.

$$\frac{\text{Operating Expenses}}{\text{Working Capital Fund}} \times 100$$

6.2.7. Ratio of Management Cost to Working Capital

This percentage of management cost of working capital is directly related to the working capital and explains about the how much cost incurred in management of working capital of the bank. The management of working capital of the bank. The management of working capital includes both procurement of finances and its profitable credit management and timely recovery of loans and interest.

The percentage of Management cost of working capital can be calculated as follows: =

$$\frac{\text{Management Cost}}{\text{Working Capital}} \times 100$$

If the ratio is lower value and shows a decreasing trend it indicates that, the bank management is succeeded to reduce the management cost over the working capital and vice versa.

6.3. Analysis of Liquidity Position

Different authors have defined liquidity differently. J.F. Solomon and G. Donald define it as "The ability of the firm to meet its current obligations as they fall due."[17] According to Herbert Mayo, "Liquidity is the ease with which assets may be converted into cash without loss.[18] In the 'Directives of the Reserve Bank of India to banks, the term 'liquidity' is described as "Liquidity implies convertibility of assets ultimately into cash in the course of normal business operations and the maintenance of a regular cash flow. A sound liquid position is of primary concern to management from the point of view of meeting current liabilities as and when they mature as well as for answering continuity of operations.[19] Thus, liquidity is the base of continuous business operations. To measure the liquidity position of the State Bank of India the following ratios have been calculated:

    a)   Current Ratio;
    b)   Cash to Working Capital Ratio

6.3.1. Current Ratio

Insert table 10 about here

The most widely used measure of liquid position of an enterprise is the current ratio, i.e., the ratio of the firm's current assets to current liabilities. Current ratio commands a very high esteem in the sphere of accounting information. Lerner observes: "The current ratio is important because all liabilities are ultimately paid with funds generated by the liquidation of assets. The current ratio is considered a powerful parameter of a company's solvency and a reliable prognosticator of potential liquidity. Current ratio is the indicator of relationship between total of current assets and current liabilities. Current assets would include cash, inventory, sundry debtors, advances and current liabilities would include sundry creditors, deposits, interest accrued but not due. This ratio is also known as 'Current Assets and Current liabilities Ratio', '2 to 1 ratio', "Solvency Ratio or Working Capital Ratio (RoyA.Foulk, 1972).

Current ratio is applied to test solvency as well as short-term financial strength of a company. It is used to judge the financial strength of a company to meet its current obligations with a margin of safety. N.L. Hingorani and others observes : "Current ratio is a tool for measuring the short-term stability or ability of the company to carry on its day to day work and meet the short-term commitments earlier.

Thus, the current ratio is used not only as an indicator of a concern's ability to pay its current obligations but also to find out its capacity to carry on its operations efficiently. Moreover current ratio also reflects the adequacy of the working capital position of a company. As stated by R.K. Yorston and others : "The significance of the current ratio is that it is not only a measure of solvency but is an index of working capital available to the enterprise."[23] Therefore, the current ratio is generally an acceptable measure of short-term solvency as it indicates the extent to which the claims of short-term creditors are covered by assets.

The ratio of 2:1 of current assets and current liabilities is regarded as a satisfactory state of affairs. This means that current assets should be twice the current liabilities. It is considered as a very safe margin of solvency due to the fact that if current assets are reduced to a half i.e. 1 instead of 2, then also the current creditors will be able to get their full payments. In the words of Walker and Boughn, it can be said that "A good current ratio may mean a good umbrella for creditors against rainy day but to the management it reflects bad financial planning or presence of idle assets of over-capitalization.

In the form of equation the current ratio can be put thus:

$$\text{Current Ratio} = \frac{\text{Total Current Assets}}{\text{Total Current Liabilitie s}}$$

For the purpose of the present study, a current ratio of 1.5:1 is taken as the norm. The credibility of this norm lies in the fact that State Bank of India are capital intensive service industry.

Moreover, both are in public sector. Therefore, on one hand the service industry does not require a major portion of its current assets in the form of inventory while, on the other hand, all their current liabilities are well secured by government guarantee.

6.3.2. Cash to Working Capital Ratio

Insert table 11 about here

Efficient management of the inflow and outflow of cash plays a crucial role in the overall performance of a business. Professor Gordeon Donaldson had suggested the liquidity approach of financial appraisal. Before this Ezra Soloman's theory of 'Profitability Approach' was commonly accepted by the financial analysis for their work. Although the profitability and liquidity approaches are the two sides of one coin in the long run, a business cannot run successfully without liquidity in the short run.

Cash is the most liquid form of assets which safeguards the security interest of a business. Cash (including bank balances) plays a vital role in the total networking capital. The ratio of cash to working capital signifies the proportion of cash to the total net working capital and can be calculated by dividing the cash (including bank balances) by the networking capital. Cash is not an end in itself; it is a means to achieve the end. Therefore, only a required amount of cash is necessary to meet day to operations. A higher proportion of cash may lead to shrinkage of profits due to idleness of resources for an organization.

7. Conclusions

1- Use of It in the State Bank of India has a positive impact on the total income because it is increasing continuously and more rapidly than earlier years as has been shown through the available data of the selected period of study.

2- Increase in deposits of the bank has a positive impact of IT because both bank and customer are using IT frequently and awareness of information technology using also increasing in India. By use of IT, the deposit is more safe in banks then before and available to customer the clock.

There is no bar which not possible in earlier time when information technology was not used in accounting system in bank and also as to provide various facilities to its customer like ATMs, electronic cheques, money transfer to another account \ cities etc.

3- After the result obtained by this study, it is quite clear that the increase in the State Bank of India's profit is not only due to increase technology which creating new possibilities of profitability improvement.

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Table 1: Current assets

Years	Current assets	Indices 2003-04
2003-04	519475773	100
2004-05	470784065	91
2005-06	498379819	96
2006-07	594373581	114

Table 2: Current liabilities

Years	Current liabilities	Indices 2003-04
2003-04	423793413	100
2004-05	374859466	88.5
2005-06	374027980	88
2006-07	247085417	53

Table 3: Working capital

Years	Working capital	Indices 2003-04
2003-04	95682360	(100)
2004-05	95924599	100
2005-06	124351839	130
2006-07	347288164	363

Table4: Current assets turnover Ratio

Years	Operating revenue	Current assets	Ratio
2003-04	175639486	519475773	34
2004-05	190426447	470784065	40
2005-06	245260091	498379819	49
2006-07	328203159	594373581	55

Table 5: Debtor turnover Ratio

Years	Operating revenue	Debtor	Ratio
2003-04	175639486	3320500050	5
2004-05	190426447	3862318401	5
2005-06	245260091	4106872996	6
2006-07	328203159	4752244246	7

Source: Annual reports of the State Bank of India from 2003-04 to 2007-08

Table6: Interest Income to working capital Ratio

Years	Interest income	Working capital	ratio
2003-04	304604915	95682360	3.18
2004-05	324280020	95924599	3.38
2005-06	357949274	124351839	2.90
2006-07	394910255	347288164	1.13

Table 7: Interest expense to working capital

Years	Interest expense	Working capital	ratio
2003-04	192741763	95682360	2.05
2004-05	184833755	95924599	1.90
2005-06	201592889	124351839	1.62
2006-07	234368210	347288164	0.70

Source: Annual reports of the State Bank of India from 2003-04 to 2007-08

Table 8: Interest spread to working capital

Years	Interest spread	Working capital	ratio
2003-04	111863152	95682360	1.16
2004-05	139446265	95924599	1.45
2005-06	156356385	124351839	1.26
2006-07	160542045	347288164	0.46

Table 9: Operating Expense to working capital Ratio

Years	Operating Expense	Working capital	ratio
2003-04	192741763	95682360	2
2004-05	184833755	95924599	1.9
2005-06	201592889	124351839	1.60
2006-07	234368210	347288164	0.67

Source: Annual reports of the State Bank of India from 2003-04 to 2007-08

Table 10: Current Ratio

Years	Current assets	Current liabilities	Current Ratio
2003-04	519475773	423793413	1.23
2004-05	470784065	374859466	1.26
2005-06	498379819	374027980	1.33
2006-07	594373581	247085417	2.41

Table 11: Cash to working capital Ratio

Years	cash	Working capital	ratio
2003-04	638474313	95682360	6.70
2004-05	393220986	95924599	4.10
2005-06	445600011	124351839	3.60
2006-07	519686900	347288164	1.50

Source: Annual reports of the State Bank of India from 2003-04 to 2007-08