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Impact of Application of Six Sigma in Banking Industry

KEYWORDS: Six sigma and Banking financial ratios.

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ABSTRACT *Six sigma process was pioneered by Bill Smith at Motorola in 1986. It is evident that Bill Smith did not really invent . Six sigma in the year 1980s; rather he applied methodologies that had been available since in 1920s developed by luminaries like Shewhart, Deming, Juran, Ishikawa, Taguchi, and Shainin. All tools used in six sigma programs are actually a subset of the Quality Engineering discipline. Many financial company has started to implement Six sigma, in India Private Banks are engaged in Six sigma and they found to be profitable for them. So this paper intends to investigate the application of Six sigma in banking Industry.(Ankur Gupta & Sumit Roshan)*

Introduction:
Six sigma is a powerful system. Basically it is measuring of quality that longs for perfection (3,4 defects on 1.000.000 transactions). It is denoted by Word "Sigma" is a Greek letter which represents standard deviation, the term that describes how distant is the data from average or middle.

It is widely recognized as a business strategy that employ statistical and non-statistical tools and techniques, change management tools, project management skills, and teamwork skills. It also gives powerful roadmap (DMAIC) to maximize an organization's return on investment (ROI) through the elimination of defects in processes.(Vojislav Stoiljkovic, Pedja Milosavljevic and Sasa Randjelovic 2010)

Definition: Six sigma
Six Sigma is an organized systematic methodology used to improve processes or product performance with impact on customers, and is based on scientific and statistical methods.(Lixia Wang 2011)

Basically DMAC Methodology consists of the following five steps.
Define :-
In this process aims and limits of specifics banking processes is define to meet customer satisfaction level.

Measure :- It measure the existing process and data is collected for comparison.

Analyze: It involves performance objectives by the team benchmarking and identifying the source of variation by performing various test.

Improve:- In this phase, one may develop potential solutions to fix the problems and prevent them from recurring..

Control : This is phase focused in identifying the root causes of the delays, a specified controlling system are employed in banking operations to measure the influence of actions taken for quality enhancement The **(Aditi Sharma 2013).**

Six sigma In Banking Sector
Six sigma become the integral part of the business world, many service industry are using six sigma to get financial benefits and to meet the customer satisfaction level. In India some private and some Public sector Bank are using Six sigma namely HDFC, ICICI, IDBI and some public sector banks are using partially such as SBI and Central bank of India.

Research Work
In the first case Bank of America with Wells Fargo is consider. Some financial ratios such as current, Debt/Equality, Profit margin, Price earning, and finally Tobin's Q ratio is calculated. In second case country wide and Fannie Mae bank is considered and third case City Bank and Deutsche bank is considered for comparison and the same ratio is calculated. (**Jason J. Lin, Jane c. Sung, Kirk Y.lin 2009).**

Many financial organization are using six sigma some of them are American Express, Bank of America, Citygroup, Financial general electric, J P Morghan and some Indian banks are ICICI, HDFC, IDBI and some nationalize bank that is State Bank of India(SBI) in the year 2004.and Central bank of India in 2007.

The aim of the paper is to explore the success of Six sigma among many popular and successful financial organization. In this research the success of two particular banks are shown relative to their main competitor with respect to financial service.

Objective
In this case we want to determine and compare the bank which have implemented Six sigma and the bank which have not engaged in six sigma. The result will be explore by comparing the annual report of the concerning bank by calculating Financial Ratio Analysis.

Methodology
To know the effect of implementation of Six sigma in practice can be distinguished and analysis, conducted using the Annual report of ICICI, HDFC, SBI, Bank of Maharashtra. Comparison is found out in between the bank who have implemented six sigma and the bank not engage in Six sigma. Ratio is calculated to value the bank in terms of short and long term solvency, Profitability and market value. Considering the Annual report of 2015 of various bank access through bank website and analysis has been carried out. Her Annual report is considered up to March

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2015. For each of the above bank analysis is carried out (**Janson.J.Lin 2009)**

Collection of Data
In this case study secondary data is used to analyze the ratio, this data is collected through internet by searching website of various Indian banks and their Annual report 2015 has been download.

Hypothesis:
H0 : There is no significant difference between two banks

H1 :- There is significant difference between two banks.

Ratio Analysis is carried out in between the banks using Six sigma that is ICICI and Bank of Maharashtra (BOM) which does not engage in six sigma methodology. The ratio is given in the Table 1.

Table1

Ratio	ICICI	Bank of Maharashtra
Current	0.06	0.02
Debt/Equity	4.5	18.26
Net-Profit Margin	22.28	3.66
Price Earning	19.28	6.8
Quick Ratio	13.81	22.87
Tobin's Q Ratio	0.22	.03

Source Annual Report 2015

The first area being investigated is liquidity or short term solvency. The current ratio is calculated to know the degree of liquidity. In table 1 current ratio of ICICI bank is 0.06 and that to Bank of Maharashtra is 0.02. Both the ratio are significantly lower than one but ICICI have high liquidity ratio this implies ICICI is performing better than Bank of Maharashtra which is not engaged in Six sigma method. Further , the high ratio of ICICI may be an indication that the bank is not efficiently utilizing the current assets. Ideal ratio is 2 : 1.

Second ratio is debt to equity ratio which measure the financial leverage. Large variation has been observed among these two banks. ICICI has Debt to equity ratio 4.5 and Bank of Maharashtra 18.26. As the ratio of ICICI Bank is less than ratio of Bank of Maharashtra , it indicate that ICICI financial growth is growing rapidly with debt than Bank of Maharashtra. Ideal ratio is 2:1

Third ratio that is net profit margin of each bank is calculated to explore the degree of profitability. The profit margin shows the bank net income relative to its sales. As profit margin of ICICI is 22.28 percent which is more than BOM 3.66 percent. So ICICI is performing well than BOM. It indicates that ICICI is keepings more in earning for rupees of sales.

Fourth ratio is Price Earnings Ratio. Form table 1 ICICI Price Earnings Ratio is 19.28 and BOM is 6.80, this shows that investor are willing to pay more for share of ICICI bank than BOM.

Quick Ratio: Liquidity position of bank of Maharashtra is better than ICICI which is 22.87 and 13.81 respectively.

Tobin's Q Ratio is calculated for both banks. Both the bank having ratio more than one with ICICI 0.22 and BOM ratio is 0.03. If Tobin's Q ratio is low in between 0 and 1, implies that the cost to replace a firm's assets is greater than the value of its stock. This implies that the stock is undervalued and if Tobin ratio is High greater than 1 implies that a firm's stock is more expensive than the replacement cost of its assets, which implies that the stock is overvalued. This gives the valuation of stock and investment decision in Tobin's Q ratio. Here Tobin's Q ratio of ICICI is 0.22 which is higher than BOM, hence ICICI is growing well in financial sector.

Ratio Analysis of HDFC and SBI
HDFC and SBI are the top Bank of India one is private and SBI is Nationalize . HDFC is completely engage in Six sigma and SBI is partially engaged . following are the ratio analysis exhibits in table 2.

Table2

Ratio	HDFC	SBI
Current	0.04	0.04
Debate/Equity	7.27	12.28
Net Profit Margin	21.09	8.17
Price Earning	42.69	17.55
Quick Ratio	12.66	8.18
Tobin's Q Ratio	0.42	0.01

In solvency category, current ratio is calculated on the current financial resources with the ratio HDFC is 0.04 and SBI 0.04. Here both that bank has better liquidity in its financial structure . The debt to equity ratio shows that HDFC is doing in better in long term solvency than SBI, with ratio 7.27 and 12.28 respectively. By using Six sigma , HDFC proves to be better able to produce business to fuel higher growth through practice such as reducing cycle time of loan approval to meet the customer satisfaction level. In the category of profitability HDFC has a higher net profit margin than SBI, with 8.17 and 21.09 respectively. As the efficiency of bank increase it generates revenue and profit and bring a dynamic change in the service which will be beneficial to future growth. In category of price earning ratio of HDFC is 42.69 and that to SBI is 17.55 which is much lesser than HDFC bank. Here HDFC has a higher price earnings ratio than SBI. Investors expectation is the most prominent implication of price earnings ratio of future earnings growth. Hence Six sigma is able to define and develop a much more efficient process and provide good quality of service to the customer , as result to reduces cycle time in service. sector. Here investors are willing to pay more for shares of HDFC bank than SBI .

In category of Quick ratio , which indicate short term liquidity. It measure the ability to meet its short-term obligations with its most liquid assets. In table 2 Quick ratio of HDFC is 12.66 and SBI is 8.18 now here HDFC are having higher quick ratio than SBI , it means that liquidity position of HDFC is better than SBI . Here it reflect the implementation of Six sigma in HDFC which helps to increase the

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liquidity growth.

Finally Tobin's Q ratio is calculated for both the banks. Both the company has ratio below 1 with HDFC 0.42 and SBI 0.01. Here Tobin's Q ratio of SBI is very low as all the government schemes has been implemented by this and there is no recovery section in public banks all cases should be maintained by their officers. A problem arises and number of non performance account increases. Calculating these all ratio it means that one who is engaged in six sigma is providing benefits to the banking sector.

Conclusion

In this case study it is observed that competitive advantage that six sigma can offer to banking sector . In order to grow the financial sector it is essential to implement the six sigma methodology. Ratio analysis has prove that implementing six sigma in banking sector increases the growth of financial sector by reducing cycle time in all areas to meet the customer expectation.

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