

Exploring the Scope of Adopting Multidimensional Performance Measurement Models in Banking Sector of Bangladesh

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Abstract: *The purpose of this paper is to contribute in the evolution of banking sector of Bangladesh by investigating the scope of adoption of multidimensional performance measurement models. Because the performance measurement models from management accounting are theoretically sound and effective for different business sectors. The study is conducted on branches of 19 selected commercial banks at Dhaka city. Opinion survey is conducted to collect the data on usage of performance measures. Thirty performance measures from different performance areas are chosen by consultation with bank professionals. Collected data are analyzed by 'Pearson's Correlation Coefficient' and 'Factor analysis'. The results suggest that the measures used in banks are correlated and there are important nine factors to consider in formulating performance measurement system. That means the current performance measurement system of banks cover a set of integrating measures from different performance areas. Hence, there is a chance of adoption of a multidimensional performance measurement model in branch level of Bangladeshi banks*

Keywords: *Performance measurement system, Balanced Scorecard, Bangladesh.*

I. Introduction

In today's ever-changing world, organizations are encountering continuous evolution and stiff competition everywhere. In order to manage a business manager need to know about the performance of the organization and that to what extent it is successful to achieve targets and objectives. Several disciplines like management or accounting suggest that to control something it should be measured first. It is stated by different researcher that the purpose of measuring performance is not only to know how a business is performing but also to enable it to perform better, the ultimate aim of implementing a performance measurement system is to improve the performance of an organization so that it may better serve its customers, employees, owners, and other stakeholders (Johnson, 1981). In this purpose financial or accounting-based measures have always been ranked up in performance measurement system despite the certain drawbacks are there. Specifically, there are some limitations in usage of financial measures alone, such as their inherent nature of emphasizing on historical data, their limited ability to measure operational results and qualitative performance and their tendency to focus on the short-term. The limitations of financial measures in addition to the recent changes in business environment that faced organizations such as technological advances, increased competition, globalization and economic growth leads management accounting specialists to criticize reliance only on financial measures of performance measurement. As a result, the literature recommended that organizations ought to use non-financial measures beside financial measures to provide managers with adequate information about their overall organization performance (Kaplan and Norton, 2001; and Banker et al, 2000). Many of the service firms include main performance indicators which include some combination of financial; market/customer; competitor; human resource; internal business process; and environmental indicators (D'Souza & Williams, 2000). Although a wide number of practitioners have interest in multi-dimensional performance measurement (e.g. BSC) models in the manufacturing industry, yet, little empirical research has been conducted on the implementation or performance consequences of this concept. In service sector like banks, most of those studies had taken place in developed countries only. Moreover, Ittner & Larcker, 2001, also noted that the "performance effects of the balanced scorecard and other value driver techniques remain open issues". Consequently, this study attempts to contribute to the body of knowledge in the area of management in general and performance measurement system specially, by focusing on issues relating to multiple performance measures used in Banks. Foremost, the aim is to explore the scope of adopting multidimensional performance measurement models like 'Balance Scorecard (BSC)' (Kaplan & Norton, 1992), 'Performance Prism' (Neely et al., 2002), 'Comparative Business Scorecard' (Kanji & Moura, 2002) etc. in Bangladeshi banking sector.

The paper is organized as follows. First, a brief literature review previous study to have an understanding of the pool of works conducted related to the study. Second, description of research methodology and limitation of the study, continued by a thorough discussion of the results, and finally concluded.

II. Literature Review

The following sections will be concerned briefly with the relevant previous literature of the empirical studies regarding the use of financial and non-financial measures for performance measurements.

Fakhri, G. et al, (2009) investigate the application of financial and non-financial performance measures in the Libyan banking sector. 63 responses were collected through a questionnaire survey and used the data to conduct a descriptive study. The researcher found that the Libyan banks relied heavily on financial measures even if they tended to place strong emphasis on customer and quality dimensions of non-financial measures.

Jamshidinavid, B. et al, (2012) conducted an applied research by field-descriptive approach to find the answer of research question that is "how is the performance of Telecommunication Company in province of Elam on four district of Balance Score Card?" The study found that the measures from financial and customer perspective were applying and resulted accordingly whereas the measures of internal process and training and development were lacked of performance determination.

Frederick, N. K. (2014) studied on all licensed domestic and foreign commercial banks of Uganda independently on average basis to identify the factors effecting performance of those banks. Linear multiple regression analysis was conducted on the data over the periods 2000-2011. The study found that both financial and non-financial factors like, management efficiency; asset quality; interest income; capital adequacy and inflation affecting the performance of banks in Uganda.

Kairu, E. W et al, (2013) conducted a study on 200 service providing firms located in Kakamega Municipality, Kenya, to evaluate the effects of multidimensional performance measurement system in service companies. They collected primary data through a semi-structured questionnaire which were analyzed by descriptive statistics. The study revealed that non-financial criteria are as important as financial criteria in measurement system and when both measures are integrated in the system, they lead to superior results.

Al-mawali, H. H. et al, (2010) researched on Jordanian banking industry to find out the existence of any relationship between the usage of multiple performance measure and observed financial performance in branch level. 120 branches were chosen intending that the adoption of any type of multiple performance system is not a prerequisite. Primary data were collected through questionnaire and hypothesis was tested by multiple regression analysis. The findings revealed that there was a positive relationship between the usage of multiple performance measure and financial performance.

Ombuna, D. S. et al, (2013) conducted a study on 18 commercial banks located in Nakuru District, Kenya, to evaluate the impact of Balanced Score Card (BSC) usage on the performance of commercial banks in Kenya. They collected primary data through a questionnaire which were analyzed by Pearson's Correlation and descriptive statistics. The study revealed that there is positive impact of BSC on performance of banks and the effectiveness of BSC usage lies on the organizations dynamics, execution, monitoring, and evaluation procedure adopted by banks.

Berry et al (1993) discussed performance evaluation of banking lending decisions in UK banks. They argued that although manufacturing companies tend to emphasize the importance of non-financial performance measures, bankers are concerned with more financial performance measures in their corporate decisions.

Ostinelli and Toscano (1994) examine the use of non-financial measures namely customer satisfaction and improvement in quality management as an operational tool of control in three Italian banks. They found that the management control system was able to integrate both financial and non-financial measures to evaluate performance.

Hussain et al (2002) carried out research on the role of management accounting practices in non-financial performance measures in financial institutions (including banks) in three countries Finland, Sweden and Japan. Their study found that contextual factors such as economic, normative, coercive factors have affected the role and the use of non-financial performance measures in the financial sector in three different countries.

Al-Enizi et al (2006) examined the use of non-financial performance measures in the Gulf Cooperation Council Countries in four service companies (one of them was a bank). They suggested that non-financial performance measures have a positive impact on long-term profitability that's why service firms tend to establish goals relative to customer satisfaction rates, service default rates, lead-time to response, and environmental social responsibility which are not measured directly by income.

The literature review provides two main arguments regarding the use of financial and non-financial measures. The first argument points out that the use of financial measures is more common than non-financial measures across the organization's as their primary performance objectives are financial outcomes. The second argument concludes that non-financial measures have greater use beside financial measures in performance measurement systems; because non-financial measures are better indicators to future financial performance and they also reflect the value of long term aspects. These argument points stimulate a strong interest on evaluating the scope of adoption of multidimensional performance measurement system e.g. Balanced Scorecard (BSC) in the banking industry of South Asian developing countries like Bangladesh as the previous studies did not give insight on such issue.

III. Objectives

The basic objective is to explore the chance of adoption of multidimensional and balanced performance measurement system. Multidimensional means the measures should cover different performing areas of a bank. Balanced means the measures should have interrelationship between and among them to confirm achievement of overall objectives of a bank. If the performance measures currently used by the banks ensure these two criteria then there seem to have a scope of adoption of multidimensional performance measurement system from theoretically established models mentioned in previous sections. Therefore, the specific objectives of the study are as follows:

- To demonstrate the interrelationship between performance measures used by bank companies of Bangladesh.
- To identify the contributing performance areas to set up a multidimensional performance measurement system.

IV. Methodology

Considering the descriptive nature of the study, primary data was collected through a questionnaire survey. The population of the study consisted of selected commercial banks of Bangladesh at research period March 2014 to August 2014. The study is conducted in Dhaka city (capital of Bangladesh) especially at three commercial and residential areas namely Matijheel, Mirpur and Gulshan. Mentioned areas are the most suited to this study as there live thousands of consumers of banking service which create a service-based competition among bank companies. And it is seen that the transaction and activity volume of the branches situated at these places are higher compared to other branches. Hence, it is supposed to maintain a system of performance measurement at these branches. Target samples are chosen conveniently considering the size of the industry. An opinion survey was conducted on the usage of different performance measures in balances of some selected private commercial banks to collect primary data. 57 branches of 19 private commercial banks were selected; 3 opinions from each branch and in total 171 opinions were collected. A structured questionnaire comprising of 30 performance measures from different performance areas was used as survey instrument. A five point Likert scale was used to gauge the degree of response on a scale one (not important at all) to five (most important) – the extent to which banks used a set of performance measures. Among 171 questionnaires 150 filled up questionnaires were finally used for analysis purpose whereas 21 partially filled up forms were discarded. Data acquired in this study is seemed to be reliable considering Cronbach Alpha reliability coefficient (Table 1). The collected data has analyzed using Statistical Package for Social Science (SPSS 16.0). Descriptive statistics was employed to analyze the data. Pearson's correlation was utilized to test the relationship between two or more variables. Factor analysis was employed to identify contributing factors that may contribute in choosing different performance measures.

V. Limitations of the Study

The research is to contribute to a better understanding of what performance measures are used by managers. Specifically this paper explores relationships between different types of financial and nonfinancial performance measures and identifies the areas of concentration in time of choosing measure to gauge performance. However, this paper has some limitations. First of all, the sample comes from the local commercial banks without considering other banks, manufacturing and service firms. Furthermore the paper does not consider the effectiveness of performance measures. Also the impact of various factors on performance of banking sector in Bangladesh is remained undiscovered.

VI. Analysis and Findings

Reliability of Data: Reliability refers to the lack of measurement error in the item on a scale (Kerlinger, 1973). Basically, reliability refers to the consistency or dependability of a measuring instrument. The reliability of the questionnaire was assessed by the Cronbach Alpha reliability coefficient. Alpha value more than or equal to seventy percent is considered acceptable in most social science research situation (Nunnally, 1978). Table 1 shows that the reliability value in the present study is 0.883. This value indicates a high level of internal consistency with this sample that means the survey result would have higher reliability and there remains a proper ground for further analysis.

Table 1: Reliability Statistics

Cronbach's Alpha	N of Items
.883	30

Commonly used performance measures: To find out the most familiar and used measurement indicators in banks, a descriptive analysis is conducted on the basis of responses from sample branches. Measures are then tabulated in the order of mean along with minimum and maximum observation scores, Standard Deviation and

Skewness score in the Appended Table A2. It is found that, among thirty measures first ten measures are like Customer Satisfaction Level, Return on Assets, IT Usage, Price-Earnings Ratio, Speed and Responsiveness of Staffs, Deposit per Employee, Operating Profits to Average Working Funds, Total Income per Branch, Total Advances to Total Deposits and Customer Retention. That means banks concentrate mostly on remaining profitable and creating a group of satisfied customer by providing speedy service and quick response to the customers' queries which may ensure the target accomplishment of their employees individually and protect earning capacity as a whole.

Interrelationship among performance measures: To find out the interrelationship between and among the performance measures an analysis of Pearson's Correlation coefficient is used. Result shows that only one coefficient score becomes 0 except that every measure has some sort of (positive and negative) correlation between and among other measures used by the banks. To understand the interrelationship of the variables some important correlation coefficients from Appended Table A3 are discussed in this section.

Employee satisfaction (ES) is positively correlated with Promotion, award and special incentives (PASI) and Performance related compensation system (PRCS) and their correlation coefficient are 0.415 and 0.450 respectively significant at $p < 0.01$. But it has negative correlation with Employee turnover (ET) with correlation coefficient of -0.436 which is significant at $p < 0.01$. This means employees become satisfied when they are motivated by financial or non-financial means like promotion, award, and payment of incentives for their integrity, effort and performance. Satisfied employees are more likely to attach with the company they satisfied on which results in lower employee turnover rate.

Training and Development Program (TDP) is positively correlated with Introduction of Differentiated product (IDP) and Speed and Responsiveness of Staff (SRS) and their correlation coefficient are 0.435 and 0.427 respectively significant at $p < 0.01$. But it has negative correlation with Cost of customer acquisition (CCA) with correlation coefficient of -0.448 which is significant at $p < 0.01$. This means training and development program enhance innovativeness, critical thinking ability and efficiency of employees and staffs which results in product development and better service offerings to customers. Efficient management team possesses better ability to acquire and retain customer in lower cost.

IT usage (ITU) is positively correlated with E-banking (EB), Mobile banking (MB) and Core banking solution (CBS) and their correlation coefficient are 0.421, 0.455 and 0.412 respectively significant at $p < 0.01$. The advancement in technology, especially Internet and information technology has led to new ways of doing business in banking. Adapting with the advancement and increasing demand in the market banks are turning to introduce core banking solution, e-banking or mobile banking. Core banking solution is an overall service-oriented-architecture helps banks to reduce the risk that can result from manual day-to-day core operations and out-of-date information, increases management information and review, and avoids the potential disruption to business caused by replacing entire or any part of the existing systems. Though these banking system are modern alternatives to banking with bank's personnel, these are seen only in those banks which are better of using information technology with greater expertise. So the relationship among these variables is justified.

Corporate Social Responsibility and Speed and Responsiveness of Staff are not correlated with a correlation coefficient of 0 whereas Corporate Social Responsibility and Corporate Governance are positively correlated with a correlation coefficient of 0.573 which is highly significant at $p < 0.01$. CSR means to engage such actions that is required by law and important for some social good but not for the interests of the firm. This aims to embrace responsibility towards environment and stakeholders including consumers, employees, investors, communities, and others as a tribute to the society for its belongingness. On the other hand, corporate governance broadly refers to the mechanisms, processes and relations by which corporations are controlled and directed, shortly a measure that indicate to what extent a corporate body is running well. CSR can be a policy of corporate governance so these two variables can have relationship for obvious reason, but speed and responsiveness of staffs is totally a different thing from these. Speed and responsiveness of staffs may not have any effect on any corporate mechanism which results in zero relation with CSR.

Total income per branch (TIB) and Return on asset (ROA) are positively correlated with a correlation coefficient of 0.598 which is highly significant at $p < 0.01$. Assurplus of income i.e. profit is the main factor to calculate different returns, positive relationship between these variables is justified.

No. of Customer Feedback (NCF) and Bank Brand Ambassador (BBA) are positively correlated with a correlation coefficient of 0.540 which is highly significant at $p < 0.01$ as choosing brand ambassador creates feedback from customer. When Mr. Dav Whatmore, former coach of national cricket team of Bangladesh represented Standard Chartered Bank in 2007, people responded positively on the reliance of the banks as their favorite team relied on him in the field.

Customer Retention (CR) is positively correlated with Customer satisfaction level (CSL) and Total advanced to total deposit (TATD) and their correlation coefficient are 0.507 and 0.400 highly significant at

$p < 0.01$. Satisfied customers are reluctant to face switching hassle which results in higher retention rate and retention of customer ensures better trade-off between advance and deposit.

Market price per share (MPS) and Price-earnings ratio (PE) are positively correlated with a correlation coefficient of 0.444 which is highly significant at $p < 0.01$. Relationship is justified because MPS is a factor to calculate PE. Price-earnings ratio represents the investors' expectations from a stock that how large the stock can be priced than its earnings, calculated by dividing market price per share with earning per share. So the positive relation between MPS and PE is justified.

Factor Analysis:

Sampling Adequacy Measurement: Sample size chosen for the study is seemed to be adequate according to the previous researchers' suggestion. Hatcher (1994) suggests that the number of subjects should be 5 times larger than the number of variables. MacCallum et al. (1999) recommended that no sample should be less than 100 even though the number of variable is less than 20. Sampling adequacy is measured by 'the Kaiser-Meyer-Olkin (KMO) and Bartlett's test'. KMO measure of sampling adequacy is an index used to examine the appropriateness of factor analysis. Bartlett's test of Sphericity is a test statistics used to examine the hypothesis that the variables are uncorrelated in the population (Malhotra and Naresh, 2006). Table 2 shows that the KMO measure of sampling adequacy is 0.744. Generally, KMO test score more than 0.5 is acceptable. Kaiser (1974) recommended that scores 0.5 to 0.7 are mediocre, 0.7 to .08 are good whereas scores above 0.9 are superb. As the KMO test score becomes 0.744, which means acceptable and good, it can be said that the sample data is adequate to produce distinct and reliable factors. Bartlett's Test of Sphericity has Approximate Chi-Square value 1.660E3, with a value of 0.000. That means the Bartlett's test is highly significant at 1% level of significance ($p < 0.001$). Therefore, factor analysis can be applied as a statistical tool on this sample.

Table 2: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.744
Bartlett's Test of Sphericity	Approx. Chi-Square	1.660E3
	df	435
	Sig.	.000

Principal Component Analysis: A factor analysis was conducted by extracting the principal components using Varimax rotation method where each of the original variables tends to be associated with one particular component. A set of component are to be extracted by a specific rotation method from a given data set. In general, only a small subset of component, recognized as factor, is kept for further consideration and the remaining components are considered as either irrelevant or non-existent.

Principal components i.e. factors are identified based on their Eigen value, the variance of the factors. In the initial factor solution, the first factor will account for the most variance, the second factor will account for next highest amount of variance.

Table 3 showed Eigen value associated with each factor before and after extraction. Extraction Sum of Squared Loading determine the corresponding the number of factors to be retained. Although there are 30 factors extracted by analysis with very less factor space, 9 factors are considered as the most important as they have Eigen value greater than 1. From the table the first factor explained 23.807% of the total variances whereas the other percentage of explained variance by the factors are 7.315%, 6.825%, 5.827%, 5.006%, 4.637%, 4.413%, 3.872% and 3.536% respectively, in total 65.239% of variance are explained by the 9 factors.

The relationship between factors extracted from principal Component Analysis and the relative magnitude of the Eigen value is can be also presented by a graphical presentation namely 'the Scree plot'. The graph is also a useful tool to determine the number of factors to be retained.

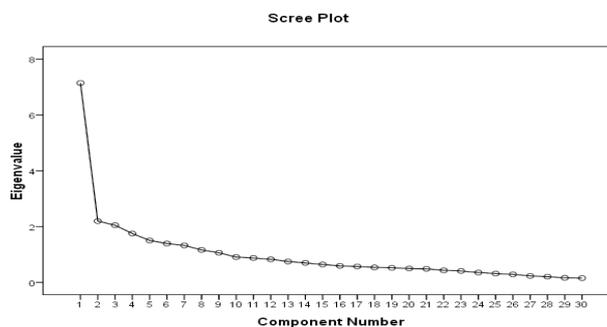
Table 3: Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	7.142	23.807	23.807	3.659	12.195	12.195
2	2.195	7.315	31.123	3.051	10.172	22.367
3	2.048	6.826	37.948	2.244	7.479	29.846
4	1.748	5.827	43.775	2.214	7.38	37.226
5	1.502	5.006	48.781	2.007	6.692	43.917
6	1.391	4.637	53.419	1.728	5.759	49.676
7	1.324	4.413	57.832	1.682	5.606	55.282
8	1.162	3.872	61.703	1.535	5.117	60.399
9	1.061	3.536	65.239	1.452	4.84	65.239
10	0.906	3.019	68.258			
11	0.873	2.91	71.168			
12	0.827	2.756	73.924			

13	0.748	2.493	76.416		
14	0.697	2.323	78.739		
15	0.641	2.136	80.875		
16	0.59	1.965	82.84		
17	0.57	1.901	84.741		
18	0.536	1.788	86.529		
19	0.519	1.73	88.259		
20	0.497	1.658	89.917		
21	0.486	1.619	91.536		
22	0.429	1.432	92.967		
23	0.409	1.363	94.33		
24	0.351	1.172	95.501		
25	0.314	1.047	96.548		
26	0.287	0.955	97.504		
27	0.23	0.768	98.271		
28	0.205	0.684	98.955		
29	0.162	0.54	99.495		
30	0.151	0.505	100		
Extraction Method: Principal Component Analysis.					

Figure 1 shows the graphical presentation of component analysis of this study where 30 factors are plotted at the x axis and their respective Eigen values are plotted at the y axis. The relationship between factors and Eigen values are shown by a smoothen curve. From the graph it is clear that the curve begin to flatten after the 8th and 9th factors as the Eigen values of factors after 9th are less than 1 and almost same to each other. By considering Scree plot is decided to retain only 9 from 30 factors.

Figure 1: Scree plot of Component Analysis



Rotated Component matrix showed in Table 4. Component (factor) rotation is a mathematical way to simplifying factor result so as to better identify which variables load on a particular factor. The table contains the rotated factor loading, which represent how the variables are weighted for each factor and also the correlation between variable and factor. Factor loading more than 0.32 has been displayed. It is shown in Table 4 that variables like Return on Asset, Market Growth Rate, Return on Investment, Dividend per Share, Market price per Share, Price-Earnings Ratio and Corporate Governance load highly on first factor. Financial variables like ROA, ROI, DPS, MPS, and P/E are key indicators for predicting trends of share price movement. Though Corporate Governance is a qualitative and non-financial variable, it becomes an important consideration for assessing credibility of company information. These both types of variables are used to make investment and credit decision in capital market. So these variables can be grouped into a factor named as “**Market Indicator**”.

Second factor is highly loaded by variables like Employee Turnover, Employee Satisfaction, Performance Related Compensation System, and Promotion, Award and Special Incentives. These variables are used to measure employee motivation towards company’s goal congruence. As these are indicators of effective human resource management policy, the factor comprised of these indicators can be named as “**Human Resource Management**”.

Third factor is highly loaded by variables like IT Usage, Employee Training and Development, and Speed and Responsiveness of Staffs. These three variables are indicators of internal business process system. Usage of information technology combined with regular training and development program for employee can help them for being oriented toward timely service and quick response to customers which means an improved internal processing system. Hence the factor comprised with these variables can be named as “**Effectiveness of Internal process**”.

Table 4: Rotated Component matrix^a

	Component								
	1	2	3	4	5	6	7	8	9
Return on Assets	.659								
Operating Profits to Average Working Funds						.392		.648	
Total Income per Branch						.363		.607	
Total Advances to Total Deposits	.332						.522		
Deposit per Employee	.433						.571		
Customer Satisfaction						.473		.395	
Customer Retention						.683		.364	
Market Growth Rate	.554								
Cost of Customer Acquisition						.423	-.467		
No. of New Customer					.431	.784	-.337		
Speed and Responsiveness of Staffs	.357		.422						
Core Banking Solutions					.625				
E-Banking					.682				
Aggressive Marketing				.742					
Introduction of Differentiated Product				.491					
Corporate Social Responsibility									.457
Mobile Banking					.77				
IT Usage		.375	.399					.338	
Training and Development Program			.868						
Bank Brand Ambassador				.703					
No. of Customer Feedback						.699			
Employee Turnover		-.541							
Employee Satisfaction		.656		.331					
Promotion, Award and Special Incentives		.77							
Performance Related Compensation System		.496				.452			
Price-Earnings Ratio	.745								
Dividend per Share	.766								
Market Price per Share	.466					.445			
Return on Investment	.575	-.398		.328					
Corporate Governance	.587								
Extraction Method: Principal Component Analysis.									
Rotation Method: Varimax with Kaiser Normalization.									
a. Rotation converged in 16 iterations.									

Fourth factor is highly loaded by variables like Aggressive Marketing, Bank Brand Ambassador, and Introduction of Differentiated Product. All of these variables are from marketing strategy of banks which are implemented to grab new market or increase market share of existing one. So the fourth factor can be named as “**Marketing Strategy Implementation**”.

In this era of information communication technology, customers of banks want to bank by use of internet from his laptop or PC, even from his mobile handset. That’s why introduction of E-banking, Mobile banking or Core Banking Solution are the sign of adaptation of banks to growing demands of customers. Hence the fifth factor highly loaded by these types of variable can be named as “**Adaptability to changes**”.

How customers perceived a bank, can be measured by some indicators like No. of Customer feedback, Customer satisfaction, No. of new Customer, Percentage of Customer Retention etc. So the sixth factor which is highly loaded by these variables can be named as “**Customer Perception**”.

Seventh factor is highly loaded by the variables like Total Advanced to Total Deposit, Deposit per Employee and Cost of Customer Acquisition. Total advanced to total deposit means how much money is lent as advanced to customer against every Taka whereas deposit per employee means average deposit collected per employee, the higher ratio of these two indicators indicate the efficiency of management of banks. On the other hand cost of customer acquisition tends to be lower if banks assure their management efficiency. Thus the seventh factor which is highly loaded by these variables can be named as “**Efficiency of Management**”.

Table 4 shows that, Operating Profits to Average Working Funds and Total Income per Branch loaded highly on eighth factor. These are the indicators of earning capability of a bank. So the eighth factor can be titled as “**Earning Capacity**”.

The ninth factor comprises of only one variable that is Corporate Social Responsibility (CSR). CSR policy functions as a self-regulatory mechanism whereby a business monitors and ensures its compliance with the national law, ethical standards and international norms. This can also be found as benevolent activities to a society performed by corporate bodies as their belongingness to that society. CSR aims to undertake responsibility for corporate actions which encourage a positive impact on the environment and stakeholders including consumers, employees, investors, communities, and others. So the ninth factor in which CSR is loaded, can be named as “**Social Image**”.

According to rotated component matrix, a rank order of average factor loading is presented in Table 5. Average factor loading is calculated by dividing the sum of loading of variables associated with a particular factor by the number of such variables.

Table 5: Rank Order of Factor

Factors	Rank	Mean
Adaptability to Changes	1	0.692
Customer Perception	2	0.660
Marketing Strategy Implementation	3	0.645
Earning Capacity	4	0.628
Market Indicators	5	0.622
Human Resource Management	6	0.615
Effectiveness of Internal Process	7	0.563
Efficiency of Management	8	0.520
Social Image	9	0.457

Table 5 shows that “Adaptability to changes”, “Customer perception” Marketing Strategy Implementation”, “Earning Capacity”, “Market Indicators” and “Human Resource Management” are the dominating factor that contribute in choosing measures. Perception of importance and prioritization of these factors are matters of subjective judgment and can be varied in bank to banks. But this result is an important guide to choose measures from different dimension to assess a bank’s performance.

VII. Conclusion

Over the last two decades, the balanced use of financial and non-financial measures for performance measurement has been strongly recommended by scholars and professionals for different business sector. Banking companies possess the lion’s share of service sector in Bangladesh. Hence, with an aim to contribute in the banking business evolution, the study is conducted on some selected commercial banks of Bangladesh. The study is descriptive in nature and primary data has collected through opinion survey from bank professionals. The collected data has analyzed by descriptive statistics and ‘Factor Analysis’. The study reveals that the performance measures currently using by the banks are correlated with each other. That means one performance indicator can predict some other relevant performance outcome. The outcome of factor analysis revealed that the banks are using a set of performance measures that can be grouped into different factor. Factor represents the contributing performance areas to be taken under consideration to assess overall performance of the banks. Result suggests that the banks are considering nine performance factors to judge their overall performance. The factors are ‘Market Indicator’, ‘Human Resource Management’, ‘Effectiveness of Internal process’, ‘Marketing Strategy Implementation’, ‘Adaptability to changes’, ‘Customer perception’, ‘Efficiency of Management’, ‘Earning Capacity’, and ‘Social Image’. These results together conclude that there might have a scope of adoption of multidimensional performance measurement models suggested by management accounting scholars. The study is expected to be a useful one to set-up a custom made multidimensional performance measurement system for Bangladeshi banks. This also is a primary requirement to assess the applicability of a specific established model. The author has an interest to investigate on those issues in further studies.

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Appendix

Table A1: Selected Private Commercial banks

Name of Banks			
1	AB Bank Ltd.	8	EXIM Bank Ltd.
2	Al-Arafa Islami Bank Ltd.	9	IFIC Bank Ltd.
3	Bank Asia Ltd.	10	Islami Bank Ltd.
4	City Bank Ltd.	11	Mutual Trust Bank Ltd.
5	Dhaka Bank Ltd.	12	NCC Bank Ltd.
6	Dutch-Bangla Bank Ltd.	13	One Bank Ltd.
7	Eastern Bank Ltd.	14	Prime Bank Ltd.
15	Shahjalal Islami Bank Ltd.	16	Social Islami Bank Ltd.
17	Southeast Bank Ltd.	18	Trust Bank Ltd.
19	United Commercial Bank Ltd.		

Table A2: Descriptive Statistics of Performance measures

Measures	N	Min	Max	Mean	Std. Deviation	Skewness
Customer Satisfaction Level	150	3	5	4.64	0.63753	-1.564
Return on Assets	150	3	5	4.54	0.58654	-0.865
IT Usage	150	2	5	4.2933	0.87888	-1.093
Price Earnings Ratio	150	1	5	4.1933	0.85685	-1.098
Speed and Responsiveness of Staffs	150	2	5	4.1733	0.775	-0.838
Deposit per Employee	150	2	5	4.1733	0.73042	-0.491
Operating Profits to Average Working Funds	150	2	5	4.16	0.81989	-0.601
Total Income per Branch	150	2	5	4.1467	0.84652	-0.487
Total Advances to Total Deposits	150	2	5	4.1467	0.89282	-0.638
Customer Retention	150	2	5	4.14	0.65569	-0.297
Training and Development Program	150	2	5	4.0933	0.81386	-0.401
No. of New Customer	150	2	5	4.08	0.92337	-0.679
Market Growth Rate	150	2	5	4.06	0.79622	-0.27
Employee Turnover	150	1	5	4.04	1.06739	-0.987
Employee Satisfaction	150	2	5	4.0133	0.8746	-0.392
Cost of Customer Acquisition	150	1	5	4.0067	0.90855	-0.503
Dividend per Share	150	1	5	4	0.96933	-0.762
Core Banking Solutions	150	2	5	3.9867	0.83535	-0.395
Return on Investment	150	1	5	3.9467	0.90329	-0.725
Mobile Banking	150	2	5	3.9467	0.84175	-0.377
Promotion, Award and Special Incentives	150	2	5	3.9333	0.79145	-0.374
Corporate Social Responsibility	150	2	5	3.9267	0.86774	-0.482
Market Price per Share	150	1	5	3.9267	0.85997	-0.756
E-Banking	150	2	5	3.88	0.88173	-0.417
Introduction of Differentiated Product	150	1	5	3.8467	0.81707	-0.532
Bank Brand Ambassador	150	2	5	3.8333	0.84676	-0.212
Aggressive Marketing	150	1	5	3.8	0.811	-0.459
Performance Related Compensation System	150	2	5	3.7533	0.91179	-0.189
Corporate Governance	150	1	5	3.7	1.06658	-0.854
No. of Customer Feedback	150	1	5	3.6333	0.93706	-0.047
Valid N (list wise)	150					

Table A3: Pearson Correlation Coefficients of Different VariablesContinued

Variables	ROA	TATD	OPAWC	DPE	TIB	CSL	CR	IDP	MGR	NNC	SRS	CBS	EB	AM	CSR
Return on Asset (ROA)	1														
Total Asset to Total Deposit (TATD)	.207*	1													
Operating profit to Avg. Working Capital (OPAWC)	0.084	.371**	1												
Deposit per Employee (DPE)	0.14	0.095	-0.035	1											
Total Income per Branch (TIB)	.598**	0.131	.237**	.263**	1										
Customer Satisfaction Level (CSL)	0.129	.235**	0.047	.193*	.198*	1									
Customer Retention (CR)	.238**	.400**	.183*	0.117	0.12	.507**	1								
Introduction of Differentiated Product (IDP)	0.118	0.022	-0.053	.427**	0.101	0.112	0.141	1							
Market Growth Rate (MGR)	.218**	0.157	0.109	.190*	.216**	.201*	0.125	.231**	1						
No. of New Customer (NNC)	0.006	.205*	.284**	0.148	.346**	.277**	0.092	.194*	.377**	1					
Speed and responsiveness of staff (SRS)	.295**	0.07	.199*	0.148	0.053	0.086	.229**	.244**	.168*	.281**	1				
Core banking Solution (CBS)	0.111	0.102	-0.036	0.158	-0.064	.281**	.298**	0.135	0.112	0.123	.242**	1			
E-Banking (EB)	.256**	.227**	0.12	0.116	-0.03	.197*	.354**	0.095	.259**	.350**	.247**	.344**	1		
Aggressive marketing (AM)	-0.082	0.152	0.069	.161*	0.082	0.003	0.116	-0.006	0.143	0.147	0.023	0.095	.210**	1	
Corporate Social Responsibilities (CSR)	0.012	.213**	.215**	0.094	.179*	.182*	0.124	0.031	0.104	.267**	0	.221**	.331**	0.027	1
IT Usage (ITU)	0.094	.278**	0.083	.328**	.167*	.425**	0.15	0.091	0.138	.277**	.181*	.412**	.421**	0.102	.160*
Mobile banking(MB)	.222**	.162*	0.003	.223**	.143	.164*	0.16	0.144	.405**	.247**	0.138	.266**	.344**	.220**	0.151
Training and Development program (TDP)	.217**	.175*	0.159	.165*	.165*	.220**	.177*	.435**	.302**	.320**	.427**	.219**	.268**	-0.002	.276**
Bank Brand Ambassador (BBA)	0.074	0.024	0.135	.307**	.203*	0.099	.187*	.215**	.314**	.283**	.290**	.310**	.342**	.274**	.257**
No. of Customer Feedback (NCF)	0.057	-0.032	.208*	.211**	.178*	-0.166*	0.084	.312**	.363**	.306**	.328**	.182*	.304**	.291**	0.074
Employee Turnover (ET)	0.03	0.114	-.199*	.318**	-0.007	0.1	0.155	0.153	.202*	0.01	0.032	.354**	.276**	.265**	0.119
Employee Satisfaction (ES)	.182*	0.066	0.156	0.028	0.115	.298**	.219**	0.087	.278**	.339**	.214**	.175*	.315**	-0.062	.222**
Promotion, Award and Special Incentive (PASI)	.179*	0.118	.203*	.264**	.205*	.192*	.225**	.161*	.273**	.274**	.314**	.222**	.267**	0.105	0.091
Performance Related Compensation System (PRCS)	0.05	0.061	0.125	0.085	0.047	0.054	.193*	.219**	.316**	.191*	.289**	.225**	.347**	0.096	-0.006
Cost of Customer Acquisition (CCA)	0.035	0.096	.385**	0.059	.242**	0.067	.224**	0.085	.266**	.272**	.380**	0.154	.233**	0.109	.273**
Price-Earnings (PE)	0.045	.182*	0.061	.289**	.266**	.236**	.190*	.206*	.298**	.320**	.303**	.294**	.182*	-0.05	0.073
Dividend per Share (DPS)	0.13	-0.008	0.042	.228**	.278**	.206*	.190*	.271**	.183*	.322**	0.143	.232**	.369**	-0.043	.207*
market Price per Share (MPS)	-0.067	-0.047	.179*	0.159	0.089	0.025	.197*	0.108	0.104	.219**	.261**	.223**	.183*	0.142	0.074
Return on Investment (ROI)	0.017	.218**	.320**	.218**	.221**	.211**	.364**	.225**	.275**	.327**	.272**	.267**	.177*	.205*	.235**
Corporate Governance (CG)	-0.082	0.131	.314**	-0.093	.191*	0.027	.212**	-0.008	0.148	.255**	.160*	0.05	0.143	.193*	.373**

*. Correlation is significant at the 0.05 level (2-tailed) and **. Correlation is significant at the 0.01 level (2-tailed)

Table A3: Pearson Correlation Coefficients of Different Variables

Variables	ITU	MB	TDP	BBA	NCF	ET	ES	PASI	PRCS	CCA	PE	DPS	MPS	ROI	CG
Return on Asset (ROA)															
Total Asset to Total Deposit (TATD)															
Operating profit to Avg. Working Capital (OPAWC)															
Deposit per Employee (DPE)															
Total Income per Branch (TIB)															
Customer Satisfaction Level (CSL)															
Customer Retention (CR)															
Introduction of Differentiated Product (IDP)															
Market Growth Rate (MGR)															
No. of New Customer (NNC)															
Speed and responsiveness of staff (SRS)															
Core banking Solution (CBS)															
E-Banking (EB)															
Aggressive marketing (AM)															
Corporate Social Responsibilities (CSR)															
IT Usage (ITU)	1														
Mobile banking(MB)	.456**	1													
Training and Development program (TDP)	.224**	.282**	1												
Bank Brand Ambassador (BBA)	.183*	.336**	.315**	1											
No. of Customer Feedback (NCF)	0.034	.290**	.292**	.540**	1										
Employee Turnover (ET)	0.073	.331**	-0.02	.267**	.250**	1									
Employee Satisfaction (ES)	.248**	.211**	.366**	.166*	.211**	-0.436**	1								
Promotion, Award and Special Incentive (PASI)	.231**	.287**	.298**	.334**	.266**	0.067	.415**	1							
Performance Related Compensation System (PRCS)	.191*	.324**	.367**	.372**	.341**	.238**	.450**	.396**	1						
Cost of Customer Acquisition (CCA)	0.159	0.117	-0.448**	.264**	.373**	-0.06	.015	.395**	.266**	1					
Price-Earnings (PE)	.343**	.182*	.340**	.313**	.223**	0.146	.373**	.399**	.295**	.416**	1				
Dividend per Share (DPS)	.173*	.354**	.366**	.343**	.296**	0.136	.243**	.236**	.321**	.331**	.126	1			
market Price per Share (MPS)	0.064	0.032	0.077	.195*	.333**	.215**	0.136	.348**	.259**	.293**	.444**	.250**	1		
Return on Investment (ROI)	0.079	.190*	.244**	.278**	.341**	.183*	.205*	.277**	.302**	.350**	.421**	.314**	.323**	1	
Corporate Governance (CG)	-0.07	.211**	.281**	.211**	.342**	0.048	.160*	.263**	.318**	.390**	.274**	.183*	.267**	.179*	1