# A Survey on Performance Measurement and Management System in the Banking Sector in Bangladesh.

**(This thesis is presented in fulfillment of the requirements of the degree of Master of Philosophy)**

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**May, 2014**

# Letter of Transmittal

22/05/2014

To
Dr. Mahmuda Akter
Professor
Department of Accounting and Information Systems
Faculty of Business Studies
University of Dhaka.

Subject: Submission of M.Phil thesis entitled **"**A survey on Performance Measurement and Management System in the Banking Sector in Bangladesh**".**

Dear Madam,

With great pleasure I submit this thesis that I have been assigned as a requirement of M.Phil program at University of Dhaka. I have found the study to be quite interesting, beneficial and knowledgeable. I have tried my level best to prepare an informative, fruitful and credible thesis.

I also want to express my gratitude for your endless support and patience. I appreciate the opportunity provided by University of Dhaka to work on this thesis.

It would be a profound pleasure for me if the report can serve its purpose. I would be available in any time to explain you any queries if feel necessary.

Thanking You.

Sincerely Yours.

_____

Md. Babar
Program: M.Phil
Roll no: 1, Registration no: 391
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# DECLARATION

I declare that the M.Phil thesis entitled "A survey on Performance Measurement and Management System in the Banking Sector in Bangladesh" is my own account of research work which has not previously been submitted for a degree at any university or educational institution.

……..

Md. Babar

# CERTIFICATE OF SUPERVISOR

This is to certify that Md. Babar, student of M.Phil program, under Department of Accounting & Information Systems, University of Dhaka, has completed the thesis entitled "A Survey on Performance Measurement and Management System in the Banking Sector in Bangladesh**"** as a part of the requirement for obtaining M.Phil degree. Under my guidance and supervision this report is being carried out successfully. As far my knowledge, no part of this report has been submitted for any degree diploma, title, or recognition before.

I wish his every success in future endeavor.

……..
(Dr. Mahmuda Akter)
Professor
Department of Accounting and Information Systems
Faculty of Business Studies
University of Dhaka, Bangladesh.

# ACKNOWLEDGEMENTS

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This thesis would not have been possible without the never-ending and unconditional support of my mother, family members and friends. Their understanding, courage, and influence have been critical factor for this research.
At last, I want to convey my gratitude to Almighty Creator without whose support we cannot do a single work. His endless blessings always touch my life.

# ABSTRACT

In the global competitive world, performance measurement and management system (PMMS) have become a widely discussed issue. Performance measurement is the process of quantifying the efficiency and effectiveness of action (Neely et al., 1995). The traditional financial or accounting based performance management system has been criticized by many authors for being short term oriented, considering past performance, being non consistent with current business environment and so on. In order to overcome the shortcomings of using traditional performance measurement system, Kaplan and Norton (1992, 1996) have introduced the balanced scorecard offering a superior combination of non-financial and financial performance measures along four perspectives - financial, customers, internal business processes, and learning and growth - to measure firm performance.

In Bangladesh, banking industry is one of the largest service sectors in the economy and this sector is continuously growing in terms of size and competition. This study is aimed to develop a comprehensive set of performance measurement variables or Key Performance Indicators (KPIs) from Balanced Scorecard (BSC) perspective those will serve as a benchmark or basis for performance measurement and management system in the banking industry in Bangladesh. In this context, attempt has been taken to find out the performance measurement variables or KPIs those are currently used by the banking sector of Bangladesh. Again, it is also analyzed which perspective of Balanced Scorecard (BSC) has the significant impact on the performance of banks. This study also examines the overall Balanced Scorecard's impact on the performance of banks.

The population for the study is the entire banking industry of Bangladesh. Here, stratified random sampling technique has been used to select the 26 banks as sample of the study. In this study, survey method is used to collect data. The respondents of this study are the top managers and responsible senior officers of each sample bank. Data is collected through self administered questionnaire. A five point Likert scale ranging from 1 (never) to 5 (always) is used to assess the extent to which a bank uses the performance measurement variables.

At first, a descriptive statistical analysis is made which shows that— return on investment (ROI), return on equity (ROE), net interest margin, cash flow, net operating income, capital adequacy, liquidity ratio, non interest income, profitability of each branch, revenue growth and EPS growth— are wide used performance measurement variables those range mostly from "Frequently" to "Always" in terms of responses. Next, factor analysis is carried out to indentify the significant Key Performance Indicators (KPIs) or performance measurement variables those are used by the banking sector in Bangladesh. From the factor analysis, fifteen factors are extracted explaining a total of 73.84% of the total variance. On the other hand, regression analysis reveals that the performance of banks is significantly and positively associated with the learning & growth measures usage of Balanced Scorecard (BSC). It is also found that the overall Balanced Scorecard usage has significant and positive impact on the performance of banks in Bangladesh.

I have suggested a Balanced Scorecard framework for performance measurement & management for the banking sector in Bangladesh. Moreover, I have also prescribed a comprehensive guideline for performance measurement and management system for the banking sector in Bangladesh.

At last, I believe that the contribution of this research is very much relevant, significant and pragmatic for the banking sector in Bangladesh.

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# List of Abbreviations

| | |
|---|---|
| BSC | Balanced Scorecard |
| KPI | Key Performance Indicator |
| PMMS | Performance Measurement and Management System |
| IMA | Institute of Management Accountants |
| PEA | Procurement Executives' Association |
| EVA | Economic Value Added |
| EPS | Earnings Per Share |
| ROI | Return on Investment |
| ROE | Return on Equity |
| PP | Performance Prism |
| KBEMS | Kanji Business Excellence Measurement System |
| KBS | Kanji Business Scorecard |
| CSF | Critical Success Factor |
| OPI | Organizational Performance Excellence Index |
| TOC | Theory of Constraints |
| PMQ | Performance Measurement Questionnaire |
| CAMELS | Capital, Asset, Management, Earning, Liquidity and Sensitivity |
| MPM | Multi-dimensional Performance Measures |
| PSC | Public Sector Corporations |
| FGD | Focus Group Discussion |
| KMO | Kaiser–Meyer–Olkin |
| VIF | Variance-Inflating Factor |
| PCA | Principal Component Analysis |

# Chapter 1: Introduction

## 1. 1 Background to the Research

A performance measurement system is a set of variables (or metrics) used for quantification of the efficiency and effectiveness of activities, as well as the infrastructure (software, hardware) and the procedures associated with the data collection (Lohman, Fortuin and Wouters, 2004; Neely et al., 1995).

Performance measurement is a comprehensive concept that is considered very crucial in the age of globalization and competition. In management accounting literature, performance measurement and management system have occupied a unique place. In the past few decades, performance measurement literature has continuously been changed and developed towards wider performance measures. Large number of academicians and practitioners are involved to develop a comprehensive performance measurement and management system that fit with the goal of the organization and stakeholders.

The determination of proper performance indicators is an area with no certain boundaries, because different purposes require different types of performance measurement indicators and performance measurement needs are also diverse (Fitzergerald, Johnston, Brignall, Silveston, & Voss, 1993).

The traditional financial and accounting based performance management systems were criticized by many authors (Singh & Kumar, 2007) for being short term oriented, considering past performance, being non consistent with current business environment, focusing on tangible assets, lacking predictive power, and being irrelevant for all levels in the organizations.

In order to overcome the shortcomings of using traditional performance measurement system, Kaplan and Norton (1992, 1996, 2000) have introduced the balanced scorecard offering a superior combination of non-financial and financial performance measures

along four perspectives - financial, customers, internal business processes, and learning and growth - to measure firm performance.

According to Kaplan and Norton (1996) 'the balanced scorecard translates an organization's mission and strategy into a comprehensive set of performance measures and provides the framework for strategic measurement and management'. Therefore, Balanced Scorecard is implemented by a number of organizations worldwide in response to the new global competitive environment. Balanced Scorecard (BSC) is used particularly as a tool for driving unit level strategy and performance management within many industries, including hospitality, health, manufacturing and banking (Ashton, 1998; Beechey & Garlick, 1999; Birch, 1998; Chow, Ganulin, Haddad, & Williamson, 1998; Kaplan et al., 2001).

According to Business Intelligence, in UK 71 per cent of big companies use it, while in the US, almost 50 per cent of 1,400 global businesses apply some kind of BSC (Paladino, 2000). Brewer (2002) also observed that, 50 per cent of the Fortune 1,000 and 40 to 45 per cent of larger companies in Europe use the BSC. Meanwhile, a survey by Kald and Nilsson (2000) on 236 Nordic multi-business companies shows that 61 companies use scorecards and another 140 planned to adopt the model within the next two years. In Malaysia, a study found that about 30 per cent of the companies have adopted balanced scorecard as a performance measurement system either wholly or partially.

Despite widespread practitioner interest in BSC, far little empirical research has been conducted on the implementation or performance consequences of its concept (Ittner and Larcker, 1998). Later, Ittner and 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 performance measurement and management system in the banking sector in Bangladesh by focusing on issues relating to multiple performance measures, which are conceptualized according to the Balanced Scorecard framework.

## 1.2 Research Problem:

Performance measurement and management system are always a critical task in any organization. Difficulties arise in case of measuring performance of bank by the top management of it. Moreover, performance measurement and management have become the interdisciplinary discussed issue. Management accounting, financial accounting, human resource accounting, management science—all these discipline provide different approaches towards performance measurement and management system. As a result, ambiguity prevails about choosing a proper performance measurement system. To solve the problem about how banking sector in Bangladesh should measure and manage performance, a systematic attempt has made regarding this issue. In this context, the appropriate research topic is "*A Survey on Performance Measurement and Management System in the Banking Sector in Bangladesh*."

## 1.3 Objective of the Study:

### Broad objective:

- This study is aimed to develop a comprehensive set of performance measurement variables or key performance indicators (KPIs) from Balanced Scorecard (BSC) perspective those will serve as a benchmark or basis for performance measurement and management system in the banking industry in Bangladesh.

### Specific objective:

- The extent of usage of multiple performance measures those are used by the banking sector in Bangladesh.
- To extract the Key Performance Indicators (KPIs) under financial perspective, customer perspective, internal business process perspective and learning &

growth perspective of Balanced Scorecard those have significant impact on the performance measurement and management system of the banks.

- To reveal which perspective of Balanced Scorecard has more impact on the performance measurement and management of the banks.
- To examine whether the overall Balanced Scorecard usage has any significant impact on the performance of banks.
- To provide a Balanced Scorecard (BSC) framework with suitable Key Performance Indicators (KPIs) for the banking sector in Bangladesh.

## 1.4 Significance of the Study:

In Bangladesh, banking industry is one of the largest service sectors in the economy and this sector is continuously growing in terms of size and competition. In this context, banking sector demands much attention and requires a comprehensive performance measurement and management system that will fulfill the wealth maximization objective by properly serving various parties involving with it. This research will provide comprehensive performance measurement criteria that can be used to measure & manage the performance of banking sector in Bangladesh. Extensive research is continuously conducting on this topic throughout the world, but in Bangladesh no holistic research is done to contribute update knowledge in this area. So the contribution of this research is very much relevant, significant and pragmatic for the banking sector in Bangladesh.

## 1.5 Scope of the research:

The primary focus of this research is on the banking sector of Bangladesh. The research will be conducted mainly on the State Owned Commercial Banks, Specialized Banks, Conventional Private Commercial Banks, Islami Shariah based Private Commercial Banks and Foreign Commercial Banks. The area of the study excludes the central bank of Bangladesh namely Bangladesh Bank. Moreover, this study will consider only the

performance measurement and management related issues of the banking sector. Further, the focus should be made from the management accounting perspective; as a result it will emphasize more on the qualitative factors rather quantitative factors. The financial performance of banks or the financial trends of the banks are not the targeted discussion issue here. Rather, this study will explore the performance measurement measures or KPIs those are significant and crucial for manage & measure the performance of banks. This study will apply the Balanced Scorecard framework (Kaplan & Norton, 1996) in the banking sector in Bangladesh and examine various issues relating to it.

## 1.6 Limitations of the research:

Although every attempt has been done to avoid the drawbacks or limitations, but 'limitation' is a word that cannot be avoided in the research process. The limitations exist on the side of both researchers and the respondents of the study. Firstly, this research is basically qualitative in nature which implies that human perceptions may affect the study. Secondly, the respondents are the top managers of banks who always stay under heavy job pressure; as a result they are not enough enthusiastic about the work beyond their regular duty. So, constant persuasion has been made to them to participate in this study. Thirdly, in any research there is an inherent doubt about the respondents whether they are giving their honest responses or not; even many respondents may not have acquaintance with current performance measurement literature. Fourthly, there is no sufficient fund for the study which indicates that the researcher has to run the research with limited resources. Finally, there is no updated electronic database regarding the banking sector in Bangladesh from which intended information can be easily extracted; this problem often slows the research process.

Human beings are subject to limitations, but every careful attempt is made to make the research worthy & fruitful. I hope this heart-felt attempt has overcome those limitations and made this study truly informative & significant.

# Chapter 2:
# Literature review on performance measurement and management system

## 2.1 Introduction:

Performance measurement and management system (PMMS) have become a multidisciplinary discussed issue. Researchers from diverse fields such as- as strategy Management, operations management, human resources, organizational behavior, information systems, marketing, and management accounting and control are contributing to the field of performance measurement (Neely, 2002; Marr and Schiuma, 2003; Franco-Santos and Bourne, 2005). As a result performance measurement has been defined from various perspectives with different colors.

Different measurement & management techniques and approaches have developed independently. Financial and particularly management accounting have been concerned with measuring and controlling the financial performance of organizations, operations have been concerned with "shop floor" performance often focusing on improving throughput and efficiency, strategy have been concerned with developing plans to deliver future objectives. The management discipline especially in Human Resources management discipline, performance management is often associated with the management of the performance of people.

## 2.2 Definition of performance measurement:

While considering the concept of performance management, it is worth mentioning that very often the terms "performance measurement" and "performance management" are used interchangeably. This is especially common for British authors who equal these terms.

The explanation of the contemporarily used term "performance management" is not an easy task for two reasons. First, the process of evolution of performance management has been very

dynamic and there are a lot of different opinions concerning the subject. Second, the terminology on performance measurement and management has not been still unified. The literature indicates that there are a lot of descriptions such as: corporate performance management, business performance management, enterprise performance management, strategic enterprise management, strategic performance management. M.A. Stiffler (2006) argues that all the above terms are all essentially describing the same thing. Neely et al. (1995) defined performance measurement as the process of quantifying the efficiency and effectiveness of action. Neely went on to identify the activities required to measure performance by defining a performance measurement system as consisting of three inter-related elements:

- Individual measures that quantify the efficiency and effectiveness of actions.
- A set of measures that combine to assess the performance of an organization as a whole.
- A supporting infrastructure that enables data to be acquired, collated, sorted, analyzed, interpreted and disseminated.

Ittner, Larcker & Randall (2003), Gates (1999) and Otley (1999) have broadened the scope of performance measurement to include strategy development and the taking of action. In the growing literature on performance measurement, it is said that performance measurement includes development of strategies or objectives, and the taking of actions to improve performance based on the insight provided by the performance measures.

Few definitions regarding performance measurement and management are presented in the following table those are selected from the literature.

**Table1: Various definition of Performance measurement**

| Author(s)/ Institution | Definition |
|---|---|
| M. Armstrong (2006) | Performance management can be defined as a systematic process for improving organizational performance by developing the performance of individuals and teams. It is a means of getting better results from the organization, teams and individuals by understanding and managing performance within an agreed framework of planned goals, standards and competence requirements. |

| | |
|---|---|
| M. Lebas (1995) | Performance management system is one that is built on – and supports – measures that: give autonomy to individuals within their span of control; reflect and effect relationships; empower and involve individuals; create a basis for discussions, and thus support continuous improvement; support decision making. |
| R. Boot (1997) | Performance management seeks objectively to link reward to operational performance; the operational performance is measured in a way that is consistent with corporate strategy. |
| *Institute of Management Accountants* IMA (1998) | Performance management provides a systematic link between organizational strategy, resources, and processes. It is a comprehensive management process framing the continuous improvement journey, by ensuring that everyone understands where the organization is and where it needs to go to meet stakeholder needs. Performance management can be envisioned as an enterprise-wide management system that links strategic objectives, core business strategies, critical success factors, and key performance indicators. |
| G. Asworth (1999) | Integrated performance management is a measurement and information framework that works within a related set of management processes to ensure that a business unit's vision and strategy is achieved. |
| *Procurement Executives' Association* --PEA (1999) | Performance management is the use of performance measurement information to effect positive change in organizational culture, systems and processes, by helping to set agreed-upon performance goals, allocating and prioritizing resources, informing managers to either confirm or change current policy or programmed directions to meet those goals, and sharing results of performance in pursuing those goals. |
| D. Otley (2001) | Performance management provides an umbrella under which we can study the more formal processes that organizations use in attempting to implement their strategic intent, and to adapt to the circumstances in which they have to operate. |
| A. de Waal (2001; 2007) | Performance management can be defined as the process that enables an organization to deliver a predictable contribution to sustained value |

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|---|---|
| | creation. It is the process where steering of the organization takes place through the systematic definition of mission, strategy and objectives of the organization, making these measurable through critical success factors and key performance indicators, in order to be able to take corrective action to keep the organization on track. |
| O. Aguilar (2003) | Performance management brings the entire company into alignment behind the strategy. |
| C.Stenzel & J. Stenzel (2003) | Performance measurement and management systems are organization design structures that comprehensively coordinate all organizational resources, processes, operations, and strategic decisions into an integrated guidance system. |
| F. Buytendijk and L.Geischecker (2004) | Corporate performance management includes the processes, methodologies, metrics and technologies for enterprises to measure, monitor, and manage business performance. |
| K. Verweire and L.V. den Berghe (2005) | Performance management is a process that helps an organization to formulate, implement, and change its strategy in order to satisfy its stakeholder needs. |
| G. Cokins (2004) | Performance management is the process of managing the execution of an organization's strategy. |
| M.A. Stiffler (2006) | Performance management is about setting objectives for various entities that make up an organization (business units, departments, and product lines), budgeting, measuring the entities against objectives and budgets, reporting results, and using information to determine how well the different parts of the organization ere performing. |
| B. Marr (2006) | Strategic performance management is defined as the organizational approach to define, assess, implement, and continuously refine organizational strategy. It encompasses methodologies, frameworks and indicators that help organizations in the formulation of their strategy and enables employees to gain strategic insights which allow them to challenge strategic assumptions, refine strategic thinking, and inform strategic decision-making and learning. |

| | |
|---|---|
| Atkinson, Waterhouse & Wells (1997) | Performance measurement focuses on one output of strategic planning: senior management's choice of the nature and scope of the contracts that it negotiates, both explicitly and implicitly, with its stakeholders. The performance measurement system is the tool the company uses to monitor those contractual relationships. |
| Bititci, Carrie & Mcdevitt (1997) | A performance measurement system is the information system which is at the heart of the performance management process and it is of critical importance to the effective and efficient functioning of the performance management system. |
| Bourne, Neely, Mills & Platts (2003) | A business performance measurement system refers to the use of a multi-dimensional set of performance measures for the planning and management of a business. |
| Forza & Salvador (2000) | A performance measurement system is an information system that supports managers in the performance management process mainly fulfilling two primary functions: the first one consists in enabling and structuring communication between all the organizational units (individuals, teams, processes, functions, etc.) involved in the process of target setting. The second one is that of collecting, processing and delivering information on the performance of people, activities, processes, products, business units, etc. |
| Gates (1999) | A strategic performance measurement system translates business strategies into deliverable results. Combine financial, strategic and operating measures to gauge how well a company meets its targets. |
| Ittner, Larcker & Randall (2003) | A strategic performance measurement system: (1) provides information that allows the firm to identify the strategies offering the highest potential for achieving the firm's objectives, and (2) aligns management processes, such as target setting, decision-making, and performance evaluation, with the achievement of the chosen strategic objectives. |
| Kerssens-van Drongelen & Fisscher (2003) | Performance measurement and reporting takes place at 2 levels: (1) company as a whole, reporting to external stakeholders, (2) within the company, between managers and their subordinates. At both levels there |

| | |
|---|---|
| | are 3 types of actors: (a) evaluators (e.g. managers, external stakeholders), (b) evaluatee (e.g. middle managers, company), (c) assessor, which is the person or institution assessing the effectiveness and efficiency of performance measurement and reporting process and its outputs (e.g. controllers, external accountant audits)" . |
| Lebas (1995) | Performance measurement is the system that supports a performance management philosophy". A performance measurement system includes performance measures that can be key success factors, measures for detection of deviations, measures to track past achievements, measures to describe the status potential, measures of output, measures of input, etc. A performance measurement system should also include a component that will continuously check the validity of the cause-and-effect relationships among the measures. |
| Lynch & Cross (1991) | A strategic performance measurement system is based on concepts of total quality management, industrial engineering, and activity accounting. A 2-way communications system is required to institute the strategic vision in the organization. Management accountants should be participating in the information revolution and suggestions on how to do this include: (1) providing the right information at the right time, (2) switching from scorekeeper to coach, and (3) focusing on what counts the most. |
| Maisel (2001) | A performance measurement system enables an enterprise to plan, measure, and controls its performance and helps ensure that sales and marketing initiatives, operating practices, information technology resources, business decision, and people's activities are aligned with business strategies to achieve desired business results and create shareholder value. |
| McGee (1992) | Strategic performance measurement is the integrated set of management processes which link strategy to execution. The components of a strategic performance measurement system are: (1) performance metrics (2) Management process alignment (3) Measurement and reporting infrastructure. |

| | |
|---|---|
| Neely 1998 | A performance measurement system enables informed decisions to be made and actions to be taken because it quantifies the efficiency and effectiveness of past actions through the acquisition, collation, sorting, analysis, interpretation, and dissemination of appropriate data. |
| Neely,Gregory & Platts (1995) | A performance measurement system is the set of metrics used to quantify both the efficiency and effectiveness of actions. |
| Rogers (1990) | Business performance measurement systems can be characterized as an integrated set of planning and review procedures which cascade down through the organization to provide a link between each individual and the overall strategy of the organization. (in Smith & Goddard, 2002) |

*Source*: Author's own compilation based of reviewed literature.

Thus, performance management is an ongoing process that includes:

1) strategy interpretation,
2) multidimensional performance measurement,
3) performance reporting,
4) performance assessment evaluation,
5) providing basis for rewarding performance,
6) taking corrective actions,
7) strategy validation.

## 2.2.1 Main features of performance measurement system:

From the literature, I find the following characteristics of performance measurement and management system. These features are summarized in the following table.

**Table 2: Main features of performance measurement system**

| | Atkinson (1998) | Atkinson et al. (1997) | Bititci et al (1997) | Bourne et al (2003) | Forza & Salvador (2000) | Gates (1999) | Ittner et al (2003) | Kaplan & Norton (1996) | Kessens-van Drongelen & Fisscher (2003) | Lebas (1995) | Lynch & Cross (1990) | Maisel (2001) | McGee (1992) | Neely (1998) | Neely et al, (1995) | Otley (1999) | Rogers (1990) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1. Performance Measures** *(including features such as multidimensional, leading/lagging, efficiency/effectiveness, internal /external, vertically & horizontally integrated, multi-level)* | | | | X | | X | | X | | X | X | | X | X | X | X | |
| **2. Objectives / Goals** *(often referring to strategic objectives)* | X | | | | | | X | X | | | | X | X | | | X | |
| **3. Supporting infrastructure** *(which can include data acquisition, collation, sorting, analysis, interpretation, and dissemination (Neely, 1998))* | X | | | | X | | | | X | | | | X | X | | | |
| **4. Targets** | | | | | X | X | X | | | | | | | | | X | |
| **5. Causal models** | X | | | | | | | | | X | | | | | | | |
| **6. Hierarchy/cascade** | | | | | | | | | | | | | | | X | | X |
| **7. Performance contract** | X | X | | | | | | | | | | | | | | | |
| **8. Rewards** | X | | | | | | | | | | | | | | | X | |

*Source: Andy Neely et al. (2007)*

## 2.2.2 Main roles of performance measurement system:

There are various roles of performance measurement system. Few important roles are identified from the literature.

**Table 3: Roles of performance measurement system**

| | Atkinson (1998) | Atkinson et al. (1997) | Bititci et al (1997) | Bourne et al (2002) | Forza & Salvador (2000) | Gates (1999) | Ittner et al (2003) | Kaplan & Norton (1996) | Kessens-van Drongelen & Fisscher (2003) | Lebas (1995) | Lynch & Cross (1991) | Maisel (2001) | McGee (1992) | Neely (1998) | Neely et al, (1995) | Otley (1999) | Rogers (1990) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1. Strategy implementation/ execution** | X | | | | | X | X | X | | | X | X | X | X | | X | X |
| **2. Focus attention/ provide alignment** | X | | | | | | X | | | | | X | X | X | | X | X |
| **3. Internal communication** *(communicating performance, and priorities / objectives)* | | | X | | X | | | | X | | X | X | X | X | X | X | |
| **4. Measure performance/ Performance evaluation** | | | | | | | | X | X | X | | X | X | X | X | | |
| **5. Monitor progress** | X | X | | | | | | | | | | X | X | X | X | | |
| **6. Planning** | | | | X | | | | | | | | | X | | | | X |
| **7. External communication** | | | | | | | | | X | | | | X | X | | | |
| **8. Rewards** | X | | | | | | | | | | | | | X | | X | |
| **9. Performance Improvement** | | | | | | | | | | | | | | X | X | | |
| **10. Managing Relationships** | X | X | | | | | | | | | | | | | | | |
| **11. Feedback** | | | | | X | | | | | | | | | | | X | |
| **12. Double-loop Learning** | X | | | | | | | | | X | | | | | | | |
| **13. Strategy formulation** | | | | | | | | | | | | | | X | | | |
| **14. Benchmarking** | | | | | | | | | | | | | | X | | | |
| **15. Compliance with regulations** | | | | | | | | | | | | | | X | | | |
| **16. Control** | | | | | | | | | | | | X | | | | | |
| **17. Influence Behaviour** | | | | | | | | | | | | | | | | X | |

*Source: Andy Neely et al. (2007)*

## 2.2.3 Main processes of performance measurement system:

**Table 4: Main processes of performance measurement system**

| | Atkinson (1998) | Atkinson et al. (1997) | Bititci et al (1997) | Bourne et al (2003) | Forza & Salvador (2000) | Gates (1999) | Ittner et al (2003) | Kaplan & Norton (1996) | Kessens-van Drongelen & Fisscher (2003) | Lebas (1995) | Lynch & Cross (1991) | Maisel (2001) | McGee (1992) | Neely (1998) | Neely et al, (1995) | Otley (1999) | Rogers (1990) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1. Information provision** *(feed-forward & feedback)* | X | | X | | X | | | | X | X | X | | X | X | | | X |
| **2. Measures design/ selection** | | | | | | | | X | | X | | | X | X | X | | |
| **3. Data capture** | X | | | | X | | | | | | X | | X | X | | | |
| **4. Target setting** | | | | | X | | X | | | | | | | | | X | |
| **5. Rewards** | X | | | | | | | | | | | | | X | | X | |
| **6. Identify stakeholders needs & wants** | X | X | | | | | | | | | | | | | | | |
| **7. Strategic objectives specification** | X | | | | | | | | | | | | | | | X | |
| **8. Data analysis** | | | | | | | | | | | X | | | X | | | |
| **9. Decision making** | | | | | | | X | | | | | | | X | | | |
| **10. Performance evaluation** | | | | | | | X | | X | | | | | | | | |
| **11. Interpretation** | | | | | | | | | | | | | | X | | | |
| **12. Review procedures** | | | | | | | | | | | | | | | | | X |
| **13. Planning** | | | | | | | | | | | | | | | | | X |

*Source: Andy Neely et al. (2007)*

Franco and Bourne (2003) identify the most significant factors affecting the use of performance management. The factors are as follows:

(1) *Corporate culture* - Some studies highlight the need for a corporate culture that encourages team working, ownership of problems and risk-taking or entrepreneurship, while others emphasize the need for a corporate culture orientated to continuous improvement and use of the performance measurement system.

(2) *Alignment* - The integration and linkage of individual strategies and goals, and the 'good match' between managers' responsibilities and the performance being managed.

(3) *Review and update* - A continuous review of the strategy, the performance being managed and systems and processes being used to manage. The focus of performance management should be to drive action for improvement and learning rather than control. There should also be focus on the development of action plans in order to explain how the gaps between performance measures and goals could be closed, and review their progress periodically.

(4) *Communication and reporting* - Performance and progress report should be communicated properly. There is emphasis on the need for prompt and formal feedback.

(5) *Involvement of employees*- There is consensus around the benefits of making everyone participate in the development of measures. Involvement in the selection and definition of measures can reduce employees and managers' resistance to performance management, and increase their usage level of performance measures.

(6) *Management understanding.*

(7) *Compensation link* – there is inconsistency in the literature regarding the linkage between incentive compensation and strategic performance measures. In addition, a lack of understanding around the concept of compensation seems to exist, since studies use the words 'incentives', 'rewards' and 'compensation' interchangeably.

(8) *Management leadership and commitment* - Executive support, leadership and commitment. Management should have clear accountability and responsibility of measures and results.

(9) *Clear and balanced framework* - as already discussed

(10) *Agreement on strategy and success map*.

(11) *Data processes and IT support*

Kaplan and Norton (1996) in their article "*The Balanced Scorecard–Translating Strategy into Action" identified* 4 barriers to implementation of performance measurement systems. These were identified through individual cases but quantifiable supporting evidence was provided from a survey of managers attending the Business Intelligence conference in London. These barriers are:

*1 Vision and strategy not actionable.* This occurs when the senior management teams have failed to achieve consensus as to how the vision should be achieved. This leads to different groups pursuing different agendas and effort is neither coherent nor linked to strategy in an integrated way.

*2 Strategy is not linked to department, team and individual goals.* When this happens, then those concerned continue to follow the old traditional performance criteria and thwart the introduction of the new strategy. This can be exacerbated by an unaligned incentive system.

*3 Strategy is not linked to resource allocation.* This often occurs when the long term strategic planning process and annual budgeting process are separated and may result in funding and capital allocations becoming unrelated to strategic priorities.

*4 Feedback is tactical and not strategic.* This occurs when feedback concentrates solely on short-term results (such as the financial measures) and little time is reserved for the review of indicators of strategy implementation and success.

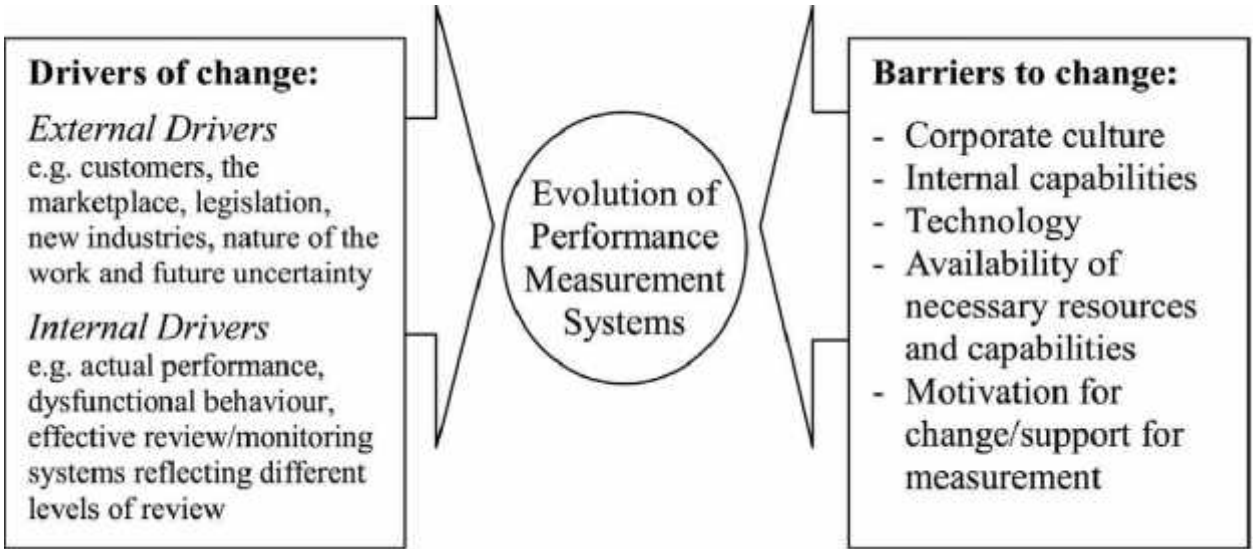
In the conclusion, we can say that:

- Performance management should be integrated horizontally across the organization;
- The performance being managed should reflect the requirements, wants and needs of all of the key stakeholders of the organization and not just reflect a limited set;
- Performance management should be integrated vertically linking the strategies and objectives of the organization to the execution of activities which will enable their achievement;
- Explicit understanding of linkages across the vertical and horizontal integration (e.g. through success maps) enables consideration of conflicting priorities and trade-offs that need to be made in order to achieve overall objectives;
- The performance monitoring, review and action panning process should be structured around the strategic performance objectives of the organization;
- Processes and systems should be designed to extract and communicate insights rather than performance data;
- All systems and processes should be aligned with each other, driving behavior towards the performance objectives;
- Effort should be dedicated to developing an appropriate culture to engage the organization's employees and elicit commitment to performance objectives.

## 2.3 Evolution of performance measurement and management systems:

Performance measurement has its roots in early accounting systems and Johnson (1981) cites the Medici accounts as an excellent example of how a pre-industrial organization could maintain a good account of external transactions and stock without recourse to higher-level techniques, such as cost accounting. However, as industrial organizations developed, so did their needs for measures and Johnson (1972) provides a detailed account of how current management accounting developed in the USA between the 1850s and 1920s as industrial organizations moved from piece-work to wages; single to multiple operations; individual production plants to vertical integrated businesses and individual businesses to multi-divisional firms. As a result, following the First World War, companies such as Du Pont, Sears Roebuck and General Motors were starting to use sophisticated budgeting and management accounting techniques (Chandler, 1962), such as standard costing, variance analysis, flexible budgets, return on investment and other key management ratios. From these beginnings, the use of budgets spread. A study by Holden, Fish and Smith (1941) showed that by 1941, 50% of well established US companies were using budgetary control and by 1958, budgets appeared to be used for overall control of company performance by 404 out of 424 (just over 95%) participating in the study Sord, B.H. and Welsch, G.A. (1962). However, between 1925 and the 1980s, there were no significant developments in management accounting (Johnson and Kaplan, 1987).

**Figure 1: Evolution of Performance Measurement System**




Source: Mike Kennerley and Andy Neely (2002).

As emphasized by Ghalayini and Noble (1996), the literature concerning performance measurement has had two phases. In the first phase, which went on until the 1980s, the centre of attention was performance measurement based on the financial criteria supplied by the management accounting system. The second phase started in the late 1980s and is still proceeding. During this period of time much has changed within performance measurement and the interest in this field has increased tremendously. Some researchers even refer to this phase as 'the performance measurement revolution' (Neely, 1999). The performance measurement revolution is, in turn, primarily explained as a result of changes in the world market. In the 1980s companies in the US began to lose market share to overseas competitors who were able to provide higher-quality products with lower costs and more variety. To regain a competitive edge, companies not only shifted their strategic priorities from low-cost production to quality, flexibility, short lead-time and dependable delivery, but also implemented new technologies and philosophies of production management. The implementation of these changes revealed the shortcomings of traditional performance measures (Ghalayini and Noble, 1996).

Criticism focused on the dysfunctional behavior traditional accounting based performance measures encouraged especially when used inappropriately. In particular, they were criticized for encouraging short-term decision making, their inapplicability to modern manufacturing techniques, and the damage they were causing to business and, therefore, the US economy.

In the late 1980s, the limitations of the traditional way of measuring performance were clearly known and researchers started to talk about introducing new performance measures, such as shareholder value, economic profit, customer satisfaction, internal operations performance, intellectual capital and intangible assets (Neely and Bourne, 2000). Performance was no longer solely a financial issue. However, it should be noted that the new performance measures were still just designed to supplement the pre-existing financial measures.

In the early 1990s, the Nolan Norton Institute, the research arm of KPMG, sponsored a study titled "*Measuring Performance in the Organization of the Future*". D. Norton, chief executive officer of Nolan Norton, served as the study leader and Robert Kaplan as an academic consultant from Harvard University. After a yearlong research program with twelve companies, the study group proposed a comprehensive framework, named the "balanced scorecard". The aim of the this approach was to give managers a comprehensive view of the business using both financial

and non-financial, as well as short-term and long-term performance measures. Nowadays the aim of balanced scorecard is to allow managers to focus on the critical areas, driving the organization's strategy forward. Thus this method is perceived not only as a measurement tool, but also as a strategic management framework and method for implementing organizational strategy and – as Kaplan and Norton claim – a tool of "building strategy-focused organization" (Kaplan & Norton, 1996, 2001).

As emphasized by Bititci (1994), the objective with the new frameworks was to encourage a proactive management style rather than a reactive. The conceptual performance measurement frameworks were then followed by the development of management processes specifically designed to give practicing managers the tools to develop or redesign their performance measurement systems (Bourne et al, 2000).

The researchers have recently realized that the concept of multiple stakeholders has increased in importance. Companies can no longer be satisfied with only considering shareholders and customers. Employees are also seen as important stakeholders; as are suppliers, regulators and the community at large and these stakeholders need to be incorporated into the performance measurement system (Bourne et al, 2003). This concept may not be a completely new idea, but the way to incorporate other stakeholders into the performance measurement systems is significantly more sophisticated than previous efforts.

## 2.4 Different Models and Theories on Performance Measurement and Management System:

In the next section, I will focus on various models and theories on performance measurement and management system.

### 2.4.1 Traditional Performance Measures (Accounting based performance measures/ Financial performance measure):

Firms have traditionally relied almost exclusively on financial measures such as budgets, profits, return on investment, or cash flow to measure performance (Price waterhouse Coopers, 2004; Said et al., 2003; AICPA, 2001; Otley, 1999; Ittner et al., 1997; Bushman et al., 1996; Hoque & James, 2000). The other common financial performance measures are return on assets (ROA), return on sales (ROS), earnings before interest and taxes (EBIT), sales growth, purchase price variances, sales per employee, profit per unit of production, earning per share (EPS), dividend yield, price earnings ratio, market capitalization etc. (Ittner & Larcker, 1997; Fraquelli & Vannoni, 2000; Crabtree & DeBusk, 2008; Ghalayini et al., 1997).

Accounting-based performance measures have many characteristics that help in performance evaluation and compensation (Indjejikian, 1999). Accounting-based performance measures are subject to a variety of internal controls that enhance their reliability and they are easy to understand. In addition, they integrate the results of all organizational activities into a single coherent measure (Otley, 1999). The advantage of these measurements is their general availability, since every profit oriented organization produces these figures for the yearly financial reporting (Chenhall & Langfield-Smith, 2007). However, balance sheet manipulations and choices of accounting methods may also lead to values that allow only limited comparability of the financial strength of companies.

In mid 1990s, Economic Value Added (EVA) approach was another popular approach. It was developed by the Stern Stewart Corporation (1995) as an overall measure of financial

performance, focusing on assisting the manager to deliver shareholder value. Economic value added (EVA) can be defined as adjusted operating income minus a capital charge; the basic assumption underlying EVA is that managers only add value to their organization when the resulting profits exceed the cost of capital (Stewart, 2002). In addition, EVA improves on residual income by adjusting for 'distortions' in the accounting model of performance measurement (Stewart, 2002; Biddle et al., 1997). However, Otley (1999) argues that it needs to be recognized that EVA remains an historic income measure and does not anticipate the future earnings.

### 2.4.1.1 Limitations of Traditional Performance Measurement System:

By the early 1980s there was a growing realization that, given the increased complexity of organizations and the markets in which they compete, it was no longer appropriate to use financial measures as the sole criteria for assessing success. Over the last decade, traditional performance measurement systems have been increasingly criticized on the basis that they were designed for an environment of mature products and stable technologies (Drucker, 1990; Skinner, 1986; Ghalayini et al., 1997; Eccles, 1991; Kaplan, 1983; Johnson and Kaplan, 1987; Ittner and Larcker, 2003; Kaplan and Norton, 1996; Olve et al., 1999; Bourne et al., 2000; Blenkinsop and Burns, 1992; Burgess et al., 2007; Olsen et al., 2007; Hoque & James, 2000). The *mass production* era has been replaced by a *lean production* era, which is now slowly transforming into a new era of *agile manufacturing* and *mass customization* (The Iacocca Institute Report, 1991). Johnson (1983 & 1987) and Kaplan (1984 & 1987) highlighted the failure of financial performance measures to reflect changes in the competitive circumstances and strategies of modern organizations. While profit remains the overriding goal, it is considered an insufficient performance measure, as measures should reflect what organizations have to manage in order to earn profit (Bruns, 1998).

Traditional performance measure concern mostly with direct labour efficiency which is also in appropriate in modern era (Skinner, 1986; Drucker, 1990; Blenkinsop and Burns, 1992; Ghalayini et al., 1997). Specifically, the heavy focus on direct labor efficiency is based on the realities of the 1920s when direct labour accounted for 80% of all manufacturing costs other than

raw materials. This technique would be misleading today since very few companies currently have direct labor costs that run as high as 25% (Drucker, 1990). As a result, it fails to provide or support a coherent manufacturing strategy, since the company effort focuses on being a low-cost producer (Skinner, 1986). The heavy emphases on cost reductions hinder innovation, as well as the ability to introduce rapidly product changes or develop new products (Skinner, 1986).
Financial measures are concerned with cost elements and try to quantify performance solely in financial terms, but many enhancements are difficult to quantify monetarily, such as lead-time reduction, quality improvements and customer service (Maskell, 1991; Ghalayini et al., 1997; Jagdev et al., 1997).

Traditional performance measures fail to consider the requirements of today's organization and strategy (Skinner, 1986). Financial measures show lack of relevance for the control of production and are not directly related to manufacturing strategy. Excessive use of ROI also distorts strategy building and may conflict with strategic objectives. (Maskell, 1991; Hill, 1993; Crawford and Cox, 1990; Ghalayini et al., 1997; Jagdev et al., 1997; Kaplan and Cooper, 1998; Bitichi, 1994). Traditional measure also focuses on controlling processes in isolation rather than as a whole system.

Moreover, the numbers generated by traditional performance measurement systems often fail to support the investments in new technologies and markets that are essential for successful performance in global markets (Eccles, 1991; Johnson and Kaplan, 1987).
Financial measures have predetermined inflexible format that is used across all departments ignoring the fact that most department has its own unique characteristics and priorities. Financial measures are not always applicable to the new management techniques that give shop-floor-operator's responsibility and autonomy.
Again, traditional performance measurements systems measure the tangible and financial assets but an organization has to measure and respond to intangible assets of value to the organization because of their substantial effect on the bottom-line.

Financial performance measurement systems provide a historical view, giving little indication of future performance (Bruns, 1998). It provides misleading information for decision-making

(Dearden, 1969; Drucker, 1990; Ghalayini et al., 1997). Financial reports are a lagging metric since they are usually closed monthly, and are a result of decisions made one or two months prior, making it too old to be useful (Ghalayini et al., 1997). Financial measures also overemphasis to achieve and maintain short-term financial results (Kaplan, 1983; Skinner, 1986; Eccles, 1991; Kaplan and Norton, 1996). This overemphasis on short-term financial results can be dangerous since it might force the manager to manipulate the reporting figures due to incentives (Eccles, 1991). Financial performance measures also encourage sub-optimisation (Skinner, 1986; Olve et al., 1999; Neely, 1999; Olsen et al., 2007). Thus, short-term financial focus discourages long-term thinking, for example, it can lead to R&D reductions, cutbacks in training and postponement of investment plans (Olve et al., 1999). A serious shortcoming of the traditional management systems is their inability to link a firm's long-term strategy with its short-term actions. Most companies' operational and management control system are designed on the basis of financial measures and targets which have little relation to the companies' progress in achieving long-term strategic objectives.

Moreover, Neely (1999) argued that there are seven main reasons that lead to the criticism of the traditional performance measurement systems. These reasons are: (1) the changing nature of work; (2) increasing competition; (3) specific improvement initiatives; (4) national and international awards; (5) changing organizational roles; (6) changing external demands; and (7) the power of information technology.

To respond to the criticisms of the traditional performance measurement systems, many scholars tried to develop new concepts of performance measurement systems that can solve the limitations of the traditional performance measures (Kaplan and Norton, 1992; Otley, 2001). Some of the mentionable innovations are activity-based costing, activity-based cost management, and the Balanced Scorecard (BSC) (Otley, 2001). Consequently, over the last decade many companies have implemented nonfinancial measures to complement the financial measures (Ittner and Larcker, 2003). The concept of Balanced Scorecard overcomes these drawbacks and inadequacies of the conventional financial measures and measures corporate performance both from financial and operational perspectives of an organization.

## 2.4.2 Balanced Scorecard (BSC):

The concept of 'Balanced Scorecard' was first introduced in the journal "Harvard Business Review" (January-February, 1992) by Robert S. Kaplan and David P. Norton. Balanced Scorecard (BSC) is regarded as the most appropriate framework for performance measurement because it "retains financial measurement as critical summary of managerial and business performance, but it highlights a more general and integrated set of measurements that link current customer, internal process, employee and system performance to long-term financial success" (Kaplan & Norton, 1996). BSC uses both 'lag' (financial) and 'lead' (non-financial) indicators, as well as it set the objectives in four main perspectives: financial, customer, internal business process and learning and growth (McLaney & Atrill, 2005).

### 2.4.2.1 The four perspectives of Balanced Scorecard (BSC):

The four perspectives of Balanced Scorecard (BSC) are discussed below based on Kaplan and Norton (1992 & 1996):

**Financial Perspective:** Financial measures convey the economic consequences for the actions already taken by the organization, and focus on the profitability related measures on which the shareholders verify the profitability of their investment. Therefore, under this perspective managers are required to generate measures that answer the following question: "To succeed financially, how should we appear to our shareholders?" Kaplan and Norton acknowledge the need for traditional financial data. The accurate and timely financial data are necessary for the efficient and smooth direction of the organization. The provision of the right and timely financial data to the right person in the organization helps much in the process of making the right decision in the right moment. Under this perspective the most common performance measures are: return on investment (ROI), cash flow, net operating income, revenue growth, etc.

**Customer Perspective:** This perspective provides a view on how customers perceive the organization. The customer perspective should be considered the central element of any business strategy that provide the unique mix of products, price, relationship, and image that the company

offers to its customers. In this perspective the organization should demonstrate how it differentiates itself from the competitors by retaining, attracting, and sustaining relationships with its targeted customers. Therefore, managers are required to generate measures to answer the following question: "To achieve our vision, how should we appear to our customers?" Typical measures used under this perspective are: customer satisfaction, customer complaints, customer lost/won, sales from new product, etc.

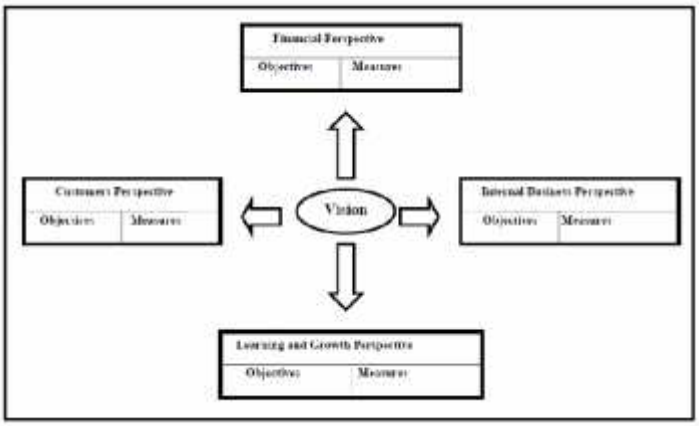
**Internal Business Process Perspective:** Internal business processes provide the organization with the means by which performance expectations may be accomplished. This perspective refers to the internal business processes of the organization and, therefore, managers are required to provide measures that answer the following question: "To satisfy our customers and shareholders, what business processes must we excel at?" The central theme of this perspective is the results of the internal business processes which lead to financial success and satisfied customers. Typically the measures of this perspective are based on producing goods and services by the most efficient and effective methods. Commonly used measures for this perspective are: cost of quality, cost of non-conformance, process innovation, time savings etc.

**Learning and Growth Perspective:** Under this perspective managers must identify measures to answer the following question: "To achieve our vision, how will we sustain our ability to change and improve?" Actually, this perspective is related to the employees of the organization, and it measures the extent to which the organization exerts efforts to provide its employees with opportunities to grow and learn in their domain. Kaplan and Norton (1992) acknowledge that the learning and growth measures are the most difficult to select; therefore they suggest the following measures as examples: employee empowerment, employee motivation, employee capabilities, and information systems capabilities.

The early BSC model, I described above, consisted of simple tables including four parts, each part is referred to as a perspective or a dimension. These perspectives are supposed to create a balance between short-term and long-term objectives. Newing (1995) stated that by combining measuring and thinking by the four perspectives managers can prevent making improvements in one area at the expense of another area. According to the author, the BSC forces managers to focus on non-financial measures which impact on the long-term profitability of the organization.

Kaplan and Norton (1992) acknowledged that the format of the BSC depends on the needs of the organization. In the original version of the BSC model (Figure 2), goals and measures were the only two parameters used by the scorecard. The major issue facing an

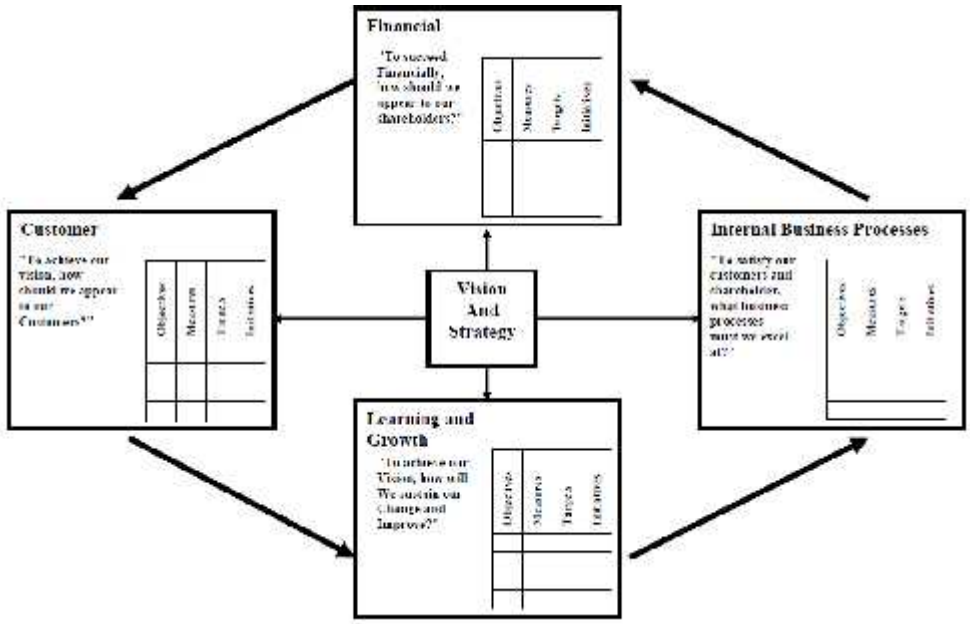
**Figure 2: Earlier version of the BSC model**




Source: Kaplan and Norton (1992).

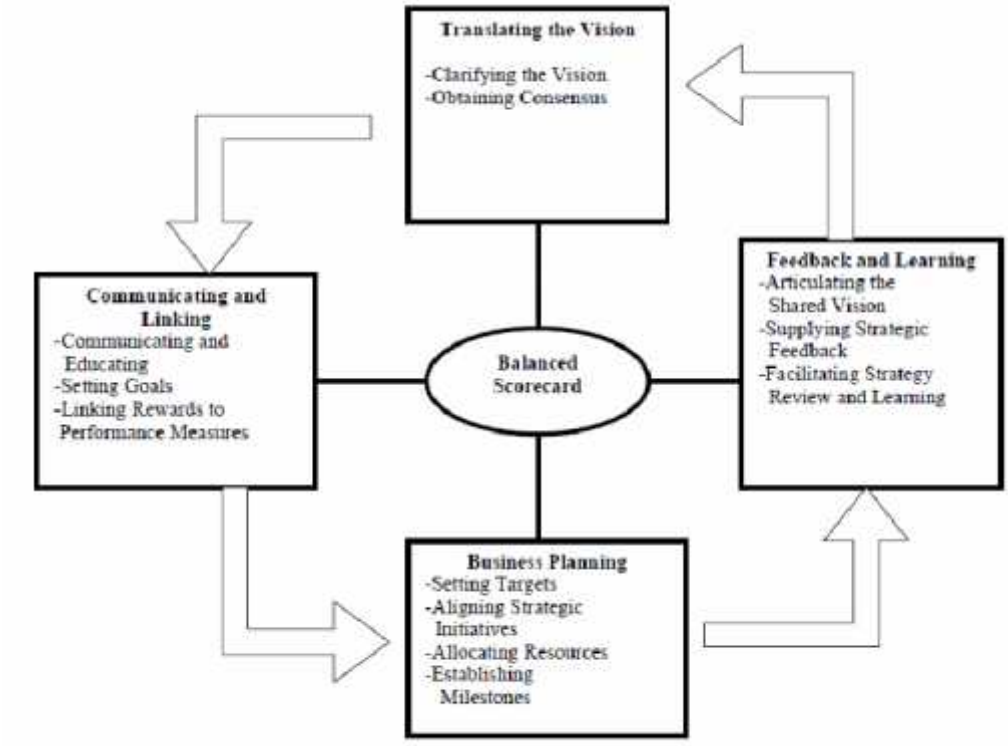
organization in developing a BSC of this type is how to choose the measures that are explicitly linked to its strategy? The underlying assumption here is that strategy is widely communicated and accepted organization wide. Another important problem in this model is how to choose the correct measures? If managers believe that the chosen measures are not well, then they will not have confidence in the information that these measures supply. In the mid of the 1990s, Kaplan and Norton (1996) promoted a new version of the BSC to alleviate the problems of the early model. This version, presented in Figure 3, contains four perspectives, too. Each perspective, now, consists of four parameters: goals, objectives, targets, and initiatives. It, also, depends on four processes that bind short-term activities to long-term objectives (Figure 4).

**Figure 3: Four perspectives of BSC with four parameters: goals, objectives, targets, and initiatives**




Source: Kaplan & Norton (1996).

**Figure 4: Managing strategy: four processes**




Source: Kaplan & Norton, 1996.

In this new model, the selection of the measures is done on the basis of a set of "strategic objectives" plotted on a "strategic linkage model" or "strategy map". The strategic objectives are spread among the four perspectives: Financial, Customer, Internal Processes, and Learning and Growth. However, the design of the BSC becomes less abstract. Within each perspective, managers are supposed to identify five or six goals. By plotting causal links, managers can delineate the links between these goals. When a reasonable agreement is achieved on the objectives, and how they inter-link, then a BSC can be devised by identifying suitable measures for each objective. This methodology provides managers with greater contextual justification for choosing the measures within each perspective, and is easier for them to work with.

#### 2.4.2.2 The elements of this strategic management system:

Kaplan and Norton (1996) argue that this version could be used as a strategic management system which supports the four perspectives. The elements of this strategic management system are: Translating the Vision, Communicating and Linking, Business Planning, and Feedback and Learning.

- Translating the Vision: Kaplan and Norton suggest that lofty statements such as "becoming the number one supplier" are difficult to translate into operational measures that bear meaning to all the people in the organization. However, by relying on measurement, the scorecard shall force management to arrive at an agreement on the metrics they will use to operationalize their vision.
- Communicating and Linking: The implementation of strategy starts with communicating it up and down the organizational chart and educating personnel who will execute the strategy. By passing strategy across the organization, objectives and measures can be translated into objectives and measures pertaining to particular groups. Relating these targets to individual's performance, a "personal scorecard" is achieved, in this way employees can understand how their performance can support the organizational strategy.
- Business Planning: Kaplan and Norton indicate that most organizations have separate units for strategic planning and budgeting. However, in practice these two functions rarely coincide on achieving the organization's strategy. The idea of creating a balanced scorecard obliges companies to integrate these two functions. By arriving at an agreement on the performance measures for the four perspectives, the company can identify the most influential drivers of the

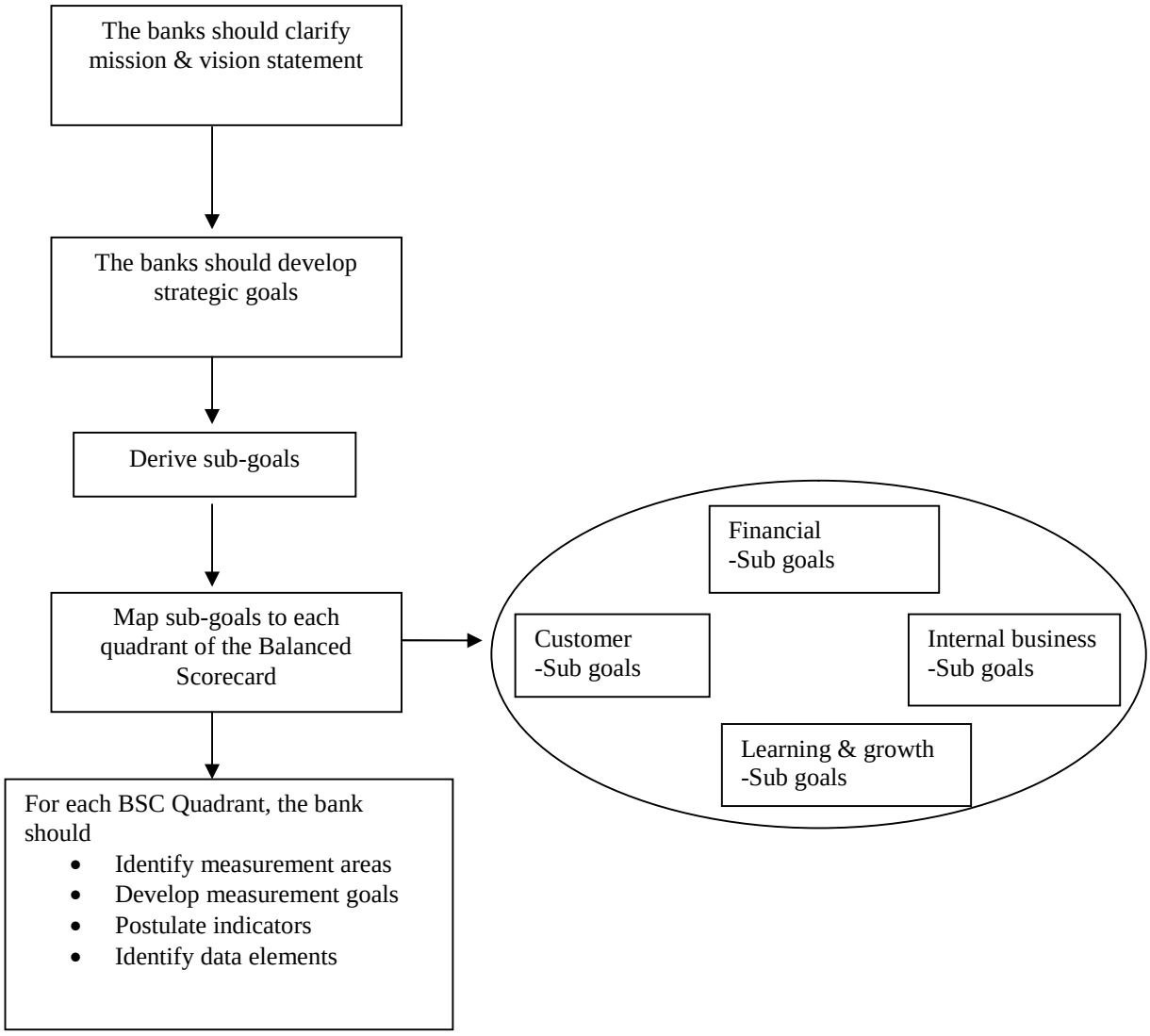
outcomes desired, and then setting milestones to measure the progress achieved with these drivers.

• Feedback and Learning: The existing feedback and review processes of a company focus on whether the budgeted financial goals of the company, or its units, or its employees have been met. Using the balanced scorecard as a management system, the company can monitor and control the short-term results from the other three perspectives: customers, internal business processes, and learning and growth. Thus, the company can review and evaluate its strategy according to recent performance. The scorecard, therefore, aids the company in modifying its strategies to reflect real-time learning.

#### 2.4.2.3 Methodology overview of Balanced Scorecard:

Figure-5 shows the methodological overview of Balanced Scorecard. At first, the organization should develop their mission and vision statement. Performance measurement and management system should start from identifying mission and vision. Secondly, the organization should determine their strategy and long term goals. On the basis of the strategy, each organization should set its performance measurement criteria. Performance measurement literature also emphasize on strategy determination which is a deciding factor for design of performance measurement system. Thirdly, each organization should divide their strategy into sub-goals. Fourthly, on the basis of the sub-goals the bank should identify performance measurement areas and select the BSC perspectives. Fifthly, the organization should develop Key performance indicators (KPIs) or performance measures under each perspective of BSC. In this way Balanced Scorecard should be developed for performance measurement and management system in the organization.

**Figure-4.1: Methodology overview of Balanced Scorecard**




According to Ashton (1998) the BSC can be used as:

- A framework for implementing corporate strategy.
- A tool for linking business, team and individual objectives and rewards to strategic goals.
- An effective tool for implementation of change management.
- A good match with the organization's deviation from a command and control culture to empowerment and coaching culture.
- A way to understand the drivers of business success.
- An identifier of "cause-and-effect" relationships across operations.
- A dynamic communication and a feedback tool.

Rhom (2004) stated that implementing Balanced Scorecard was about changing the minds and systems. He has given the following three steps for the implementation of Balanced Scorecard. These steps are based on the study conducted in 13 countries, on 60 organizations and 2000 people.

- Automation --- it deals with assuring that the proper strategies have been developed before using software.
- Cascading --- it means developing Balanced Scorecard at various levels of the organization in accordance with the goals of the organization.
- Evaluation --- it deals with appraisal of the strategies. Strategies are considered good if the stated objectives have been achieved.

Barr (2003) described how to translate the intangible results such as employee morale, loyalty etc. and provided guidance for the development of good measures of performance. This is a five step study to develop a good measure. These steps are:

- Determine the outcome.
- Determine what we want to measure about the outcome.
- Determine what happens if the outcome is measured.
- Determine what let you know that the outcome is being achieved.
- This is what your appropriate measure is. Name this measure.

**Advantages of Balanced Scorecard (BSC):**

- Clarity of vision and strategy adopted.
- Consistent monitoring of strategy.
- Concentration on strategic, in the competition environment critical business objectives.
- Cross-disciplinary and hierarchy traversing communication process.
- Integration of performance measures for operational objectives at an appropriate level.
- Cause/effect relationships as instrument for management.

Kaplan and Norton (1992) argue that giving information from four perspectives, the balanced scorecard minimizes information overload by limiting the number of measures used. As many organizations started to depend on intangible assets to measure performance, the scorecards are becoming a useful approach for performance evaluation (Kaplan & Norton, 1993).

In their study, Ittner and Larcker (2003) found that those companies believed that the use of non-financial measures offered several benefits. Some of the benefits included:
1) Managers can get a quick overview of their business' progress prior to financial reports being released; 2) Employees can acquire superior information about the actions necessary to achieve strategic objectives; and 3) Investors receive more accurate information about companies overall performance since non-financial measures usually reflect their intangible value, such as R&D productivity. Currently, traditional accounting rules fail to recognize this as an asset.

**Disadvantages of Balanced Scorecard (BSC):**

- Does not express the interests of all stakeholders.
- Lack of long-term commitment and leadership for management.
- Too many/few metrics – development of unattainable metrics.
- Lack of employee awareness or a failure to communicate information to all employees.
- Constructed as a controlling tool rather than an improvement tool.
- There is no quantification of the relationship among the perspectives of BSC.
- Inappropriate to benchmarking.

However, Ittner and Larcker (2003) found that only a few companies realize these benefits. They found that most companies fail to identify, analyze, and act on the right nonfinancial measures, where little attempt is made to identify areas of non-financial performance that might advance their chosen strategy. Additionally, these companies have not demonstrated a cause-and-effect link between improvement in those non-financial areas and the financial areas. Ittner and Larcker (2003) argue that these companies often fail to establish the links partly due to laziness or thoughtlessness. Consequently, this lack of cause and- effect link between non-financial and financial measures increases the possibility of self-serving managers being able to choose and manipulate measures for their own objectives, particularly to procure bonuses.

Furthermore, Ittner and Larcker (2003) identified a number of mistakes that companies made when attempting to measure non-financial performance. Those mistakes were: 1) not linking

measures to strategy; 2) not validating the links; 3) not setting the right performance targets; and 4) incorrect measurement.

According to Ghalayini et al. (1997), the main weakness of this approach is that it is primarily designed to provide senior managers with an overall view of performance. Thus, it is not intended for or applicable at the factory operations level. Further, they also argue that the balanced scorecard is constructed as a monitoring and controlling tool rather than an improvement tools. On the other hand, Neely et al. (2000) argue that although the balanced scorecard is a valuable framework suggesting important areas in which performance measures might be useful, it provides little guidance on how the appropriate measures can be identified, introduced and ultimately used to manage business. They also concluded that the balanced scorecard does not consider competitors at all.

## 2.4.3 Mark Graham Brown's Balanced Scorecard Approach:

Whereas the Kaplan & Norton balanced scorecard calls for a balance between four categories, the Mark Graham Brown model (Brown, 1996) includes five categories.

**1. Financial Performance -** When selecting this set of measures, consideration should be given to going beyond the traditional financial measures of budget performance and variances from a standard. Other traditional measures for areas, such as payback methods on capital justification, are focused primarily on accounting earnings and return on investment targets. Benchmarking data on the cost of performing the many different functions within an organization can be used to both structure financial measures and for determining future targets or goals.

**2. Process/Operational Performance -** Process or operational performance measures can:

- Be both proactive and preventative in nature.
- Focus on a work activity that is occurring.
- Represent lagging indicators of end-state performance.

While many organizations focus on output measures in this category, greater value can be gained by selecting critical, in-process metrics that are predictors of the quality of the products or services provided, such as cycle time, error rates, or production rates.

**3. Customer Satisfaction -** Many organizations are now beginning to measure customer satisfaction, and most are doing so in very elementary ways. The International Quality Survey conducted by Ernst & Young, for example, found that customer satisfaction measures were of major or primary importance for strategic planning in 54.3 percent of the surveyed organizations in 1988 and 80.7 percent in 1991, and were expected to be of importance in 96.7 percent of the organizations in 1994. (Ernst & Young 1990)

Mature measures of customer satisfaction have the following characteristics:

- Measurement is done frequently, at the point of delivery, and with large sample sizes.
- Focus groups, phone interviews, and surveys are the tools used to measure satisfaction.
- A strong use of statistical tools is in place for measurement analysis.
- The measures provide immediate performance feedback to drive improvement.
- Relationships between customer satisfaction measures and other strategic measures are carefully documented.

**4. Employee Satisfaction** - Human Resource Manager may track statistics such as employee turnover rate or report annual survey statistics on morale, but often this information is not viewed by senior management on a regular basis. A number of mature organizations have determined that there is a linkage between the health and satisfaction of their employees and the performance of their companies. Companies such as AT&T and Federal Express, for example, have developed very good metrics to inform management of the health and well-being of its workforce.

**5. Community/Stakeholder Satisfaction -** For organizations that operate for, and on behalf of, government institutions and many non-profit enterprises, maintaining a good relation with the community and other stakeholders is an important element in measuring success. In a sense, the community/stakeholders allow the organization to operate as long as conformance to laws is maintained.

Typical community/stakeholder satisfaction measures include:

- An assessment of the organization's reputation in the community.
- An assessment of the organization's performance in public health and safety and environmental protection.
- Economic impact and corporate citizenship efforts within the community.
- Compliance to laws/regulations.

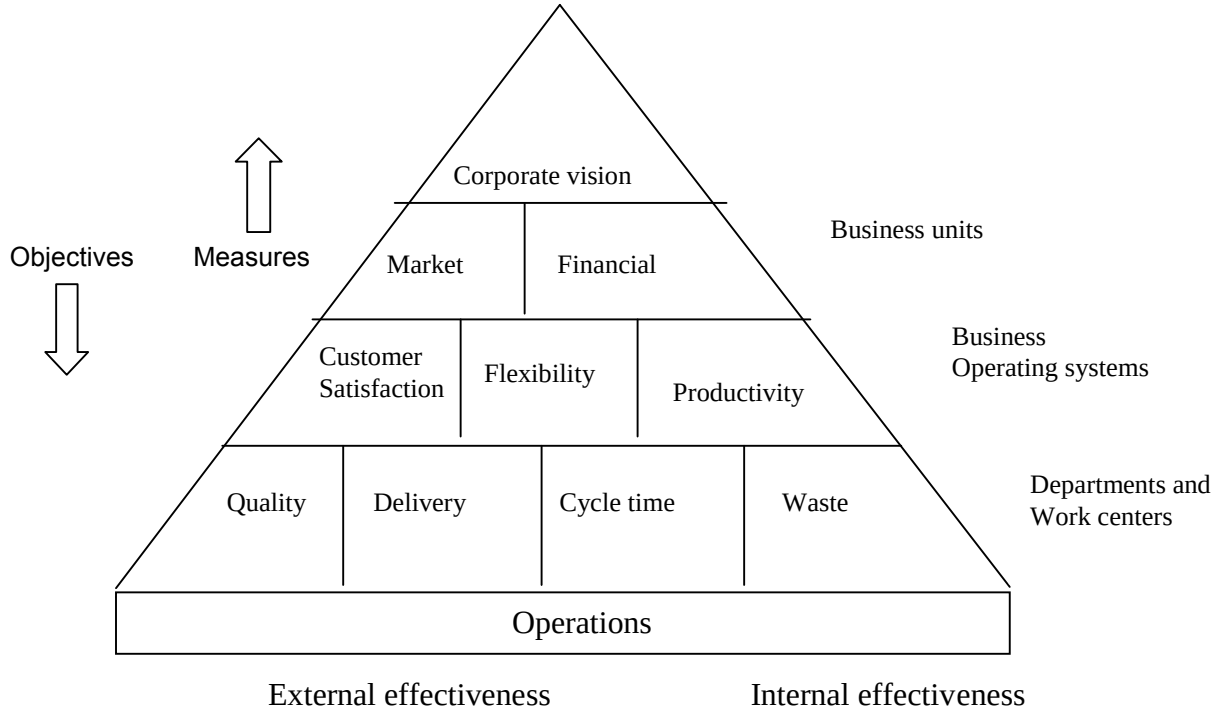
## 2.4.4 Tableau de Bord:

The concept of taking account of more than just financial measures is not new, but it is one that has developed at an increasing pace with the advent of the information age. Perhaps the earliest formalized measurement system of this type was the French process of Tableau de Bord that emerged in the early part of the 20th century. Broadly translated from the French, 'Tableau de Bord' means a dashboard, a series of dials giving an overview of a machine's performance, such as the array of instruments used by car drivers or airline pilots. The association with machines is not surprising as the system was first evolved by process engineers attempting to evolve their production processes by having a better understanding of the relationships between their actions and process performance; the cause and effect relationship. In an attempt to improve local decision making, the engineers developed separate tableaux for each sub unit that reflected the overall strategic aims of the organization. As their objective was to study cause and effect relationships, the engineers did not limit their measurements to financial indicators and used a wide range of operational measures to evaluate local actions and impacts. Although the Tableau de Bord has been around for over 50 years, it was only in the last quarter of the 20th century that the movement away from reliance on financial measures gained impetus. One of the main catalysts appears to have been increasing global competition.

## 2.4.5 The Performance Pyramid:

McNair et al. (1990) designed a model that they called the 'performance pyramid' based on the concepts of total quality management. The performance pyramid represents an organization resolved into four interdependent levels. Another system is the SMART Performance Pyramid, which was proposed by Cross and Lynch (1992). The primary aim of the performance pyramid is to connect through organization's strategy with its operations by translating objectives from the top down (based on customer priorities) and measures from the bottom up (Tangen, 2004). The Performance Pyramid contains four levels of objectives that affect the organization's external effectiveness and simultaneously its internal efficiency. At the first level of pyramid is defined an overall corporate vision, which is then divided into individual business unit objectives. At the second-level of pyramid are set short-term targets (e.g. of cash flow and profitability) and long-term goals of growth and market position (e.g. market, financial). The third level contains day-to-day operational measures (e.g. customer satisfaction, flexibility, productivity). Last level includes four key indicators of performance measures: quality, delivery, cycle time, waste.

**Figure 5: The performance pyramid**




Source: Cross and Lynch, 1992

As stated by Ghalayini et al (1997), the main strength of the performance pyramid is its attempt to integrate corporate objectives with operational performance indicators. However, this approach does not provide any mechanism to identify key performance indicators, nor does it explicitly integrate the concept of continuous improvement.

### Strong points:

- Attempt to integrate corporate objectives with operational performance indicators.
- Manage PM strategically.

### Weak points:

- Does not provide any mechanism to identify key performance indicators.
- Fails to specify the form of the measures.
- Does not explicitly integrate the concept of continuous improvement.

## 2.4.6 The EP2M Model:

Adams & Roberts (1993) progressed the evolution of measurement systems by promoting their use as a means of fostering an organizational culture in which constant change is seen as normal and which has a fundamental requirement for effective measures that can be promptly reviewed and which provide rapid feedback to decision makers. Their model is encapsulated by the formula EP2M: Effective Progress and Performance Measurement, and stresses the importance of measures in four areas:

- External measures customers, markets, suppliers, partners, etc.
- Internal measures efficiency and productivity of internal processes.
- Top down measures implementing the strategy.
- Bottom up measures empowering employees.

## 2.4.7 European Foundation for Quality Management (EFQM) Excellence Model:

The EFQM Excellence Model was generated in 1991 with the support of the European Organization for Quality (EOQ) and the European Commission. The EFQM Excellence Model is a non-prescriptive system, proposed to help organizations to assess their progress to excellence and continuous improvement, and is based on their eight fundamental concepts of excellence: results orientation; people development and involvement; customer focus; continuous learning, innovation and improvement; leadership and constancy of purpose; partnership development; management by process and facts; and public responsibility. These concepts are expressed and specified in nine criteria that are divided into five key implementation factors or enablers and four results in order to measure excellence (Calvo-Mora et al., 2005). Among the five enabling activities the model included: leadership, people, policy & strategy, partnership & resources and processes. The enablers drive the four sets of results: people, customer, society and key performance results. Each criterion consists of sub-criterions (totally thirty-two) that are supplemented by a list of typical areas which should be addressed. The core of the EFQM model is the RADAR methodology which is cyclical and continuous. The methodology consist of five steps: determine required results, plan and develop approaches, deploy approaches, asses and review achieved results. Thus designed model is used as a self-assessment tool, which enables a comprehensive, systematic and regular review of an organization's activities and results. The model is currently used by thousands of organizations mainly throughout Europe, such as firms, health institutions, schools, public safety services and local government institutions, among others. It provides organizations with common management terminology and tools, thus facilitating the sharing of best practices among organizations of different sectors (Ray, 2003).

### Strong points:

- Systematic and non-prescription model.
- Using of self-assessment approach in order to organization excellence.
- Strengthen the sense of quality.
- Recognition of strong and weakness points of organization.

- Consist of criteria hierarchy.
- Allow shortlist of indicators based on "Good example" of practice.
- Creating conditions for comparative analysis of business processes with external business.
- Feedback from results helps to improve enablers.

### Weak points:

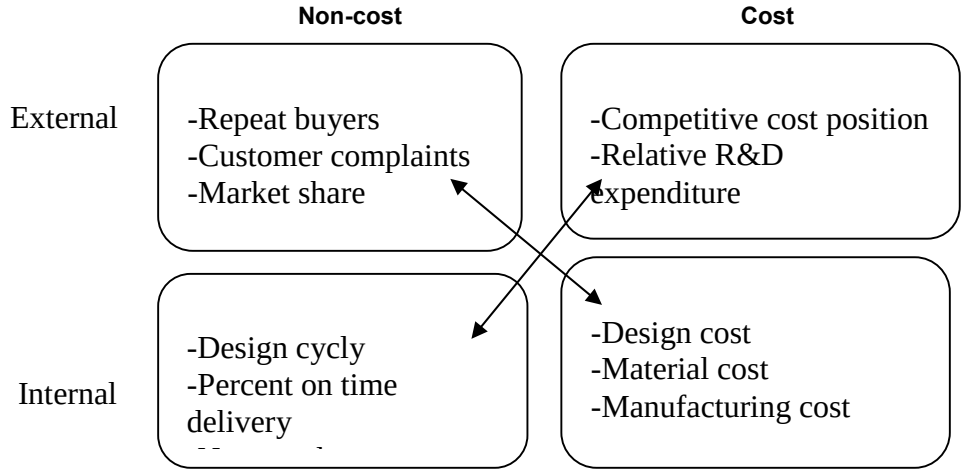
- No focus / priorities - no links.
- Criteria are not specific within the company – no possibility for differentiation.
- Is not strategic management tool (systematic setting and achieving goals) - therefore, is not instrument for strategy implementation.
- Is not suitable for enterprise communication.
- Tendency to bureaucracy.
- Did not give guide lines how to design and conduct effective performance measurement.

## 2.4.8 The Performance Measurement Matrix:

The performance measurement matrix was first-time presented in 1989 by Keegan et al. and is able to integrate different dimensions of performance, and employs generic terms such as internal, external, cost, and non-cost. The strength of the performance measurement matrix lies in the way it seeks to integrate different classes of business performance financial and non-financial, internal and external. (Neely et al., 2000) Second in order Fitzgerald et al. (1991) developed modified system of the performance measurement matrix called Results and Determinant. The Fitzgeralds alternative tries to overcome the criticism of matrix that is not as well packaged as the balanced scorecard and does not make explicit the links between the different dimensions of business performance, which is arguably one of the greatest strengths of Kaplan and Norton's balanced scorecard (Neely et al., 2000). The performance measurement matrix from Fitzgerald is based on the key assumption that there are two basic types of performance measure in any organization, those that relate to results (competitiveness, financial performance), and those that focus on the determinants of the results (quality, flexibility, resource utilization and innovation). The explanation of this distinction is that it highlights the

fact that the results obtained are a function of past business performance with regard to specific determinants, i.e. results are lagging indicators, whereas determinants are leading indicators (Neely et al., 2000).

**Figure 6: The performance measurement matrix**




Source: Keegan et al., 1989

## Strong points:

- Specifies, in reasonable detail, what the measures should look like.
- Provides a useful development process.

## Weak points:

- Does not include customers or human resources as dimensions of performance.
- Can not give a truly balanced view of performance.
- Consists of several different tools - is potentially complicated to understand and use.
- Fails to provide an explicit process for developing the PM model.

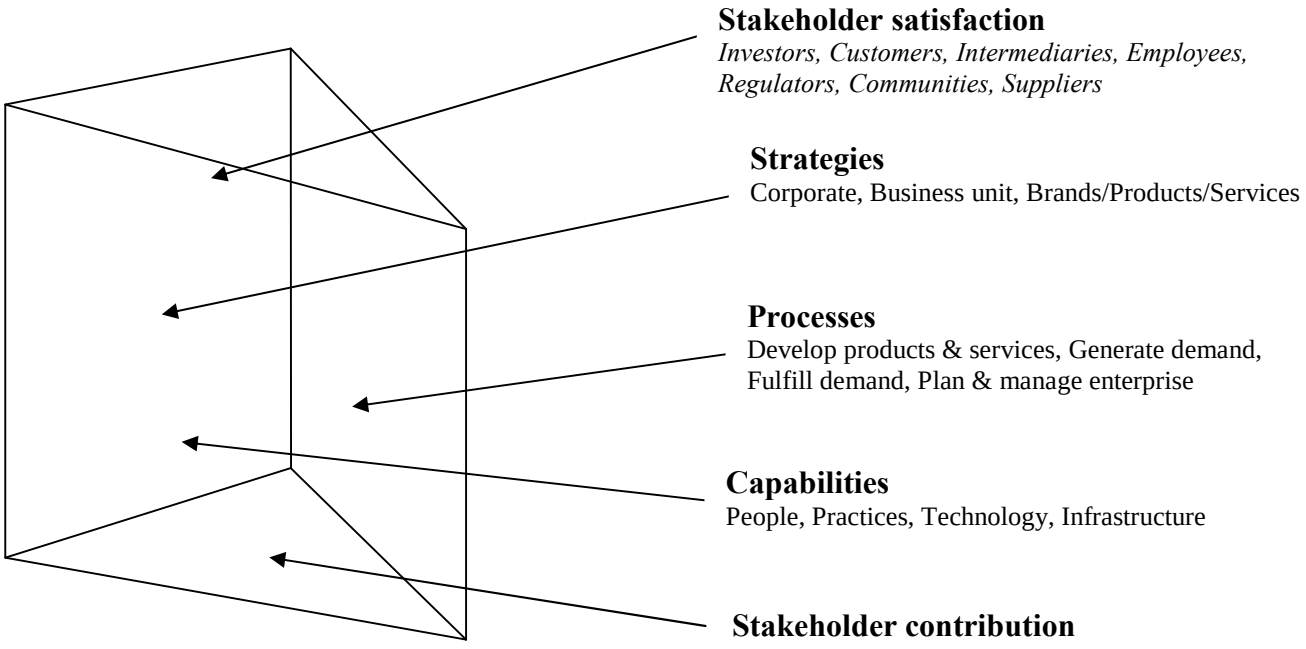
## 2.4.9 The performance prism:

The Performance Prism (PP) is one of the younger conceptual systems and is considered as a second-generation performance measurement system. This system was developed by a team of experienced researchers and consultants in performance measurement area Neely, Adams, and Kennerley (2002).

Performance prism framework describes that a performance measurement system should be organized around five distinct but linked perspectives of performance (Neely et al., 2001):

1. Stakeholder satisfaction – Who are the stakeholders and what do they want and need?
2. Strategies – What are the strategies we require to ensure the wants and needs of our stakeholders?
3. Processes – What are the processes we have to put in place in order to allow our strategies to be delivered?
4. Capabilities – What are the capabilities we require to operate our processes?
5. Stakeholder contributions – What do we want and need from stakeholders to maintain and develop those capabilities?

**Figure 7: The performance prism**




Source: Neely et al., 2001

The performance prism has a much more comprehensive view of different stakeholders (e.g. investors, customers, employees, regulators and suppliers) than other frameworks. Neely et al. (2001) argue that the common belief that performance measures should be strictly derived from strategy is incorrect. It is the wants and needs from stakeholders that first must be considered. Then, the strategies can be formulated. Thus, it is not possible to form a proper strategy before the stakeholders have been clearly identified.

The strength of this conceptual framework is that it first questions the company's existing strategy before the process of selecting measures is started. In this way, the framework ensures that the performance measures have a strong foundation to rely on. The performance prism also considers new stakeholders (such as employees, suppliers, alliance partners or intermediaries) that are usually neglected when forming performance measures. However, a problem is that the attention has been placed on the process of finding the right strategies that the development of a performance measurement system should be based on, but little concentration is given on the process of the actual design of a performance measurement system. In other words, the performance prism extends beyond performance measurement, but tells little about how the performance measures are going to be realized. "The Neely Group" has previously published many useful tools in this area and should, if possible, create a better link between such tools and the performance prism.

Another weakness, which also applies to the previously described frameworks, is that little or no consideration is given for existing performance measurement system that companies may have in place (Medori and Steeple, 2000). Notable is that this issue has even been pointed out by Neely in an earlier publication (Neely et al, 1994):

*"Business rarely wants to design PMS from scratch. Usually managers are interested in eliminating any weaknesses in their existing system"*

Medori and Steeple (2000) further state that all conceptual frameworks have their relative benefits and limitations, with the most common limitation being that little guidance is given for the actual selection and implementation of the selected measures.

### Strong points:

- Reflects new stakeholders (such as employees, suppliers, alliance partners or intermediaries) who are usually neglected when forming performance measures.
- Considers the stakeholders' contribution to performance.
- Ensures that the performance measures have a strong foundation.

### Weak points:

- Offers little about how the performance measures are going to be implemented.
- Some measures are not effective in practice.
- Short of logic among the measures, no sufficient link between the results and drivers.
- No consideration is given to the existing PMSs that companies may have in place.

## 2.4.10 Kanji Business Excellence Measurement System (KBEMS):

Kanji Business Excellence Measurement System (KBEMS) is second from younger conceptual systems. This system consists from Excellence Model (KBEM) and Kanji Business Scorecard (KBS) and is based on Critical Success Factors (CSFs), which correspond to the drivers of performance. Author's name Kanji indicates the name of the system itself. The KBEMS is formed by Part A and Part B of the Performance Measurement System and these parts should be applied simultaneously always, since they form a single and complementary view of organizational performance. KBEM is intended for the measurement of performance from the internal stakeholders' point of view, whereas the KBS evaluates the performance from the external stakeholder' perspective. Afterwards internal and external scores are incorporated to calculate the final organizational performance excellence index (OPI) that provides an aggregate measure of the organizations excellence in managing all the CSFs. Kanji's Performance Measurement Model includes ten items in *Part A* (leadership, delight the customer, customer focus, management by fact, process improvement, people-based management, people performance, continuous improvement, continuous improvement culture, performance excellence A) and five items in *Part B* (organisational values, process excellence, delight the stakeholders, performance excellence B). It follows a short description of each criterion (Kanji, 2002).

### Strong points:

- Multi-perspective view of performance, combining financial and nonfinancial measures and the assessment of different stakeholders.
- is linked to the organization's values and strategies and based on the CSFs.
- Is a generic and universal model and calculates overall indices, comparisons can be made.
- Highlights improvement opportunities and suggests some improvement strategies for the best possible use of the organization's resources.
- Can help organizations to develop.
- Cascade and implement an organization's strategy.

### Weak points:

- Is primarily designed for senior managers to provide them with an overall view of Performance.
- Does not offer explicit guidance on how to develop and implement a PM system effectively.

## 2.4.11 Theory of Constraints (TOC):

Goldratt (1990) has developed an approach named as the *Theory of Constraints (TOC)*. TOC researchers have focused on production planning and scheduling methods, but have also been involved in performance measurement. Within a system, a constraint is defined as anything that limits the system from achieving higher performance relative to its purpose. While the concept of TOC is simple, it is far from simplistic. To a large degree, the constraint/non-constraint distinction is almost totally ignored by most managerial techniques and practices (Moore and Scheinkopf, 1998). TOC offers a systematic and focused process that organizations use to successfully pursue ongoing improvement.

The TOC's "five steps of focusing" are conducted in the following way (Goldratt, 1990).

1. Identify the system's constraint.
2. Decide how to exploit the system's constraint.
3. Subordinate everything else to the above decisions.
4. Elevate the system's constraint.
5. When a constraint is broken go back to step one.

Within the TOC three global performance measures are used for assessing a business organizations ability to obtain *the goal* (i.e. making money). These global measures are net profit, ROI, and cash flow:

Net profit = T - OE

ROI= $\frac{T - OE}{I}$

Where,

T= *Throughput*: the rate which the systems generates money through sales [monetary unit]

I= *Inventory:* all the money the system invests in purchasing things the system intends to sell [monetary unit]

OE= *Operating Expense:* all the money the system spends in turning inventory into throughput [monetary unit]

These definitions can also be used to measure productivity as a ratio of throughput divided by operating expense. Studies have shown that one of the strengths of the TOC approach is that it provides focus in a world of information overload (Tangen, 2002). Another advantage is that the performance measures within TOC are both easy to access and easy to comprehend. However, TOC is far from being a complete performance measurement system. One could argue that TOC simplifies the reality little too much, since TOC assumes that there always is a legible constraint in the system, which is not necessarily true. A system is all the time exposed to several circumstances, which in turn can result in that constraints are frequently created and eliminated. Furthermore, TOC do not consider other performances than financial and its relation to company strategy (Tangen, 2004).

## Strong points:

- Provides focus in a information overload.
- Performance measures within TOC are both easy to access and easy to comprehend.

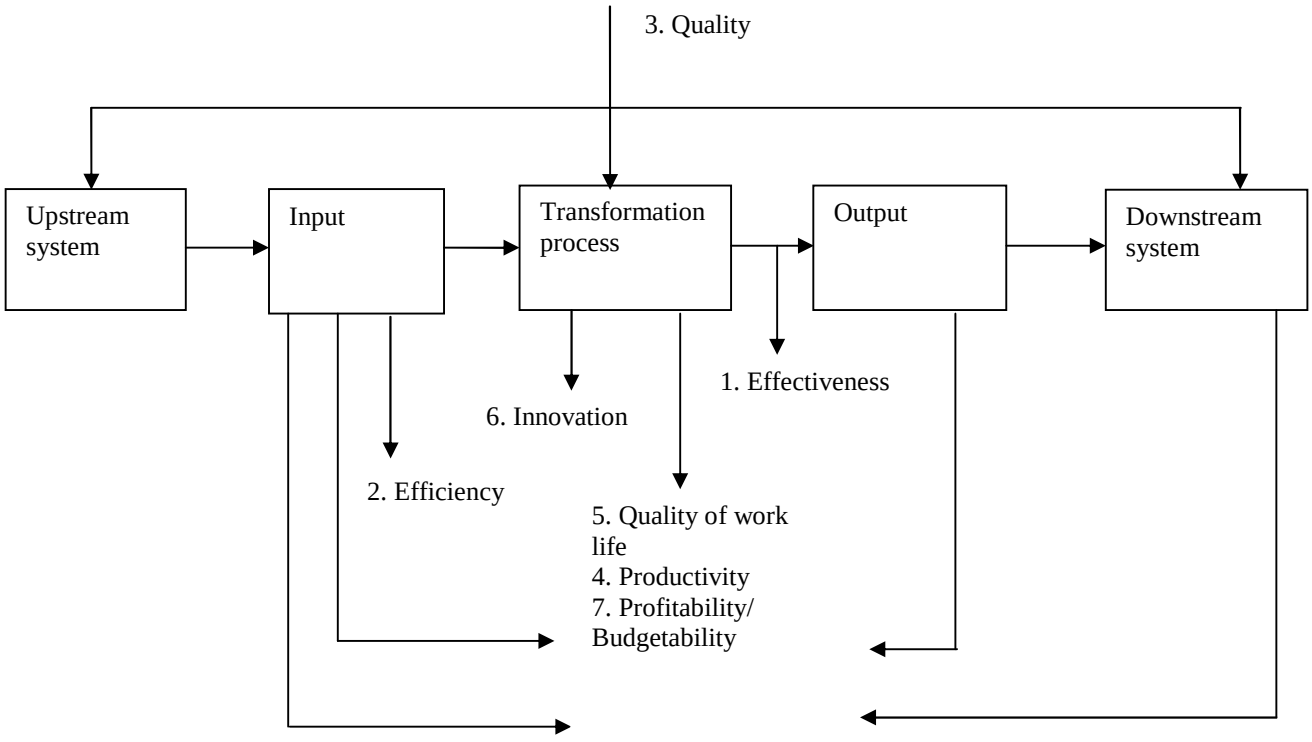
### Weak points:

- Is far from being a complete PM system.
- TOC simplifies the reality a little too far, since TOC assumes that there always is a legible constraint in the system, which is not necessarily true.

## 2.4.12 The Sink and Tuttle framework:

The Sink and Tuttle framework is a classical approach to design a performance measurement system, which claims that the performance of an organization is a complex interrelationship between seven performance criteria (Sink and Tuttle, 1989):

**Figure 8: Seven performance criteria of Sink and Tuttle framework**




Source: Sink and Tuttle, 1989

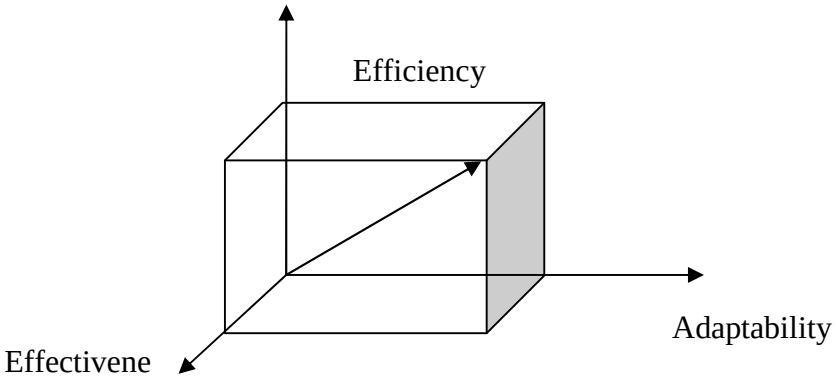
1. Effectiveness, which involves doing the right things, at the right time, with the right quality. In practice, effectiveness is expressed as a ratio of actual output to expected output.
2. Efficiency, defined as a ratio of resources expected to be consumed to resources actually consumed.
3. Quality, where quality is an extremely wide concept. To make the term more tangible, quality is measured at several checkpoints.
4. Productivity, which is defined as the traditional ratio of output to input.
5. Quality of work life, which is an essential contribution to a well performing system.
6. Innovation, which is a key element in sustaining and improving performance.
7. Profitability/budgetability, which represents the ultimate goal for any organization.

Although much has changed in the industry since this model was first introduced, these seven performance criteria are still important. However, the model has its limitations, for example it does not consider the need for flexibility that has increased during the last two decades. The model is also limited by the fact that it does not consider the customer perspective.

## 2.4.13 The TOPP performance model:

In addition to the work of Sink and Tuttle (1989), the researchers within the *TOPP project* looked at performance as integration of three dimensions: *efficiency*, *effectiveness* and *adaptability*. The first two dimensions in the TOPP performance model are the same as in the Sink and Tuttle model, while the third expresses to which extent the company is prepared for future changes.

**Figure 9: Performance model from TOPP**




Source: Rolstadås, 1998

## 2.4.14 The performance measurement questionnaire (PMQ):

Another conceptual framework that is often referred to in the performance measurement literature is the *performance measurement questionnaire (PMQ)* developed to help managers identify the improvements needs of their organisation, to determine to which extent the existing performance measurers supports improvements and to establish an agenda for performance measure improvements (Dixon et al, 1990). The result of the PMQ is evaluated in four types of analysis: alignment, congruence, consensus and confusion. The PMQ has the advantage of providing a mechanism for identifying the improvement areas of the company and their associated performance measures. However, Ghalayini et al (1997) argue that it cannot be considered as a comprehensive integrated measurement system and does not take into account continuous improvement.

## 2.5 Empirical research on performance measurement and management system throughout the world:

An essential part of performing research work is finding relevant and scientific proof in literature. Routio (2004) states that the purpose with the literature research is mainly to clarify the problem and to see what others attempts have been like. Literature review should be considered to be a mean to an end, and not an end itself. Thus, experienced investigators usually review previous research to develop sharper and more insightful questions about a topic (Yin, 1994).

A common criticism of managing organizations based on financial measures of performance is that these measures induce managers to make myopic, short-run decisions. Financial measures tend to focus on the current impacts of decisions without a clear link between short-run actions and long-run strategy (McKenzie and Schilling, 1998). Furthermore, traditional financial measures of performance may work against knowledge-based strategies by treating the enhancement of resources such as human capital, which may be critical to effecting strategy, as current expenses (Johnson, 1987). Dixon et al. (1990) argue that traditional financial measures work against strategies based on quality, flexibility, and minimization of manufacturing time. A number of studies have found evidence that traditional, financial measures of performance are most useful in conditions of relative certainty and low complexity – not the conditions faced by many organizations today (Gordon and Naranyan, 1984; Govindarajan, 1984; Govindarajan and Gupta, 1985; Abernethy and Brownell, 1997).

The increasing emphasis on the non-financial performance measures has been widely discussed in the growing body of accounting literature (Amir and Lev, 1996; Ittner and Larcker 1998; Banker, Potter and Srinivasan, 2000). Since the 1980s, authors have filled the professional and academic literature with recommendations to rely more on nonfinancial measures for both managing and evaluating organizations (Johnson and Kaplan, 1987; Berliner and Brimson, 1988; Nanni et al., 1988; Dixon et al., 1990; Rappaport, 1999).

A number of studies have sought to link specific non-financial measures to financial performance (Banker et al., 2000; Behn and Riley, 1999; Foster and Gupta, 1999; Ittner and Larcker, 1998). The Balanced Scorecard (BSC), popularized by Kaplan and Norton (1992, 1993, 1996) and adopted widely around the world, has been offered as a superior combination of non-financial and financial measures of performance. Because the Balanced Scorecard (BSC) explicitly focuses on links among business decisions and outcomes, it is intended to guide strategy development, implementation, and communication. Furthermore, a properly constructed BSC could provide reliable feedback for management control and performance evaluation. Atkinson et al. (1997) regard the BSC as one of the most significant developments in management accounting, deserving intense research attention. Many academics and executives were attracted by the works of Kaplan and Norton, and have attempted to study the BSC concept and work to perfection it on the theoretical and practical levels. Recent research by Hackett Group suggests that the balanced scorecard is becoming a widely used performance measurement tool in the USA (Kaplan and Norton, 1992). Silk (1998) highlighted that 60 percent of the U.S. *FORTUNE 500* companies implemented or are experimenting with a BSC. Data collected by the Balanced Scorecard Collaborative suggest that of the firms not currently using the Balanced Scorecard, 43% are planning to use one soon. In a survey of management techniques & tool used in 15 countries in North America, Europe, Asia, and South America, it is found that about 44% of organizations in North America utilize the BSC. The BSC gradually gained popularity in the USA, Europe, Australia, and Latin America (Janota, 2008).

Examples of BSC adopters include, in the US: KPMG Peat Marwick; FHC Corporation, Advanced Micro Devices, DHC Chemical Division, Natwest Bank, Chemical Bank, Mobil's US Marketing and Refining Division, Rockwater Engineering, Allstate Insurance, AT&T, Intel and Apple computers (Chow, Haddad and Williamson, 1997; Singh & Kumar, 2007). Kaplan and Norton (1992, 1993, and 1996) have reported their experiences in designing scorecards for a variety of US companies. Furthermore, they provide several examples of organizations that have successfully implemented customized divisional scorecards.

In the UK, the BSC adopters include: BP Chemicals; Milliken; Natwest Bank; Abbey National; and Leeds Permanent (Letza, 1996). In Australia, some organizations that have implemented the

BSC are: Hunter Health; Qantas; Nestle; University of Technology Sydney; Centrelink; the University of Newcastle, Australia (University of Newcastle, 2006); and Suncorp (Suncorp-Metway Ltd., 2006).

The application of the BSC spread among different business sectors including the banking sector. Pandy (2005) reported the results of a simulated exercise where a group of senior managers of a large bank developed a BSC made for their bank. Guided by the author, this experiment demonstrated that the achievement of strategic objectives is highly driven by the internal process improvement and that the non-financial variables surpassed the financial variables.

Harold (2006) applied the BSC to develop a comprehensive performance measurement and a management tool for the IT in the banking sector in India. The author clarified how a cascade of balanced scoreboards can be useful in the technology effectiveness of commercial banks in India to guarantee better performance management.

Huang and Lin (2006) examined the performance system of five commercial banks in China. Through investigations and evaluations of the current performance systems of the sample banks, the authors were able to design a new performance evaluation system based on the BSC.

Chwan-Yi and Lin (2009) attempted to develop an integrated framework by merging the concepts of the BSC and the Data Envelopment Analysis (DEA). An auto company and a commercial bank were selected as targets for empirical investigations. The study revealed that BSC translates the appropriate performance indices into managerial implications.

Zhang and Li (2009) believe that performance management is an important aspect of banking business management. In their study they proposed the BSC as a tool to improve the performance of commercial banks in China. The authors proposed a mechanism and a strategy for application along with the limitations of the BSC.

Ahmed et al. (2011) conducted a study in which they surveyed a sample of 27 banks in Pakistan to identify the measures that are used by the sample banks to evaluate their performance

according to the four perspectives of the BSC. The authors reported that all the banks surveyed used measures that correspond to the BSC approach to evaluate their performance, however, the significance of the measures varied among the sample studied. The research concluded that the commercial banks were following all the perspectives of the Balanced Scorecard without knowing that they were following the Balanced Scorecard.

Fakhri et al. (2011) attempted to explore the usefulness of a multi-perspective performance measures in the banking sector in Libya. Through an extensive literature review, the authors identified some performance measures and have investigated the impact of five organizational individualities on these measures. Based on a survey in a sample of 55 banks in Libya, the study reported that most banks place their emphasis on financial measures as a first step to evaluate performance, however, many of the banks surveyed tended to implement customer related measures and other non financial measures such as learning and employee growth.

B. Nimalathasan (2009) examined the key performance indicators (KPIs) of private sector banks in Srilanka. By using sophisticated statistical model like 'Exploratory Factor Analysis', he found that cash flow, return on capital employed, customer satisfaction rate, return on investment etc. were/are the major KPIs used in the Banking industry of Srilankan.

S.M. Al-Najjar and K.H. Kalaf (2012) made a study about how BSC is developed and applied in evaluating the performance of Large Local Bank (LLB) in Iraq. By using case study approach they found that return on investment, return on equity, profit margin, productivity growth, credit growth, customer satisfaction, customer growth, employee productivity, employee turnover rate etc. are the major KPIs that play significant role in the LLB in Iraq.

Zafar Ahmad et al. (2010) conducted a study to know the extent to which the Balanced Scorecard was being followed by the commercial banks in Pakistan. The study was conducted at the managers' level by taking a sample of 27 out of total 34 commercial banks of Pakistan. Their study revealed that only 16% of the respondents knew about the Balanced Scorecard and the remaining 84% knew nothing about it. Over 95% of the respondent said that their banks used

financial measures to assess their performance, at the same time 81% of the respondents stated that the financial measures were not sufficient to assess the performance of an organization.

In another study, Zafar Ahmad et al. (2011) found that return on investment, profit per employee, profit per account, number of complaints, market share, customer feedback, response time to customer, research & development expense, employee turnover, number of training etc. are the significant KPIs used by the Pakistani commercial banks.

H.H. Al-mawali et al. (2010) examined the Balanced Scorecard usage and financial performance of branches in Jordanian banking industry. The authors took 120 branches as sample out of 480 branches and the branch managers were the respondents. The result of their study showed that many branches of Jordan still focus heavily on the use of financial measures as compared to non-financial measures. They also found the positive impact of overall Balanced Scorecard usage on financial performance. They observed the most frequently used KPIs are branch profit, product profitability, return on net assets, customer satisfaction, customer acquisition & retention, staff turnover, employee satisfaction etc.

Paola Vola et al. (2007) examined the implementation of a management control system in a co-operative bank in Italy with reference to the Balanced Scorecard model suggested by Kaplan and Norton (1996, 2001). Following a case study approach, the researchers proposed some significant KPIs that include intermediation margin, average risk of the invested capital, total volumes managed per employee, number of customer per employee, operating costs etc.

Apart from the banking sector, many researchers were impressed by the BSC. Bernroider et al. (2003) attempted to use the BSC approach as a tool for strategic IT-Controlling within the context of e-Business development in two beverage producing companies in Austria. The authors followed a case study methodology where the BSC was calculated using 2.5 years data. Management of the two companies considered the results of the study as adequate for supervising the e-Business environment and the associated strategic goals.

Zaman (2004) investigated the current state of BSC use in Australian corporations. The author surveyed the top 50 Australian companies. The survey results revealed that only 33% of companies use the BSC and that 25% are planning to implement it in the future. The author argues that Australian companies are at the edge of adopting a strategic posture or intention to implement the BSC in the near future.

Yek et al. (2007) studied the use of the BSC as a strategic management system to improve the performance quality of the Vocational Educational and Training (VET) in Singapore. This work attempted to explore and improve the understanding of quality and performance using the BSC approach. The authors claim that the BSC can be adopted as an effective quality and performance management system in a VET institution with appropriate adaptations.

Greiling (2010) performed an explorative empirical study on a sample of 20 non-profit organizations in the social services sector in Germany. The purpose of the study was to investigate the BSC's implementation in terms of implementation levels, perspectives, challenges and impediments, etc. The author reported that the BSC was still used as a measurement instrument and not as a management tool in the organizations studied.

Al Sawalqa et al. (2011) analyzed the implementation state of the balanced scorecard among industrial companies in Jordan. The authors surveyed 168 companies to obtain an insight on the level of BSC implementation. The study showed that 35.1% of the surveyed companies applied BSC, while 30% were considering or implementing the BSC approach.

In a study conducted by Kollberg and Elg (2010), the authors attempted to identify the major characteristics of the BSC application in health care organizations in Sweden. The authors used a case study approach where they focused on different managerial levels in a hierarchical branch in three health care organizations that used the BSC. The analysis revealed that the BSC is used as a tool for enhancing internal capabilities and organizational development. More specifically, the authors reported that management and employees used the BSC as a tool in discussions, information diffusion, and knowledge creation.

Anand, Sahay and Saha (2005) conducted a questionnaire based survey to capture the issues in the design and applications of the performance scorecard in Indian companies. They selected 75 most valuable diversified companies to make a fair representation of corporate India. They observed that return on investment, cash flow return on investment, market share, percentage of sales from new product, customer satisfaction, on time delivery, unit cost, number of defect per million etc. are the KPIs those are considered significant by the Indian companies.

Amir and Lev (1996) examined the value-relevance of non-financial information in the wireless communication industries. In their study, Amir and Lev employed earnings, book values, and cash flows to represent financial information, while population size as a growth proxy and market penetration embodied the non-financial indicators. They found that financial information *alone* is largely irrelevant for the valuation of cellular companies. However, when combined with non-financial information, and after adjustments are made for the excessive expensing of intangibles, some of these variables do contribute to the explanation of stock prices. They concluded that their finding demonstrates the complementarily between financial and non-financial information, although the value-relevance of non-financial information in the cellular industry overwhelms that of traditional financial indicators.

Using cross-sectional latent variable regression analysis of data from 317 firms for the year 1993-1994 in the Lexis/Nexis database, Ittner et al. (1997) found that firms pursuing an innovation-orientated prospector strategy tend to place relatively greater weight on non-financial performance in their annual bonus contracts. Similarly, firms following a quality orientated strategy place relatively more weight on non-financial performance. In a further study Ittner and Larcker (1998), using customer and business-unit data, found modest support for claims that customer satisfaction measures are leading indicators of customer purchase behavior (retention, revenue, and revenue growth).

Banker et al. (2000) investigated the relationship between non-financial measures and financial performance and the performance impacts of incorporating nonfinancial measures in incentives contracts. In their study, Banker et al. (2000) used consumer satisfaction as the non-financial performance measure, while employing operating profit and its various components to proxy

financial performance measures. Their result suggests that at the research site, nonfinancial measures of customer satisfaction help predict future financial performance.

A study by Said, HassabElnaby and Wier (2003) investigated the performance consequences of the implementation of non-financial performance measures. Using panel data (derived from Lexis/Nexis database), covering the period 1993-1998, they compared the performance of a sample of firms that used both financial and non-financial measures (1,441 firm-year observations) to a matched sample of firms that based their performance measurement solely on financial measures (1,441 firm-year observations). The intention of Said et al. (2003) was to examine the implications of non-financial performance measures included in compensation contracts on current and future performance. Their empirical evidence suggests that non-financial measures are significantly associated with future accounting-based and market-based returns. These results are consistent with previous studies that show nonfinancial performance measures are associated with subsequent firm economic performance (Banker et al., 2000).

Based on the sample of 91 firms examined in Said et al. (2003) that used non-financial performance measures during the period 1993-1998, HassabElnaby et al. (2005) found that firms performed significantly better when they retained their non-financial measures.

Figg (2000) said that many of the world's leading organizations had got benefits out of Balanced Scorecard approach by using appropriate measure. Ho and McKay (2002) said that Balanced Scorecard was a comprehensive measure and showed that ABC Manufacturing Company was successfully using a Balanced Scorecard with very simple and easy measures. Lincoln (2008) in a news report stated that within a period of three years, the organization not using the Balanced Scorecard was left behind by the organizations using it.

Thus Balanced Scorecard can be considered to be the best management tool to enhance the shareholders' wealth.

## 2.6 Empirical evidence of performance measurement & management system in Bangladesh:

In Bangladesh very few researches have been carried out regarding performance measurement and management system in the banking sector.

M. M. Ahamed (2012) in his article "Market Structure and Performance of Bangladesh Banking Industry: A Panel Data Analysis" examined the degree of concentration and performance of the Bangladesh banking industry for the period 1999-2011. He revealed that the profitability of Bangladesh banking market is determined by concentration and not by the market share of banks. The study also showed positive association with Bank performance and capitalization, liquidity & assets size of the banks. He also found that government-owned banks are less profitable than other commercial banks in the market.

B. Nimalathasan (2008) initiated a Comparative Study of Financial Performance of Banking Sector in Bangladesh using CAMELS rating system of 48 Banks in Bangladesh from Financial year 1999-2006. CAMELS rating system basically a quantitative technique, is widely used for measuring performance of banks in Bangladesh. Accordingly CAMELS rating system shows that 3 banks was 01 or Strong, 31 banks were rated 02 or satisfactory, rating of 07 banks was 03 or Fair, 5 banks were rated 4 or Marginal and 2 banks got 05 or unsatisfactorily rating.

S.J. Rayhan et al. (2011) made a study on performance evaluation and competitive analysis of state owned commercial banks in Bangladesh. Secondary data was used for the research. The study reveals all the state owned commercial banks in Bangladesh are not able to achieve a stable growth, net profit, earning per Share, return on equity, return on assets, net asset value per share but they are capable to achieve a stable growth of deposit, loan and advances, equity. It is also observed that all the of state owned commercial banks have high non performing loan/classified loan and percentage of classified loan to total loan is very high. Positive growth was found in deposit, assets and expense while negative trend was found in number of employees. In case of non performing loan and percentage of classified loan positive trend was found in Sonali Bank

Limited and Rupali Bank Limited while negative trend was in Janata Bank Limited and Agrani Bank Limited.

Chowdhury (2002) observed that the banking industry of Bangladesh is a mixed one comprising nationalized, private and foreign commercial banks. According to him, understanding the performance of banks requires knowledge about the profitability and the relationships between variables like market size, bank's risk and bank's market size with profitability. Indeed, the performance evaluation of commercial banks is especially important today because of the fierce competition. The banking industry is experiencing major transition for the last two decades. It is becoming imperative for banks to endure the pressure arising from both internal and external factors and prove to be profitable.

T. A. Chowdhury and K. Ahmed (2009) carried out a research to evaluate the performance of selected private commercial banks of Bangladesh. The selected banks were Dutch Bangla Bank (DBBL), Dhaka Bank Ltd. (DBL), National Bank Ltd. (NBL), Prime Bank and Islami Bank Bangladesh Limited (IBBL). This study has been based mainly on data from secondary sources. It is observed that all the selected private commercial banks are able to achieve a stable growth of branches, employees, deposits, loans and advances, net income, earnings per share during the period of 2002-2006. Seven trend equations have been tested for different activities of the private commercial banks. Among them the trend value of branches, employees, deposits and net income are positive incase of all the selected banks.

Md. Zakir Hossain et al. (2012) tried to identify the financial performance of Janata bank Limited which is a state owned bank. The study period is 2001-2010. Researcher used different ratios and statistical tools to measure the financial position of the bank. Maximum results (profitability ratio, productivity ratio, spread ratio etc) of the study are positive.

M.H.Z. Khan et al. (2011) in this research paper "The use of multiple performance measures and the balanced scorecard (BSC) in Bangladeshi firms: An empirical investigation" examined the use of financial & non-financial measures and the balanced scorecard (BSC) in Bangladeshi companies; the reasons for BSC adoption; and associated problems. Data were obtained through

questionnaires from the chief accounting and finance officers of a cross section of 60 Bangladeshi companies listed on the Dhaka Stock Exchange. The results indicate that financial measures are more widely used, but that 78.4% of companies use some non-financial indicators. Further, the exercise of a full BSC is limited to only 10 per cent of the sample. The results also show that companies adopt these frameworks to aid decision making, and the problems associated with the adoption of BSC include a cost-benefit perspective and a lack of management support.

M.H.Z. Khan et al. (2010) in their research paper "Empirical study of the underlying theoretical hypotheses in the Balanced Scorecard (BSC) model: Further evidence from Bangladesh" examined the impact of Balanced Scorecard adoption on the financial performance of the organization. The study focused on leading manufacturing and service companies based in Bangladesh and involved a structured questionnaire supported by financial data extracted from financial reports over three years. The researchers found that the BSC perspectives are positively correlated with each other at a statistically significant level. They also found that the companies those have greater ROE and ROA also emphasize on learning and growth perspective. The research revealed that the Bangladeshi companies can improve their financial performance by applying BSC model in their organization.

M.H.Z. Khan and M.C. Dyball (2012) further investigated the factors that influence the use of multi-dimensional performance measures (MPM) in Bangladeshi banks and to examine the effect of the use of MPM on organizational performance. They observed that the influence of the central bank, fierce competition, technological innovation and pressure from peer banks are the institutional factors that are associated with the use of MPM in Bangladeshi banks. Their study also found the positive association between multi-dimensional performance measures and improved financial performance.

M.S.H. Khandoker et al. (2013) examined the determinants of profitability of non bank financial institutions in Bangladesh. They found that Total Asset, Term Deposit, Operating Revenue, Operating Expense significantly influence the Profitability of Non Banking sector in Bangladesh.

K.K. Purohit and B.C. Mazumder (2006) in their theoretical study "Performance Measurement of Banks: An Application of Balanced Scorecard" stated that the performance measurement of a bank under traditional measures including CAMEL rating technique covers only the financial ratios (quantitative factors) but under BSC technique it covers both quantitative (financial ratios) and qualitative (customer, internal business and innovation and learning aspects) factors. Customers' satisfaction, implementation of credit policy, fund management, human resource development, technological involvement, product diversification etc. are equally important with the financial activities to measure the performance of a bank. So the researchers suggested that the concept of CAMEL rating for performance evaluation of a bank can be widened by incorporating the long-term perspective of performance evaluation of Balanced Scorecard.

A.A. Mahmud and M.M. Islam (2010) examined the performance of conventional and Islamic banking system operation in Bangladesh. They analyzed some most commonly used measures such as general business measures, profitability ratios management soundness, social profitability measures. The found that in spite of a few exceptions, the overall performance of Islamic banks was better than the conventional banks.

Sarker and Saha (2011) investigated the performance indicators of banking activities of Bangladesh through highlighting their profitability, productivity and SWOT mix. The study was based on secondary data collected from Government & nongovernment publications for a period of 10 years i.e. 2000-2009. The findings of the study reveal the wide fluctuation in interest rates, recovery rates, stuck-up advances, cost of fund, profitability, productivity, earning rates etc. Although the selected banks had the increasing trends in some dimensions, yet, the average situation deteriorated during the study period.

M.N.U. Bhuiyan and M.H. Masum (2010) in the research paper "BALANCED SCORECARD:
A Multi-stream Performance Measurement tool for Public Sector Corporations in Bangladesh" found that the BSC can be applicable to the Public Sector Corporations (PSC) in Bangladesh. Like the original BSC, their proposed PSC-BSC incorporates both financial and nonfinancial as well as both lag and lead performance measures. In addition, another extra perspective is suggested for the public sector corporations named as non-market perspective.

From the above prior research, it is observed that the performance measurement and management system of the banking sector of Bangladesh is done basically from the financial accounting perspective those are based on annual report. Some researchers attempted to compare the financial position of one bank with other, or some researchers compared the financial position of state owned banks with private banks. Few researchers tried to assess the performance of banks based on CAMEL rating. But no systematic research is done regarding performance measurement and management system in the banking sector in Bangladesh to provide comprehensive performance measurement criteria. In this research, I will try to provide holistic performance measurement criteria based on management accounting perspective through Balanced Scorecard framework. This study will explore the key performance indicators (KPI) those are significant driver of performance measurement in the banking sector in Bangladesh.

# Chapter 3: Research Method

## 3.1 Introduction:

The chapter is organized as follows. First, the Population and Sample method is discussed. Second, the Research Method is outlined. Third, development of the questionnaire is explained. Fourth, the Respondents of the study and Administration of the survey is narrated. Fifth, the Measurement of variables is described. Sixth, Validity and Reliability of the Scale is justified.

## 3.2 The Population and Sample:

The population for the study is the entire banking industry of Bangladesh, which includes State Owned Commercial Banks (No. 4), Conventional Private Commercial Banks (No. 28), Islami Shariah based Private Commercial Banks (No. 7), Foreign Commercial Banks (No. 9) and Specialized Banks (No. 4) . The list of all scheduled banks is shown in the Appendix-1. A stratified random sampling technique is used to select the sample banks (B. Nimalathasan, 2009). There are few reasons of using stratified random sampling in this study. According to Cooper and Schindler (2006) 'Stratification is usually more efficient statistically than simple random sampling. With the ideal stratification, each stratum is homogeneous internally and heterogeneous with other strata. This might occur in a sample that includes member of several distinct ethnic groups. In this instance, stratification makes a pronounced improvement in statistical efficiency'. In this study, the ownership and other operational characteristics among the various types of banks are significantly different and there is homogeneity within a group. So stratified sampling is the most suitable method here. The sample of this study comprises 2 State Owned Commercial Banks out of 4; 15 Conventional Private Commercial Banks out of 29; 4 Islami Shariah based Private Commercial Banks out of 8; 4 Foreign Commercial Banks out of 9 and 1 Specialized Banks out of 4. So the total number of sample is 26 that can be said almost 50% of the total population.

The sample banks for this study are as follows:

**Table 5: The sample banks**

| **Ownership & Type of the bank** | **Name of the banks** | |
|---|---|---|
| State Owned Commercial Banks 2 | 1. | Sonali Bank Limited |
| | 2. | Agrani Bank Limited |
| | | |
| Conventional Private Commercial Banks | 1. | Dutch Bangla Bank Limited |
| | 2. | Trust Bank Limited |
| | 3. | United Commercial Bank Limited |
| | 4. | Southeast Bank Limited |
| | 5. | Bank Asia Limited |
| | 6. | AB Bank Limited |
| | 7. | Pubali Bank Limited |
| | 8. | National Bank Limited |
| | 9. | Mercantile Bank Limited |
| | 10. | Mutual Trust Bank Limited |
| | 11. | Uttara Bank Limited |
| | 12. | The Premier Bank Limited |
| | 13. | The City Bank Limited |
| | 14. | BRAC Bank Limited |
| | 15. | Eastern Bank Limited |
| | | |
| Islami Shariah based Private Commercial Banks | 1. | Islami Bank of Bangladesh Limited |
| | 2. | Shahjalal Islami Bank Limited |
| | 3. | Export Import Bank of Bangladesh Limited |
| | 4. | Al-Arafah Islami Bank Limited |
| | | |
| Foreign Commercial Banks | 1. | Citibank NA |
| | 2. | HSBC |
| | 3. | Bank Alfalah |
| | 4. | Standard Chartered Bank |
| | | |
| Specialized Banks | 1. | BASIC Bank Limited (Bangladesh Small Industries and Commerce Bank Limited) |

## 3.3 The Research Method:

In this study, I have used the survey method to collect data. In social science research, the most commonly used methods to examine the characteristics and interrelationship among the variables are the survey method (Robert, 1999; Nazari, Kline and Herremans, 2006).

Some of the previous researchers used experimental research design in the field of performance measurement and Balanced Scorecard (BSC) research (Lipe and Salterio, 2000, 2002; Libby et al., 2004; Roberts et al., 2004; Banker et al., 2004; Dilla and Steinbart, 2005). In those experimental researches, the participants acted as if they were managers in the performance evaluation process. The results could be different if the actual managers & top officials would involve in those research. Hence, this study will use a survey research method by explicitly incorporating top management involvement.

Many researchers have used survey method in performance measurement and the multiple performance measure usage research (Al-mawali, Zainuddin and Ali, 2010; Jusoh, Ibrahim and Zainuddin, 2008; Maiga and Jacobs, 2003; Hoque and James; 2000). Other researchers used survey method in their researche like- performance measurement with budgeting, managers' perceptions, managers' participation, etc. It has many advantages such as being a cost-effective manner of collecting a large quantity of data while avoiding interviewer bias (Roberts, 1999). Nazari et al. (2006) state, there are several underlying assumptions in survey research using self-report of attitudes, values, beliefs, opinions and/or intentions. So, survey method is appropriate for this study.

Moreover, in this research, I have used mixed method of research. The mixed method is qualitative-quantitative in nature. At first, qualitative information is collected, after that those qualitative data is transformed into quantitative information.

## 3.4 Development of the Questionnaire:

The usage of multiple performance measures is common in any organization. So it is expected that the banks possibly use some elements of Balanced Scorecard (BSC) measures either knowingly or unknowingly, either wholly or partially or customize the measures according to their needs. For those firms that do not adopt BSC either wholly or partially, the usage of Key Performance Indicators (KPIs) is common which may contain some elements of BSC measures. Therefore, in the questionnaire, banks are asked about their usage of performance measures (KPIs), which are commonly used in the banking sector in Bangladesh.

The questionnaire is comprised of four sections: First section is the introduction regarding the intention of the research which is addressed to the respondent so that respondent may know about the motive of this research. Second section contains the demographic profile of the respondents. Third section is the core part which asks the respondents about the extent of usage of the selected Key Performance Indicators (KPIs) in their banks; here KPIs are grouped under the four perspectives of Balanced Scorecard (BSC). The procedure of selecting the KPIs is discussed in the *sub-section 3.6 measurement of variables*.

Respondents are asked which performance measures or KPIs they use, they are also asked how often they used the measure with five response choices: always, frequently, sometimes, rarely, and never (a sample questionnaire is presented in Appendix 2.)

Most questions regarding the relative usages of measures are based on the five-point Likert type scale. In this study, the Likert scaling technique is adopted to capture the responses of the variables being investigated (Collis & Hussey, 2003; Hayes, 1998; Sekaran, 1983). Sekaran (1992) and Zikmund (1997) suggest that the Likert scale is suitable for use as an attitudinal scale. According to Hayes (1998), for effective differentiation among responses of respondents, a five-point scale is essential. Therefore, all the constructs in the questionnaire adopted a five point Likert-type scale.

Last of all, clarity of questions is important. Language is kept as simple as possible; instructions are carefully worded so that the respondents may easily understand the questionnaire without any ambiguity.

## 3.5 Respondents of the study and Administration of the survey:

I have collected data from four different managers and responsible senior officers of each sample bank. For the study purpose, I have collected data from the management of head office and 3 branches of each bank. The targeted respondents of the survey are the top management of head office, & senior officials who involve in the design and evaluation in the performance measurement and management process of their banks. Therefore, we have requested them to participate in the survey. After taking their prior consent, the questionnaires were later hand-delivered to the top management of head office, branch managers, and other responsible officers. Data was collected through self-administered questionnaires, but in some cases, because of conceptual ambiguity of the respondents personal assistance is provided through physical meeting and telephone call.

At first, we sent six questionnaires to the top management, branch managers and other officials of each sample bank. But we did not get all the questionnaires back from the respondents. We received almost four usable questionnaires from each of our sample bank. Therefore, the overall usable questionnaires are 89 from all the respondents (from 26 sample banks). The response rate is almost 57% which is moderately satisfactory.

**Table 5.1: The demographic characteristics of respondents:**

| **Gender** | | |
|---|---|---|
| | Frequency | Percent |
| Female | 15 | 16.9 |
| Male | 74 | 83.1 |
| Total | 89 | 100.0 |
| **Age** | | |
| | Frequency | Percent |
| 25-30 | 10 | 11.2 |
| 31-35 | 20 | 22.5 |
| 36-40 | 17 | 19.1 |
| 41-45 | 17 | 19.1 |
| 46-50 | 7 | 7.9 |
| 51-55 | 12 | 13.5 |
| 56-60 | 3 | 3.4 |
| 60 above | 3 | 3.4 |

| **Experience** | | |
|---|---|---|
| | Frequency | Percent |
| 1-5 | 17 | 19.1 |
| 6-10 | 18 | 20.2 |
| 11-15 | 15 | 16.9 |
| 16-20 | 15 | 16.9 |
| 21-25 | 11 | 12.4 |
| 26-30 | 6 | 6.7 |
| 30 above | 7 | 7.9 |
| **Education** | | |
| | Frequency | Percent |
| Graduate with business background | 7 | 7.9 |
| Graduate with non business background | 5 | 5.6 |
| Post graduate with business background | 50 | 56.2 |
| Post graduate with non business background | 16 | 18.0 |
| M. Phil/PhD | 1 | 1.1 |
| Professional qualification | 10 | 11.2 |

## 3.6 Measurement of variables:

### 3.6.1 Independent variable:

In this research, independent variables indicate the multiple performance measures usages. Using the Balanced Scorecard (BSC) framework, a total of 51 performance measures representing financial and non-financial measures (KPIs) are identified (see Table- 6). Most of the performance measures or KPIs are developed from the previous study of Hoque et al. (2000), which are originally adopted from Kaplan and Norton (1992), and the remaining items are constructed from the literature. Besides previous studies and literature, a focus group discussion (FGD) is made. Three academicians and three top managers of different banks had agreed to participate in the Focus Group Discussion. From the FGD, I removed few less weighted performance measures (or KPIs) and added few significant KPIs which are commonly used in the banking sector today. A five point Likert scale ranging from 1 (never) to 5 (always) is used to

assess the extent to which a bank uses each performance measure or KPIs. Finally, I have selected 51 KPIs from literature review and FGD those are shown in the following table:

**Table 6: Performance measures or KPIs selected from literature and Focus Group Discussion (FGD)**

| Performance measures or KPIs | References |
|---|---|
| Return on investment (ROI) | Hoque & James (2000); Kaplan & Norton (1992); Jusoh, Ibrahim & Zainuddin (2008); Magia & Jacobs (2003); B. Nimalathasan (2009); Z. Ahmed et al. (2011); S.M. Al-Najjar et al. (2012); M. Anand et al. (2005); H.Y. Wu (2012); |
| Return on equity (ROE) | B. Nimalathasan (2009); S.M. Al-Najjar et al. (2012); |
| Net interest margin (Net interest income) | Paola Vola et al. (2009); |
| Economic value added (EVA) | Jusoh, Ibrahim & Zainuddin (2008); M. Anand et al. (2005); |
| Cash flow | Jusoh, Ibrahim & Zainuddin (2008); B. Nimalathasan (2009); |
| Net operating income | Hoque & James (2000); Kaplan & Norton (1992); Jusoh, Ibrahim & Zainuddin (2008); Magia & Jacobs (2003); S.M. Al-Najjar et al. (2012); Paola Vola et al. (2007); H.Y. Wu (2012); |
| Price- earnings ratio (P/E ratio) | Z. Ahmad et al. (2011); |
| Capital adequacy | From Focus Group Discussion (FGD) |
| Liquidity (Liquidity ratio) | S.M. Al-Najjar et al. (2012); |
| Leverage ratio | S.M. Al-Najjar et al. (2012); |
| Non interest income | From Focus Group Discussion (FGD) |
| Profitability of each branch | H.H. Al-mawali et al. (2010); |
| Profit per customer | Z. Ahmad et al. (2011); H.Y. Wu (2012); |
| Profit per employee | Z. Ahmad et al. (2011); M. Anand et al. (2005); Paola Vola et al. (2009); |
| Product profitability | H.H. Al-mawali et al. (2010); |
| Revenue growth | Hoque & James (2000); Kaplan & Norton (1992); Jusoh, Ibrahim & Zainuddin (2008); Magia & Jacobs (2003); Z. Ahmad et al. (2011); |
| EPS growth | H.Y. Wu (2012); |
| Comparison between standard cost with actual cost | Z. Ahmad et al. (2011); |
| Market share | Hoque & James (2000); Kaplan & Norton (1992); Jusoh, Ibrahim & Zainuddin (2008); Magia & Jacobs (2003); Z. Ahmad et al. (2011); M. Anand et al. (2005); H.Y. Wu (2012); |
| Total number of customer per branch | From FGD |
| Customer satisfaction | Hoque & James (2000); Kaplan & Norton (1992); Jusoh, Ibrahim & Zainuddin (2008); Magia & Jacobs (2003); H.H. Al-mawali et al. (2010); B. Nimalathasan (2009); S.M. Al-Najjar et al. (2012); M. Anand et al. (2005); H.Y. Wu (2012); |
| Number of complaints from customer | Hoque & James (2000); Kaplan & Norton (1992); Jusoh, Ibrahim & Zainuddin (2008); Magia & Jacobs (2003); H.H. Al-mawali et al. (2010); Z. Ahmad et al. (2011); H.Y. Wu (2012); |
| Customer growth | Z. Ahmad et al. (2011); S.M. Al-Najjar et al. (2012); M. Anand et |

| | |
|---|---|
| | al. (2005); Paola Vola et al. (2009); H.Y. Wu (2012); |
| Average length of time of an account | Z. Ahmad et al. (2011); |
| Customer retention | H.H. Al-mawali et al. (2010); B. Nimalathasan (2009); Paola Vola et al. (2009); H.Y. Wu (2012); |
| Customer feedback/suggestion | Z. Ahmad et al. (2011); M. Anand et al. (2005); H.Y. Wu (2012); |
| Non-performing loan (Default loan) | From FGD |
| Properly risk identification | From FGD |
| Efficiency in credit proposal processing | From FGD |
| Maintain desired level of loans and advance | From FGD |
| On time service | Hoque & James (2000); Kaplan & Norton (1992); Jusoh, Ibrahim & Zainuddin (2008); Magia & Jacobs (2003); Z. Ahmad et al. (2011); M. Anand et al. (2005); |
| Advertising expense | From FGD |
| Cost of branches | H.H. Al-mawali et al. (2010); |
| Cost of service quality maintenance | From FGD |
| Number of branches within a geographical area | From FGD |
| Process innovation | From FGD |
| Number of error in activities of employee | From FGD |
| Percentage of process covered by IT | Z. Ahmad et al. (2011); S.M. Al-Najjar et al. (2012); |
| Cost to develop new product | From FGD |
| Employee satisfaction | Hoque & James (2000); Kaplan & Norton (1992); Jusoh, Ibrahim & Zainuddin (2008); Magia & Jacobs (2003); H.H. Al-mawali et al. (2010); Hung-Yi Wu (2012); |
| Efficiency & productivity of employee | H.H. Al-mawali et al. (2010); S.M. Al-Najjar et al. (2012); Paola Vola et al. (2009); |
| Contribution of employee in the development of the organization | From FGD |
| Relation with customer & branch employee | From FGD |
| Loyalty and discipline | From FGD |
| Education level & training skill up gradation | Jusoh, Ibrahim & Zainuddin (2008); H.H. Al-mawali et al. (2010); Z. Ahmad et al. (2011); S.M. Al-Najjar et al. (2012); M. Anand et al. (2005); H.Y. Wu (2012); |
| Employee turnover | H.H. Al-mawali et al. (2010); B. Nimalathasan (2009); Z. Ahmad et al. (2011); S.M. Al-Najjar et al. (2012); |
| Update with new software & technology | Z. Ahmad et al. (2011); |
| Research & Development expense | Z. Ahmad et al. (2011); |
| Employee suggestions | Z. Ahmad et al. (2011); M. Anand et al. (2005); |
| Growth of bank branches | Z. Ahmad et al. (2011); S.M. Al-Najjar et al. (2012); |
| No. of new product | Hoque & James (2000); Kaplan & Norton (1992); Jusoh, Ibrahim & Zainuddin (2008); Magia & Jacobs (2003); H.H. Al-mawali et al. (2010); Z. Ahmad et al. (2011); M. Anand et al. (2005); Paola Vola et al. (2009); H.Y. Wu (2012); |

### 3.6.2 Dependent variable:

Dependent variable indicates the firm performance. Firm performance is measured by a self-rating scale using 12 indicators taken from Mia and Clarke (1999) and Govindarajan (1984). The 12 indicators are: productivity, cost, quality, on time service delivery, market share, sales growth rate, operating profit, cash flow from operation, return on investment, new product development, R&D activity, and personnel (employee) development. The scale represents a multiple indicators approach in assessing performance where it incorporates all aspects of quantitative, qualitative, financial and non-financial performance (Mia and Clarke, 1999). Respondents are asked to indicate the changes in the performance in the last three years of their respective banks using the above 12 performance indicators on a scale from 1 = decreased tremendously to 5 = increased tremendously. The performance represented the recent improvements in actual firm performance as perceived by the respondents. Thus, a weighted average performance index is obtained for each bank.

## 3.7 Validity and Reliability of the Scale:

### 3.7.1 Validity:

Validity or construct validity is the extent to which the constructs of theoretical interest are successfully operationalised in the research in terms of how it incorporates both the extent to which the constructs are measured reliably and whether the measure used captured the construct of interest (Abernethy, Chua, Luckett and Selto, 1999). A thorough understanding of what is to be measured and then deciding an appropriate and precise instrument to measure is the most important way to ensure validity (Hair et al., 2006).

Regarding validity, a research instrument with small modifications from the model developed by Kaplan & Norton (1992) is used. In this research, the variables or the multiple performance measures (KPIs) those are used in the questionnaire are quite appropriate, because many researchers used those variables to measure performance (Kaplan & Norton, 1992; Hoque &

James, 2000; Ittner & Larcker, 1997). The use of prior research instruments can increase the reliability of the data (Hair et al., 2006). Hence the researcher is satisfied with the content validity.

## 3.7.2 Reliability:

Reliability, on the other hand, is the degree to which the observed variable measures the "true" value. The more reliable measure will show greater consistency than a less reliable measure when the measure is used repeatedly (Hair et al., 2006). Therefore, to increase the validity & reliability, and thus minimize the measurement error, certain procedures (e.g., development and administration of the questionnaires) should be considered by the researcher.

There are several different reliability coefficients (Coakes and Steed, 2007). Considerable debate centers about which of the reliability indicators is the best (Baron and Kenny, 1986). However, Cronbach's alpha is the one that is most commonly used (Malhotra, 2000; Cronbach, 1951; Hair et al., 2006). Hair et al. (2006) suggests that the rule of thumb for a good reliability estimate is 0.7 or higher. A reliability estimate of between 0.6 and 0.7 may be acceptable if other indicators of model construct validity are good. Furthermore, Hair et al. (2006) note that high construct reliability values indicate the existence of internal consistency. This means that the measures all consistently represent the same latent construct. Table 7 shows the results of Cronbach alpha of performance measures or KPIs under financial perspective, customer perspective, internal business process perspective and learning & growth perspective.

**Table 7: Reliability Analysis**

| Performance measures | Cronbach alpha |
|---|---|
| Financial perspective | 0.81 |
| Customer perspective | 0.70 |
| Internal business process perspective | 0.79 |
| Learning & growth perspective | 0.90 |
| Overall | 0.92 |

In the present study, we find that the overall value of Cronbach alpha coefficient is 0.92 and the values of all four perspectives are 0.70 or above (please, see Appendix-3). If we compare our reliability value with the standard value alpha of 0.6 as advocated by Cronbach (1951), Nunnally & Bernstein (1994) and Bagozzi & Yi's (1988), we find that the scales used in this study are highly reliable for data analysis.

# Chapter 4: Empirical analysis and discussion

## 4.1 Introduction:

In this chapter, at first I discuss about the descriptive statistics regarding the usages of multiple performance measures or KPIs. Secondly, I have ranked 51 performance measurement variables or KPIs on the basis of mean. Thirdly, I have carried out factor analysis to indentify the significant KPIs or performance measurement variables those are used by the banking sector in Bangladesh. Fourthly, multiple regression analysis is conducted to examine which perspective of Balanced Scorecard has the significant impact on performance of banks. Sixthly, I have also examined the impact of overall Balanced Scorecard usage on the performance of the banks.

## 4.2 Descriptive statistics of multiple performance measures or Key Performance indicators (KPIs) used by the banks:

One of the objectives of the study is to determine the extent of usage of multiple performance measures those are used by the banking sector in Bangladesh which are then correlated under Balanced Scorecard framework. Table-8 provides the usages frequency of all 51 performance measures those were asked to respondents on the scale ranging from 1 (never) to 5 (always). When I asked the respondents to state their perceptions regarding these KPIs, I did not tell them about the Balanced Scorecard. After getting these responses, I made a links with those responses with Balanced Scorecard framework.

**Table 8: Usage frequencies of multiple performance measures**

| Performance measures or KPIs | Frequency of usages of performance measures | | | | |
|---|---|---|---|---|---|
| | **Never 1** | **Rarely 2** | **Sometimes 3** | **Frequently 4** | **Always 5** |
| Return on investment (ROI) | | | 6 | 28 | 55 |
| Return on equity (ROE) | | | 8 | 32 | 49 |
| Net interest margin (Net interest income) | | 1 | 8 | 30 | 50 |
| Economic value added (EVA) | 6 | 22 | 25 | 20 | 16 |
| Cash flow | 1 | | 8 | 31 | 49 |
| Net operating income | | | 3 | 28 | 58 |
| Price- earnings ratio (P/E ratio) | 5 | 4 | 21 | 22 | 37 |
| Capital adequacy | | 2 | 3 | 23 | 61 |
| Liquidity (Liquidity ratio) | 1 | 1 | 7 | 18 | 62 |
| Leverage ratio | 2 | 2 | 16 | 30 | 39 |
| Non interest income | | 4 | 12 | 26 | 47 |
| Profitability of each branch | 1 | 1 | 15 | 20 | 52 |
| Profit per customer | 10 | 9 | 30 | 24 | 16 |
| Profit per employee | 9 | 7 | 25 | 22 | 26 |
| Product profitability | 5 | 1 | 26 | 26 | 31 |
| Revenue growth | 1 | 1 | 8 | 31 | 48 |
| EPS growth | 1 | 8 | 12 | 28 | 40 |
| Comparison between standard cost with actual cost | 3 | 12 | 25 | 30 | 19 |
| Market share | 3 | 2 | 19 | 39 | 26 |
| Total number of customer per branch | 3 | 7 | 21 | 30 | 28 |
| Customer satisfaction | | 1 | 5 | 26 | 57 |
| Number of complaints from customer | 2 | 11 | 21 | 27 | 28 |
| Customer growth | | 1 | 7 | 34 | 47 |
| Average length of time of an account | 2 | 12 | 30 | 30 | 15 |
| Customer retention | 2 | 4 | 26 | 31 | 26 |
| Customer feedback/suggestion | 5 | 2 | 22 | 32 | 28 |
| Non-performing loan (Default loan) | 1 | 4 | 7 | 20 | 57 |
| Properly risk identification | | 4 | 8 | 28 | 49 |
| Efficiency in credit proposal processing | | | 5 | 31 | 53 |
| Maintain desired level of loans and advance | | 1 | 5 | 35 | 48 |
| On time service | 1 | | 8 | 29 | 51 |
| Advertising expense | 3 | 11 | 28 | 35 | 12 |
| Cost of branches | | 3 | 14 | 42 | 30 |
| Cost of service quality maintenance | 1 | 6 | 20 | 31 | 31 |
| Number of branches within a geographical area | 1 | 6 | 24 | 30 | 28 |
| Process innovation | 3 | 5 | 26 | 41 | 14 |
| Number of error in activities of employee | 6 | 15 | 22 | 31 | 15 |

| | | | | | |
|---|---|---|---|---|---|
| Percentage of process covered by IT | 4 | 6 | 21 | 28 | 30 |
| Cost to develop new product | 3 | 7 | 21 | 41 | 17 |
| Employee satisfaction | | 9 | 16 | 34 | 30 |
| Efficiency & productivity of employee | 2 | 2 | 13 | 29 | 43 |
| Contribution of employee in the development of the organization | 1 | 4 | 21 | 32 | 31 |
| Relation with customer & branch employee | | 1 | 17 | 27 | 44 |
| Loyalty and discipline | | 2 | 12 | 26 | 49 |
| Education level & training skill up gradation | 1 | 2 | 10 | 38 | 38 |
| Employee turnover | 1 | 6 | 34 | 21 | 27 |
| Update with new software & technology | 1 | 2 | 15 | 34 | 37 |
| Research & Development expense | 2 | 12 | 19 | 39 | 17 |
| Employee suggestions | 2 | 19 | 28 | 30 | 20 |
| Growth of bank branches | 1 | 1 | 12 | 47 | 28 |
| No. of new product | | 8 | 21 | 41 | 19 |

From the Table-8 we find that among the KPIs that are related with financial perspective— return on investment (ROI), return on equity (ROE), net interest margin, cash flow, net operating income, capital adequacy, liquidity ratio, non interest income, profitability of each branch, revenue growth and EPS growth range mostly from "Frequently" to "Always" in terms of responses, indicating high usage of those financial KPIs. 69.7% of the responding banks state that they always use liquidity ratio as performance measurement tool. In the same way, 68.5% of the respondents always use capital adequacy, 65.2% always use net operating income, 61.8% always use return on investment and 58.4% always use profitability of each branch. In the contrary, economic value added (EVA), profit per employee, profit per customer and comparison between standard cost with actual cost—have the responses range mostly from "Never" to "Sometimes".

On the other hand, the multiple performance measures that are related with customer perspective— customer satisfaction, customer growth, customer retention and on time service range mostly from "Frequently" to "Always" in terms of responses, indicating high usage of those customer measures. Among the responding banks, 64% state that they always use customer satisfaction and 52.8% always use customer growth measures. While, average length of time of an account is rarely used measure.

Again, internal business perspectives measures like— non-performing loan, properly risk identification, efficiency in credit proposal processing and maintain desired level of loans & advance show that their usage are mostly at the higher end of the scale. 64% of the respondents convey that they always use non-performing loan and 59.6% respondents always use efficiency in credit proposal processing, while cost of service quality maintenance and advertising expense –these two measures range mostly from "Never" to "Sometimes".

In case of learning & growth perspective, the response rate of respondents shows that this is the highest used measure among the four perspectives of Balanced Scorecard. The KPIs—Employee satisfaction, efficiency & productivity of employee, relation with customer & branch employee, loyalty & discipline and education level & training skill up gradation—have the responses those lie in the region "Frequently" to "Always". When the respondents are asked whether they always use the KPIs, 55.1% respondents state they always use loyalty & discipline, 49.4% respondents always uses relation with customer & branch employee, 48.3% always uses efficiency & productivity of employee, 42.7% always use education level & training skill up gradation and 41.6% always use update with new software & technology. Surprisingly, employee turnover and employee suggestions are least used by most of the banks.

Now, I would like to find out the percentage of performance measures that range from 'Frequently' to 'Always'.

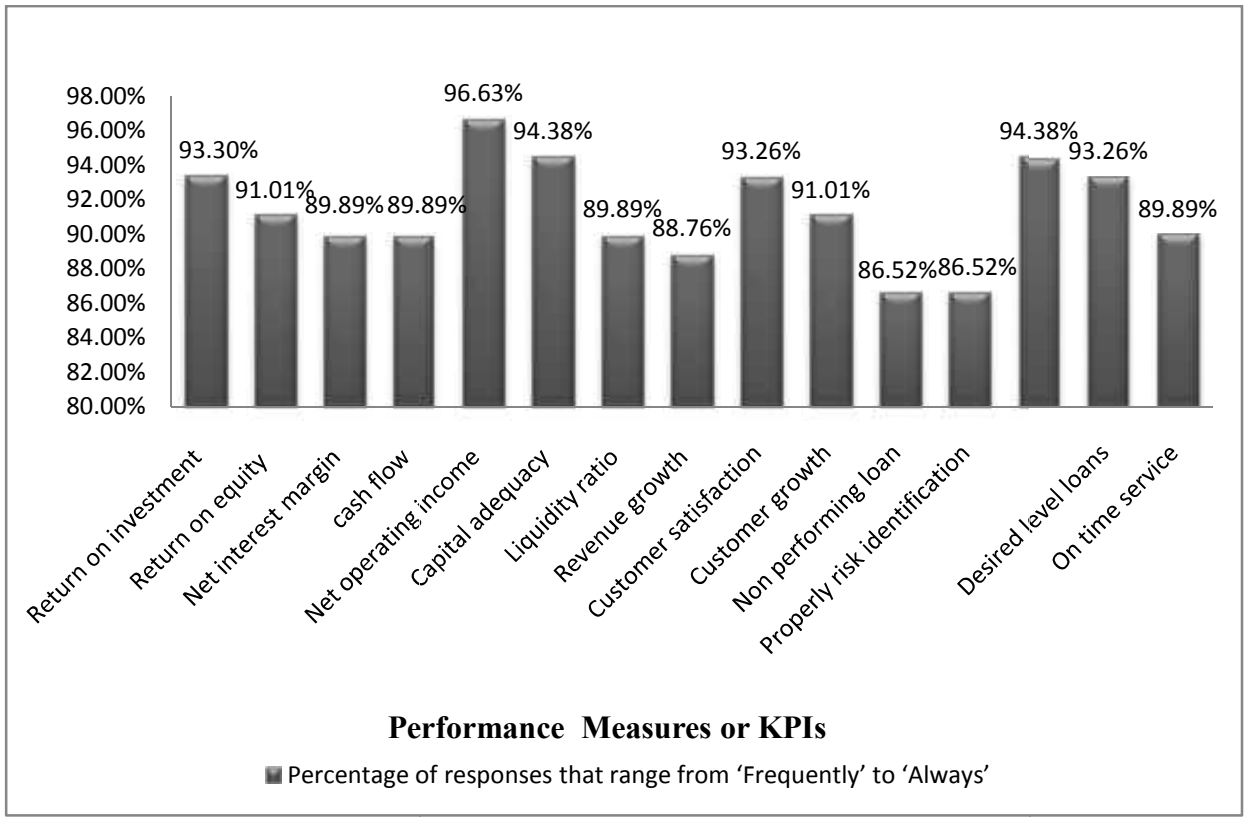
**Table- 9: Percentage of responses that range from 'Frequently' to 'Always'**

| Serial no. | **Performance measures variables or KPIs** | Percentage of responses that range from 'Frequently' to 'Always' |
|---|---|---|
| 1 | Return on investment | 93.3% |
| 2 | Return on equity | 91.01% |
| 3 | Net interest margin | 89.89% |
| 4 | Economic value added | 40.45% |
| 5 | cash flow | 89.89% |
| 6 | Net operating income | 96.63% |
| 7 | Price/Earning ratio | 66.29% |
| 8 | Capital adequacy | 94.38% |
| 9 | Liquidity ratio | 89.89% |
| 10 | Leverage ratio | 77.53% |
| 11 | Non interest income | 82.02% |
| 12 | Profitablity of each branch | 80.90% |
| 13 | Profit per customer | 44.94% |
| 14 | Profit per employee | 53.93% |
| 15 | Product profitability | 64.05% |
| 16 | Revenue growth | 88.76% |
| 17 | EPS growth | 76.40% |
| 18 | Comparison between standard cost with actual | 55.06% |
| 19 | Market share | 73.03% |
| 20 | Customer per branch | 65.17% |
| 21 | Customer satisfaction | 93.26% |
| 22 | Number of complain from customer | 61.80% |
| 23 | Customer growth | 91.01% |
| 24 | Average length of account | 50.56% |
| 25 | Customer retention | 64.04% |
| 26 | Customer feedback/suggestion | 67.42% |
| 27 | Non performing loan | 86.52% |
| 28 | Properly risk identification | 86.52% |
| 29 | Efficiency in credit proposal processing | 94.38% |

| Serial no. | **Performance measures variables or KPIs** | Percentage of responses that range from 'Frequently' to 'Always' |
|---|---|---|
| 30 | Desired level loans | 93.26% |
| 31 | On time service | 89.89% |
| 32 | Advertising expense | 52.81% |
| 33 | Cost of branches | 80.90% |
| 34 | Cost of service quality maintenance | 69.66% |
| 35 | No. of branches within a geographic area | 65.17% |
| 36 | Process innovation | 61.80% |
| 37 | No. of error of employee | 51.69% |
| 38 | Percentage of process covered by IT | 65.17% |
| 39 | Cost to develop new product | 65.17% |
| 40 | Employee satisfaction | 71.91% |
| 41 | Efficiency & productivity of employee | 80.90% |
| 42 | Contribution of employee in the development | 70.79% |
| 43 | Relation with customer & branch employee | 79.78% |
| 44 | Loyality & discipline | 84.27% |
| 45 | Education level & training skill up gradation | 85.39% |
| 46 | Employee turnover | 53.93% |
| 47 | Update with new software & technology | 79.78% |
| 48 | Research & development expense | 62.92% |
| 49 | Employee suggestion | 56.18% |
| 50 | Growth of bank branches | 84.27% |
| 51 | No. of new product | 67.42% |

In the following figure-10, I have presented the top fifteen performance measures that range from the 'Frequently' to 'Always'.

**Figure-10: Percentage of responses that range from 'Frequently' to 'Always'**




When combined the usage responses of 'Frequently' and 'Always' regarding various performance measures, it is found that net operating income has the response rate 96.63%, followed by capital adequacy 94.38% and efficiency in credit proposal processing 94.38%. After that return on investment (ROI) has the response score 93.3% and 93.26% for customer satisfaction and desired level loans. On the other hand, return on equity (ROE) and customer growth have the same response rates of 91.01%. Other high responses go to net interest margin, cash flow, liquidity ratio and on time service having response rates of 89.89% for each. Thereafter, revenue growth which is a strong financial measure has the response rate of 88.76%. At last, 86.52% of the respondents use non performing loan and properly risk identification measures 'Frequently' to 'Always'.

## 4.3 Rank of 51 performance measurement variables or KPIs on the basis of mean:

Table-10 shows the descriptive statistics containing Mean, Standard deviation, minimum and maximum for 51 performance measures. I have ranked the 51 variables on the basis of their mean weights of Likert scale.

**Table 10: Descriptive Statistics of 51 KPIs or Performance measures**

| Performance measures | Minimum | Maximum | Mean | Std. Deviation |
|---|---|---|---|---|
| Net operating income | 3.00 | 5.00 | 4.618 | 0.554 |
| Capital adequacy | 2.00 | 5.00 | 4.606 | 0.667 |
| Customer satisfaction | 2.00 | 5.00 | 4.561 | 0.656 |
| Liquidity ratio | 1.00 | 5.00 | 4.561 | 0.782 |
| Return on investment | 3.00 | 5.00 | 4.550 | 0.621 |
| Efficiency in credit proposal processing | 3.00 | 5.00 | 4.539 | 0.604 |
| Desired levels loans & advance | 2.00 | 5.00 | 4.460 | 0.658 |
| Return on equity | 3.00 | 5.00 | 4.460 | 0.658 |
| Net interest margin | 2.00 | 5.00 | 4.449 | 0.707 |
| On time service | 1.00 | 5.00 | 4.449 | 0.753 |
| Non performing loan | 1.00 | 5.00 | 4.438 | 0.903 |
| Customer growth | 2.00 | 5.00 | 4.427 | 0.689 |
| cash flow | 1.00 | 5.00 | 4.427 | 0.752 |
| Revenue growth | 1.00 | 5.00 | 4.393 | 0.792 |
| Loyalty & discipline | 2.00 | 5.00 | 4.370 | 0.803 |
| Properly risk identification | 2.00 | 5.00 | 4.370 | 0.830 |
| Profitability of each branch | 1.00 | 5.00 | 4.359 | 0.882 |
| Non interest income | 2.00 | 5.00 | 4.303 | 0.871 |
| Relation with customer & branch employee | 2.00 | 5.00 | 4.280 | 0.811 |
| Education level & training skill up gradation | 1.00 | 5.00 | 4.236 | 0.826 |
| Efficiency & productivity of employee | 1.00 | 5.00 | 4.224 | 0.938 |
| Update with new software & technology | 1.00 | 5.00 | 4.168 | 0.869 |
| Leverage ratio | 1.00 | 5.00 | 4.146 | 0.948 |
| Growth of bank branches | 1.00 | 5.00 | 4.123 | 0.766 |
| Cost of branches | 2.00 | 5.00 | 4.112 | 0.789 |
| EPS growth | 1.00 | 5.00 | 4.101 | 1.022 |
| Contribution of employee in the development | 1.00 | 5.00 | 3.988 | 0.935 |
| Employee satisfaction | 2.00 | 5.00 | 3.955 | 0.964 |
| Cost of service quality maintenance | 1.00 | 5.00 | 3.955 | 0.975 |
| Market share | 1.00 | 5.00 | 3.932 | 0.951 |
| Price/Earnings ratio | 1.00 | 5.00 | 3.921 | 1.160 |

| | | | | |
|---|---|---|---|---|
| No. of branches within a geographic area | 1.00 | 5.00 | 3.876 | 0.974 |
| Product profitability | 1.00 | 5.00 | 3.865 | 1.089 |
| Customer feedback/suggestion | 1.00 | 5.00 | 3.853 | 1.071 |
| Customer retention | 1.00 | 5.00 | 3.842 | 0.975 |
| Percentage of process covered by IT | 1.00 | 5.00 | 3.831 | 1.110 |
| Customer per branch | 1.00 | 5.00 | 3.820 | 1.071 |
| No. of new product | 2.00 | 5.00 | 3.797 | 0.881 |
| Number of complain from customer | 1.00 | 5.00 | 3.764 | 1.097 |
| Employee turnover | 1.00 | 5.00 | 3.752 | 1.003 |
| Cost to develop new product | 1.00 | 5.00 | 3.696 | 0.981 |
| Process innovation | 1.00 | 5.00 | 3.651 | 0.930 |
| Research & development expense | 1.00 | 5.00 | 3.640 | 1.014 |
| Employee suggestion | 1.00 | 5.00 | 3.640 | 1.014 |
| Comparison between standard cost with actual | 1.00 | 5.00 | 3.561 | 1.076 |
| Profit per employee | 1.00 | 5.00 | 3.550 | 1.270 |
| Avg. length of account | 1.00 | 5.00 | 3.494 | 1.001 |
| Advertising expense | 1.00 | 5.00 | 3.471 | .989 |
| No. of error of employee | 1.00 | 5.00 | 3.382 | 1.153 |
| Profit per customer | 1.00 | 5.00 | 3.303 | 1.209 |
| Economic value added | 1.00 | 5.00 | 3.202 | 1.198 |

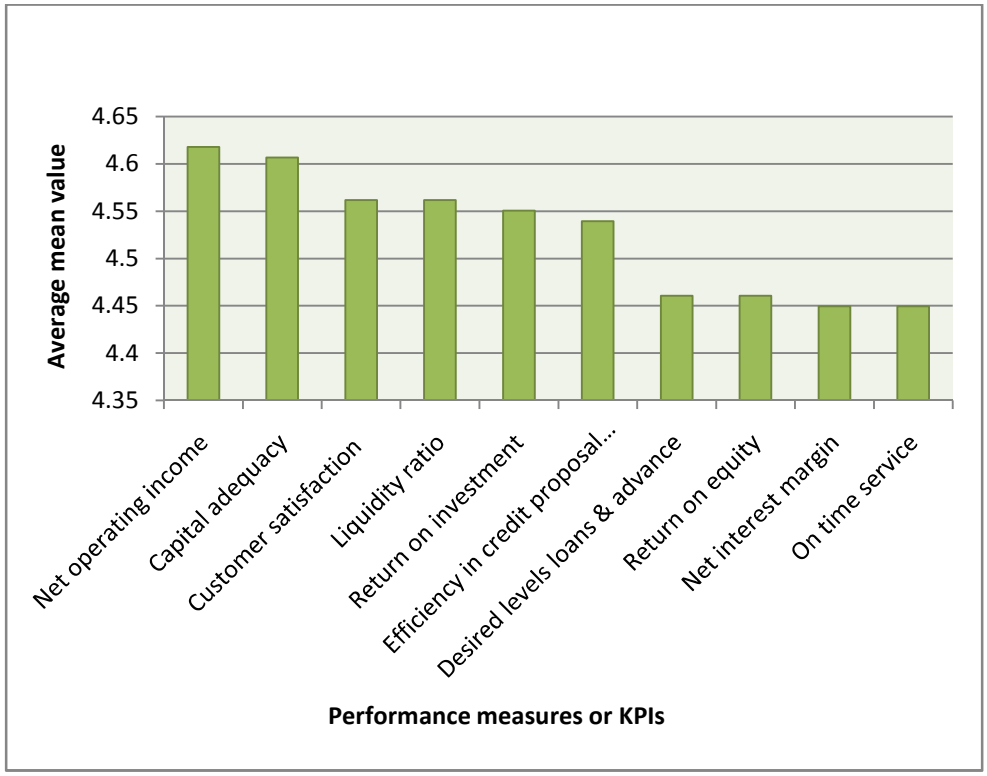
From Table-10, it is observed that financial measures are at the top of the list indicate higher usage of financial measures. Net operating income and capital adequacy has the highest weighted mean showing them as most used performance measures by the banking sector in Bangladesh. Other popularly used financial measures are liquidity ratio, return on investment and return on equity. The result shows that Banking sector in Bangladesh rely heavily on financial measures although other measures are also used.

Customer measures are followed by financial measures which indicate customer measures are also most popular used performance measurement tool. Among customer measures, customer satisfaction is the widely used performance measure which has height mean. On time service and customer growth also have higher usage priority by the banks in Bangladesh.

Among internal business process measures, efficiency in credit proposal processing, desired levels loans & advance, non performing loan and properly risk identification are most used measures as its weighted means are higher.

On the other hand, from learning and growth perspective, loyalty & discipline, update with new software & technology, education level & training skill up gradation and efficiency & productivity of employee are the most practically used measures as employees are the key force in the service profit chain in the service sector like banking.

**Figure 11: Top ten performance measures on the basis of mean**




It is found that the banking sector in Bangladesh emphasizes both financial measures and non financial measures. Since the banking sector in Bangladesh faces intensive competition and matured market, ultimately they are bound to use more sophisticated multiple performance measures.

**Table 11: Descriptive statistics for all variables**

| **Performance measurement perspectives** | **Minimum** | **Maximum** | **Mean** | **Std. Deviation** |
|---|---|---|---|---|
| Average financial measures | 3.11 | 5.00 | 4.1323 | 0.44990 |
| Average customer measures | 2.56 | 5.00 | 4.0162 | 0.50267 |
| Average internal business process measures | 1.92 | 4.92 | 3.9822 | 0.50728 |
| Average learning & growth measures | 1.83 | 5.00 | 4.0150 | 0.62393 |
| Overall BSC measures | 2.45 | 4.81 | 4.0364 | 0.42627 |
| Overall Performance of the organization | 2.50 | 4.58 | 3.8200 | 0.37282 |

When the whole scenario is considered, I find that the responding banks put most weight on the usage of financial measures whose overall mean is 4.1323. The next highest usage weight goes to customer measures (overall mean is 4.0162), followed by learning & growth measures (mean is 4.0150) and internal business process measures (mean is 3.9822).

In the next section, I will proceed for factor analysis. It is observed that the Cronbach alpha coefficient of all the four perspectives namely Financial measures, Customer measures, Internal business process measures, Learning & growth measures and Overall BSC measures exceed the standard acceptable limit of 0.6 as advocated by (Cronbach, 1951; Nunnally & Bernstein, 1994; Bagozzi & Yi's 1988). So we can say that the data collected and scale used are reasonably reliable & acceptable (the detailed description is given in chapter-3, section-3.7.2, page- 72).

## 4.4 Factor analysis:

The appropriateness of factor analysis depends on sample size. Hair et al. (1998) suggested that factor analysis is not appropriate for a sample size less than 50 and the preferable sample size is 100 or more. In this research, 89 questionnaires are ultimately selected for further factor analysis which is close to sample size hundred as recommended by Hair et al. (1998). So, I believe that there will be no problem relating to sample size.

Again, Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy is still another useful method to show the appropriateness of data for factor analysis. The KMO statistics varies between 0 and 1. Kasier (1974) recommended that values greater than 0.5 are acceptable. Between0.5 and 0.7 are mediocre, between 0.7 and 0.8 are good, between 0.8 and 0.9 are superb (Field, 2005). In this study, Table- 12 shows the value of KMO for overall matrix is 0.667 which is more than the minimum acceptable limit of 0.5. Hence the sample taken for the factor analysis is statistically significant.

**Table-12: KMO and Bartlett's Test**

| | | |
|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | 0.667 |
| Bartlett's Test of Sphericity | Approx. Chi-Square | 2608.442 |
| | df | 1275 |
| | Sig. | .000 |

Moreover, Bartlett's test of sphericity (Bartlett, 1950) is another statistical test applied in the study for verifying its appropriateness. A statistically significant Bartlett's test of sphericity (significant level < .05) indicates that sufficient correlations exist among the variables to proceed. In the present study, test value of Chi – Square 2608.442 is significant (shown in Table-12) which indicates that the data is appropriate for the factor analysis.

After examining the reliability and validity of the scale and testing appropriateness of data, next I carried out factor analysis to indentify the significant KPIs or performance measurement

variables those are used by the banking sector in Bangladesh. I employed Principal Component Analysis (PCA) followed by the varimax rotation for the 51 items and then try to determine their groups according to Balanced Scorecard's four perspectives.

In case of factor analysis, factor loading cut off point determination is very important and hence it requires strong attention. A factor loading represents the correlation between an original variable and its factor. Field (2005) advocates the suggestion of Guadagnoli & Velicer (1988) to regard a factor as reliable if it has four or more loadings of at least 0.6 regardless of sample size. Stevens (1992) suggests using a cut-off of 0.4, irrespective of sample size, for interpretative purposes. Tabachnick & Fidell (2007) and Comrey & Lee (1992) stated that cut-offs going from 0.32 is poor, 0.45 is fair, can be 0.55 good, is 0.63 very good or is 0.71 excellent. Hair et al. (1998) suggested that for a sample of 100 respondents, factor loadings of 0.55 and above are significant. Prior researches which are similar with the current study used 0.5 as factor loading cut off point. So, for this study, the researcher believes a factor loading cut off point 0.5 is quite appropriate.

**Table- 13: Eigenvalues of un-rotated factors**

| No. of factors | Eigenvalues | As Percentages (%) | Cumulative Percentage (%) |
|---|---|---|---|
| 1 | 12.154 | 23.831 | 23.831 |
| 2 | 4.230 | 8.295 | 32.126 |
| 3 | 3.047 | 5.975 | 38.101 |
| 4 | 2.350 | 4.609 | 42.709 |
| 5 | 2.293 | 4.497 | 47.206 |
| 6 | 2.099 | 4.116 | 51.323 |
| 7 | 1.749 | 3.429 | 54.751 |
| 8 | 1.434 | 2.812 | 57.563 |
| 9 | 1.401 | 2.747 | 60.310 |
| 10 | 1.277 | 2.504 | 62.814 |
| 11 | 1.260 | 2.470 | 65.285 |
| 12 | 1.188 | 2.330 | 67.614 |
| 13 | 1.113 | 2.183 | 69.797 |
| 14 | 1.040 | 2.038 | 71.836 |
| 15 | 1.020 | 2.000 | 73.836 |

From the analysis 11 items out of 51 items have been deleted due to insignificant factor loadings (factor loadings less than 0.5). So the number of surviving variables from the factor analysis is

40. In principal component analysis, one of the most commonly used criteria for solving the number of components problem is the eigenvalue-one criterion, also known as the Kaiser criterion (Kaiser, 1960). When I run the factor analysis in the SPSS, fifteen factors are extracted with eigenvalues exceeding 1, explaining a total of 73.84% of the total variance (Table-13). Factors 1, 2, 3, 4, 5, 6, 7, 8, 9 and 10 account for largest contribution- 62.81% of the total variance. The remaining 5 factors (from factor 11 up to 15) contribute only 11.02% in the total variance.

**Table-14: Rotated Component Matrix**

| | Component | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 |
| Efficiency & productivity of employee | .842 | | | | | | | | | | | | | | |
| Relation with customer & branch employee | .778 | | | | | | | | | | | | | | |
| Education level & training skill up gradation | .768 | | | | | | | | | | | | | | |
| Contribution of employee in the development | .753 | | | | | | | | | | | | | | |
| Employee satisfaction | .712 | | | | | | | | | | | | | | |
| Employee suggestion | .707 | | | | | | | | | | | | | | |
| Loyalty & discipline | .682 | | | | | | | | | | | | | | |
| Update with new software & technology | .659 | | | | | | | | | | | | | | |
| Research & development expense | .569 | | | | | | | | | | | | | | |
| Cost to develop new product | .559 | | | | | | | | | | | | | | |
| Process innovation | .534 | | | | | | | | | | | | | | |
| No. of new product | .529 | | | | | | | | | | | | | | |
| Customer satisfaction | | | | | | | | | | | | | | | |
| Employee turnover | | | | | | | | | | | | | | | |
| Profit per customer | | .833 | | | | | | | | | | | | | |
| Profit per employee | | .802 | | | | | | | | | | | | | |
| Product profitability | | .575 | | | | | | | | | | | | | |
| EPS growth | | .536 | | | | | | | | | | | | | |
| Return on investment | | | .793 | | | | | | | | | | | | |
| Return on equity | | | .702 | | | | | | | | | | | | |
| Economic value added | | | .543 | | | | | | | | | | | | |
| Leverage ratio | | | .530 | | | | | | | | | | | | |
| cash flow | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Number of complain from customer | | | | .818 | | | | | | | | | | | |
| No. of error of employee | | | | .698 | | | | | | | | | | | |
| Revenue growth | | | | | | | | | | | | | | | |
| Customer retention | | | | | | | | | | | | | | | |
| Desired level loans | | | | | .703 | | | | | | | | | | |
| On time service | | | | | .593 | | | | | | | | | | |
| Liquidity ratio | | | | | .503 | | | | | | | | | | |
| Properly risk identification | | | | | | .795 | | | | | | | | | |
| Efficiency in credit proposal processing | | | | | | .618 | | | | | | | | | |
| Advertising expense | | | | | | | .745 | | | | | | | | |
| Cost of service quality maintenance | | | | | | | .525 | | | | | | | | |
| Cost of branches | | | | | | | | | | | | | | | |
| Capital adequacy | | | | | | | | .729 | | | | | | | |
| Net operating income | | | | | | | | .725 | | | | | | | |
| Non performing loan | | | | | | | | .562 | | | | | | | |
| Customer feedback/suggestion | | | | | | | | | .692 | | | | | | |
| Market share | | | | | | | | | .596 | | | | | | |
| Customer per branch | | | | | | | | | | | | | | | |
| Customer growth | | | | | | | | | | | | | | | |
| No. of branches within a geographic area | | | | | | | | | | .765 | | | | | |
| Avg. length of account | | | | | | | | | | | .842 | | | | |
| Comparison between standard cost with actual | | | | | | | | | | | | | | | |
| Growth of bank branches | | | | | | | | | | | | .783 | | | |
| Profitability of each branch | | | | | | | | | | | | | .862 | | |
| Non interest income | | | | | | | | | | | | | | | |
| Price/Earnings ratio | | | | | | | | | | | | | | | |
| Net interest margin | | | | | | | | | | | | | | .811 | |
| Percentage of process covered by IT | | | | | | | | | | | | | | | .596 |

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

**Factor-1:** This factor is related with the learning & growth perspective of Balanced Scorecard (BSC). Factor-1 comprises with 12 variables with factor loadings ranging from 0.842 to 0.529. They are efficiency & productivity of employee, relation with customer & branch employee, education level & training skill up gradation, contribution of employee in the development,

employee satisfaction, employee suggestion, loyalty & discipline, update with new software & technology, research & development expense, cost to develop new product, process innovation and number of new product. Factor-1 accounts for 23.831% of the total variance. Among the fifteen factors, factor-1 alone explains the highest portion of the total variance.

**Factor-2:** This factor is related with the financial perspective of Balanced Scorecard. Four variables belong to factor-2 with factor loadings ranging from 0.833 to 0.536. The variables included in factor-2 are profit per customer, profit per employee, EPS growth and product profitability. Factor-2 explains 8.295% of the total variance.

**Factor-3:** This factor can further be related with the financial perspective of Balanced Scorecard. Factor-3 consists of 4 variables with factor loadings ranging from 0.793 to 0.530 which explains 5.975% of the total variance. The variables included in this factor are return on investment, return on equity, leverage ratio and economic value added.

**Factor-4:** Two variables are included in this factor whose loadings range from 0.818 to 0.698. The variables are number of complain from customer and number of error of employee. This factor is not related with any specific perspective, rather related with two perspectives namely customer perspective and internal business process perspective. Factor-4 explains 4.609% variance.

**Factor-5:** Factor-5 is made up with three variables with factor loadings ranging from 0.703 to 0.503. The variables are maintain desired level loans & advances, liquidity ratio and on time service. This factor is not clubbed under any specific perspective of BSC. Factor-5 accounts for 4.497 % of the total variance.

**Factor-6:** This factor is related with the internal business process perspective of Balances Scorecard. Two variables belong to factor-6 with factor loadings ranging from to 0.795 to 0.618. The variables included in factor-6 are properly risk identification and efficiency in credit proposal processing. Factor-6 explains 4.116% of the total variance.

**Factor-7:** This factor can also be related with internal business process perspective. This factor is constructed with two variables namely advertising expense and cost of service quality maintenance. They carry factor loadings of 0.745 and 0.525. The factor-7 explains 3.429% variance.

**Factor-8:** Factor-8 is formed with three variables of financial perspective of Balanced Scorecard. The variables are capital adequacy, net operating income and non performing loan. The factor loadings of these variables range from 0.729 to 0.562. Factor-8 accounts for 2.812% of the total variance.

**Factor-9:** Further, this factor is related with customer perspective of Balanced Scorecard. Factor-9 consists of two variables namely customer feedback/suggestion and market share with factor loadings 0.692 and 0.596 respectively. This factor explains a tiny portion of total variance that is 2.747%.

**Factor-10:** This factor comprised of one variable namely number of branches within a geographic area which explains only 2.504% of the total variance. This factor is related with internal business process perspective of BSC.

**Factor-11:** Again, Factor-11 is linked with customer perspective of BSC. This factor has one variable which is average length of account whose factor loading is 0.842. This factor explains very insignificant portion of total variance that is 2.470%.

**Factor-12:** This factor is further related with the learning & growth perspective of Balances Scorecard. This factor is made up with one variable namely growth of bank branches which had a factor loading of 0.783 explaining 2.330% of the total variance.

**Factor-13:** This factor can also be related with financial perspective of BSC. This factor is constructed with only one variable namely profitability of each branch. It carries factor loading of 0.862. This factor indicates a small variance that is 2.183%.

**Factor-14:** Factor-14 is also related with the financial perspective. It consists of one variable – net interest margin. It explains 2.038% of total variance.

**Factor-15:** The last factor is further related with the internal business process perspective of BSC. Factor-15 is comprised with one variable which is percentage of process covered by IT that has a factor loading of 0.596. This factor explains 2% of the total variance.

From the above fifteen factors it is observed that factor-2, factor-3, factor-8, factor-13, factor-14 are related with the financial perspective of Balanced Scorecard. The variables under those factors are (factor-2) profit per customer, profit per employee, EPS growth and product profitability; (factor-3) return on investment, return on equity, leverage ratio and economic value added; (factor-8) capital adequacy, net operating income and non performing loan; (factor-13) profitability of each branch; (factor-14) net interest margin. All these factors jointly explain 21.303% of the total variance.

Again, factor-9 and factor-11 are related with customer perspective of Balanced Scorecard. The names of the variables under these two factors are (factor-9) customer feedback/suggestion and market share; (factor-11) average length of account. All these factors jointly explain 5.217% of the total variance.

Further, factor-6, factor-7and factor-10 are linked with internal business process perspective of BSC. The variables under these three factors are (factor-6) properly risk identification and efficiency in credit proposal processing; (factor-7) advertising expense and cost of service quality maintenance; (factor-10) number of branches within a geographic area. When these three factors are combined altogether, they explain 10.049% variance.

Lastly, factor-1and factor-12 represent learning & growth perspective of BSC. The variables of these two factors include (factor-1) efficiency & productivity of employee, relation with customer & branch employee, education level & training skill up gradation, contribution of employee in the development, employee satisfaction, employee suggestion, loyalty & discipline, update with new software & technology, research & development expense, cost to develop new

product, process innovation and number of new product; (factor-12) Growth of bank branches. If these factors are combined together, they explain 26.161% of the total variance.

It is obvious that learning & growth perspective has the most significant percentage of variance (26.161%) among the four perspectives of Balanced Scorecard followed by financial perspective (21.303%). The customer perspective has very insignificant portion of total variance (5.217%). Internal business process perspective has mediocre position in this regard (10.049%).

**4.5 The perspective that has most influence on the performance measurement & management system:**

At this point, I will test which perspective of Balanced Scorecard has the most significant influence on the performance measurement & management system in the banking sector in Bangladesh. To do this, the multiple regression is run:

$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + e$

Where, Y = Performance of the bank

$X_1$ = Financial measures

$X_2$ = Customer measures

$X_3$ = Internal business process measures

$X_4$ = Learning & growth measures

$b_0$ = The intercept

$b_1$ = Regression coefficient of financial measure

$b_2$ = Regression coefficient of customer measure

$b_3$ = Regression coefficient of internal business process measure

$b_4$ = Regression coefficient of learning & growth measure

Before running the multiple regression, it is essential to test multi-collinearity. Multi-collinearity is the extent to which one construct can be explained by the other constructs in the analysis (Hair et al., 2006). If pair-wise or zero-order correlation coefficient between two regressors is high, then multi-collinearity is a serious problem (D.N. Gujrati, 2003). In this situation, a correlation matrix is done by the weighted average mean of financial, customer, internal business process

and learning & growth perspectives. From Table-15, it is revealed that four BSC measures are significantly correlated with each other which indicate the high possibility of multi-collinearity.

**Table-15: Correlation matrix**

| | | Financial measures | Customer measures | Internal business process measures | Learning & growth measure | Overall BSC measures | Performance of the organization |
|---|---|---|---|---|---|---|---|
| Financial measures | Pearson Correlation | 1 | .482(**) | .510(**) | .458(**) | .740(**) | .194 |
| | Sig. (2-tailed) | . | .000 | .000 | .000 | .000 | .069 |
| Customer measures | Pearson Correlation | .482(**) | 1 | .509(**) | .442(**) | .766(**) | .099 |
| | Sig. (2-tailed) | .000 | . | .000 | .000 | .000 | .356 |
| Internal business process measures | Pearson Correlation | .510(**) | .509(**) | 1 | .640(**) | .836(**) | .306(**) |
| | Sig. (2-tailed) | .000 | .000 | . | .000 | .000 | .004 |
| Learning & growth measures | Pearson Correlation | .458(**) | .442(**) | .640(**) | 1 | .828(**) | .482(**) |
| | Sig. (2-tailed) | .000 | .000 | .000 | . | .000 | .000 |
| Overall BSC measures | Pearson Correlation | .740(**) | .766(**) | .836(**) | .828(**) | 1 | .354(**) |
| | Sig. (2-tailed) | .000 | .000 | .000 | .000 | . | .001 |
| Performance of the organization | Pearson Correlation | .194 | .099 | .306(**) | .482(**) | .354(**) | 1 |
| | Sig. (2-tailed) | .069 | .356 | .004 | .000 | .001 | . |

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

Another rule of thumb is that if the variance-inflating factor (VIF) of a variable exceeds 10, the variable is said to be highly collinear (D.G. Kleinbaum, L.K. Kupper and K.E. Muller, 1998).

**Table-16: Collinearity Statistics**

| | Collinearity Statistics | |
|---|---|---|
| | Tolerance | VIF |
| (Constant) | | |
| Financial measures | .657 | 1.522 |
| Customer measures | .664 | 1.506 |
| Internal business process measures | .499 | 2.003 |
| Learning & growth measures | .558 | 1.793 |

After performing tolerance and variation-inflating factor test (VIF) which is shown inTable-16, I find that the values of VIF are less than 10. The tolerance level is also satisfactory (tolerance level does not tend to zero). It is evident that multi-collinearity does not exist. Thus, there is no major problem for regression analysis.

### 4.5.1 Regression analysis:

I run the regression by taking the performance of bank as dependent variable. Here, I use the weighted average mean of bank performance. Performance of banks is measured by a self-rating scale using 12 indicators taken from Mia and Clarke (1999) and Govindarajan (1984). The detailed is discussed in the chapter-3, under measurement of variable –Section- 3.6, page- 68).
The four perspectives of BSC are used as independent variables. After the factor analysis, the number of variables is reduced to 40. Then these 40 items are grouped under the four perspectives of BSC. For each performance measure or variable, I have calculated the weighted average mean. At last, these weighted means of each variable are used as independent variables in the regression.

**Table-17: Regression analysis: individual BSC measures and bank performance**

| | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|
| Financial measures | 0.007 | 0.062 | 0.951 |
| Customer measures | -0.159 | -1.372 | 0.174 |
| Internal business process measures | 0.054 | 0.401 | 0.689 |
| Learning & growth measures | 0.514 | 4.065 | 0.000 |
| | | | |
| F =6.991, Sig. F = 0.000, | R Square = 0.250 | | |

From Table-17, it is found that the coefficient of learning & growth measure is both positive and significant. Here, $b_4$ = 0.514, t = 4.065 and p = 0.000. The whole model is significant F=6.991 and p = 0.000. The value of R Square is 0.250 which indicates that the independent variables explain 25% of the performance variance of the banks (please, see Appendix-4). The

lower value of R Square is quite consistent with the similar prior performance research (Magia and Jacobs, 2003; Jusoh, Ibrahim and Zainuddin, 2007; H.H.Al-mawali et al., 2010).

The result of regression shows that the performance of banks is significantly and positively associated with the learning & growth measures usage. The results also reveal that the financial measures, customer measures and internal business process measures have no significant impact on the performance of the banks. As it is discussed earlier, financial measures are too short term oriented and severely flawed with major drawbacks that it has no significant impact in modern sophisticated business environment. The competition among the banks is fierce and intensive. So, learning & growth measures are the only way to survive in this competitive industry. The regression result is obviously practical and pragmatic.

## 4.6 Overall Balanced Scorecard usage and bank performance:

**Table-18: Regression analysis: overall BSC measure usage and bank performance**

| | Standardized Coefficients Beta | t | Sig. |
|---|---|---|---|
| Overall BSC measures | 0.354 | 3.530 | 0.001 |
| | | | |
| F = 12.458<br>Sig. F = 0.001, | R Square = 0.125 | | |

Further analysis is conducted to see whether the single scalar for the BSC measures has any significant effect on the performance of banks. To test this, I take the performance of banks as dependent variable as it was in the earlier test, but now the weighted average means of the four perspectives (all KPIs) are combined to get one weighted mean which is then use as dependent variable. The result is displayed in Table-18, which shows that the overall BSC usage has significant and positive impact on the performance of banks (Beta = 0.354, p = 0.001). The

model is significant as F = 12.458 and p = 0.001 (please, see Appendix-5). This result advocates that the wider usage of Balanced Scorecard can have significantly positive impact on the performance of banks. So the banking sector of Bangladesh should give attention in the design of performance measurement system. Although the banking sector currently practices few performance measures of Balanced Scorecard, they use those arbitrarily and without knowing the basic model of BSC. But systematic adoption of BSC can accelerate their strategic growth and help them to achieve their desire outcomes.

# Chapter: 5
# Findings, Recommendations and Conclusion

## 5.1 Findings of the study:

In this study, attempt has been undertaken to find out the existing widely used practice of performance measurement system in the banking sector in Bangladesh. I have tried not only to find out the performance measurement variables or Key Performance Indicators (KPIs) that are being used pervasively in the present context, but also to assess the extent of their usages in the banking sector today.

From the descriptive statistics it is found that net operating income, capital adequacy, customer satisfaction, liquidity ratio, return on investment, efficiency in credit proposal processing, desired levels loans & advance, return on equity, net interest margin, on time service— these performance measures or variables have the highest average rate of usage. So it is obvious that these measures or variables are quite popular among the banks in Bangladesh. In this study, I have tried to group the performance measures or KPIs that are used by the banking sector into four perspectives of Balanced Scorecard (financial perspective, customer perspective, internal business process perspective and learning & growth perspective) and observed that the banks emphasized the financial perspective more than the other perspectives since the average mean usage of financial perspective has the highest mean 4.1323 (out of 5 in Likert scale). Although, the traditional financial perspective has been flawed with serious drawbacks, it still has its own demand. After that, customer perspective is the second highly used measure (average mean is 4.0162 out of 5) followed by learning and growth perspective (average mean is 4.0150 out of 5). Among the usage rate, internal business process perspective occupies the last place whose average mean is 3.9822.

After descriptive statistics, factor analysis is conducted by Principal Component Analysis (PCA) method. From that analysis, fifteen factors are extracted which explain 73.84% of the total

variance. Fctor-1 accounts for 23.831% of the total variance which contains 12 KPIs namely- efficiency & productivity of employee, relation with customer & branch employee, education level & training skill up gradation, contribution of employee in the development, employee satisfaction, employee suggestion, loyalty & discipline, update with new software & technology, research & development expense, cost to develop new product, process innovation and number of new product. The variables included in factor-2 are profit per customer, profit per employee, EPS growth and product profitability. Factor-2 explains 8.295% of the total variance. Factor-3 explains 5.975% of the total variance. The variables included in this factor are return on investment, return on equity, leverage ratio and economic value added. Factor-4 explains 4.609% variance which includes two variables- number of complain from customer and number of error of employee. Factor-5 accounts for 4.497 % of the total variance which includes the variables like maintain desired level loans & advances, liquidity ratio and on time service. Two variables belong to factor-6 which are properly risk identification and efficiency in credit proposal processing. Factor-6 explains 4.116% of the total variance. Factor-7 explains 3.429% variance which includes two variables namely advertising expense and cost of service quality maintenance. Factor-8 is formed with three variables of financial perspective of Balanced Scorecard which are capital adequacy, net operating income and non performing loan. Factor-8 accounts for 2.812% of the total variance. Factor-9 consists of two variables namely customer feedback/suggestion and market share. This factor explains a tiny portion of total variance that is 2.747%. Factor-10 comprised of one variable namely number of branches within a geographic area which explains only 2.504% of the total variance. Again, Factor-11 is linked with customer perspective of BSC. This factor has one variable which is average length of account. Factor-12 is made up with one variable namely growth of bank branches explaining 2.330% of the total variance. Factor-13 is constructed with only one variable namely profitability of each branch. Factor-14 is also related with the financial perspective. It consists of one variable – net interest margin. It explains 2.038% of total variance. Factor-15 is comprised with one variable which is percentage of process covered by IT. This factor explains 2% of the total variance. In this way, all the fifteen factors explain 73.84% of the total variance.

It is also observed that all the four perspectives of Balanced Scorecard have significant correlation with each other.

I further test which perspective of Balanced Scorecard has the most significant influence on the performance of banking sector in Bangladesh. For this purpose, multiple regression is run which shows that the performance of banks is significantly and positively associated with the learning & growth measures usage. The results also reveal that the financial measures, customer measures and internal business process measures have no significant impact on the performance of banks. Another finding is that the overall BSC usage has significant and positive impact on the performance of banks. These results show that there is significant relationship between Balanced Scorecard usage and bank performance. So the banking sector should carefully use the Balanced Scorecard framework by customizing according to their environment & need. This research reveals the significance of BSC in the context of banking sector.

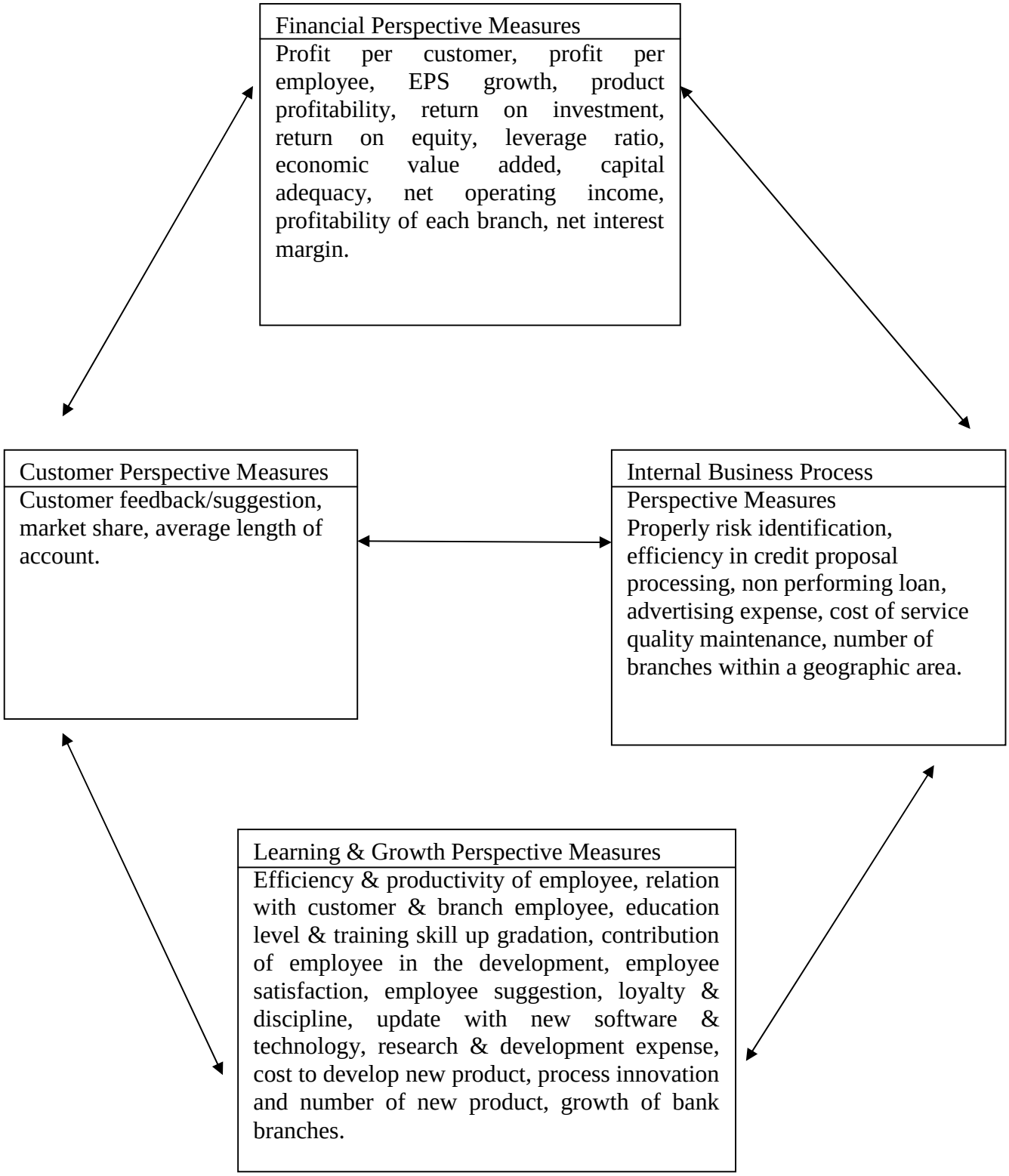
## 5.2 Recommendations:

Although Balanced Scorecard is a famous performance measurement & management tool around the globe, in Bangladesh it is not used systematically and appropriately in the banking sector as the study reveals. Almost 54% of the respondents said that they have heard about Balanced Scorecard, the other 46% of the respondents do not know about this. But the banks used the performance measures or KPIs that are related with BSC. This means that the banks are arbitrarily using some part of balanced scorecard without knowing about it. In this context, I would like to recommend a Balanced Scorecard framework for the banking sector in Bangladesh that will serve as a basis or benchmark for their performance measurement system.

### 5.2.1 Proposed Balanced Scorecard framework for the banking sector in Bangladesh:

After doing factor analysis, 40 variables or KPIs are extracted from the 51 variables. These 40 performance measures explain 73.836% of the total variance. So these 40 variables have significant influence on the performance measurement systems in the banking sector in Bangladesh. Now, attempt is taken to formulate a Balanced Scorecard model as suggested by Kaplan and Norton (1992) with these 40 performance measures or variables. These selected 40 items can be grouped into four perspectives of BSC and have been framed as follows:

**Figure 12: The Balanced Scorecard framework for performance measurement & management for the banking sector in Bangladesh (own construction)**



### 5.2.2 The strategy map of Balanced Scorecard model to be used in the banking sector in Bangladesh:

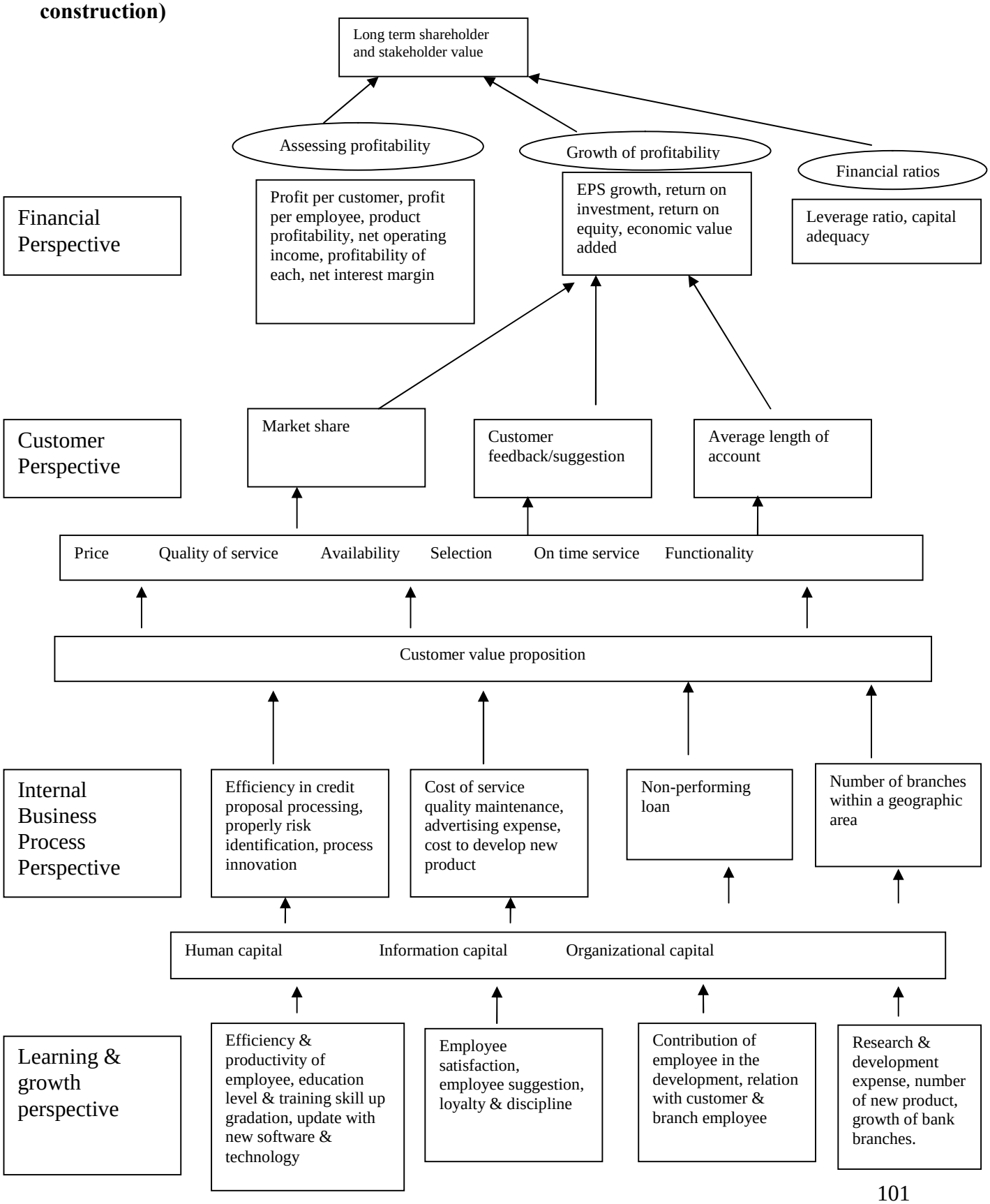
Balanced Scorecard not only provides a four perspectives model of performance, but also establishes cause and effect relationship within these four perspectives. The cause and effect relationship of Balanced Scorecard objectives and measures led to the creation of strategy map (Kaplan and Norton, 2000, 2001, and 2006).

Now, I would like to recommend a strategy map for the banks. Figure-13 provides a strategy map that links cause and effect relationship of the four perspectives of Balanced Scorecard which can be applied in the banking sector in Bangladesh. We know the ultimate goal of business is the shareholder wealth maximization. So this goal is the end point that all the banks want to achieve. To achieve this goal, the banks should assess their profitability by using various performance measures such as product profitability, net operating income, profitability of each and so on. The bank should also look after the growth of their profitability by using various Key performance indicators (KPIs) such as EPS growth, return on investment, return on equity etc. Again the banks carefully monitor their performance by calculating various ratios. All these financial measures help them to achieve the ultimate goal of wealth maximization of shareholders.

On the other hand, financial outcome of any bank depends on the customer perspective. So there is a strong cause and effect relationship between the financial perspective and customer perspective. The customer perspective such as market share and customer feedback/suggestion etc. underpins the financial perspective.

Again, the customer perspective depends on the internal business process of an organization. Internal business process of banks means how a bank provides its values & services to a customer. Internal business process perspective is related with the value creation and value delivery network. Internal business process perspective includes efficiency in credit proposal processing, properly risk identification, process innovation and so on. Superior internal business process results in superior value delivery to customers which ultimately satisfy them. In this way customer perspective of the banks relies heavily on internal business process.

**Figure-13: Strategy map of Balanced Scorecard with the four perspectives of BSC (own construction)**



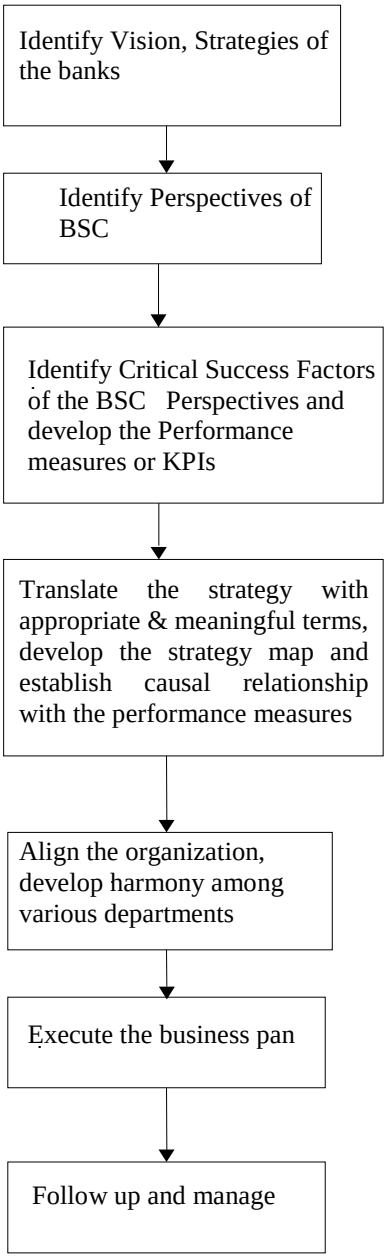
At last, the entire three perspectives stand upon the learning & growth perspective of a bank. Learning & growth perspective is the foundation pillar on which all the success of a bank depends. Since banking sector is a service industry, its success majorly depends on the efficient and satisfied workforces. Service profit chain is very crucial factor here. Learning & growth perspective includes— employee satisfaction, efficiency & productivity of employee, education level & training skill up gradation of employee, employee suggestion, loyalty & discipline, update with new software & technology etc. Satisfied and efficient employee can provide greater service quality which stimulates superior internal business process that ultimately hits the customer satisfaction level. Satisfied customers become the loyal customers which then help to increase customer equity of the banks. When the customers are happy then the market share of the banks will increase which will ultimately increase the profit, return on investment (ROI) and Earnings per share (EPS). The growth of EPS and profit help to maximize the wealth of the banks and finally best serve the shareholders and stakeholders.

### 5.2.3 Comprehensive guideline for performance measurement and management system for the banking sector:

In this stage, I recommend a holistic guideline for performance measurement and management system for the banking sector (Figure-14). At first, the individual bank should develop its own goal, objective, strategy, mission and vision. Developing the appropriate strategy is very crucial factor for successful performance management. Secondly, the bank should develop the BSC perspectives, the banks may also customize their Balanced Scorecard perspectives based on their needs and contingency. Thirdly, the banks should develop the performance measures or KPIs under each perspective of BSC. In this research, I identify few significant Key Performance Indicators (KPIs) those are very important and I recommend the banks to pay special attention on those KPIs (Shown in figure-12 & 13). Fourthly, the banks should translate the strategy with appropriate & meaningful terms. In this stage, the banks should develop the strategy map and establish causal relationship with the performance measures or KPIs and BSC perspectives. In figure-13, a strategy map is recommended with causal relationship among four perspectives of BSC. Fifthly, the bank should align the performance measurement system with the organization in a coherent manner. There should have a harmony among various departments, support units,

employees and Board of Directors. Sixthly, the bank should execute its business plan. Seventhly, the bank should monitor its functions. In this step, the bank should also carefully review its strategy and operations. Finally, the bank should test & adapt the strategy as well as change the performance measures or KPIs based on contingency.

**Figure-14: Steps for performance measurement and management system for banks**



## 5.3 Conclusion:

Balanced Scorecard (BSC) is gaining its momentum around the world. Many successful companies are using the BSC framework and many others are going to adapt it because of its comprehensive nature. The banking sector of Bangladesh is one of the major service sectors which is facing terrific competition from the local and international banks. I have observed that the banking sector of Bangladesh has reached its mature stage but yet could not establish any structured performance measurement system. To my knowledge, it is the first attempt to provide a structured & systematic guideline for the performance measurement and management system in the banking sector in Bangladesh. It is clearly found that only traditional financial measures are insufficient to manage the performance of the bank and to achieve its strategic goals. So the new non-financial measures become crucial factor for modern banking sector. This study reveals that learning & growth perspective has significant relationship with the performance of banks. The banks should develop their own intellectual capabilities to survive in the market place. The banks should develop not only the core capabilities, but also distinctive capabilities to differentiate them from others in the market place. I also find that overall BSC usage has significant and positive impact on the performance of banks. So the banking sector in Bangladesh should pay special attention to develop their Balanced Scorecard for their own interest. I have mentioned a BSC model for the banking sector in this study. However, the particular bank may customize it according to its own needs, goals and capabilities.

Research is an ongoing process which never ends. The performance measurement literature is very much rich and diversified. So, it is quite possible to examine the performance measurement system from different outlook & models. It is very much natural that new knowledge will emerge in future in different environments. In recent time, many researchers are trying to add new perspectives with the existing BSC literature. It is also probable that new perspectives may add with the existing perspectives to refine the Balanced Scorecard in future. This study is conducted on the banking sector in Bangladesh; this type of study may be done on the other sectors to generalize the applicability of Balanced Scorecard in Bangladesh.

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# APPENDIX- 1
# List of Population

There are 56 scheduled banks in Bangladesh who operate under full control and supervision of Bangladesh Bank which is empowered to do so through Bangladesh Bank Order, 1972 and Bank Company Act, 1991.

| **Ownership & Type of the bank** | **Name of the banks** | |
|---|---|---|
| State Owned Commercial Banks 2 | 1. | Sonali Bank Limited |
| | 2. | Agrani Bank Limited |
| | 3. | Rupali Bank Limited |
| | 4. | Janata Bank Limited |
| | | |
| Conventional Private Commercial Banks | 13. | Dutch Bangla Bank Limited |
| | 14. | Trust Bank Limited |
| | 15. | United Commercial Bank Limited |
| | 16. | Southeast Bank Limited |
| | 17. | Bank Asia Limited |
| | 18. | AB Bank Limited |
| | 19. | Pubali Bank Limited |
| | 20. | National Bank Limited |
| | 21. | Mercantile Bank Limited |
| | 22. | Mutual Trust Bank Limited |
| | 23. | Uttara Bank Limited |
| | 24. | The Premier Bank Limited |
| | 13. | The City Bank Limited |
| | 14. | BRAC Bank Limited |
| | 15. | Eastern Bank Limited |
| | 16. | Dhaka Bank Limited |
| | 17. | IFIC Bank Limited |
| | 18. | NCC Bank Limited |
| | 19. | Prime Bank Limited |
| | 20. | Standard Bank Limited |
| | 21. | One Bank Limited |
| | 22. | Jamuna Bank Limited |
| | 23. | NRB Commercial Bank Limited |
| | 24. | Bangladesh Commerce Bank Limited |
| | 25. | NRB Bank Limited |
| | 26. | Meghna Bank Limited |
| | 27. | Farmers Bank Limited |
| | 28. | Modhumoti Bank Limited |

| | | |
|---|---|---|
| | 29. | South Bangla Agriculture and Commerce Bank Ltd |
| | 30. | Midland Bank Limited |
| | 31. | NRB Global Bank Ltd |
| | | |
| Islami Shariah based Private Commercial Banks | 5. | Islami Bank of Bangladesh Limited |
| | 6. | Shahjalal Islami Bank Limited |
| | 7. | Export Import Bank of Bangladesh Limited |
| | 8. | Al-Arafah Islami Bank Limited |
| | 9. | Social Islami Bank Limited |
| | 10. | First Security Islami Bank Limited |
| | 11. | ICB Islamic Bank |
| | 12. | Union Bank Limited. |
| | | |
| Foreign Commercial Banks | 5. | Citibank NA |
| | 6. | HSBC |
| | 7. | Bank Alfalah |
| | 8. | Standard Chartered Bank |
| | 9. | Commercial Bank of Ceylon |
| | 10. | State Bank of India |
| | 11. | Habib Bank Limited |
| | 12. | National Bank of Pakistan |
| | 13. | Woori Bank |
| | | |
| Specialized Banks | 1. | BASIC Bank Limited (Bangladesh Small Industries and Commerce Bank Limited) |
| | 2. | Bangladesh Krishi Bank |
| | 3. | Rajshahi Krishi Unnayan Bank |
| | 4. | Bangladesh Development Bank Limited |

# APPENDIX 2

# Questionnaire

## Part A: Introduction

I am Md. Babar, Assistant Professor, Department of Accounting & Information Systems at Jagannath University, Dhaka. Currently, I am conducting M.Phil research under department of Accounting & Information Systems, University of Dhaka. My research title is "A Survey on Performance Measurement and Management System in the Banking Sector in Bangladesh."

As part of the M.Phil research, I am undertaking a study of how various commercial banks in Bangladesh use performance management measures and what kind of performance measures they use. The objective of this study is to develop a comprehensive set of performance measurement criteria that can serve as a standard or benchmark in the banking sector in Bangladesh. So, the contribution of this research is very much relevant and significant for the banking industry in Bangladesh.

All the information received be kept confidential and will be used for academic purpose only. Your information will not be disclosed to any unauthorized person. Your information will be treated as authentic and valuable resource for the study. Thank you for agreeing to participate in this study.

## Supervisor's Approval:

This is certifying that, Md. Babar is a regular student of M.Phil program at University of Dhaka, Bangladesh. He is one of my students. He is going to conduct a survey on "Performance Measurement and Management System in the Banking Sector in Bangladesh" as a research requirement for the fulfillment of the M.Phil Program. This task is quite difficult without your assistance. I assure that all the information provided by you will be dealt confidentially.
Your kind co-operation would be highly appreciated.

……..
(Dr. Mahmuda Akter)
Professor
Department of Accounting and Information Systems
Faculty of Business Studies
University of Dhaka, Bangladesh.

## Part B: Respondent profile

**Name of the Respondent:**

**Respondent's institution name:**

**Respondent's branch name:**

**Gender:** ☐ Male ☐ Female *[Please put a √ tick mark in the box]*

**Age:** ☐ 25-30 years ☐ 31-35 ☐ 36-40 ☐ 41-45 ☐ 46-50 ☐ 51- 55
☐ 56- 60 ☐ Above 60.

**Experience:** ☐ 1-5 years ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ 21-25 ☐ 26-30
☐ Above 30.

**Respondent's position:**

**Education:** ☐ Graduate with business background
☐ Graduate with non-business background
☐ Post-graduate with business background
☐ Post-graduate with non-business background
☐ M.Phil/ PhD
☐ Having professional qualifications (Please mention if any):
☐ Others (Please mention if any):

**Total number of the employee of the organization:**

**Total number of branches:**

## Part C: Measuring relative importance of the Key Performance Indicators (KPIs) for performance measurement and management system in the Banking Sector in Bangladesh.

Below there are few Key Performance Indicators (KPIs). Please indicate whether you use these KPIs for performance measurement and also state your perception toward the following factors.

| Items | Do you use the component for Performance measurement and management system in your organization? (Please give tick mark on the number.) | | | | |
|---|---|---|---|---|---|
| | Never | Rarely | Sometimes | Frequently | Always |
| **Financial perspective:** | | | | | |
| Return on investment (ROI) | 1 | 2 | 3 | 4 | 5 |
| Return on equity (ROE) | 1 | 2 | 3 | 4 | 5 |
| Net interest margin (Net interest income) | 1 | 2 | 3 | 4 | 5 |
| Economic value added (EVA) | 1 | 2 | 3 | 4 | 5 |
| Cash flow | 1 | 2 | 3 | 4 | 5 |
| Net operating income | 1 | 2 | 3 | 4 | 5 |
| Price- earnings ratio (P/E ratio) | 1 | 2 | 3 | 4 | 5 |
| Capital adequacy | 1 | 2 | 3 | 4 | 5 |
| Liquidity (Liquidity ratio) | 1 | 2 | 3 | 4 | 5 |
| Leverage ratio | 1 | 2 | 3 | 4 | 5 |
| Non interest income | 1 | 2 | 3 | 4 | 5 |
| Profitability of each branch | 1 | 2 | 3 | 4 | 5 |
| Profit per customer | 1 | 2 | 3 | 4 | 5 |
| Profit per employee | 1 | 2 | 3 | 4 | 5 |
| Product profitability | 1 | 2 | 3 | 4 | 5 |
| Revenue growth | 1 | 2 | 3 | 4 | 5 |
| EPS growth | 1 | 2 | 3 | 4 | 5 |
| Comparison between standard cost with actual cost | 1 | 2 | 3 | 4 | 5 |
| **Customer perspective:** | | | | | |
| Market share | 1 | 2 | 3 | 4 | 5 |
| Total number of customer per branch | 1 | 2 | 3 | 4 | 5 |
| Customer satisfaction | 1 | 2 | 3 | 4 | 5 |
| Number of complaints from customer | 1 | 2 | 3 | 4 | 5 |
| Customer growth | 1 | 2 | 3 | 4 | 5 |
| Average length of time of an account | 1 | 2 | 3 | 4 | 5 |
| Customer retention | 1 | 2 | 3 | 4 | 5 |
| Customer feedback/suggestion | 1 | 2 | 3 | 4 | 5 |
| | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **Internal business perspective:** | | | | | |
| Non-performing loan (Default loan) | 1 | 2 | 3 | 4 | 5 |
| Properly risk identification | 1 | 2 | 3 | 4 | 5 |
| Efficiency in credit proposal processing | 1 | 2 | 3 | 4 | 5 |
| Maintain desired level of loans and advance | 1 | 2 | 3 | 4 | 5 |
| On time service | 1 | 2 | 3 | 4 | 5 |
| Advertising expense | 1 | 2 | 3 | 4 | 5 |
| Cost of branches | 1 | 2 | 3 | 4 | 5 |
| Cost of service quality maintenance | 1 | 2 | 3 | 4 | 5 |
| Number of branches within a geographical area | 1 | 2 | 3 | 4 | 5 |
| Process innovation | 1 | 2 | 3 | 4 | 5 |
| Number of error in activities of employee | 1 | 2 | 3 | 4 | 5 |
| Percentage of process covered by IT | 1 | 2 | 3 | 4 | 5 |
| Cost to develop new product | 1 | 2 | 3 | 4 | 5 |
| **Learning and growth perspective:** | | | | | |
| Employee satisfaction | 1 | 2 | 3 | 4 | 5 |
| Efficiency & productivity of employee | 1 | 2 | 3 | 4 | 5 |
| Contribution of employee in the development of the organization | 1 | 2 | 3 | 4 | 5 |
| Relation with customer & branch employee | 1 | 2 | 3 | 4 | 5 |
| Loyalty and discipline | 1 | 2 | 3 | 4 | 5 |
| Education level & training skill up gradation | 1 | 2 | 3 | 4 | 5 |
| Employee turnover | 1 | 2 | 3 | 4 | 5 |
| Update with new software & technology | 1 | 2 | 3 | 4 | 5 |
| Research & Development expense | 1 | 2 | 3 | 4 | 5 |
| Employee suggestions | 1 | 2 | 3 | 4 | 5 |
| Growth of bank branches | 1 | 2 | 3 | 4 | 5 |
| No. of new product | 1 | 2 | 3 | 4 | 5 |

## Perception of Management towards organization's performance:

*[Please put tick mark]*

Q1. Do you think productivity of this bank has increased in the last three years?
(a) Decreased tremendously (b) Decreased (c) Neutral (d) Increased (e) Increased tremendously

Q2. Do you think cost of this bank has decreased in the last three years?
(a) Decreased tremendously (b) Decreased (c) Neutral (d) Increased (e) Increased tremendously

Q3. Do you think quality of services of this bank has increased in the last three years?
(a) Decreased tremendously (b) Decreased (c) Neutral (d) Increased (e) Increased tremendously

Q4. Do you think on time service delivery of this bank has increased in the last three years?
(a) Decreased tremendously (b) Decreased (c) Neutral (d) Increased (e) Increased tremendously

Q5. Do you think market share of this bank has increased in the last three years?
(a) Decreased tremendously (b) Decreased (c) Neutral (d) Increased (e) Increased tremendously

Q6. Do you think revenue growth rate of this bank has increased in the last three years?
(a) Decreased tremendously (b) Decreased (c) Neutral (d) Increased (e) Increased tremendously

Q7. Do you think operating profit of this bank has increased in the last three years?
(a) Decreased tremendously (b) Decreased (c) Neutral (d) Increased (e) Increased tremendously

Q8. Do you think cash flow from operation of this bank has increased in the last three years?
(a) Decreased tremendously (b) Decreased (c) Neutral (d) Increased (e) Increased tremendously

Q9. Do you think return on investment (ROI) of this bank has increased in the last three years?
(a) Decreased tremendously (b) Decreased (c) Neutral (d) Increased (e) Increased tremendously

Q10. Do you think new product development of this bank has increased in the last three years?
(a) Decreased tremendously (b) Decreased (c) Neutral (d) Increased (e) Increased tremendously

Q11. Do you think Research & development activity of this bank has increased in the last three years?
(a) Decreased tremendously (b) Decreased (c) Neutral (d) Increased (e) Increased tremendously

Q12. Do you think personnel (employee) development of this bank has increased in the last three years?
(a) Decreased tremendously (b) Decreased (c) Neutral (d) Increased (e) Increased tremendously

**General Question:**

Q13. Have you heard about Balanced Scorecard?
(a) Yes (b) No

**Thank You!**

# APPENDIX- 3
# Cronbach alpha coefficient

R E L I A B I L I T Y  A N A L Y S I S  -  S C A L E  (A L P H A)

| | | |
|---|---|---|
| 1. | ROI1 | Return on investment |
| 2. | ROE2 | Return on equity |
| 3. | NETINTM3 | Net interest margin |
| 4. | EVA4 | Economic value added |
| 5. | CASHFL5 | cash flow |
| 6. | OPINC6 | Net operating income |
| 7. | PE7 | Price/Earning ratio |
| 8. | CAPADE8 | Capital adequacy |
| 9. | LIQUID9 | Liquidity ratio |
| 10. | LEVERG10 | Leverage ratio |
| 11. | NONINT11 | Non interest income |
| 12. | PRFBR12 | Profitablity of each branch |
| 13. | PRFCS13 | Profit per customer |
| 14. | PRFEMP14 | Profit per employee |
| 15. | PRDPRF15 | Product profitability |
| 16. | REVGRW16 | Revenue growth |
| 17. | EPSGR17 | EPS growth |
| 18. | ST_ACT18 | Comparison between standard cost with actual |

Reliability Coefficients

No of Cases = 89.0 No of Items = 18

Alpha for financial performance Measure variables = .8075

R E L I A B I L I T Y  A N A L Y S I S  -  S C A L E  (A L P H A)

| | | |
|---|---|---|
| 1. | MKT_SH19 | Market share |
| 2. | CUS_BR20 | Customer per branch |
| 3. | CUS_ST21 | Customer satisfaction |
| 4. | COM_CS22 | Number of complain from customer |
| 5. | CUS_GR23 | Customer growth |
| 6. | LEN_AC24 | Avg. length of account |
| 7. | CUS_RN25 | Customer retention |
| 8. | CUS_FE26 | Customer feedback/suggestion |
| 9. | ONT_SR31 | On time service |

Reliability Coefficients

No of Cases = 89.0 No of Items = 9

Alpha for customer Measure variables = .6943

R E L I A B I L I T Y  A N A L Y S I S  -  S C A L E  (A L P H A)

| | | |
|---|---|---|
| 1. | NONPF_27 | Non performing loan |
| 2. | RIS_ID28 | Properly risk identification |
| 3. | EF_PRO29 | Efficiency in credit proposal processing |
| 4. | LEV_LO30 | Desired level loans |
| 5. | ADV_EX32 | Advertising expense |
| 6. | COS_BR33 | Cost of branches |
| 7. | COS_QL34 | Cost of service quality maintenance |
| 8. | BR_GEO35 | No. of branches within a geographic area |
| 9. | PRC_IN36 | Process innovation |
| 10. | ERR_EM37 | No. of error of employee |
| 11. | PEC_IT38 | Percentage of process covered by IT |
| 12. | COS_NP39 | Cost to develop new product |

Reliability Coefficients

No of Cases = 89.0 No of Items = 12

Alpha for internal business process measure variables = .7905

R E L I A B I L I T Y  A N A L Y S I S  -  S C A L E  (A L P H A)

| | | |
|---|---|---|
| 1. | EM_SAT40 | Employee satisfaction |
| 2. | EF_EMP41 | Efficiency & productivity of employee |
| 3. | CON_EM42 | Contribution of employee in the developm |
| 4. | RELTN43 | Relation with customer & branch employee |
| 5. | LOYL44 | Loyality & discipline |
| 6. | ED_UP45 | Education level & training skill up grad |
| 7. | EP_TRN46 | Employee turnover |
| 8. | UP_SOF47 | Update with new software & technology |
| 9. | R_D48 | Research & development expense |
| 10. | EP_SUG49 | Employee suggestion |
| 11. | GR_BR50 | Growth of bank branches |
| 12. | NEW_PR51 | No. of new product |

Reliability Coefficients

No of Cases = 89.0 No of Items = 12

Alpha for learning &growth measure variables = .8992

_

R E L I A B I L I T Y  A N A L Y S I S  -  S C A L E  (A L P H A)

| | | |
|---|---|---|
| 1. | ROI1 | Return on investment |
| 2. | ROE2 | Return on equity |
| 3. | NETINTM3 | Net interest margin |
| 4. | EVA4 | Economic value added |
| 5. | CASHFL5 | cash flow |

| | | |
|---|---|---|
| 6. | OPINC6 | Net operating income |
| 7. | PE7 | Price/Earning ratio |
| 8. | CAPADE8 | Capital adequacy |
| 9. | LIQUID9 | Liquidity ratio |
| 10. | LEVERG10 | Leverage ratio |
| 11. | NONINT11 | Non interest income |
| 12. | PRFBR12 | Profitablity of each branch |
| 13. | PRFCS13 | Profit per customer |
| 14. | PRFEMP14 | Profit per employee |
| 15. | PRDPRF15 | Product profitability |
| 16. | REVGRW16 | Revenue growth |
| 17. | EPSGR17 | EPS growth |
| 18. | ST_ACT18 | Comparison between standard cost with ac |
| 19. | MKT_SH19 | Market share |
| 20. | CUS_BR20 | Customer per branch |
| 21. | CUS_ST21 | Customer satisfaction |
| 22. | COM_CS22 | Number of complain from customer |
| 23. | CUS_GR23 | Customer growth |
| 24. | LEN_AC24 | Avg. length of account |
| 25. | CUS_RN25 | Customer retention |
| 26. | CUS_FE26 | Customer feedback/suggestion |
| 27. | NONPF_27 | Non performing loan |
| 28. | RIS_ID28 | Properly risk identification |
| 29. | EF_PRO29 | Efficiency in credit proposal processing |
| 30. | LEV_LO30 | Desired level loans |
| 31. | ONT_SR31 | On time service |
| 32. | ADV_EX32 | Advertising expense |
| 33. | COS_BR33 | Cost of branches |
| 34. | COS_QL34 | Cost of service quality maintenance |
| 35. | BR_GEO35 | No. of branches within a geographic area |
| 36. | PRC_IN36 | Process innovation |
| 37. | ERR_EM37 | No. of error of employee |
| 38. | PEC_IT38 | Percentage of process covered by IT |
| 39. | COS_NP39 | Cost to develop new product |
| 40. | EM_SAT40 | Employee satisfaction |
| 41. | EF_EMP41 | Efficiency & productivity of employee |
| 42. | CON_EM42 | Contribution of employee in the developm |
| 43. | RELTN43 | Relation with customer & branch employee |
| 44. | LOYL44 | Loyality & discipline |
| 45. | ED_UP45 | Education level & training skill up grad |
| 46. | EP_TRN46 | Employee turnover |
| 47. | UP_SOF47 | Update with new software & technology |
| 48. | R_D48 | Research & development expense |
| 49. | EP_SUG49 | Employee suggestion |
| 50. | GR_BR50 | Growth of bank branches |
| 51. | NEW_PR51 | No. of new product |

Reliability Coefficients

No of Cases = 89.0 No of Items = 51

Alpha overall = .9229

# APPENDIX- 4: Regression

# (SPSS software generated)

**Variables Entered/Removed(b)**

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | AVG_GROW, AVG_CUST, AVG_FIN, AVG_INTE(a) | . | Enter |

a All requested variables entered.
b Dependent Variable: Performance of the organization

**Model Summary(b)**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .500(a) | .250 | .214 | .33052 | 1.641 |

a Predictors: (Constant), AVG_GROW, AVG_CUST, AVG_FIN, AVG_INTE
b Dependent Variable: Performance of the organization

**ANOVA(b)**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 3.055 | 4 | .764 | 6.991 | .000(a) |
| | Residual | 9.177 | 84 | .109 | | |
| | Total | 12.232 | 88 | | | |

a Predictors: (Constant), AVG_GROW, AVG_CUST, AVG_FIN, AVG_INTE
b Dependent Variable: Performance of the organization

**Coefficients(a)**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. | Collinearity Statistics | |
|---|---|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | | Tolerance | VIF |
| 1 | (Constant) | 2.831 | .363 | | 7.807 | .000 | | |
| | AVG_FIN | .006 | .099 | .007 | .062 | .951 | .657 | 1.522 |
| | AVG_CUST | -.109 | .080 | -.159 | -1.372 | .174 | .664 | 1.506 |
| | AVG_INTE | .040 | .099 | .054 | .401 | .689 | .499 | 2.003 |
| | AVG_GROW | .305 | .075 | .514 | 4.065 | .000 | .558 | 1.793 |

a Dependent Variable: Performance of the organization

**Collinearity Diagnostics(a)**

| Model | Dimension | Eigenvalue | Condition Index | Variance Proportions | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | (Constant) | AVG_FIN | AVG_CUST | AVG_INTE | AVG_GROW |
| 1 | 1 | 4.965 | 1.000 | .00 | .00 | .00 | .00 | .00 |
| | 2 | .013 | 19.230 | .12 | .04 | .09 | .03 | .59 |
| | 3 | .010 | 22.316 | .24 | .05 | .85 | .00 | .00 |
| | 4 | .006 | 28.515 | .07 | .01 | .03 | .96 | .40 |
| | 5 | .005 | 30.711 | .57 | .90 | .03 | .01 | .01 |

**Residuals Statistics(a)**

| | Minimum | Maximum | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Predicted Value | 3.1290 | 4.1612 | 3.8200 | .18632 | 89 |
| Std. Predicted Value | -3.709 | 1.832 | .000 | 1.000 | 89 |
| Standard Error of Predicted Value | .03922 | .16446 | .07439 | .02472 | 89 |
| Adjusted Predicted Value | 3.2741 | 4.1885 | 3.8200 | .18599 | 89 |
| Residual | -.7398 | .9137 | .0000 | .32292 | 89 |
| Std. Residual | -2.238 | 2.764 | .000 | .977 | 89 |
| Stud. Residual | -2.256 | 2.820 | .000 | 1.007 | 89 |
| Deleted Residual | -.7746 | .9511 | .0000 | .34329 | 89 |
| Stud. Deleted Residual | -2.314 | 2.946 | .000 | 1.019 | 89 |
| Mahal. Distance | .250 | 20.798 | 3.955 | 3.583 | 89 |
| Cook's Distance | .000 | .206 | .013 | .026 | 89 |
| Centered Leverage Value | .003 | .236 | .045 | .041 | 89 |

# Appendix 5: Regression Overall Balanced Scorecard (SPSS software generated)

**Variables Entered/Removed(b)**

| Model | Variables Entered | Variables Removed | Method |
|---|---|---|---|
| 1 | AVG_ALL(a) | . | Enter |

**Model Summary(b)**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Durbin-Watson |
|---|---|---|---|---|---|
| 1 | .354(a) | .125 | .115 | .35069 | 1.481 |

**ANOVA(b)**

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 1.532 | 1 | 1.532 | 12.458 | .001(a) |
| | Residual | 10.700 | 87 | .123 | | |
| | Total | 12.232 | 88 | | | |

**Coefficients(a)**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 2.563 | .358 | | 7.160 | .000 |
| | AVG_ALL | .313 | .089 | .354 | 3.530 | .001 |

**Residuals Statistics(a)**

| | Minimum | Maximum | Mean | Std. Deviation | N |
|---|---|---|---|---|---|
| Predicted Value | 3.3475 | 4.0572 | 3.8200 | .13195 | 89 |
| Std. Predicted Value | -3.581 | 1.798 | .000 | 1.000 | 89 |
| Standard Error of Predicted Value | .03739 | .13893 | .05008 | .01608 | 89 |
| Adjusted Predicted Value | 3.3042 | 4.0601 | 3.8198 | .13278 | 89 |
| Residual | -1.0217 | .9549 | .0000 | .34869 | 89 |
| Std. Residual | -2.913 | 2.723 | .000 | .994 | 89 |
| Stud. Residual | -3.020 | 2.773 | .000 | 1.008 | 89 |
| Deleted Residual | -1.0978 | .9906 | .0002 | .35831 | 89 |
| Stud. Deleted Residual | -3.173 | 2.888 | -.002 | 1.024 | 89 |
| Mahal. Distance | .011 | 12.823 | .989 | 1.652 | 89 |
| Cook's Distance | .000 | .340 | .014 | .040 | 89 |
| Centered Leverage Value | .000 | .146 | .011 | .019 | 89 |