

A Perception Analysis of Financial and Non-Financial Performance Measurement for Banking Sector in Bangladesh: A Structural Equation Modeling Approach

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Abstract: This paper sheds light on perception of the bankers for organizational performance appraisal through financial and nonfinancial performance dimensions. The survey, conducted in Bangladeshi banking industry, demonstrates the association between financial and non-financial performance indicators on banking performance. Hypotheses were tested with data collected from a sample of 179 managers and senior executives of banks by using structural equation modeling (SEM) through AMOS 18.0. Results indicate that both non-financial and financial performance measures significantly affect banking performance leading to sustainable success and growth in long run. These findings were mostly consistent with the literature on the effects of financial and non-financial dimensions on organizational performance. The survey shows that the financial and non-financial measurements together have an effect on organizational performance outcomes. Bank managers should restructure the traditional financial ratio based performance measurement system in favor of a balanced and holistic system incorporating the non-financial measures.

Keywords: Financial and non-financial performance measurements, organizational performance, Bangladeshi Banks.

I. Introduction

The collapse of two big corporate giants Marconi in the UK and Enron in the US has put forward the significance of reporting intangibles and assessing managerial performance based on non-financial perspective along with the conventional financial ratios (CIMA, 2015). Abu-Jarad et al., (2010) regarded "defining, conceptualizing, and measuring the firm's performance" as the key issue for every organization. Griffin (2003) described organizational performance as "the extent to which the organization is able to meet the

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needs of its stakeholders and its own needs for survival enhanced by multitude factors combined in unique ways". Hence, a success story for a bank should not rely wholly on a certain profit margin, high EPS or good ROE as financial ratio based performance measure can be manipulated by the managers. Rather a strategic performance measurement system (PMS), that is devised to combine financial and non-financial measures, should be formulated so that "strategy can be converted into a consistent set of performance measures" (Chenhall, 2005).

II. Literature Review

Definitions of performance remain to be a debatable issue among academicians, practitioners and researchers (Barney, 1991). Organizational performance can be defined as the "organization's ability to attain its goals by using resources in an efficient and effective manner" (Daft, 2000) or as "the ability of the organization to achieve its goals and objectives" (Richardo, 2001). Scholars like Doyle (1994), Robinson, (1982) and Galbraith & Schendel, (1983) treated profitability ratios (Profit margin, return on assets return on equity, and return on sales) as the universal measure of performance. The narrowest idea of performance measurement involves "the use of simple outcome-based financial indicators that are assumed to reflect the fulfillment of the economic goals of the firm" referred to as *financial performance* (Venkatraman and Ramanujam, 1986) which has been the prevailing model in strategy research by Hofer (1983). Venkatraman and Ramanujam, (1986) further conceptualized a broader idea of business performance that emphasized on indicators of operational or non-financial performance such as market-share (Buzzell, Gale, & Sultan, 1975), product innovation, product quality, marketing success, manufacturing value-added and technological competence replacing conventional financial ratios like ROI, ROA, Cash Flow, Net Operating Income, ROE, and EPS among others. "Healthy revenue growth, proper utilization of assets and investment strategy" are the recipe for organizational success (Hoque et al., 1997).

Reliance only on financial approaches that form a gap between strategy formulation and execution, encouraged Kaplan and Norton (1992) to propose the Balanced Scorecard (BSC) as an mechanism to "link performance measures by looking at the business's strategic vision from four different perspectives: Financial, Customer, Internal Processes, and Learning and Growth". The Balanced Scorecard considers the value of intangible assets along with tangible ones and enables performance management system to reach its aims (Kaplan and Norton, 2004). The BSC presents a balance of financial and non-financial criteria in a single report while measuring corporate performance in all the dimensions of Balanced Scorecards (Hornigren et al., 2003). Recent researches on performance measurement indicate that corporate managers put little emphasis on traditional historical cost based financial ratio, like operating income or return on investment, which do not satisfactorily represent firm performance affected by today's

changing business environments (Hoque, Z., 2005) and excludes information about the drivers of future financial performance (Hoque, Z., Mia, L., & Alam, M., 2001).

Performance measurement is a persistent issue in modern day banking strategic management. Banks rely on stable and long lasting client relationships largely reliant on performance and caliber of the employees and their ability to satisfy client needs (Cabrita and Bontis, 2008). Service performance is found to be one of the imperative indicators of strategic performance management in previous researches (Parasuraman et al., 1985; Carman, 1990; Bolton and Drew, 1991). Superior customer satisfaction enhances financial performance "by increasing the loyalty of existing customers, reducing price elasticity, lowering marketing costs through positive word-of-mouth advertising, reducing transaction costs, and enhancing firm reputation" [Ittner (1998), Anderson, Fornell, and Lehmann (1994), and Reichheld and Sasser (1990)]. AAA Financial Accounting Standards Committee (2002) reported that nonfinancial performance indicators are appropriate for predicting future financial performance enhancing the value of financial measures and corporate equity due to interactive effects between the two. A 1999 survey of US banks found that 20% of the organizations apply non financial performance measures. (Ittner, Larcker and Randall, 2003).

Banking performance is viewed as a "result more from superior execution, than from structural competitive barriers" (Bhide, 1986). Banks, therefore, should put greater emphasis on addressing all the non-financial dimensions strategically allied with banks' overall mission and vision. Zhang and Li (2009) believed non financial performance measurement to be an integral part of the Chinese banking management. Ahmed et al., (2011) surveyed a sample of 27 Pakistani banks to identify the non financial measures that are used by the sample banks and the significance of the measures varied among the sample banks. Fakhri et al., (2011) and Wu et al., (2009), in separate research papers, discovered the non-financial measures raising the banks' value through the introduction of customer, internal business processes, employee learning and growth dimensions along with financial factors. Skandia, one of Sweden's leading global financial companies, developed a systematic way of visualizing and measuring intangible assets and non-financial aspects to assess the value of a firm also known "Skandia Navigator".

Dynamic structural and technological innovations in banking industry inspired top management to alter their business strategies to match "financial globalization, intensified competition, Information and Communication Technology (ICT) developments, and deregulation and (re) regulation". (Cabrita & Bontis, 2008). Scholars like Dave (2012), Nijjar et al., (2012), Panicker et al., (2013) and Öztürk et al., (2014) concluded that it is more beneficial to prepare a holistic report with financial and non-financial dimensions for the banks than to report only financial ratio based performance measurement.

III. Research Methodology

A. Purpose of the Study:

The study intends to investigate relations among organizational performance, financial performance and non-financial performance measures in Bangladeshi banking industry. To examine the propositions, survey data were collected through questionnaire survey with bank managers and employees. Sample size should be 200+ or 5 cases per parameter (Bentler and Chou 1987) e.g. the number of antecedent constructs leading to an endogenous construct.

B. Hypotheses:

- H1: Financial measurement indicators positively influence organizational performance;
- H2: Non-financial measurement indicators positively influence organizational performance;
- H3: Financial and non-financial performance indicators have positive correlation among themselves.

C. Data Analysis:

This empirical study is based on primary data using Structural equation modeling (SEM). SEM facilitates "the simultaneous testing of hypotheses about the dimensionality of and interrelationships among latent and observed variables" (Cooper and Schindler, 2011) using the measurement and structural models (Mention and Bontis, 2013). The measurement model derives the relations between the indicators and the latent variables which they contribute to measure, while the latter considers the relations among the latent constructs (Mention and Bontis, 2013). A total of 179 useful questionnaires were obtained during the course of survey. The questionnaire for testing the hypothesized model is based on indicators of Financial (eleven items), Non-financial (nine items) and Organizational Performance (six items) prepared upon review of on prior researches (Figure 1) with 5-Likert interval scales measurement (5—strongly agree and 1—strongly disagree). The survey included four demographic questions using ordinal and nominal scale such as age, gender, experience and education. The 179 dataset are coded and saved into IBM SPSS version 21 and analyzed through statistical validity tests (reliability test and construct validity tests) using factor analysis. Then the structural model was constructed from the hypothesized measurement model with the reliable items and latent constructs using SPSS AMOS version 18.

MAIN PERSPECTIVES	INDICATORS		REFERENTIAL SOURCES
Non-Financial Indicators	NFV1	Differentiation of Product and Services	Kaplan and Norton, (1996a); Evans, (2004); Banker <i>et al.</i> , (2004); Zimmerman, (2003); Wu, Tzeng & Chen, (2009); Mention & Bontis (2013); Eltinay & Masri (2014).
	NFV2	Success Rate of New Product launch	
	NFV3	Customer Satisfaction	
	NFV4	Level of Innovation	
	NFV5	Response to Competition and Changes in Environment	
	NFV6	Satisfaction and Training of Employees	
	NFV7	Loan Quality	
	NFV8	Human Resource Efficiency (Revenue earned per employee)	
	NFV9	Process Efficiency (Cost per transaction)	
Financial Indicators	FV1	Earnings per Share (EPS)	Eltinay and Masri (2014); Banker <i>et al.</i> , (2004); Wu, Tzeng & Chen, (2009); Dave <i>et al.</i> , (2012)
	FV2	Profit margin	
	FV3	Capital Adequacy Ratio	
	FV4	Return on Assets (ROA)	
	FV5	Total Asset Turnover	
	FV6	Return on Investment (ROI)	
	FV7	Liquidity Ratio	
	FV8	Cash deposit ratio	
	FV9	Credit deposit ratio	
	FV10	Investment Deposit Ratio	
	FV11	Interest income to total asset ratio	
Organizational Performance	OP1	Return on Equity (After-Tax)	Mention & Bontis (2013); Eltinay & Masri (2014)
	OP2	CAMELS Rating by Bangladesh Bank	
	OP3	Organizational Reputation	
	OP4	Future Outlook	
	OP5	Business Growth	
	OP6	Market Share	

Figure 1: Indicators of financial, non-financial and organizational performance measures

The steps in SEM analysis are Confirmatory Factor Analysis, testing the fit for the hypothesized structural model, revised model and comparison analysis. (Eltinay & Masri, 2014)

D. Limitations of the Study:

This empirical study may have a representativeness bias which is typical in most such surveys. The survey was conducted in 6 private commercial banks. This may not represent the whole population. The survey is based on perception analysis. So there may

be a deviation of the banker's perceived banking performance and the actual performance of the banks.

IV. Findings and Analysis

A. Reliability Test

The data-set was run for 26 performance indicators in SPSS for reliability test using Cronbach's Alpha, which should be more than 0.70 for content validity.

Items	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	No. of Items
Non-Financial	.802	.808	9
Financial	.817	.821	11
OP	.740	.749	6

Figure 2: Reliability Statistics

B. Goodness of Fit Indices of Initial Model:

The hypothesized structural model (Figure 3), comprising two endogenous variables (Financial and Non-financial Performance Indicators) and one exogenous variable (Organizational Performance Indicators) was constructed using valid indicators determined through initial factor analysis of three latent variables. The factor loadings or regression estimates of latent construct to indicators should be above 0.5 and ideally 0.7 or higher. (Hair et al., 2006)

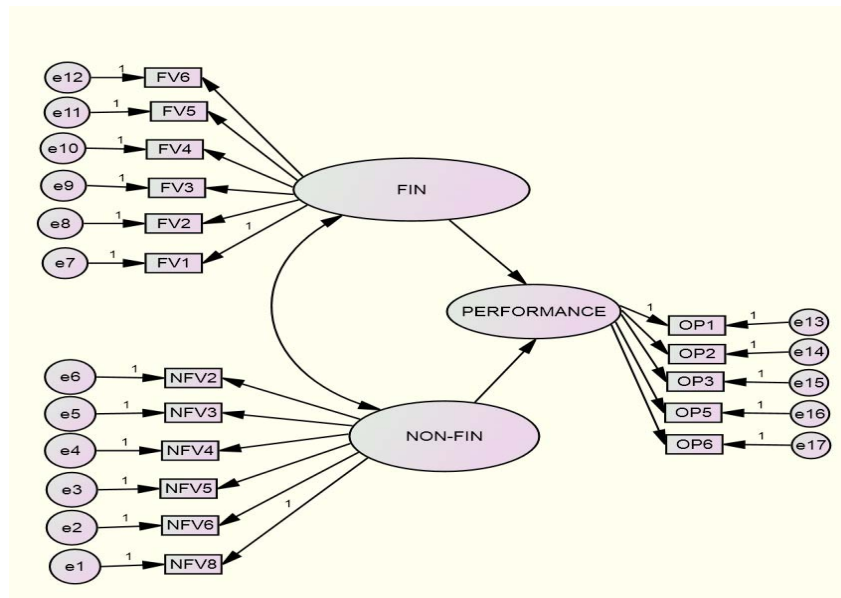


Figure 3: Initial Hypothesized Model (SPSS AMOS 18.0)

The structural model was measured by the goodness of fit indices such as $\chi^2/\text{d.f.}$ ratio (<2); p-close value (>0.05); Bentler Comparative Fit Index (CFI) of ≥ 0.90 ; Tucker-Lewis Index (TLI) of >0.90 ; Root mean square residual (RMR) of values ≤ 0.05 and Root Mean Square Error of Approximation (RMSEA) of values less than 0.07 (<0.07). A cut-off criterion of CFI ≥ 0.90 (acceptable fit) was initially advanced. However, recent studies have shown a value of CFI ≥ 0.95 deemed as indicative of better fit to ensure that mis-specified models are not accepted (Hu and Bentler, 1999). Table 4 and Table 6 indicate that the goodness of fit of final re-generated model is better compared to the initial hypothesized model.

Model Fit Measures	Recommended Values	Values	Conclusion of Initial Model
χ^2/df	≤ 2.0 (Tabachnick and Fidell, 2007) ≤ 5.0 (Wheaton et al, 1977)	2.649	Fit
RMSEA	≤ 0.07 (Steiger, 2007)	0.096	Not Fit
P-close	≥ 0.05	.000	Not Fit
CFI	≥ 0.9 (Bentler, 1990)	0.827	Not Fit
RMR	≤ 0.05	0.107	Not Fit
TLI	≥ 0.9	0.801	Not Fit

Figure 4: Initial Structural Model Fit

C. Confirmatory Factor Analysis (CFA) Results and Final Model Fit:

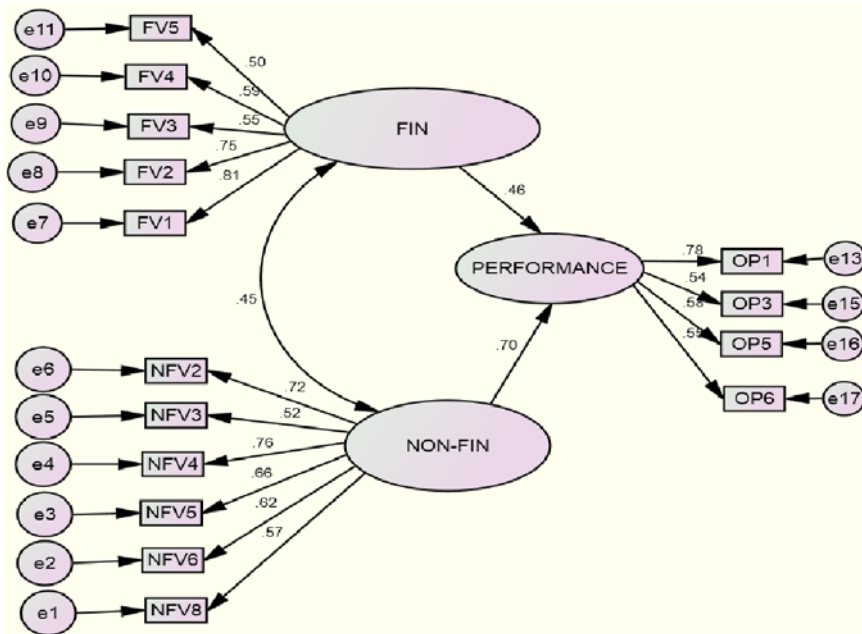


Figure 5: Final Structural Model

The factor loadings of all observed variables or indicators from CFA results (figures 5) are satisfactory ranging from 0.50 to 0.81. After the final construct validity test, the remaining numbers of items for each construct are: financial measurements roles (5 items), non-financial measurements (6 items) and OP (4 items).

Bank Performance with Non-Financial Performance Indicators

The variable, non-financial performance measurements, was initially considered by 9 indicators (Table 1) by using a 5-point Likert scale ranging from “strongly disagree” to “strongly agree”. A CFA conducted to validate the measurement of latent component, where items : NFV1, NFV7 and NFY9 were dropped due to their poor factor loadings with six indicators acceptable factor loadings ranging from 0.52 to 0.76 (Figure 5). The items of this latent construct remained reliable in the structural model are as follows:

- Success Rate of New Product
- Customer Satisfaction
- Level of Innovation
- Response to Competition and Changes in Environment
- Satisfaction and Training of Employees
- Human Resource Efficiency

Bank Performance with Financial Performance Indicators

Financial performance measurements were initially indicated by 11 indicators (Table 1) again by using the same 5-point Likert scale. The CFA validation found the following items qualified with acceptable loadings for preparation of the structural model:

- EPS
- Profit margin
- Capital Adequacy Ratio
- ROA
- Total Asset Turnover
- ROI (Dropped during the final CFA and model fit)

Hypothesis Testing and Final Model Fit:

The initial hypothesized model (Figure 3 and 4) does not achieve good model fit. As a result, modification of the initial model into final structural model (Figure 5) was necessary for better model fit. This process was done by dropping two more indicators, e.g. OP2 and FV6 after observing modification indices and standardized residual covariance. Figure 6 indicates that the final model satisfies model fit indices at an acceptable level.

Model Fit Measures	Recommended Values	Values	Conclusion of Final Model
χ^2/df	≤ 2.0 (Tabachnick and Fidell, 2007) ≤ 5.0 (Wheaton et al, 1977)	1.737	Fit
RMSEA	≤ 0.07 (Steiger, 2007)	0.064	Fit
P-close	≥ 0.05	0.085	Fit
CFI	≥ 0.9 (Bentler, 1990)	0.928	Fit
RMR	≤ 0.05	0.049	Fit
TLI	≥ 0.9	0.914	Fit

Figure 6: Final Structural Model Fit

Path	Hypotheses	b-path	C.R.	Significance	Support	Direction
Fin>OP	H1	0.46	6.028	Y	Y	+
Non-Fin>OP	H2	0.70	6.477	Y	Y	+
Fin<->Non-Fin	H3	0.45	4.051	Y	Y	+

Figure 7: Hypotheses Testing

All three hypotheses are supported. Results from Figure 7 imply that both financial measurement indicators and non-financial measurement indicators influence Organizational performance at significant level. Financial and non-financial performance measures have significant and positive correlation between themselves, while the covariance between them is estimated to be 0.202.

V. Conclusion and Research Implications

This study primarily aimed to contribute to the relatively scarce researches focussing on quantifying the effects of financial and non-financial performance measurement on business performance in Bangladeshi banking industry. The results may guide bank managers to devise better Performance Measurement System (PMS). Further research may be conducted to ascertain the significance of implication of these two performance measurement aspects within the broader scope of banking activities through investigation of these relationships in specific settings (e.g. private, corporate and retail) or the nature of banking business (e.g. nationalized, private commercial, foreign commercial, specialized and Islamic banking). Direction for future research may also include studies to comprehend the dynamics of the value creation through financial and non-financial performance indicators in other industries as well.

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