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# Non-financial Performance Measures and Firm Value in Nigeria: What is the Link?

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**Author's contribution**

*This whole work was carried out by author DEE.*

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## ABSTRACT

Financial measures have been and continued to be used for measuring and understanding the health of business organizations. These measures have been criticized as backward looking and debates on the usefulness of non-financial measures (NFM) have been on. This paper examined the relationship between NFM and firm value of quoted companies in Nigeria from 2006-2010. The companies were classified into 32 industrial sectors made up of 199 listed companies. Systematic sampling technique was used to select 16 sectors comprising of 134 companies. At least 50% of the number of companies in each sector was selected using random sampling technique which gave rise to sample size of 66 companies. However, companies with incomplete data were eliminated resulting in a final sample size of 47 companies. The NFM were categorized into eight classes. A regression analysis of the model revealed that NFM accounts for 15.6% influence on firm value in Nigeria. NFM such as new product development; strength of market position; and quality of investor communication adopted by companies in Nigeria positively impact on firm value. It was recommended that companies in Nigeria should choose appropriate mix of performance measures in designing financing mix policy and corporate financial policy. Companies in Nigeria should pay special attention to issues of brand image; strength of marketing/advertising; management credibility; and research leadership. They should also adopt adhocracy and market cultures to enhance the value of the firm.

**Keywords:** *Non-financial measures; financial measures; firm value; Nigeria; regression.*

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## **1. INTRODUCTION**

Firm value is an economic measure reflecting the market value of a whole business. The value of a firm is a function of performance of the organization. Decision making is a basic ingredient in determining the path set for organizations and how well such organizations achieve their set objectives. Effective decision making can be quite challenging in an organization because of the changes occurring in the environment that bring uncertainties. Appropriateness of measurement metrics/variables will affect the decision making process or quality of decision which invariably affects firm value.

[1] State that the value of non-financial measures (NFM) and even a preference for managing by nonfinancial measures is because financial measures are after-the-fact; so using financial measures does not fully address the issue of optimizing performance. The effects of the decisions made by managers determines the future cash flow of the firm and impacts on the value of the firm.

The value of financial statements is determined by their ability to adequately reflect a firm's value. There have been calls in the financial accounting community for greater disclosures of information from other information sources [2-4]. Efforts are on in seeking to devise appropriate measures that will better capture the firm's economics and lead to improved forecasting of future corporate performance.

The reliance on financial measures alone to present the true picture of organizational performance is in itself backward looking; especially as companies are confronted with increasing expectations from a variety of stakeholders. Non-financial measures are leading indicators that provide information on future performance not contained in traditional accounting measures. Empirical studies; such as [5-7]; support the role of NFM as leading indicators of future financial results. It goes to say that non-financial measures are helpful for valuation purposes.

[8] Assert that NFM increase firm value by assuring a balanced performance throughout the organization. Hence, this paper seeks to establish the relationship between NFM and firm value in Nigeria. Thus, the objective is to find out how firm value is related to NFM adopted by companies in Nigeria. Previous studies have dwelled on NFM and performance with single-sector focus and how some NFM are associated; but significantly this research work looks at NFM and firm value in an emerging economy like Nigeria using a multi-industry focus in order to be able to generalize the results.

### **1.1 The Concept of Firm Value**

Firm value also referred to as enterprise value is an economic measure reflecting the market value of a whole business. It is a sum of claims of all the security holders, debt holders, preferred shareholders and minority interest. [8] Assert that NFM increase firm value by assuring a balanced performance throughout the organization. Key success factors in operating processes are represented by NFM such as innovation and customer satisfaction. Development of new products, technology and improvement in quality can lead to long-term growth and success. They argue that growth is an important determinant of a firm's value.

Results by [9] showed that customer satisfaction has positive impact on firm value. Customer satisfaction they added; positively and significantly moderates the earning-firm

value relationship [10]. Found a positive relationship between employee satisfaction and customer satisfaction and a positive relationship between customer satisfaction and a firm's performance [11]. Argue that improvements areas such as quality, employee satisfaction, customer satisfaction and innovation represent process improvement in firm value.

[12] Argue that obtaining the help of stakeholders and satisfying them should be the key issue in strategic performance measurement systems. The increase in shareholders' wealth is the primary objective of a firm. The achievement of this objective depends on the satisfaction of other stakeholders such as customers, employees and suppliers [13]. Examine the value-relevance of customer satisfaction in the utility industry. They provide evidence that shows that customer satisfaction is positively related to future financial performance. They also find that firm level customer satisfaction measures can be economically related to the firm's market value, but are not completely reflected in its accounting book values. Their findings suggest that non-financial performance measures can be used not only to predict a firm's future financial performance; but also to predict a firm's market value.

A firm's value reflects its ability to create economic wealth. The goal of a firm in its corporate decisions; whether investment or financing; is to maximize its total market value at whatever prices for securities it sees in the market. However, [14] states that if the capital market is perfect (where investors and firms have equal access to the capital market), then a firm's financing decisions have no effect on its market value; hence, it's financing decisions are of no consequence to its security holders. The realism of the equal access assumption is an issue of concern. The general idea is that if the financing decisions of a firm affect its market value, there are arbitrage opportunities that can be used to produce costless instantaneous increases in wealth.

Some researchers; [15,16] argue that financial information has lost its value relevance since it fails to keep track of the changing business world especially in contexts where innovation, intellectual capital and Research and Development are key value drivers. In these contexts, financial information alone is unable to completely reflect a firm's value.

## **1.2 The Implications of Non-financial Measures for Managerial Decision and Control**

Managerial decision making is centred on performance evaluation and perception of uncertainty. In opportunity problem, rather than viewing the decision to pursue an opportunity a one-time, static choice, it is believed that it is better characterized as a dynamic decision process in which the decision is subject to updating and revision as more information about the opportunity is gathered and learning occurs.

The decision making process involves continuing evaluation, which leads to significant changes in both projections of financial performance and perceived uncertainty of the prospective opportunity. Projections and perceived uncertainty undergo both positive and negative changes as managers complete more information gathering activities. The completion of these activities leads to reduction in perceived environmental uncertainty. How do managers make decisions in the absence of decision rules? First, they must search for information about alternative sources of action; second, they must rely on intuition and judgement to choose wisely among alternatives.

Managerial accounting is evolving to encompass a more strategic approach that emphasizes the identification, measurement and management of key financial and non-financial drivers of strategic success and shareholder value. The selection of the most appropriate performance indicators is however, an area with no defining boundaries; as there are a number of purposes to which performance measurement can be put. [17-19] state that firms augment financial measures with non-financial measures; such as customer satisfaction, innovation, and quality of management that drive shareholder value.

Evidence on the importance of non-financial performance measures is also highlighted in a study by [6] which showed that many firms use NFM such as product quality, customer satisfaction and market share to evaluate and reward managerial performance. The Balanced Score Card (BSC) is a useful structural framework to disclose a firm's non-financial performance. According to [11], the BSC is a performance measurement approach that is based on integrating leading non-financial measure, with financial ones.

[20] State that information on a broader range of performance measures has as much relevance to analysts and investors as to managers. They believe that measures such as delivery performance, service quality and customers satisfaction are leading indicators of future earnings. Proponents of strategic performance measurement advocate two general approaches for developing Strategic Performance Measurement (SPM) systems. The simplest approach calls for firms to measure and use a diverse set of financial and non-financial measures. Advocates of this, claim that firms achieve higher performance when they place greater emphasis on a broad set of financial and non-financial performance measure [21].

A second approach is based on contingency theory which argues that strategic performance measures must be aligned with the firm's strategy and/or value drivers [22-24,17] indicate that many firms believe that financial measures are too historical and backward looking; lack predictive ability to explain future performance, reward short-term or incorrect behaviour, provide little information on root causes or solutions to problem.

Consistent with these claims, a number of accounting studies provide evidence that NFM can be leading indicators of financial performance [5,25-27]. Similarly, [28-30] stress the importance of linking financial performance measures and their non-financial value drivers to achieve the benefits from economic value measurement programmes and promote value-creating behaviour in the firm.

With the advent of new competitive realities such as increased customization, flexibility and rapid response to customer expectations, as well as new management practices, many have argued that accounting-based performance measurement systems are no longer adequate. Managers therefore need a more systematic understanding of advantages/benefits and the disadvantages/costs of the new approach compared to those of traditional accounting-based systems. According to [31], non-financial performance measures are grouped into eight; namely; quality of management, effectiveness of new product development, strength of market positions and strength of corporate culture. Others are effectiveness of executive compensation policies, quality of investor communication, quality of products and services; and level of customer satisfaction.

### 1.3 Towards more Relevant and Reliable Financial Statements

Accounting numbers as presented in traditional financial statements seem to be losing relevance for investment, credit and management decision making. A number of proposals have been made in recent years, which represents attempts to improve the usefulness of financial statements for strategic management decision. [32-34,4] suggest the need for an improvement of the current accounting model. This seems to have led some of the world's most influential standard setting bodies to undertake efforts intended to enhance the relevance of the accounting numbers reported in financial statements, for efficient decision making.

[2] Suggests that corporate annual reports should include more forward-looking information and enhanced discussion of the non-financial performance factors that create longer-term value. [4] argues that the issue is not whether we should continue to tinker with the existing financial reporting system but whether we have the knowledge, courage and vision to evaluate and make forward looking changes in our reporting system that will make available to investors the most relevant and useful information.

[11,8] State that the balanced scorecard (BSC) measures organizational performance across four linked perspectives; financial, customer, internal business process; and learning and growth. The BSC should present a set of cause-and-effect relationship among output measures and performance drivers. The usefulness of the BSC relies on the fact that it allows management to control short term financial result. Therefore, the most sensible approach to the enhancement of the usefulness of financial statements is to develop complementary statements within the framework of the current accounting system.

## 2. MODEL SPECIFICATION AND METHODOLOGY

It is an empirical investigation of the use of NFM by managers in the decision making process and their impacts on firm value in Nigeria; covering the period 2006–2010. In line with [31] study, the NFM (39 in number) was grouped into eight categories. The impact of these measures on firm value is examined. Tobin's Q ratio was proxy for firm value.

Thus:

$$\text{Tobin's Q} = \frac{(\text{TA} - \text{BVE}) + \text{MVE}}{\text{TA}}$$

Where:

TA = Total Asset  
BVE = Book Value of Equity  
MVE = Market Value of Equity

While the use of NFM was captured from responses to questionnaire. The questionnaire was divided into two sections. Section A contains general questions while section B contains six sub-sections; namely measurement practice, non-financial performance measures and importance of non-financial performance measures and corporate decisions. Others are investment decisions, financing decisions and modern management practices. The

questionnaire was designed on the Bipolar scale of 1 to 7 (where 1 means “Not at all”, 4 means Undecided and 7 means Very high extent). Data were organized by calculating weighted average of responses and mean scores of each performance measure category.

The Cronbach’s Alpha was used as a measure of the internal consistency of the research instrument [35]. Indicates 0.7 to be an acceptable reliability coefficient. The reliability test of the internal consistency among a set of indicators (questionnaire items) showed Measurement practice (3 items) of 0.79, Non-financial performance measures (8 items) of 0.73 and Importance of NFM and corporate decisions (13 items) of 0.88. Others are 0.77 for Investment Decisions (3 items), Financing Decisions (3 items) of 0.78 and Modern management practice (3 items) of 0.82. These values indicate the stability and consistency of the research instrument.

Hence,

$$Q = \alpha_0 + \alpha_1 \text{MGMT} + \alpha_2 \text{PRODEV} + \alpha_3 \text{MKT} + \alpha_4 \text{CLTURE} + \alpha_5 \text{COMPENPL} + \alpha_6 \text{COMM} + \alpha_7 \text{QLTY} + \alpha_8 \text{CONSAT} + \varepsilon_0$$

Where:

Q = Firm Value (Proxy by Tobin’s Q ratio)  
MGMT = Quality of Management  
PRODEV = New Product Development  
MKT = Strength of Market Position  
CLTURE = Strength of Corporate Culture  
COMPENPL = Executive Compensation Policies  
COMM = Quality of Investor Communication  
QLTY = Quality of Product / Service  
CONSAT = Level of Customer Satisfaction

$\alpha_0$  = Constant of the model

$\alpha_1, \alpha_2, \alpha_3, \alpha_4, \alpha_5, \alpha_6, \alpha_7, \alpha_8$  = Coefficients of the variables  
 $\varepsilon_0$  = Stochastic variable or error term

The universe of the study is all companies quoted on the first tier securities market of the Nigerian Stock Exchange (NSE) as at 31<sup>st</sup> December, 2010. It comprises of 32 industrial sectors and 199 listed companies; systematic sampling technique was used to select 16 sectors comprising of a total of 134 companies. From each of the sectors selected at least 50% of the number of companies was selected using random sampling technique. This gave a sample size of 66 companies (see Appendix Table A1). However, companies with incomplete data were eliminated resulting in a final sample size of 47 companies. The Ordinary Least Square (OLS) method was used to estimate the regression model and F-statistic was employed to test if the model is significant at 5% level of significance.

### 3. DATA PRESENTATION AND RESULTS OF ANALYSIS

Table A2 (see Appendix) presents the perceived importance of non-financial measures for long term health of the organization. It shows that the category for level of customer satisfaction with the highest average mean of 5.44 is believed to contribute more to long term health of the company. The quality of management ranked second with 5.26 followed

by strength of corporate culture with 5.15; while new product development category came last among the eight categories.

The model is

$$Q = \alpha_0 + \alpha_1 \text{MGMT} + \alpha_2 \text{PRODEV} + \alpha_3 \text{MKT} + \alpha_4 \text{CLTURE} + \alpha_5 \text{COMPENPL} \\ + \alpha_6 \text{COMM} + \alpha_7 \text{QLTY} + \alpha_8 \text{CONSAT} + \varepsilon_0$$

The correlation matrix shows negative correlation between Q and all categories of non-financial measures except  $X_2$  (New product development=0.026) and  $X_6$  (Quality of investor communication=0.057). Of all the categories of NFM, PRODEV and QLTY have positive correlation; which show that firm value and these measures change together in the same direction. Adjusted  $R^2=0.156$  implies that the overall influence of non-financial measures on firm value is 15.6%. This low coefficient of determination signifies the absence of autocorrelation which is further confirmed by Durbin-Watson value of 1.711.

The highest simple correlation coefficient among the explanatory variables is 0.666; between  $X_6$  (Quality of investor communication) and  $X_4$  (Strength of corporate culture). This is lesser than the critical value of 0.8 suggested by [36]; hence, multicollinearity does not constitute a serious problem affecting the regression analysis. The P-value is regarded by some as the main result of statistical significant testing rather it is a basis for the acceptance or rejection of a null hypothesis at a pre-prescribed significant level. Hence, the P-values in Table 1 (one-tailed test) do not affect the results of the study. According to [37], research should continue to move from the idea that results are significant or non-significant to the interpretation of findings in the context of the type of study and other available evidence.

**Table1. Summary of regression results**

Variables	Coefficients	t-statistic	P-value
Constant	5.099	0.619	.54
MGMT	-0.237	0.204	.84
PRODEV	0.219	0.393	.70
MKT	0.240	0.2830	.78
CLTURE	-0.133	-0.227	.82
COMPENPL	-0.126	-0.163	.87
COMM	0.226	0.266	.79
QLTY	-0.392	-0.810	.42
CONSAT	-0.447	-0.480	.63

Adjusted  $R^2 = 0.156$ ,  $t_{cal} = 0.619$ ,  $t_{tab} = 1.679$ ,  $F_{(8,38)} = 0.225$ ,  $F_{tab} = 2.18$ ,

DW = 1.711, s.e. = 2.623786, 5% level of significance

Source: Author's computation

**Table 2. Correlations matrix**

		<b>Q</b>	<b>MGMT</b>	<b>PRODEV</b>	<b>MKT</b>	<b>CLTURE</b>	<b>COMPENPL</b>	<b>COMM</b>	<b>QLTY</b>	<b>CONSAT</b>
Pearson Correlation	Q	1.000	-.119	.026	-.073	-.038	-.096	.057	-.161	-.034
	MGMT	-.119	1.000	-.495	.487	.224	.428	-.130	.182	-.210
	PRODEV	.026	-.495	1.000	-.157	-.341	-.137	-.392	.260	.397
	MKT	-.073	.487	-.157	1.000	.154	.520	-.159	.373	-.122
	CLTURE	-.038	.224	-.341	.154	1.000	-.070	.666	-.149	.194
	COMPENPL	-.096	.428	-.137	.520	-.070	1.000	-.253	.528	-.504
	COMM	.057	-.130	-.392	-.159	.666	-.253	1.000	-.366	.069
	QLTY	-.161	.182	.260	.373	-.149	.528	-.366	1.000	-.089
	CONSAT	-.034	-.210	.397	-.122	.194	-.504	.069	-.089	1.000

Source: Author's computation



Thus, the estimated model is:

$$Q = 5.099 - 0.237MGMT + 0.219PRODEV + 0.240MKT - 0.133CLTURE \\ - 0.126COMPENPL + 0.226 COMM - 0.392 QLTY - 0.447 CONSAT + \epsilon_0$$

The coefficient of the non-financial measures shows the effect of the variables on firm value. It indicates the degree of influence of the independent variables on firm value. The model shows a positive impact of PRODEV (New product development) of 21.9%, MKT (Strength of market position) 24% and COMM (Quality of investor communication) 22.6% on firm value. CONSAT (Level of customer satisfaction) has the highest influence of 44.7%. It was however negative.

#### **4. DISCUSSION OF FINDINGS**

Evaluation of the model shows that NFM have 15.6% association with firm value of companies in Nigeria. New product development and quality of investor communication positively impacted on firm value at  $P=.05$  with 21.9% and 22.6% degree of influence respectively. The strength of market position was 24%.

Several reasons may explain the positive impact of the use of NFM Firstly, investors and analysts consider NFM highly significant when performing the company valuation. The strength of market position (MKT) is necessary in determining how well the company is positioned to expand the value in future. Also, non-financial performance measures are meant to be long term oriented, so their impact on firm value is positive. In Nigeria, companies might be struggling with implementation issues considering the identified barriers to incorporating NFM in corporate decision making, hence the negative impact of the other NFM on firm value except new product development, Quality of investor communication and Strength of market position.

The results are in line with the results of a similar study conducted by [38]. They found that the use of measurement diversity is negatively related to measure of future performance; and the regression coefficient was not significant. The results contradicts previous agency research conducted by [39,40] that the use of non congruent performance measure (profit) will induce sub-optimal effort across task and that this non congruity can be reduced with the use of additional measures of performance (NFM);but support [41] model which suggests that when multiple measures of performance are used agents will focus their efforts on those that are easier to achieve at the expense of others that are harder to reach, hence, the negative relationship to firm valuation.

For decision making and determining the long term health of the organization, it was discovered that the Level of customer satisfaction was significant. This aligns with the view of [5] that non-financial measure of customer satisfaction is significantly associated with future performance and contains additional information not reflected in the past financial measures. According to [42], the informativeness principle implies that the customer satisfaction performance measure will always lead to incremental value.

It was discovered that NFM categories of new product development and Strength of corporate culture were the least significantly used in decision making and for determining long term health of the organizations. The implication is that most Nigerian companies lack innovations, lack strategic focus and have weak corporate culture.

According to [43], firm with strong corporate cultures tend to have lower performance variability and less likely to suffer from under-investment. Other researchers have found that strong corporate cultures enhance goal alignment [44,45], and also enhance employee motivation [46,47]

It was discovered that NFM are not free from external influences; however, the greatest barrier to incorporating them in firm valuation and corporate decisions is lack of tools and systems to account for them. In the Nigerian business environment, NFM are mostly used for insourcing/ outsourcing decisions. The Breweries industrial sector ranked the highest in this respect.

## **5. CONCLUSION AND RECOMMENDATIONS**

Based on the findings from this study, the following recommendations are made:

- (i) Organizations in Nigeria should pay close attention to the use of NFM in their performance measurement systems. Much attention is not given to the strength of corporate culture and new product development by the companies in their decision making processes. The implications of a weak corporate culture are very clear; high variability in performance and problem of under-investment. It is therefore recommended that Nigerian organizations should adopt adhocracy culture; which is dynamic, entrepreneurial and the leaders are innovators and encourage individual initiative and freedom and also market culture; which is competitive and goal-oriented.
- (ii) Nigerian companies should pay close attention to measures of new product development, quality of investor communication and strength of market position; as they positively impact on firm value. Some specific issues of concern should be brand image, strength of marketing/advertising, research leadership, management credibility and quality of published materials.
- (iii) The extent of use of NFM in firm valuation may have resulted from the identified barriers to incorporating non-financial measures in valuation decisions. It is therefore recommended that organizations should build teams to identify problems, causes and possible solutions. This will start with the identification of the appropriate metric to use to measure firm value.
- (iv) It was identified that Level of customer satisfaction has significant influence on the long term health of the organizations. Nigerian companies should always remember that they operate in an era of globalization and increased intensity of competition is the order of the day; hence, they should focus on becoming market leaders in the provision of goods/services through competitive actions such as pricing and achievement of measurable goals and targets using appropriately non-financial measures in their decision making processes. Adequate attention should also be given to firm value drivers both in the short term and strategic plans. This will promote commitment to experimentation and innovation which will give the organizations a leading edge.

## **COMPETING INTERESTS**

The author has declared that no competing interests Exist.

## REFERENCES

1. Van der Stede WA, Chow CW. The usefulness of non-financial performance measures. *Management Accounting Quarterly*, 2006;7(3):1-8.
2. American Institute of Certified Public Accountants (AICPA). *Improving business reporting: A customer focus*. New York: AICPA; 1994.
3. Financial Accounting Standards Board (FASB). *Improving business reporting: Insights into enhancing voluntary disclosures*. FASB; 2001.
4. Wallman S. The future of accounting and disclosure in an evolving world: The need for dramatic change. *Accounting Horizons*. 1995;9:81-91.
5. Banker R, Potter G, Srinivasan D. An empirical investigation of an incentive plan that includes non-financial measures. *The Accounting Review*. 2000;75(1):65-92.
6. Ittner CD, Larcker DF, Rajan MV. The choice of performance measures in annual bonus contracts. *The Accounting Review*. 1997;72(2):231-255.
7. Ittner CD, Larcker DF. Innovations in performance measurement: Trends and research implications. *Journal of Management Accounting Research*. 1998;10:205-238.
8. Kaplan R, Norton D. *The Balanced Scorecard: Translating strategy into action*. Boston MA: Harvard Business School Press; 1996.
9. O' Sullivan D, McCallig J. Customer satisfaction, earnings and firm value. *European Journal of Marketing*. 2012;46(6):827-843.
10. Bernhard KL, Donthu N, Kennett PA. A longitudinal analysis of satisfaction and profitability. *Journal of Business Research*. 2000;47:161-171.
11. Kaplan R, Norton D. The balanced scorecard: Measures that drive performance. *Harvard Business Review*. 1992;70(1):71-79.
12. Atkinson AA, Waterhouse JH, Wells RB. A stakeholder approach to strategic performance measurement. *Sloan Management Review*. 1997;38(3):25-38.
13. Ittner CD, Larcker DF. Are non-financial measures leading indicators of financial performance? : An analysis of customer satisfaction. *Journal of Accounting Research*. 1998;36(supplement):1-35.
14. Fama EF. The effects of a firm's investment and financing decisions on the welfare of its security holders. *The American Economic Review*. 1978;68(3):272-284.
15. Amir E, Lev B. Value-relevance of non-financial information: The wireless communication industry. *Journal of Accounting and Economics*. 1996;22(1-3):3-30.
16. Easton P. Security returns and the value relevance of accounting data. *Accounting Horizons*. 1999;13:399-412.
17. Fisher J. Use of non-financial performance measures. In Young, SM, editor. *Readings in Management Accounting*. Englewoods Cliffs N.J. Prentice Hall; 1995:329-335.
18. Ittner CD, Larcker DF. Assessing empirical research in management accounting: A value based management perspective. *Journal of Accounting and Economics*. 2001;32:349-410.
19. Said AA, Hassab Elnaby HR, Wier B. An empirical investigation of the performance consequences of non-financial measures. *Journal of Management Accounting Research*. 2003;15:193-223.
20. Eccles R, Herz R, Keegan E, Philips DMH. *The value reporting revolution*. New York, NY: John Wiley; 2001.
21. Lingle J, Schiemann W. From balanced Scorecard to strategic gauges: Is measurement worth it? *Management Review*. 1996;85:56-61.
22. Fisher J. Contingency-based research on management control system: Categorization by level of complexity. *Journal of Accounting Literature*. 1995:24-53.
23. Langfield-Smith K. Management control systems and strategy: A critical review. *Accounting, Organizations and Society*. 1997:207-232.
24. Brancato CK. *New performance measures: A Research Report*. New York, NY: The Conference Board; 1995.

25. Behn BK, Riley RA. Using non-financial information to predict financial performance: The case of the U.S. Airline industry. *Journal of Accounting, Auditing & Finance*. 1999;14(1):29-56.
26. Ittner CD, Larcker DF. Quality strategy, strategic control systems, and organizational performance. *Accounting, Organizations and Society*. 1997;22(3-4):293-314.
27. Nagar V, Rajan MV. The revenue implications of financial and operating measures of product quality. *The Accounting Review*. 2001;76(4):495-513.
28. Copeland T, Koller T, Murrin J. *Valuation: Measuring and managing the value of companies*. New York: John Wiley & Sons; 1996.
29. Dixon P, Hedley B. *Managing for value*. Boston, MA: Braxton Associates; 1997.
30. Young S, O'Byrne S. *EVA and value-based management*. New York, NY: McGraw-Hill; 2001.
31. Ernst & Young. *Measures that matter*. New York: The Ernst and Young Center for Business Innovation, Ernst & Young LLP; 1997.
32. Davis M. Goodwill Accounting: Time for an overhaul. *Journal of Accountancy*. 1992;173(6):75-83.
33. Lev B, Zarowin P. The boundaries of financial reporting and how to extend them. Working paper New York University; 1998.
34. Tollington T. When is an asset not an asset? *Management Accounting*. 1997;75(6):52-53.
35. Nunnally J. *Psychometric theory*. New York, NY: McGraw-Hill; 1978.
36. Hauser DP. Some problems in the use of stepwise regression techniques in geographical research. *Canadian Geographer*. 1974;17(summer):148-158.
37. Sterne JAC, Smith GD. Sifting the evidence – what's wrong with significant tests? *BMJ (Clinical Research edition)* DOI: 10.1136/bmj 322.7280.226. PMC 1119478. PMID11159626. 2001;322(7280):226-331.
38. Ittner CD, Larcker DF, Randall T. Performance implications of strategic performance measurement in financial service firms. *Accounting, Organizations and Society*. 2003;28(7-8):715-741.
39. Feltham GA, Xie J. Performance measure congruity and diversity in multi-task Principal/Agent relations. *The Accounting Review*. 1994;69:429-453.
40. Hemmer T. On the design and choice of 'modern' management accounting measures. *Journal of Management Accounting Research*. 1996;8:87-116.
41. Holmstrom B, Milgrom P. Multi-task Principal- Agent analysis: Incentive contracts, asset ownership, and job design. *Journal of Law, Economics and Organization*. 1991;7:24-52.
42. Holmstrom B. Moral hazard and observability. *Bell Journal of Economics*. 1979;10:74-91.
43. Sorensen JB. The strength of corporate culture and the reliability of firm performance. *Administrative Science Quarterly*, 2002; March. Accessed on 20 August, 2010. Available: [http:// www.findarticles.com](http://www.findarticles.com)
44. Cremer J. Corporate culture and shared knowledge. *Industrial and Corporate Change*, 1993;2:351-386.
45. Kreps DM. Corporate culture and economic theory. In Alt JE, Shepsle KA, editors. *Perspectives on positive political economy*, Cambridge, England: Cambridge University Press. 1990:90-143.
46. O'Reilly CA. Corporations, culture and commitment, motivation and social control in organizations. *California Management Review*. 1989;31:9-25.
47. O'Reilly CA, Chatman JA. Culture as social control: Corporation, culture and commitment. In Staw BM Cumming LL, editors. *Research in Organizational Behaviour*, Greenwich, C. T.: JAI Press; 1996;18:157-200.

**APPENDIX**

**Table A1. List of sampled companies used for the study**

<b>S/N</b>	<b>SECTORS</b>	<b>Nos.</b>
<b>1.</b>	<b>AGRICULTURE/ AGRO-ALLIED</b>	
	i. Livestock Feeds PLC	<b>3</b>
	ii. FTN Cocoa Processors PLC	
	iii. TheOkomu Oil Palm PLC	
<b>2.</b>	<b>AVIATION</b>	
	i. Airline Services & Logistics PLC	<b>2</b>
	ii. Nigerian Aviation Handling Company PLC	
<b>3.</b>	<b>BREWERIES</b>	
	i. Champion Breweries PLC	<b>4</b>
	ii. Premier Breweries PLC	
	iii. Guinness Nigeria PLC	
	iv. Nigerian Breweries PLC	
<b>4.</b>	<b>CHEMICAL &amp; PAINTS</b>	
	i. African Paints Nigeria PLC	<b>5</b>
	ii. Berger Paints PLC	
	iii. Chemical and Allied Products PLC	
	iv. Portland Paints & Product Nigeria PLC	
	v. Premier Paints PLC	
<b>5.</b>	<b>COMPUTER &amp; OFFICE EQUIPMENT</b>	
	i. NCR Nigeria PLC	<b>3</b>
	ii. Thomas Wyatt Nigeria PLC	
	iii. Tripple Gee & Company PLC	
<b>6.</b>	<b>CONSTRUCTION</b>	
	i. Roads Nigeria PLC	<b>4</b>
	ii. Costain (WA) PLC	
	iii. Arbico PLC	
	iv. Julius Berger Nigeria PLC	
<b>7.</b>	<b>FOOD &amp; BEVERAGES &amp; TOBACCO</b>	
	i. 7UP Bottling Company PLC	<b>9</b>
	ii. Cadbury Nigeria PLC	
	iii. Flour Mills PLC	
	iv. National Salt Company Nigeria PLC	
	v. Nestle Nigeria PLC	
	vi. Nigerian Bottling Company PLC	
	vii. Dangote Sugar Refinery PLC	
	viii. Honeywell Flour Mills PLC	
	ix. Multi-Trex Integrated Foods PLC	

<b>8.</b>	<b>HEALTHCARE</b>	
	i. Fidson Healthcare PLC	
	ii. GlaxoSmithkline Consumer Nigeria PLC	
	iii. May& Baker Nigeria PLC	<b>5</b>
	iv. Neimeth International Pharmaceutical PLC	
	v. Morrison Industries PLC	
<b>9.</b>	<b>INDUSTRIAL / DOMESTIC PRODUCTS</b>	
	i. B. O. C. Gases PLC	
	ii. Nigerian Enamelware PLC	<b>4</b>
	iii. Vitafoam Nigeria PLC	
	iv. Aluminum Extrusion Industries PLC	
<b>10.</b>	<b>INSURANCE</b>	
	i. AllCO Insurance PLC	
	ii. Continental Reinsurance PLC	
	iii. Custodian& Allied Insurance PLC	
	iv. Cornerstone Insurance PLC	
	v. Great Nigeria Insurance PLC	
	vi. Guaranty Trust Assurance PLC	
	vii. Guinea Insurance PLC	
	viii. Law Union & Rock Insurance PLC	<b>15</b>
	ix. Regency Alliance Insurance PLC	
	x. Mutual Benefits Assurance PLC	
	xi. NEM Insurance PLC	
	xii. Oasis Insurance PLC	
	xiii. Prestige Assurance PLC	
	xiv. UNIC Insurance PLC	
	xv. Staco Insurance PLC	
<b>11.</b>	<b>MACHINERY (MARKETING)</b>	
	i. Stokvis Nigeria PLC	<b>1</b>
<b>12.</b>	<b>MEDIA</b>	
	i. Afromedia Nigeria PLC	<b>1</b>
<b>13.</b>	<b>OTHER FINANCIAL INSTITUTIONS</b>	
	i. Crusader Nigeria PLC	
	ii. Deap Capital Management & Trust PLC	<b>3</b>
	iii. Royal Exchange PLC	
<b>14.</b>	<b>PETROLEUM (MARKETING)</b>	
	i. African Petroleum PLC	
	ii. Conoil PLC	<b>5</b>
	iii. Eterna Oil & Gas PLC	
	iv. Mobil Oil Nigeria PLC	
	v. MRS Oil Nigeria PLC	
<b>15.</b>	<b>REAL ESTATE</b>	
	i. UACN Property Development Company PLC	<b>1</b>
<b>16.</b>	<b>TEXTILE</b>	
	i. United Nigeria Textile PLC	<b>1</b>

**Table A2. Importance of non-financial measures for long term health of the company**

<b>Table 6 ITEMS</b>	<b>Scores</b>	<b>Mean</b>	<b>Std. Dev</b>	<b>%Rating (1,2,3)</b>	<b>%Rating(4)</b>	<b>%Rating (5,6,7)</b>	<b>Category Mean</b>	<b>Ranking</b>
i Execution of corporate strategy	251	5.34	0.055	19.14	4.26	76.6		
ii Quality of corporate strategy	232	4.94	0.003	21.28	6.38	72.34		
iii Management experience	268	5.7	0.108	4.26	14.89	80.85		
iv Quality of organizational vision	259	5.51	0.08	6.38	23.41	70.21		
v CEO leadership style	227	4.83	0.019	17.02	14.89	68.09	5.26	2ND
vi Research leadership	141	3	0.286	25.53	21.28	53.19		
vii New product development efficiency	242	5.15	0.028	12.77	17.02	70.21		
viii New product development cycle time	180	3.83	0.12	36.18	31.91	31.91		
ix Percentage revenues derived from new products	252	5.36	0.058	10.64	14.89	74.47	4.34	8TH
x Innovativeness	260	5.53	0.083	4.26	27.66	68.08		
xi Market share	261	5.55	0.086	2.13	21.28	76.59		
xii Brand image	269	5.72	0.111	4.26	17.02	78.72		
xiii Strength of marketing and advertising	209	4.45	0.074	21.28	25.53	53.19		
xiv Global capability	165	3.51	0.216	42.56	31.91	25.53	4.95	4TH
xv Ability to attract and retain talented people	260	5.53	0.083	10.64	21.28	68.08		
xvi Quality of workforce	272	5.79	0.121	6.38	17.02	76.6		
xvii Quality of incentive performance systems	238	5.06	0.015	14.88	21.28	63.84		
xviii Quality of employees training	245	5.21	0.037	10.64	23.41	65.95		
xix Employee turnover rates	275	5.85	0.13	4.26	17.02	78.72		
xx Environmental and social policies	198	4.21	0.109	25.53	42.56	31.91		
xxi Use of employee teams	207	4.4	0.082	31.91	31.91	36.18	5.15	3RD

xxii Alignment of compensation with shareholders interests	209	4.45	0.074	19.14	42.56	38.3		
xxiii Performance-based compensation policies	258	5.49	0.077	2.13	25.53	72.34		
xxiv Ratio of CEO compensation to workforce compensation	188	4	0.14	25.53	53.19	21.28	4.65	6TH
xxv Management credibility	253	5.38	0.061	8.51	25.53	65.96		
xxvi Accessibility of management	253	5.38	0.061	8.51	23.41	68.08		
xxvii Quality of guidance	244	5.19	0.034	4.26	31.91	63.83		
xxviii Knowledge and experience of investor relation contact	181	3.85	0.162	42.56	25.53	31.91		
xxix Quality of published materials	171	3.64	0.193	19.14	42.56	38.3	4.69	5TH
xxx Quality of major business processes	207	4.4	0.082	21.28	25.53	53.19		
xxxi Customer perceived quality	232	4.94	0.003	14.9	17.02	68.08		
xxxii Product defect rates/service failure rates	248	5.28	0.047	6.38	31.91	61.71		
xxxiii Product durability	246	5.23	0.039	17.02	12.77	70.21		
xxxiv Product quality awards	186	3.96	0.146	34.03	42.56	23.41		
xxxv Process quality awards	175	3.72	0.181	25.53	53.19	21.28	4.59	7TH
xxxvi Customer satisfaction level	272	5.79	0.121	6.38	12.77	80.85		
xxxvii Repeat patronage level	266	5.66	0.102	8.51	17.02	74.47		
xxxviii Number of customer complaints	251	5.34	0.055	17.02	14.88	68.1		
xxxix Quality of customer service department	234	4.98	0.003	14.89	25.53	59.58	5.44	1ST



**Table A3. Average values for firm value and non-financial performance measures for 2006-2010**

COYS	TOBIN'S Q	X <sub>1</sub>	X <sub>2</sub>	X <sub>3</sub>	X <sub>4</sub>	X <sub>5</sub>	X <sub>6</sub>	X <sub>7</sub>	X <sub>8</sub>
1	6.622	5.60	5.25	4.60	3.71	3.67	2.40	5.33	5.50
2	0.915	5.20	5.50	4.00	4.00	2.67	2.60	4.67	6.00
3	0.578	5.60	4.25	4.80	3.29	4.33	1.80	5.50	5.00
4	1.288	5.60	2.75	4.60	5.00	3.67	3.40	3.50	5.00
5	1.948	5.20	3.00	4.00	5.29	2.67	3.60	2.83	5.50
6	0.614	5.20	6.00	5.20	3.57	3.33	2.40	4.83	5.25
7	8.324	5.60	5.00	5.40	3.14	4.00	1.80	5.00	4.75
8	0.678	4.60	5.75	4.60	3.43	3.00	2.60	5.00	5.25
9	0.32	4.20	6.00	4.00	3.71	2.00	2.80	4.33	5.75
10	0.338	4.60	5.00	4.20	3.29	2.67	2.20	4.50	5.25
11	1.5	3.60	6.25	3.40	4.00	2.33	3.00	3.67	5.50
12	1.2	4.60	5.50	3.60	3.43	3.67	2.00	4.83	4.50
13	1.072	5.00	4.50	3.80	3.00	4.33	1.40	5.00	4.00
14	2.674	4.20	5.75	3.20	3.71	2.67	3.20	3.00	6.00
15	0.36	4.60	4.75	3.40	3.29	3.33	2.60	3.17	5.50
16	0.588	5.80	2.00	4.40	4.57	2.33	2.60	2.50	4.75
17	0.748	5.40	2.25	3.80	4.86	2.33	2.80	1.83	5.25
18	0.57	5.00	6.25	5.20	4.14	3.33	1.80	3.50	5.50
19	0.64	4.60	6.50	4.60	3.86	2.67	2.00	2.83	6.00
20	4.344	5.00	5.50	4.80	3.43	3.33	1.40	3.00	5.50
21	0.736	5.40	5.25	5.40	3.71	4.00	1.20	3.67	5.00
22	0.222	4.60	5.75	4.20	3.71	2.33	1.60	2.33	6.00
23	0.996	5.00	5.50	5.00	4.14	3.33	2.40	4.67	5.25
24	0.338	4.60	5.75	4.40	4.43	2.33	2.60	4.00	5.75
25	0.362	5.40	4.75	5.20	3.71	4.00	1.80	4.17	4.75
26	0.286	5.00	5.00	4.60	2.00	3.00	2.00	3.50	5.25
27	4.109	4.60	5.25	4.00	2.29	2.00	2.20	2.83	5.75
28	1.452	4.60	5.50	4.60	2.57	4.00	1.80	4.83	4.75
29	2.044	5.00	4.50	4.80	2.14	4.67	1.40	4.67	4.25
30	0.834	5.40	3.50	5.00	1.71	5.33	1.60	4.50	3.75
31	0.614	4.20	5.75	4.00	2.00	3.00	2.00	2.17	5.25
32	3.744	4.60	4.75	4.20	1.57	2.33	1.40	2.33	4.75
33	3.33	5.00	4.25	4.20	1.86	2.67	2.00	3.00	5.25
34	1.066	4.60	4.50	3.60	2.14	2.00	2.20	2.50	4.50
35	3.374	4.00	5.75	4.00	2.00	2.67	2.40	3.33	4.00
36	2.582	4.40	6.00	3.40	2.29	3.67	2.00	3.67	4.25
37	0.718	5.00	6.25	3.00	2.57	2.67	2.60	2.33	5.00
38	8.321	4.60	5.00	3.60	2.29	2.00	2.20	1.50	5.25
39	3.524	4.80	3.25	4.60	4.71	3.33	3.20	3.00	4.25
40	5.184	4.40	4.25	4.80	5.14	4.00	3.80	2.83	4.75
41	7.602	4.00	4.50	4.20	5.00	3.00	4.00	2.17	5.25
42	1.34	4.40	3.75	4.60	4.14	2.33	4.20	3.00	5.00
43	0.294	4.80	2.75	4.80	3.71	3.00	3.60	3.17	4.50
44	0.436	5.40	4.25	4.40	5.29	3.33	4.20	2.00	4.75
45	0.77	5.80	3.25	4.60	4.86	4.00	3.60	2.17	4.25
46	0.336	5.20	4.75	4.20	4.57	2.67	2.40	3.33	4.25
47	9.542	4.80	5.00	3.60	4.29	2.00	2.60	2.67	4.75

## REGRESSION

### Descriptive Statistics

	Mean	Std. Deviation	N
FIRM VALUE	2.11653	2.440653	47
MGMT	4.868085	.5078113	47
PRODEV	4.8191	1.11646	47
MKT	4.3106	.59536	47
CLTURE	3.5226	1.05711	47
COMPENPL	3.1062	.79271	47
COMM	2.4553191	.78097167	47
QLTY	3.4714894	1.05718037	47
CONSAT	5.0265957	.57868395	47

### Model Summary<sup>b</sup>

Model R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			Durbin-Watson	
				R Square Change	F Change	Sig. F Change		
1	.213 <sup>a</sup>	.045	-.156	2.623786	.045	.225	8 38 .984	1.711

a. Predictors: (Constant), CONSAT, COMM, MKT, QLTY, MGMT, COMPENPL, CLTURE, PRODEV

b. Dependent Variable :FIRM VALUE

### ANOVA<sup>b</sup>

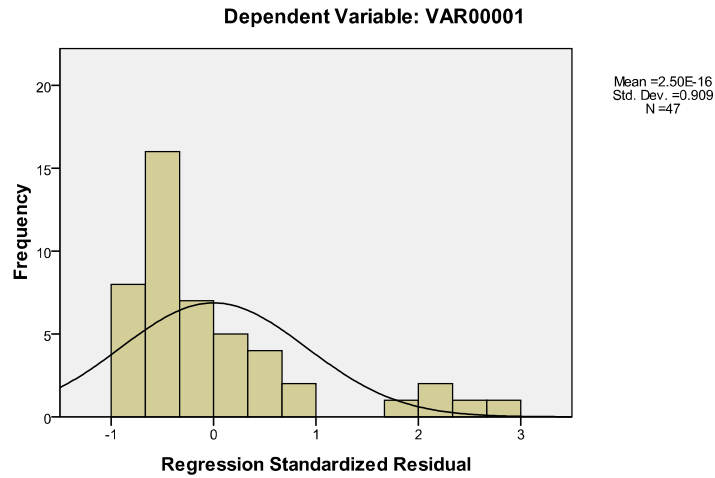
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	12.411	8	1.551	.225	.984 <sup>a</sup>
	Residual	261.602	38	6.884		
	Total	274.012	46			

a. Predictors: (Constant), CONSAT, COMM, MKT, QLTY, MGMT, COMPENPL, CLTURE, P RODEV

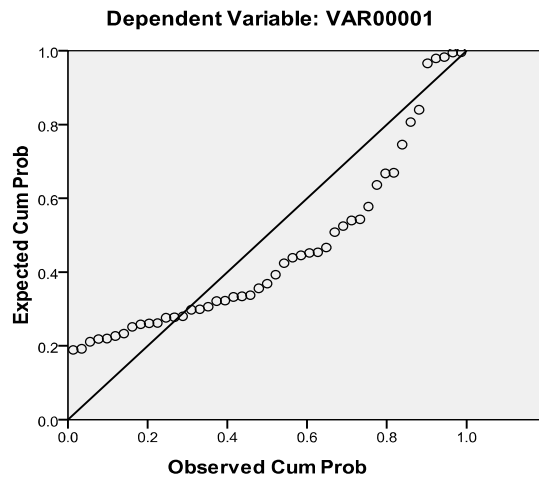
Model	Coefficients <sup>a</sup>											
	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B		Correlations			Collinearity Statistics	
	B	Std. Error	Beta			Lower Bound	Upper Bound	Zero-order	Partial	Part	Tolerance	VIF
1 (Constant)	5.099	8.234		.619	.539	-11.570	21.769					
MGMT	-.237	1.165	-.049	-.204	.840	-2.596	2.122	-.119	-.033	-.032	.427	2.340
PRODEV	.219	.556	.100	.393	.697	-.907	1.344	.026	.064	.062	.388	2.576
MKT	.240	.846	.058	.283	.779	-1.473	1.953	-.073	.046	.045	.590	1.696
CLTURE	-.133	.585	-.058	-.227	.821	-1.317	1.051	-.038	-.037	-.036	.392	2.554
COMPENPL	-.126	.774	-.041	-.163	.871	-1.693	1.441	-.096	-.026	-.026	.397	2.517
COMM	.226	.849	.072	.266	.791	-1.492	1.945	.057	.043	.042	.340	2.937
QLTY	-.392	.484	-.170	-.810	.423	-1.371	.587	-.161	-.130	-.128	.573	1.747
CONSAT	-.447	.933	-.106	-.480	.634	-2.335	1.441	-.034	-.078	-.076	.514	1.946

a. Dependent Variable: FIRM VALUE

Histogram



Normal P-P Plot of Regression Standardized Residual



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