

**NON- FINANCIAL PERFORMANCE MEASURES AND FIRM VALUE IN NIGERIA:
WHAT IS THE LINK?**

By

**DAFERIGHE, EMMANUEL EMEAKPONUZO
B.Sc., MBA (Benin), M.Sc., Ph.D., ACA**

**daferighe2e@yahoo.com
+234-805-5218-253
+234-806-1518-954**

**Lecturer, Department of Accounting,
Faculty of Business Administration
University of Uyo, Nigeria**

Director, Centre for Social and Environmental Accounting Research (CSEAR), Nigeria

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

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.

Van der Stede and Chow (2006) 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 determine 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 (AICPA, 1994; FASB, 2001; Wallman, 1995). 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 Banker, Potter and Srinivasan (2000); Ittner, Larcker and Rajan (1997); Ittner and Larcker (1998a); 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.

Kaplan and Norton (1996) 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.

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. Kaplan and Norton (1996) 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. Clayton (1999) argues that growth is an important determinant of a firm's value.

Results by O'Sullivan and McCallig (2012) showed that customer satisfaction has positive impact on firm value. Customer satisfaction they added; positively and significantly moderates the earning-firm value relationship. Bernhard, Donthu and Kennett (2000) found a positive relationship between employee satisfaction and customer satisfaction and a positive relationship between customer satisfaction and a firm's performance. Kaplan and Norton (1992) argue that improvements areas such as quality, employee satisfaction, customer satisfaction and innovation represent process improvement in firm value.

Atkinson, Waterhouse and Wells (1997) 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. Ittner and Larcker (1998b) 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, Fama (1978) 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, its 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; Amir and Lev (1996); Easton (1999) 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.

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,

174 an area with no defining boundaries; as there are a number of purposes to which performance
175 measurement can be put. Fisher (1995a); Ittner and Larcker (2001); Said, HassabElnaby and Weir (2003)
176 state that firms augment financial measures with non-financial measures; such as customer satisfaction,
177 innovation, and quality of management that drive shareholder value.

178 Evidence on the importance of non-financial performance measures is also highlighted in a study by
179 Ittner *et al* (1997) which showed that many firms use NFM such as product quality, customer satisfaction
180 and market share to evaluate and reward managerial performance. The Balanced Score Card (BSC) is a
181 useful structural framework to disclose a firm's non-financial performance. According to Kaplan and
182 Norton (1992), the BSC is a performance measurement approach that is based on integrating leading
183 non-financial measure, with financial ones.

184 Eccles, Herz, Keegan and Philips (2001) state that information on a broader range of performance
185 measures has as much relevance to analysts and investors as to managers. They believe that measures
186 such as delivery performance, service quality and customers satisfaction are leading indicators of future
187 earnings. Proponents of strategic performance measurement advocate two general approaches for
188 developing Strategic Performance Measurement (SPM) systems. The simplest approach calls for firms to
189 measure and use a diverse set of financial and non-financial measures. Advocates of this, claim that firms
190 achieve higher performance when they place greater emphasis on a broad set of financial and non-
191 financial performance measure (Lingle&Schiemenn, 1996).

192 A second approach is based on contingency theory which argues that strategic performance measures
193 must be aligned with the firm's strategy and/or value drivers (Fisher, 1995b, Langfield-Smith, 1997).
194 Brancato (1995), Fisher (1995a) indicate that many firms believe that financial measures are too historical
195 and backward looking; lack predictive ability to explain future performance, reward short-term or incorrect
196 behaviour, provide little information on root causes or solutions to problem.

197 Consistent with these claims, a number of accounting studies provide evidence that NFM can be leading
198 indicators of financial performance (Bankers *et al*, 2000; Behn& Riley, 1999, Ittner&Larcker, 1997, Nagar
199 &Rajan, 2001). Similarly, Copeland, Koller and Murrin (1996); Dixon and Hedley (1997); Young and
200 O'Byrne (2001) 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 Ernst and Young (1997), **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.

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. Davis (1992); Lev and Zarowin (1998); Tollington (1997); Wallman (1995), 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.

The American Institute of Certified Public Accountants Special Committee on Financial Reporting (AICPA, 1994) 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. Wallman (1995) 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.

Kaplan and Norton (1992, **1996**) 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.

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 Ernst and Young (1997) study, the NFM (39 in number) were 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. Nunnally (1978) 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

α_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

ε_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 31st 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.

DATA PRESENTATION AND RESULTS OF ANALYSIS

Table 290 (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

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

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

321
322
323
324
325

Table 2. Correlations matrix

		Q	MGMT	PRODEV	MKT	CLTURE	COMPENPL	COMM	QLTY	CONSAT
Pearson	Q	1.000	-.119	.026	-.073	-.038	-.096	.057	-.161	-.034
Correlation	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

326
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342

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 Hauser (1974); 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 Sterne and Smith (2001), 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.

Thus, the estimated model is:

$$Q = 5.099 - 0.237\text{MGMT} + 0.219\text{PRODEV} + 0.240\text{MKT} - 0.133\text{CLTURE} \\ - 0.126\text{COMPENPL} + 0.226\text{COMM} - 0.392\text{QLTY} - 0.447\text{CONSAT} + \varepsilon_0$$

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.

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 Ittner, Larcker and Randall (2003). 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 Feltham and Xie (1994) and Hemmer (1996) 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 Holmstrom and Milgrom (1991) 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 Banker *et al* (2000) 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 Holmstrom(1979), 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 Sorensen (2002), 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 (Cremer, 1993; Kreps, 1990) and also enhance employee motivation (O'Reilly, 1989; O'Reilly & Chatman, 1996).

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.

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.

REFERENCES

- 1.American Institute of Certified Public Accountants (AICPA). Improving business reporting: A customer focus. New York: AICPA;1994.
- 2.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.
- 3.Atkinson AA, Waterhouse JH, Wells RB. Astakeholder approach to strategic performance measurement.Sloan Management Review, 1997; 38(3): 25-38.
- 4.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.
- 5.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.
- 6.Bernhard KL, Donthu N, Kennett PA. A longitudinal analysis of satisfaction and profitability. Journal of Business Research, 2000; 47: 161-171.
- 7.Brancato CK. New performance measures: A Research Report. New York, NY: The Conference Board;1995.
- 8.Copeland T, Koller T, Murrin J. Valuation: Measuring and managing the value of companies. New York: John Wiley & Sons;1996..
- 9.Cremer J. Corporate culture and shared knowledge. Industrial and Corporate Change, 1993; 2:351-386.
- 10.Davis M. Goodwill Accounting: Time for an overhaul. Journal of Accountancy,1992; 173(6): 75-83.
- 11.Dixon P, Hedley B. Managing for value. Boston, MA: Braxton Associates;1997.
- 12.Easton P. Security returns and the value relevance of accounting data. Accounting Horizons, 1999; 13: 399-412.
- 13.Eccles R, Herz R, Keegan E, Philips DMH. The value reporting revolution. New York, NY: John Wiley;2001.
- 14.Ernst & Young. Measures that matter. New York: The Ernst and Young Center for Business Innovation, Ernst & Young LLP;1997.
- 15.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.

454 16.Feltham GA, Xie J. Performance measure congruity and diversity in multi-task Principal/Agent
 455 relations. *The Accounting Review*, 1994; 69: 429-453.

456 17Financial Accounting Standards Board (FASB).Improving business reporting: Insights into enhancing
 457 voluntary disclosures.FASB; 2001.

458 18.Fisher J. Contingency-based research on management control system: Categorization by level of
 459 complexity. *Journal of Accounting Literature*,1995b; 24-53.

460 19 Fisher J. Use of non-financial performance measures. In Young, SM, editor. *Readings in Management*
 461 *Accounting*. 329-335. Englewoods Cliffs N.J.: Prentice Hall;1995a..

462 20.Hauser DP. Some problems in the use of stepwise regression techniques in geographical
 463 research.*Canadian Geographer*, 1974; 17(summer):148-158.

464 21.Hemmer T. On the design and choice of 'modern' management accounting measures.*Journal of*
 465 *Management Accounting Research*, 1996; 8: 87-116.

466 22.Holmstrom B, Milgrom P. Multi-task Principal- Agent analysis: Incentive contracts, asset ownership,
 467 and job design. *Journal of Law, Economics and Organization*, 1991; 7: 24-52.

468 23.Holmstrom B. Moral hazard and observability. *Bell Journal of Economics*, 1979; 10:74-91.

469 24.Ittner CD, Larcker DF. Assessing empirical research in management accounting: A value based
 470 management perspective. *Journal of Accounting and Economics*, 2001; 32: 349-410.

471 25.Ittner CD, Larcker DF, Rajan MV. The choice of performance measures in annual bonus contracts.
 472 *The Accounting Review*,1997; 72 (2): 231-255.

473 26.Sterne JAC, Smith GD. Sifting the evidence – what's wrong with significant tests? *BMJ (Clinical*
 474 *Research edition)* 2001; 322 (7280):226-331 DOI: 10.1136/bmj 322.7280.226. PMC 1119478.
 475 PMID11159626.

476 27.Ittner CD, Larcker DF, Randall T. Performance implications of strategic performance measurement in
 477 financial service firms. *Accounting, Organizations and Society*,2003; 28(7-8): 715- 741.

478 28.Ittner CD, Larcker DF. Are non-financial measures leading indicators of financial performance? : An
 479 analysis of customer satisfaction. *Journal of Accounting Research*, 1998b; 36 (supplement): 1-35.

480 29.Ittner CD, Larcker DF. Quality strategy, strategic control systems, and organizational
 481 performance.*Accounting, Organizations and Society*, 1997; 22(3-4): 293-314.

30. Ittner CD, Larcker DF. Innovations in performance measurement: Trends and research implications. *Journal of Management Accounting Research*, 1998a; 10: 205-238.
31. Kaplan R, Norton D. The balanced scorecard: Measures that drive performance. *Harvard Business Review*, 1992; 70 (1): 71-79.
32. Kaplan R, Norton D. *The Balanced Scorecard: Translating strategy into action*. Boston MA: Harvard Business School Press; 1996.
33. Kreps DM. Corporate culture and economic theory. In Alt JE, Shepsle KA, editors. *Perspectives on positive political economy*, (pp 90-143). Cambridge, England: Cambridge University Press; 1990.
34. Langfield-Smith K. Management control systems and strategy: A critical review, *Accounting, Organizations and Society*, 1997; 207-232.
35. Lev B, Zarowin P. The boundaries of financial reporting and how to extend them. Working paper New York University; 1998.
36. Lingle J, Schiemann W. From balanced Scorecard to strategic gauges: Is measurement worth it? *Management Review*, 1996; 85: 56 - 61.
37. Nagar V, Rajan MV. The revenue implications of financial and operating measures of product quality. *The Accounting Review*, 2001; 76(4): 495-513.
38. O' Sullivan D, McCallig J. Customer satisfaction, earnings and firm value. *European Journal of Marketing*, 2012; 46(6): 827-843.
39. O'Reilly CA, Chatman JA. Culture as social control: Corporation, culture and commitment. In Staw BM, Cummings LL, editors. *Research in Organizational Behaviour*, 18, (pp. 157-200). Greenwich, C. T.: JAI Press; 1996.
40. O'Reilly CA. Corporations, culture and commitment, motivation and social control in organizations. *California Management Review*, 1989; 31: 9-25.
41. Said AA, HassabElnaby HR, Wier B. An empirical investigation of the performance consequences of non-financial measures. *Journal of Management Accounting Research*, 2003; 15: 193-223.
42. 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)
43. Tollington T. When is an asset not an asset? *Management Accounting*, 1997; 75(6): 52-53.

- 510 44. Van der Stede WA, Chow CW. The usefulness of non-financial performance measures. Management
511 Accounting Quarterly, 2006; 7(3): 1-8.
- 512 45. Wallman S. The future of accounting and disclosure in an evolving world: The need for dramatic
513 change. Accounting Horizons, 1995; 9: 81-91.
- 514 46. Young S, O'Byrne S. EVA and value-based management. New York, NY: McGraw-Hill; 2001..

515
516
517
518
519
520
521
522
523
524
525
526
527
528
529
530
531
532
533
534
535
536
537
538
539
540
541
542
543
544
545
546
547
548
549
550
551
552
553
554
555
556
557
558
559

560

TableA1. List of sampled companies used for the study

S/N	SECTORS	Nos.
561	1. AGRICULTURE/ AGRO-ALLIED	
562		
563	i. Livestock Feeds PLC	3
564	ii. FTN Cocoa Processors PLC	
565	iii. TheOkomu Oil Palm PLC	
566		
567	2. AVIATION	
568	i. Airline Services & Logistics PLC	2
569	ii. Nigerian Aviation Handling Company PLC	
570		
571	3. BREWERIES	
572	i. Champion Breweries PLC	
573	ii. Premier Breweries PLC	4
574	iii. Guinness Nigeria PLC	
575	iv. Nigerian Breweries PLC	
576		
577	4. CHEMICAL & PAINTS	
578	i. African Paints Nigeria PLC	
579	ii. Berger Paints PLC	
580	iii. Chemical and Allied Products PLC	5
581	iv. Portland Paints & Product Nigeria PLC	
582	v. Premier Paints PLC	
583		
584	5. COMPUTER & OFFICE EQUIPMENT	
585	i. NCR Nigeria PLC	
586	ii. Thomas Wyatt Nigeria PLC	3
587	iii. Tripple Gee & Company PLC	
588		
589	6. CONSTRUCTION	
590	i. Roads Nigeria PLC	
591	ii. Costain (WA) PLC	
592	iii. Arbico PLC	4
593	iv. Julius Berger Nigeria PLC	
594		
595		
596		
597		
598	7. FOOD & BEVERAGES & TOBACCO	
599	i. 7UP Bottling Company PLC	
600	ii. Cadbury Nigeria PLC	
601	iii. Flour Mills PLC	
602	iv. National Salt Company Nigeria PLC	
603	v. Nestle Nigeria PLC	9
604	vi. NigerianBottling Company PLC	
605	vii. Dangote Sugar Refinery PLC	
606	viii. Honeywell Flour Mills PLC	
607	ix. Multi-Trex Integrated Foods PLC	
608		
609		
610	8. HEALTHCARE	
611	i. Fidson Healthcare PLC	

612	ii. GlaxoSmithkline Consumer Nigeria PLC	
613	iii. May & Baker Nigeria PLC	5
614	iv. Neimeth International Pharmaceutical PLC	
615	v. Morrison Industries PLC	
616		
617	9. INDUSTRIAL / DOMESTIC PRODUCTS	
618	i. B. O. C. Gases PLC	
619	ii. Nigerian Enamelware PLC	4
620	iii. Vitafoam Nigeria PLC	
621	iv. Aluminum Extrusion Industries PLC	
622		
623	10. INSURANCE	
624	i. AllCO Insurance PLC	
625	ii. Continental Reinsurance PLC	
626	iii. Custodian & Allied Insurance PLC	
627	iv. Cornerstone Insurance PLC	
628	v. Great Nigeria Insurance PLC	
629	vi. Guaranty Trust Assurance PLC	
630	vii. Guinea Insurance PLC	
631	viii. Law Union & Rock Insurance PLC	15
632	ix. Regency Alliance Insurance PLC	
633	x. Mutual Benefits Assurance PLC	
634	xi. NEM Insurance PLC	
635	xii. Oasis Insurance PLC	
636	xiii. Prestige Assurance PLC	
637	xiv. UNIC Insurance PLC	
638	xv. Staco Insurance PLC	
639		
640	11. MACHINERY (MARKETING)	
641	i. Stokvis Nigeria PLC	1
642		
643	12. MEDIA	
644	i. Afromedia Nigeria PLC	1
645		
646	13. OTHER FINANCIAL INSTITUTIONS	
647	i. Crusader Nigeria PLC	
648	ii. Deap Capital Management & Trust PLC	3
649	iii. Royal Exchange PLC	
650		
651	14. PETROLEUM (MARKETING)	
652	i. African Petroleum PLC	
653	ii. Conoil PLC	5
654	iii. Eterna Oil & Gas PLC	
655	iv. Mobil Oil Nigeria PLC	
656	v. MRS Oil Nigeria PLC	
657		
658	15. REAL ESTATE	
659	i. UACN Property Development Company PLC	1
660		
661	16. TEXTILE	
662	i. United Nigeria Textile PLC	1
663		
664		
665		

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

ITEMS	SCORES	MEAN	STD. DEV	%RATING (1,2,3)	%RATING(4)	%RATING (5,6,7)	CATEGORY MEAN	RANKING
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

666
667
668
669
670
671
672
673
674
675
676
677
678
679
680
681
682
683
684
685
686
687
688
689
690
691
692
693
694
695
696
697
698
699
700
701
702
703
704
705
706
707
708
709

Table A3 .Average values for firm value and non-financial performance measures for2006-2010

COYS	TOBIN'S Q	X ₁	X ₂	X ₃	X ₄	X ₅	X ₆	X ₇	X ₈
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

711 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

712
713

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.213 ^a	.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

714
715
716

ANOVA^b

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	12.411	8	1.551	.225	.984 ^a
	Residual	261.602	38	6.884		
	Total	274.012	46			

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

b. Dependent Variable: FIRM VALUE

717
718

Coefficients^a

	Unstandardized		Standardized			95.0% Confidence						
	Coefficients		Coefficients			Interval for B		Correlations			Collinearity Statistics	
Model	B	Std. Error	Beta	t	Sig.	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

719

720

721

722

723

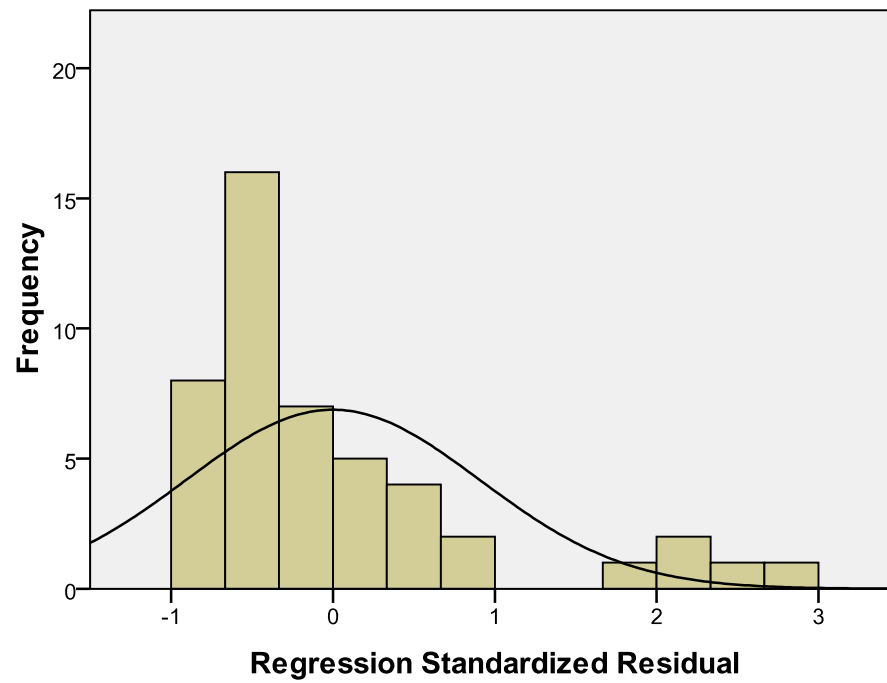
724

725

726

Histogram

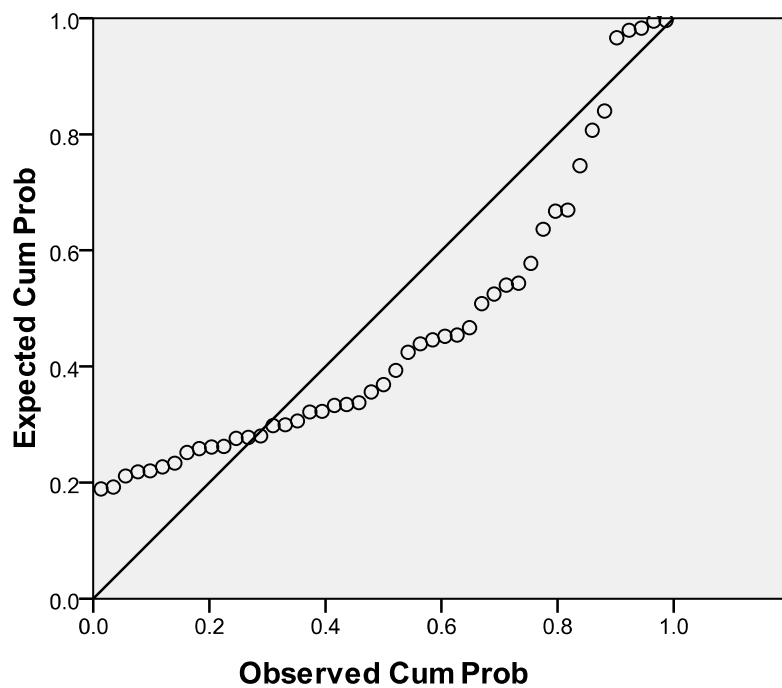
Dependent Variable: VAR00001



727
728
729
730
731
732
733
734
735

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: VAR00001



736
737
738
739
740
741
742
743
744
745
746
747
748
749
750
751
752
753