

MANDATORY AUDIT ROTATION AND AUDIT QUALITY: SURVEY OF SOUTHERN NIGERIA

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Abstract

Mandatory rotation of external auditors requires audit firms to be rotated after a specified number of years despite the quality, independence of the audit firm, the willingness of the shareholders and the management to keep the audit firm. This study is designed to determine the relationship between mandatory audit rotation and audit quality. The data used were collected through the distribution of questionnaires to investors, lecturers, consultants, accountants and auditors in southern Nigeria. The data was analyzed using percentage analysis while the specified model was estimated using binary logistic regression technique through computer software Eviews 7. One hypothesis was stated and tested. The binary logistic ordered regression shows that there exists a negative relationship between Mandatory Audit Rotation (MAT) and audit quality (AUDQ).We therefore recommended that other ways of improving audit quality should be explored such as strengthening the board of audit committee and encouraging Joint audit to avoid monopoly of audit opinion.

Keywords: Mandatory Audit Rotation, Audit Quality, Southern Nigeria

1. INTRODUCTION

1.1 BACKGROUND TO THE STUDY

The object of this paper is to examine the effect of mandatory audit regime on audit quality in southern Nigeria. This became topical after the simultaneous sack of eight banks chiefs by the governor of central bank of Nigeria in 2009 and the imposition of external auditors rotation after ten years of engagement by the apex bank. Mandatory rotation of external auditors requires audit firms to be rotated after a specified number of years despite the quality, independence of the audit firm, the willingness of the shareholders and the management to keep the firm.

Rotation of external auditors has been in existence for over six decades. E.I.U Pont De Nemours and Company, commonly known as DuPont, a United State of America company started rotation of her external auditors in 1910 (Marquita, 2002). ("Question", 1967) explains that mandatory rotation of auditors became a national concern and was first introduced during the Mckesson Robbins accounting scandal in the late 1930s. This took another turn after Enron financial scandal and the compromise of Arthur Anderson. The U.S. Senate held hearings on the state of the audit profession in the United States, including whether required audit firm rotation would be beneficial for maintaining an acceptable level of audit quality. Some witnesses at the Senate hearings believed that mandatory audit firm rotation was necessary to maintain the objectivity of audits. That mandatory audit rotation would prevent auditors from becoming too close with managers, impacting on their independence and quality. A client may be a significant source of revenue for an auditor, and the auditor may be reluctant to jeopardise this revenue stream as he would not want to bite the vey hand that feeds him (Hoyle, 1978). Firm rotation may also help to prevent large-scale corporate collapses. Morgan Stanley estimates the market capitalisation loss of the collapses of WorldCom, Tyco, Quest, Enron and Computer Associates to be \$US460billion (Jackson, Moldrich and Roebuck, 2007). Is also argued that audit quality is diminished with long audit tenure, that mandatory rotation will reduces familiarity threat, ensures auditors independence and provides a greater scepticism and a fresh perspective that may be lacking in long-standing auditor client relationships (Firth, Rui & Wu, 2010; Hyeeso, 2004).

On the other hand, the opponents of mandatory audit rotation suggest that a loss of client knowledge when the auditor is forced to resign will ensure as auditors experience a significant learning curve with new clients (Knapp, 1991). Audit failures are generally higher in the first years of the auditor-client relationship as the new auditor understands the client's operations (Arel, Brody, and Pany, 2005). Audit costs would also rise due to the additional work needed by the new audit firm. The Government Accountability Office (GAO) estimated that companies would incur additional seventeen (17%) auditor selection costs of their first year audit fees (GAO, 2003). Arruñada and Paz-Ares, 1997 opines that opportunity costs would arise because of a mismatch between the client's needs and those which the auditor can offer. Under mandatory rotation regime, if a client is experiencing conflicts with its auditor



over accounting treatments and the auditor is forced to rotate, the market misses out on useful signs that would have taken place under voluntary rotation (Buck and Michaels, 2005). (Johnson, Khurama & Reynolds, 2002; Francis, 2004) opine that longer auditor-client relationships improve audit quality because the auditor acquires client specific knowledge over time. This implies that audit quality is lower during the early years of the auditor client relationship and audit quality increases with length of auditor tenure due to the reduction in information unevenness between the auditor and the client.

1.3 OBJECTIVE OF THE STUDY

• Our study is geared towards contributing to the existing literatures by looking at the impact of mandatory audit firm rotation on audit quality in southern Nigeria.

1.4 RESEARCH QUESTION

• Does mandatory rotation of external auditors affect the quality of audit work?

1.5 SCOPE OF THE STUDY

The spotlight of this research work is to observe the impact of mandatory rotation of auditors on quality of audit work in Southern Nigeria. The researchers focus is on the qualified accountants both in the public sector and private sector. Those in the public sector shall comprise of qualified lecturers in the accounting, banking, management and economics department while the private sector shall comprise of selected accredited auditing firms in Abia State, Edo State and Lagos State respectively. A total of five hundred (500) consultants, lectures, accountants and auditors are examined upon which questionnaires are administered.

1.6 HYPOTHESIS OF THE STUDY

For the purpose of our research study, the hypothesis is formulated in null form:

• Mandatory audit rotation has no significant relationship on audit quality in Nigeria.

2. REVIEW OF RELEVANT LITERATURE

2.1 Concept of Mandatory Audit Rotation

Mandatory rotation of audit firms is statutory prescription of the length of time an audit firm stays and renders professional services to its clients. It requires audit firms to be rotated after a specific number of years despite the efficiency, quality, independence, trust and the willingness of the shareholders to keep the audit firm (Onwuchekwa, Erah & Izedonmi, 2012). Zawawi (2007) posits that the concept of mandatory auditor rotation came in as a result of highly publicized corporate failures that resulted in litigations. Asein (2007) explains that rotation of external auditors was conceived to be a solution to possible familiarity threat between personnel of the audit firm and the client.

2.4 Mandatory Audit Rotation and audit quality

Concerns

over the relationship between auditor tenure and audit quality became more intense after the Enron saga. The quality of audit can be defined, in general terms, as the probability that an auditor will both discover and truthfully report material errors, misrepresentations or omissions detected in a client's accounting system (De Angelo, 1981). This probability depends upon the broad concept of an auditor's professional conduct, which includes factors such as objectivity, due professional care and conflict of interest. The quality of audit work can be evaluated from several points of view; Performance determinants which relate to the ability of auditors, intended both as knowledge and experience; Professional conduct, a general concept including ethical constraints and judgement belongs to this category as well; Economic incentives: as the audit firm's performance is affected by economic considerations, these incentives have to be evaluated when both detection and reporting of matters are analyzed; Audit market structure: the auditor's performance is influenced by the state of professional ethics, the visibility of the profession's enforcement actions and interaction with professional peer groups. Copley & Doucet (1993) find that a periodic rotation of auditors may improve the audit quality. The work investigated the association between the quality of audit services and auditor tenure, along with the quality and fixed fees relation. The first relationship evaluates the usefulness of mandatory rotation. A regression statistical model was used to test the relationship between the dependent variable "substandard audit quality" and other independent variables, of which the most important is "tenure". The dependent variable indicates whether the audit is of unacceptable quality or not. The model focuses on the auditor's incentive to provide a quality service. The analysis was performed on a sample of United State companies. These are entities that receive federal funds, and in that way the law requires them to receive an



independent audit. The empirical results show a positive sign for the estimated parameter of "tenure". This means that the likelihood of receiving a substandard quality audit increases with the length of the auditor - client relationship. This means that the longer the period of engagement, the higher the risk that the quality of audit services decreases. Chi, W., H. Huang, Y. Liao, and H. Xie (2009) find some evidence that audit quality of companies subject to mandatory audit-partner rotation in 2004 is higher than audit quality of companies not subject to rotation in 2004. The study examine the effectiveness of mandatory audit-partner rotation in promoting audit quality using audit data in Taiwan where a five-year audit-partner rotation became de facto mandatory in 2004. Using, both absolute and signed abnormal accruals and abnormal working capital accruals as proxies for audit quality. The investors perceive mandatory audit-partner rotation as enhancing audit quality, suggesting that mandatory audit-partner rotation enhances auditor independence in appearance. On the contrary, Chung (2004) observes that audit quality appears to improve when the duration of the audit – client relationship is truncated. The study examines the impact of limited auditor tenure on earnings and audit quality. Proxy variables of discretionary accruals were used as dependent variables in a cross-sectional modified model. The sample was formed of Korean publicly held companies listed on the Korea Stock Exchange, collected in the 1985-1995 period. The year in which mandatory rotation was enforced in Korea, 1990, was excluded from the sample because it represents a transitional period. This analysis was carried out considering the particular regime existing in Korea, closer to mandatory rotation. The results show that discretionary accruals by firms that fulfill the rotation requirement decrease after the passage to a mandatory rotation regime. Following the author's reasoning, a limit on the length of the auditor - client relationship results in greater incentives for auditors to maintain independence. So the firm's opportunistic manipulation of earnings is effectively restricted.

Johnson, Khurana & Reynolds (2002) opine that mandatory rotation may not be the best solution. The study examine whether the length of the relationship between a company and audit firm is associated with financial reporting quality. The analysis was conducted using two empirical proxies of quality: the absolute value of unexpected accruals and the relationship between current period accruals and future income. A statistical regression was developed and tested with the use of a sample of U.S. companies audited by a Big six auditor in the period 1986-1995. In total eleven thousand one hundred and fourty eight observations of firms were considered. Three groups were then formed on the basis of the audit tenure: short - until 3 years, medium - between 4 and eight years, long over 9 years. The model's outcomes indicated that the level of unexpected accruals observed in the short tenure group of companies was higher than that reported by the medium tenure group. Furthermore, in the long tenure group, no significant increases in unexpected accruals were observed. In other words, short relationships are associated with higher unexpected accruals that are also less persistent in future earnings. Walker, Lewis & Casterella (2001) observe that mandatory auditor rotation may not be necessary. Empirical evidence relating to the link between the length of the auditor engagement and audit failures was carried out. A sample of one hundred and ten in U.S. companies which failed during the period 1980-1991 was used. The sample was divided between companies that were involved in litigation, were declared bankrupt or were the target of a SEC enforcement release. This data was further divided by tenure length. To better address the issue of risk, failure rates were calculated by relating the number of failures in each tenure sample to the total number of audits in each period. The data showed that the majority of failures occur with long term tenure but the highest failure rates involve short term relationships. A logit model was used to predict failures. The results suggest that risk increases early on an audit client relationship and then declines over long term periods. As the failure rate in long term engagements is low. The authors conclude that mandatory auditor rotation may not be necessary. Also, Nashwa (2004) work did not support that mandatory rotation improves audit quality. He attempts to verify the association between a long term auditor-client relationship on audit failures. The collected data showed that failure occurs more frequently in the first three years and in seven or more of audit tenure. Furthermore, the failure rates were computed by relating the number of failures in each tenure class to the total number of audits involving the same period of tenure. To address the issue more deeply, a logic model was used to predict failure using tenure as the variable. The results indicated that risk increases early in the auditor client relation and then declines over time. The author concludes that the results of his survey do not support the hypothesis that mandatory rotation improves audit quality. In US, Geiger & Raghunandan (2002) examine the relationship between the length of the auditor/client relationship and audit reporting failures. The aim is to test the relationship between auditor tenure and audit reporting failures. Audit reports of a sample of U.S. companies entering into bankruptcy during years 1996 – 1998 were examined. In particular, the authors examined if the audit report highlights going-concern problems. A multivariate logistic regression was used, in which the dependent variable is the audit report immediately preceding bankruptcy and, among the independent variables, "tenure" is considered as the most relevant. The lists of public companies bankruptcies were collected from the



yearly publication "Bankruptcy Almanac", relating to the U.S. market. In total, one hundred and seventeen companies that filed for bankruptcy between 1996 and 1998 were considered in the analysis. The results exhibit that the tenure variable is consistently positive and significant. This conclusion is consistent with the position that auditors may be more influenced in the first years of the engagement and it does not support the argument of those who propose that the rotation of auditors must be mandatory. Kwon, Lim and Simnett (2010) Using a unique database consisting of 12,463 firm-year observations in Korea between 2000 and 2007, examines the effect of mandatory audit firm rotation on audit hours, audit fees, and audit quality. The results find that mandatory audit firm rotation increases the cost for audit firms and clients while having no discernable positive effect on audit quality. Hsieh (2011) study examine whether there is a relationship between evidence of reduced audit quality, measured by estimated discretionary accruals, and audit partner tenure with a specific client. Using data obtained from actual audits by multiple Taiwanese offices of large international audit firms. The study finds that estimated discretionary accruals are significantly and negatively associated with the lead audit partner's tenure with a specific client. He concluded that audit quality appears to increase with increased partner tenure.

3. METHODOLOGY

The object of this paper is to examine the impact of mandatory audit regime on audit quality in southern Nigeria. This became topical after the simultaneous sack of eight banks chiefs by the governor of central bank of Nigeria in 2009 and the imposition of rotation of external auditors after ten years of engagement by the apex bank. Mandatory rotation of external auditors requires audit firms to be rotated after a specified number of years despite the quality, independence of the audit firm, the willingness of the shareholders and the management to keep the firm. The researchers relied solely on primary sources for data. The data were sourced from three out of the six geo-political zones in Nigeria made up of South East, South-South and South West collectively referred to as the southern part of Nigeria. A state was chosen to represent each zone: Abia State, Edo State and Lagos State respectively. A survey research design was used to gather information from the respondents concerning their opinion on the impact of mandatory audit on audit quality in southern Nigeria. Five hundred questionnaires were administered to Audit firms, consultants, lecturers and investors out of which four hundred and fourty-two were returned. The questionnaire has two parts, A-B. Part A contains some personal data of the respondent 'that is' sex, age group, academic qualification, name of organisation/institution and length of service, knowledge of financial statements. Part B contains five statements related to mandatory rotation of external auditors and audit quality. Part B is designed in likert form scale: Strongly Disagree to Strongly Agree. The data collected were analyzed using tables and percentages. The model specified was estimated using the Binary Logistic Regression technique with the aid of computer software Eviews 7. The hypothesis of the study was tested using Z-test.

3.1 MODEL SPECIFICATION

For the purpose of measuring the significant relationship between the dependent and independent variable, an econometric model is hereby specified:

AUDQ	=	$B_{0} + B_{1}$	$MAT + Et \dots (1)$
Where:	Ao	=	Constant
	A1	=	Parameter Estimate
	MAT	=	Mandatory Audit Tenure
	AUDQ	=	Audit Quality
	Et	=	Stochastic error term

The model specified above captured Audit Quality as the dependent variable while Mandatory Audit Tenure is the independent variable.

4. DATA PRESENTATION AND ANALYSIS

4.1 Analysis of results

Here answers provided by the respondents to the questionnaire are analyzed and interpreted. The hypothesis formulated previously is tested in this section. In testing the hypothesis the following decision rules are stated. We accept the hypothesis if the calculated Z-statistic is greater than the Z-critical statistic. The Z-critical statistic is \pm 1.96 at 5% significant level (95% confidence) otherwise we reject. The hypotheses are restated in null form.

TEST OF HYPOTHESES 2

- **Hypothesis formulated.** The hypothesis is restated:
 - H1 Mandatory audit rotation has no significant influence on audit quality in Nigeria.

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- **Test statistics**: the statistic instrument employed in testing this statistic is the Z-Test. The Z calculated value is -0.36 (see appendix II).
- **Decision:** Following our decision rule. The regression result shows that MAT with a calculated Z-value of -0.36 is less than the critical Z-value of ± 1.96 at 5% level. Therefore, we accept the null hypothesis.

INSERT TABLE

Table 4.1 above explains respondents' acuity on the statement: audit partner with long tenure are less likely to issue a going concern modified opinion to their financially distressed clients. While 68 respondents representing 15.5% Disagree that audit partner with long tenure are less likely to issue a going concern modified opinion to their financially distressed clients, 79 total numbers of respondents indicating 17.9% are undecided, 294 total number of respondents representing 66.6% Agree that audit partner with long tenure are less likely to issue a going concern modified opinion to their financially distressed clients.

The table also reveals that 225 number of respondents representing 51% of the disagree that the rate of mistake committed by the auditor has to do with the number of years spent with the client, 135 number of respondent indicating 30.6% are undecided, 81 number of respondents representing 18.3% agree that the rate of mistake committed by the auditor has to do with the number of years spent with the client.

The table further tells that 27.9% of the respondents disagree that the likelihood of receiving a substandard quality audit increase with the length of the auditor client relationship, 26.5% of the respondents are undecided about the statement, 44.6% of the respondents agree that the likelihood of receiving a substandard quality audit increase with the length of the auditor client relationship.

Furthermore the table deduce that 211 number of respondents making up 47.8% disagree that auditors are more willing to issue an unclean report in the last year of the official mandate than in the previous years, 113 number of the respondents indicating 25.6% are undecided about the statement, 117 number of respondents representing 26.5% agree that auditors are more willing to issue an unclean report in the last year of the official mandate than in the previous years.

Additionally, the table shows that while 96 number of respondents indicating 21.8% disagree that audit firms receive more litigation in the beginning of their audit than their later years, 130 indicating 29.5% of the respondents are undecided about the statement, 215 number of respondents representing 48.7% agree that audit firms receive more litigation in the beginning of their audit than their later years.

4.2 CORRELATION ANALYSIS

The spearman rank correlation was used to show the relationship between the variable used in the model. The result is shown in table 4.3 (see appendix III). The table shows that the co-efficient of correlation of a variable with respect to itself is 1.000. This indicates that there exists a perfect Correlation between a variable with respect to itself.

INSERT TABLE

CONCLUSION AND RECOMMENDATION

The study examined empirically, the association between mandatory tenure and audit quality. The binary logistic ordered regression shows that there exists a negative relationship between Mandatory Audit Rotation (MAT) and audit quality (AUDQ). The study conforms with that of Geiger & Raghunandan, 2002; Kwon, Lim and Simnett 2010; Johnson, Khurana and Reynolds, 2002; Nashwa., 2004 Walker, Lewis and Casterella 2001. However, it disagrees with the works of Copley and Doucet 1993; Chung 2004; Wuchun, Huichi, Yichun and Hong 2005. It is recommended that the independence of the board of audit committee should be further strengthened. The Central Bank of Nigeria should think of other ways to address concerns about audit quality as the policy might only increase the cost of audit firms and may not necessarily improve audit quality (Kwon, Lim and Simnett 2010). Audit specialization should be encouraged just like in the field of medicine where you have the dentist, the optometrist, gynaecologist, paediatrics and neurosurgeons. Shareholders should have a way of calling for the letter of representation usually written by the auditor to the management and investigate the effort made by the management in correcting the grey areas highlighted by the auditor. Joint auditing can also be encouraged to avoid monopoly of audit opinion. The Institute of Chartered Accountants of Nigeria (ICAN) should investigate the percentages of income her members receive from their clients to know if they are within the stipulated limit.

References

Arel, B., Brody, R.G and Pany, K. (2005). Audit firm rotation and audit quality. CPA Journal.

Chi, W., H. Huang, Y. Liao, and H. Xie. (2009). Mandatory Audit-Partner Rotation, Audit Quality and Market Perception: Evidence from Taiwan. Contemporary Accounting Research 26 (2): 359–391.

Chung H. (2004) Selective Mandatory Auditor Rotation and Audit Quality: An Empirical Investigation of Auditor Designation Policy in Korea". Ph.D Thesis, Purdue University.West Lafayette, Indiana

Copley, P., and Doucet, M. (1993). Auditor tenure, fixed fee contracts and the supply of substandard single audits. *Public Budgeting and Finance, 13*, 23-35.

De Angelo, L. (1981). Auditor independence low bailing and disclosure regulation. *Journal of accounting and economics* 113-127

Firth, M., Rui, M.O & Wu, X (2010) *Rotate Back or Not After Mandatory Audit Partner Rotation*. Department of Finance & Lingnan University, Hong Kong.

Francis, J. R. (2004) What do we know about audit quality. The British Accounting Review 36 (4): 345-368.

GAO (Government Accountability Office), (2003), *Required Study on the Potential Effects of Mandatory Audit Firm Rotation*, Report to the Senate Committee on Banking, Housing, and Urban Affairs and the House Committee on Financial Services. Available at <u>http://www.gao.gov/new.itms/d04216.pdf</u>

Healey T.J. & Kim Y.J. (2003). The benefits of mandatory audit rotation. Regulation, Vol. 26, Issue 3, pp. 10-12, Hoyle, J. (1978), "Mandatory Auditor Rotation: The Arguments and an Alternative", Journal of Accountancy, Vol 145 No. 5, pp. 69-78.

Hussey R. & Lan G. (2001). An examination of auditor independence issues from the prospective of U.K. Finance Director. *Journal of Business Ethics*, Vol. 32, Issue 2, pp. 169-178

Hyeesoo, C. (2004). Selective Mandatory Auditor Rotation & Audit quality: An empirical investigation of auditor designation policy in korea. Krannert Graduate School of Management Purdue University. Thesis Project.

Jackson., A.B, Moldrich., M and Roebuck., P (2008) Mandatory Audit Firm Rotation and Audit Quality. Managerial Auditing Journal, Vol. 23, No. 5.

Johnson V.E., Khurana I.K. and Reynolds J.K., (2002) Audit-firm tenure and the quality of financial reports. *Contemporary Accounting Research*, Vol. 19, Issue 4, pp. 637-660,

Knapp, M. (1991), "Factors that Audit Committees Use as Surrogates for Audit Quality", Auditing: A Journal of Practice & Theory, Vol 10 No. 1, pp. 35-52.

Marquita, T.B.(2002). Analysis of the Mandatory Auditor Rotation Debate. University of Tennessee Honours Thesis Project

Nagy, A. (2005). "Mandatory audit firm turnover, financial reporting quality, and client bargaining power: the case of Arthur Andersen". *Accounting Horizons*, Vol. 19, Issue 2, pp. 51-68.

Onwuchekwa., J.C., Erah., D and Izedonmi., F (2012) Mandatory Audit Rotation and Audit Independence: Survey Of Southern Nigeria. *Research Journal of Finance and Accounting*, Vol 3, No. 7

Question of Changing Auditors (1967). Journal of Accountancy, 123,31-33.

Walker, P. L., Lewis, B. L and Casterella. J. R. (2001): Mandatory auditor rotation: Arguments and current evidence. *Accounting Enquiries* 10 (Spring/Summer): 209–242.

Zawawi, M.B.M., 2007, Audit Firm Tenure and Financial Reporting Quality in Malaysia. M.Sc Thesis, Department of Economics and Management Sciences, International Islamic University Malaysia



Table 4.2: MANDATORY AUDIT TENURE AND AUDIT QUALITY (APPENDIX I)

S/N		RESPO	NSES / 1	PERCEN	TAGES		
		SD	D	UN	А	SA	ΤΟΤΑ
		(%)	(%)	(%)	(%)	(%)	L (%)
11.	Audit partner with long tenure are less	10	58	79	188	106	442
	likely to issue a going concern modified	(2.3)	(13.2)	(17.9)	(42.6)	(24.0)	(100)
	opinion to their financially distressed						
	clients.						
12.	The rate of mistake committed by the	28	197	135	76	5	442
	auditor has to do with the number of years	(6.3)	(44.7)	(30.6)	(17.2)	(1.1)	(100)
	spent with the client						
13.	The likelihood of receiving a substandard	-	123	117	184	17	442
	quality audit increases with the length of	(-)	(27.9)	(26.5.	(41.7)	(3.9)	(100)
	the auditor client relationship.)			
14.	Auditors are more willing to issue an	32	179	113	105	12	442
	unclean report in the last year of the	(7.3)	(40.6)	(25.6)	(23.8)	(2.7)	(100)
	official mandate than in previous years.						
15.	Audit firms receive more litigation in the	9	87	130	147	68	442
	beginning of their audit than their later	(2.0)	(19.7)	(29.5)	(33.3)	(15.4)	(100)
	years.						

SOURCE: Field Survey (2011)

APPENDIX II

Table 4.2 :	Probit L	ogistic I	Regression	for Model 2	(AUDO)

	Coefficient	Std. Error	z-Statistic	Prob.			
MATR	-0.019718	0.054727	-0.360295	0.7186			
Limit Points							
LIMIT_10:C(2)	-2.045143	0.177390	-11.52911	0.0000			
LIMIT_11:C(3)	-1.868340	0.164286	-11.37250	0.0000			
LIMIT_12:C(4)	-1.300848	0.141986	-9.161791	0.0000			
LIMIT 13:C(5)	-1.121244	0.138479	-8.096862	0.0000			
LIMIT 14:C(6)	-0.979831	0.136469	-7.179875	0.0000			
LIMIT 15:C(7)	-0.570476	0.132794	-4.295956	0.0000			
LIMIT 16:C(8)	-0.407411	0.132030	-3.085757	0.0020			
LIMIT 17:C(9)	0.076997	0.131937	0.583591	0.5595			
LIMIT_18:C(10)	0.621168	0.134944	4.603159	0.0000			
LIMIT_19:C(11)	1.368021	0.146716	9.324262	0.0000			
LIMIT_20:C(12)	1.415651	0.148063	9.561134	0.0000			
LIMIT_21:C(13)	1.883202	0.168471	11.17817	0.0000			
LIMIT_22:C(14)	2.429124	0.233309	10.41160	0.0000			
Akaike info criterion	4.487433	Schwarz cri	Schwarz criterion				
Log likelihood -977.7228		Hannan-Quinn criter.		4.538547			
Restr. log likelihood	-977.7877	Avg. log lik	Avg. log likelihood				
LR statistic (1 df)	0.129814	LR index (P	LR index (Pseudo-R2)				
Probability(LR stat)	0.718625	_	_	_			

Source: Field Survey (2011)



APPENDIX III

Table 4.3:	Spearman	Rank	Correlation
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	-	-	MATR	AUDQ
Spearman's rho	MATR	Correlation Coefficient	1.000	.006
		Sig. (2-tailed)		.898
		Ν	442	442
	AUDQ	Correlation Coefficient	.006	1.000
		Sig. (2-tailed)	.898	
		Ν	442	442

Source: Field Survey (2011)