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**FINANCIAL RATIOS AND FIRM PERFORMANCE
OF NIGERIAN MANUFACTURING COMPANIES**

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**MASTERS OF SCIENCE
UNIVERSITI UTARA MALAYSIA
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MANUFACTURING COMPANIES**

By



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in fulfilment of the requirement for the Degree of Masters of Science**



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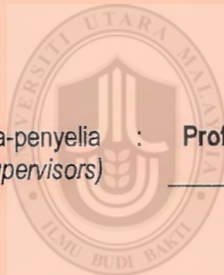
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ABSTRACT

This research aims to examine the relationship between financial ratios and firm performance of Nigerian manufacturing companies. Past literature argued that among the challenges of the firms include management problem and financial constraint. Studies revealed that firms' success could be examined through liquidity efficiency, financial leverage, operating activities and management competency. Thus, this study aims to assess the financial ratios in relation to firms' financial performance. Using stakeholders' theory, agency theory and signalling theory, four hypotheses related to the financial ratios and financial performances are proposed. Return on assets and return on equity are the dependent variables, while liquidity efficiency, financial leverage, business operating activities and management competency are the independent variables. This research examines published financial statements of 66 listed Nigerian manufacturing firms covering a period of years 2011 to 2015, giving a total observation of 330. The data were analysed using descriptive statistics, correlation test and multiple linear regression via EVIEWS8 version. The overall findings of the study reveal that liquidity efficiency (cash gap), leverage efficiency (total debt to total assets) and firm size show a significant positive relationship with both return on assets and return on equity. Further, the findings show that leverage efficiency (long-term debt to total equity) has a significant positive relationship with return on equity. The study will add to the existing literature by applying the stakeholder theory concerns with stakeholder-oriented management to increase profitability. Agency theory will assist on an optimal debt financing decision to enhance profit maximization and signalling theory helps to reveal firm's success or failure through financial ratios. Practically, this study will benefit the management of the Nigerian manufacturing firms in financial performance improvement. Further, it will assist owners, investors, government and management consultants in relation to decision making related to the Nigerian manufacturing firms.

Keywords: Financial ratios, financial performance, Nigerian manufacturing firms, stakeholders

ABSTRAK

Penyelidikan ini bertujuan menyelidik hubungan antara nisbah kewangan dan prestasi firma syarikat perkilangan Nigeria. Kesusasteraan lepas membincangkan bahawa di antara cabaran firma termasuk masalah pengurusan dan kekangan kewangan. Kajian mendedahkan kejayaan firma boleh ditentukan melalui kecekapan kecairan, keberhutangan kewangan, aktiviti operasi dan kecekapan pengurusan. Oleh itu, kajian ini bertujuan menilai hubungan nisbah kewangan dengan prestasi kewangan firma. Menggunakan teori pihak berkepentingan, teori agensi dan teori isyarat, empat hipotesis yang berkaitan dengan nisbah kewangan dan prestasi kewangan dicadangkan. Pulangan ke atas aset dan pulangan ke atas ekuiti adalah pembolehubah bersandar, manakala kecekapan kecairan, keberhutangan kewangan, aktiviti operasi perniagaan dan kecekapan pengurusan adalah pembolehubah bebas. Penyelidikan ini mengkaji penyata kewangan yang diterbitkan daripada 66 firma perkilangan Nigeria yang disenaraikan yang meliputi tempoh tahun 2011 hingga 2015, memberikan jumlah pemerhatian sebanyak 330. Data tersebut dianalisis menggunakan statistik deskriptif, ujian korelasi dan regresi linear pelbagai melalui versi EVIEWS8. Penemuan keseluruhan kajian mendedahkan kecekapan kecairan (jurang tunai), kecekapan keberhutangan (jumlah hutang kepada jumlah aset) dan saiz firma menunjukkan hubungan positif yang signifikan dengan kedua-dua pulangan ke atas aset dan pulangan ke atas ekuiti. Selanjutnya, penemuan menunjukkan bahawa kecekapan keberhutangan (hutang jangka panjang kepada jumlah ekuiti) mempunyai hubungan positif yang signifikan dengan pulangan ke atas ekuiti. Kajian ini akan menambah kesusasteraan sedia ada dengan mengaplikasikan kebimbangan teori pihak berkepentingan dengan pengurusan berorientasikan pihak berkepentingan untuk meningkatkan keuntungan. Teori agensi akan membantu keputusan pembiayaan hutang yang optimum untuk meningkatkan keuntungan secara maksima dan teori isyarat membantu untuk mendedahkan kejayaan atau kegagalan firma melalui nisbah kewangan. Secara praktikal, kajian ini akan memberi manfaat kepada pengurusan syarikat perkilangan Nigeria dalam peningkatan prestasi kewangan. Selain itu, ia akan membantu pemilik, pelabur, kerajaan dan perunding pengurusan berhubung dengan pembuatan keputusan yang berkaitan dengan syarikat perkilangan Nigeria.

Kata kunci: Nisbah kewangan, prestasi kewangan, firma perkilangan Nigeria, pihak berkepentingan

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TABLE OF CONTENTS

TITLE PAGE.....	i
CERTIFICATION OF THESIS WORK	ii
PERMISSION TO USE	iii
ABSTRACT.....	iv
ABSTRAK.....	v
ACKNOWLEDGEMENT	vi
TABLE OF CONTENTS.....	vii
LIST OF TABLES.....	viii
LIST OF FIGURES	xii
LIST OF ABBREVIATIONS.....	xiii

CHAPTER ONE INTRODUCTION

1.1	Background of the Study.....	1
1.2	Research Problem.....	9
1.3	Research Questions	15
1.4	Research Objective.....	15
1.5	Scope of the Study	16
1.7	Summary of the Chapter	16

CHAPTER TWO LITERATURE REVIEW

2.1	Introduction	18
2.2	History of Nigerian Economy	18
2.2.1	Overview of Nigeria Manufacturing Sector	25
2.2.2	Performance of Manufacturing Firms in Nigeria	29
2.3	Firms' Performance.....	38
2.4	Financial Ratios and Firms' Financial Performance	45
2.4.1	Liquidity Efficiency and Firms' Financial Performance	47
2.4.2	Financial Leverage and Firms' Financial Performance	51
2.4.3	Business Operating Activity and Financial Performance	55
2.4.4	Management Competency and Financial Performance	58

2.5	Underpinning and Supporting Theories	62
2.5.1	Stakeholder’s Theory	62
2.5.2	Agency Theory	65
2.5.3	Signalling Theory	67
2.6	Limitation and Gaps from the Reviewed Literature	69
2.7	Summary of the Chapter	70

CHAPTER THREE RESEARCH METHODOLOGY

3.1	Introduction	72
3.2	Research Framework.....	72
3.2.1	Return on Assets (ROA)	74
3.2.2	Return on Equity (ROE)	75
3.2.3	Independent Variables	75
3.3	Hypotheses Development.....	76
3.3.1	Liquidity Efficiency.....	77
3.3.2	Business Operating Efficiency.....	79
3.3.3	Financial Leverage.....	81
3.3.4	Management Competency	84
3.4	Control Variables	86
3.5	Research Model.....	87
3.6	Measurement of Variables	87
3.6.1	Dependent Variables.....	87
3.6.2	Independent Variables	88
3.7	Research Design.....	90
3.8	Sample Selection.....	90
3.9	Technique for Data Analysis.....	91
3.9.1	Multiple Linear Regression	91
3.9.2	Sensitivity Analysis of Good and Poor Performing Firms	92
3.10	Summary of the Chapter	93

CHAPTER FOUR RESULT AND DISCUSSION

4.1	Introduction.....	95
-----	-------------------	----

4.2	Descriptive Analysis	95
4.3	Correlation Analysis.....	99
4.4	Panel Data Analysis	103
4.4.1	Ordinary Least Square (OLS) Model.....	103
4.4.2	Fixed Effect (FE) Model.....	104
4.4.3	Random Effect (RE) Model.....	104
4.5	Diagnostic Tests	105
4.5.1	Checking of Linearity Assumption.....	105
4.5.2	Checking of Normality	106
4.5.3	Checking of Multicollinearity.....	108
4.5.4	Checking for Serial Correlation.....	109
4.5.5	Checking for Heteroscedasticity	110
4.6	Checking for the Appropriate Model of Panel Data for the Research	112
4.6.1	Houseman Test: Random Effect Model versus Fixed Effect Model	112
4.6.2	Wald Test: Ordinary Least Square versus Fixed Effect Model	113
4.7	Model Estimation.....	115
4.8	Evaluation of the Model.....	115
4.8.1	Return on Assets (ROA) as the Dependent Variable (Model 1).....	116
4.8.2	Hypotheses Testing.....	120
4.8.3	Return on Equity (ROE) as the Dependent Variable (Model 2).....	126
4.8.4	Hypotheses Testing.....	130
4.9	Summary of Hypotheses Testing on Financial Performance	136
4.10	Sensitivity Analysis of Good and Poorly Performing Firms	137
4.10.1	Descriptive Analysis of Firms with Good Performance	138
4.10.2	Descriptive Analysis of Firms with Poor Performance	140
4.10.3	FE Regression Equation for Good and Poor Performance	142
4.11	Summary of the Chapter	148

CHAPTER FIVE CONCLUSSION AND RECOMMENDATION

5.1	Introduction.....	150
5.2	An Overview	150
5.3	Test of Hypotheses	153

5.4	Discussion of the Sensitivity Analysis of Good and Poor Performance.	157
5.5	Contribution of the Study.....	159
5.5.1	Theoretical Contribution.....	159
5.5.2	Practical Contribution.....	160
5.6	Limitation and Suggestion for Future Research.....	162
5.7	Conclusion of the Study.....	163
REFERENCES.....		165

APPENDICES

Appendix A: Interpretation of firms' dummy variables.....	182
Appendix B: Outcomes of FE regression equation estimation.....	194



LIST OF TABLES

Table	Titles	Page
Table 1.1	Percentage of Nigerian Population Living Below Poverty Line	11
Table 2.1	Unemployment Rate in Nigeria	19
Table 2.2	Major Economic Sectors of Nigeria Contribution to GDP	20
Table 2.3	GDP Contribution by Sectors for First Half 2014 and 2015	25
Table 2.4	Sub-sectors of Nigerian Manufacturing Sector	27
Table 2.5	Manufacturing Sector Contribution to GDP for Selected Years	28
Table 2.6	Aggregate Number of Employment offered by the NMS	28
Table 2.7	Contribution of Manufacturing Sector to GDP for Selected Countries	33
Table 2.8	Summary of Literature on Liquidity and Profitability	50
Table 2.9	Summary of Literature on Financial Leverage and Profitability	55
Table 2.10	Summary of Literature on Business Operating Activity and Profitability	58
Table 2.11	Summary of Literature on Management Competency and Profitability	61
Table 3.1	Measurement of Variables	89
Table 4.1	Descriptive Statistics	96
Table 4.2	Pearson Correlation Matrix	102
Table 4.3	Standard Deviation of the Dependent Variables and the Residuals	106
Table 4.4	Wald Test for F-Statistics	106
Table 4.5	Histogram-Normality Check	107
Table 4.6	Probability Values of the Multicollinearity Variables	109
Table 4.7	Durbin-Watson Statistics for Serial Correlation	110
Table 4.8	Heteroscedasticity Test: Breusch-Pagan-Godfrey	111
Table 4.9	Housemen Test for RE and FE	113
Table 4.10	Wald Test for OLS and FE	114
Table 4.11	FE Regression Result for ROA as the Dependent Variable (Mode 1)	119
Table 4.12	FE Regression Result for ROE as the Dependent Variable (Model 2)	129
Table 4.13	Descriptive Statistics of Firms with Good Performance	140
Table 4.14	Descriptive Statistics of Firms with Poor Performance	142
Table 4.15	FE Regression for ROA as the Independent Variable for the Groups	145
Table 4.16	FE Regression for ROE as the Independent Variable for Groups	148
Table 5.1	Summary of Findings on the Research Questions	152
Table 5.2	Summary of Hypotheses Tasting (FE Regressions)	156

LIST OF FIGURES

Figure	Title	Page
Figure 1.1	Financial Performance of Selected Nigerian Manufacturing Firms	13
Figure 2.1	Financial Performance Model	44
Figure 3.1	Research Framework	74



LIST OF ABBREVIATIONS

Abbreviations	Meanings
ARGR	Average Revenue Growth Rate
AROA	Average Return on Assets
AROE	Average Return on Equity
CBN	Central Bank of Nigeria
GDP	Gross Domestic Product
IFRS	International Financial Reporting Standards
MAN	Manufacturers Association of Nigeria
MDG	Millennium Development Goal
NBS	National Bureau of Statistics
NMF	Nigerian manufacturing firms
NSE	Nigerian Stock Exchange
PAYE	Pay As You Earn
SEC	Securities and Exchange Commission
TSA	Treasury Single Account



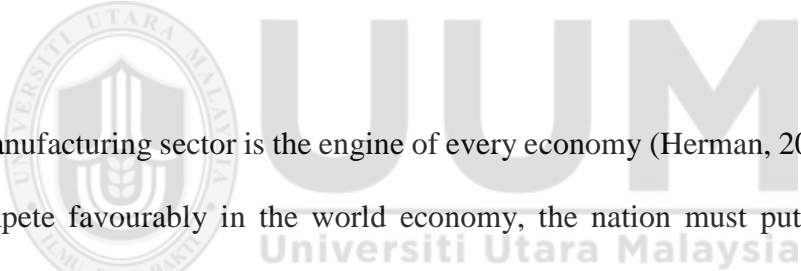
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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Manufacturing is the production of merchandise or finished product by converting materials from their raw stage to its consumable stage for individual or industries use or sale, through an organised or proper coordination of factors of production. It is usually focused on production of larger quantity for customers with the aim of generating a reasonable return for the shareholders and other stakeholders. It is closely connected with industrial design and all the activities involved in the engineering process (Carr & Hasan, 2008).



The manufacturing sector is the engine of every economy (Herman, 2011). Therefore, to compete favourably in the world economy, the nation must put on her best at producing goods and services through vibrant manufacturing sector and reduce over dependence on imported goods in order to enhance economic growth and development (Onuoha, 2013). For the attainment of this objective, there is need to evaluate and assess from time to time the performance of these manufacturing firms to attest to their pace towards the achievement of the nation's goal (Khalifa & Shafii, 2013). The diversification of the economy from oil to agriculture, mining and manufacturing is the aim of the government of Nigeria. Efforts are being made to boost investment in the manufacturing sectors because studies suggested that one of the remedial action to address the financial constraint facing the firms is by investing more in the sector. Efforts are being put in place by the current administration through policy enactment

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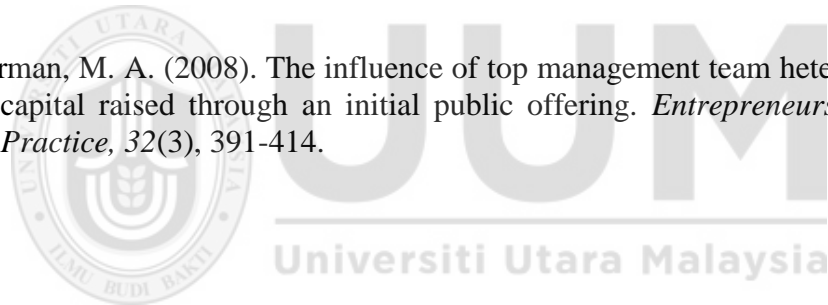
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APPENDICES

Appendix A: Interpretation of firms' dummy variables

ROA (Model 1) dummy variables interpretation

S/N	Firms' Dummies	Coefficient	Interpretation of dummies coefficients
1	Seven-Up Nigeria Plc.	-0.700418	The model's constant coefficient -0.700418 is the intercept of Seven-Up Plc. that was omitted from dummies.
2	Academic Press Nigeria Plc.	0.062616	The firm's intercept is 0.062616 relative to Seven-Up Plc.'s intercept
3	AG Leventis Nigeria Plc.	0.047244	The firm's intercept is 0.047244 relative to Seven-Up Plc.'s intercept
4	Aluminium ext. Industries Nig. Plc.	0.081668	The firm's intercept is 0.081668 relative to Seven-Up Plc.'s intercept
5	Ashaka Cement Nig. Plc.	0.029192	The firm's intercept is 0.029192 relative to Seven-Up Plc.'s intercept
6	Austin Laz & Company Nig. Plc.	0.068082	The firm's intercept is 0.068082 relative to Seven-Up Plc.'s intercept
7	Avon Crowncaps & Container Nig. Plc.	-0.034743	The firm's intercept is -0.034743 relative to Seven-Up Plc.'s intercept
8	Berger Paints Nig. Plc.	0.124135	The firm's intercept is 0.124135 relative to Seven-Up Plc.'s intercept
9	Beta Glass Plc.	0.044049	The firm's intercept is 0.044049 relative to Seven-Up Plc.'s intercept
10	BOC Gases Nigeria Plc.	0.157593	The firm's intercept is 0.157593 relative to

11	Cadbury Nigeria Plc.	0.048874	Seven-Up Plc.'s intercept The firm's intercept is 0.048874 relative to Seven-Up plc.'s intercept
12	Chemical and Allied Product Nig. Plc.	0.442222	The firm's intercept is 0.442222 relative to Seven-Up Plc.'s intercept
13	Capital Oil Plc.	-0.043343	The firm's intercept is - 0.043343 relative to Seven-Up Plc.'s intercept
14	CCNN Plc.	0.092004	The firm's intercept is 0.092004 relative to Seven-Up Plc.'s intercept
15	Champion Breweries Plc.	-0.076902	The firm's intercept is - 0.076902 relative to Seven-UP Plc.'s intercept
16	Chellarams Nigeria Plc.	-0.087176	The firm's intercept is - 0.087176 relative to Seven-Up Plc.'s intercept
17	Conoil Nigeria Plc.	-0.098491	The firm's intercept is - 0.098491 relative to Seven-Up plc.'s intercept
18	Cutix Nig. Plc.	0.130709	The firm's intercept is 0.130709 relative to Seven-Up Plc.'s intercept
19	Dangote Cement Plc.	0.110687	The firm's intercept is 0.110687 relative to Seven-Up Plc.'s intercept
20	Dangote Flour Mill Nig. Plc.	-0.125763	The firm's intercept is - 0.125763 relative to Seven-Up Plc.'s intercept
21	Dangote Sugar Refinery Nig. Plc.	0.026216	The firm's intercept is 0.026216 relative to Seven-Up Plc.'s intercept
22	DN Meyer Nigeria Plc.	0.07184	

			The firm's intercept is 0.07184 relative to Seven-Up Plc.'s intercept
23	Eternal Oil Plc.	-0.082667	The firm's intercept is -0.082667 relative to Seven-Up Plc.'s intercept
24	Evans Medical Nig. Plc.	0.028979	The firm's intercept is 0.028979 relative to Seven-Up Plc.'s intercept
25	Fidson Health Care Nigeria	0.061921	The firm's intercept is 0.061921 relative to Seven-Up Plc.'s intercept
26	First Aluminium Nigeria Plc.	-0.047042	The firm's intercept is -0.047042 relative to Seven-Up Plc.'s intercept
27	Flour Mills Nigeria Plc.	-0.080392	The firm's intercept is -0.080392 relative to Seven-Up plc.'s intercept
28	Forte Oil Plc.	-0.171827	The firm's intercept is -0.171827 relative to Seven-Up Plc.'s intercept
29	FTN Cocoa Processors Plc.	0.067049	The firm's intercept is 0.067049 relative to Seven-Up Plc.'s intercept
30	GlaxoSmithKline Consumer Nig. Plc.	0.064260	The firm's intercept is 0.064260 relative to Seven-Up Plc.'s intercept
31	Guinness Nigeria Plc.	0.045534	The firm's intercept is 0.045534 relative to Seven-Up Plc.'s intercept
32	Honeywell Flour Mill Plc.	-0.019795	The firm's intercept is -0.019795 relative to Seven-Up Plc.'s intercept
33	International Breweries Plc.	0.032322	The firm's intercept is 0.032322 relative to

34	Lafarge Nigeria Plc.	0.018013	Seven-Up Plc.'s intercept The firm's intercept is 0.018013 relative to Seven-Up Plc.'s intercept
35	Livestock Feed Nigeria Plc.	0.025380	The firm's intercept is 0.02538 relative to Seven-Up Plc.'s intercept
36	Longman (Learn Africa) Nigeria Plc.	0.140705	The firm's intercept is 0.140705 relative to Seven-Up Plc.'s intercept
37	May and Baker Nigeria Plc.	0.026514	The firm's intercept is 0.026514 relative to Seven-Up Plc.'s intercept
38	McNichols Consolidated Plc.	-0.063974	The firm's intercept is - 0.06397 relative to Seven-Up Plc.'s intercept
39	Morrison Industries Plc.	0.063481	The firm's intercept is 0.063481 relative to Seven-Up Plc.'s intercept
40	MRS Oil Nigeria Plc.	-0.090919	The firm's intercept is - 0.090919 relative to Seven-Up Plc.'s intercept
41	NASCON Allied Plc.	0.170144	The firm's intercept is 0.170144 relative to Seven-Up Plc.'s intercept
42	Neimeth Int'nal Pharmaceutical Plc.	0.054373	The firm's intercept is 0.054373 relative to Seven-Up Plc.'s intercept
43	Nestle Nigeria Plc.	0.119505	The firm's intercept is 0.119505 relative to Seven-Up Plc.'s intercept
44	Nigerian Breweries Plc.	0.045699	The firm's intercept is 0.045699 relative to Seven-Up Plc.'s intercept
45	Nigerian Enamelware Plc.	0.040251	

			The firm's intercept is 0.040251 relative to Seven-Up Plc.'s intercept
46	Nigerian Germany Chemical plc.	0.081031	The firm's intercept is 0.081031 relative to Seven-Up Plc.'s intercept
47	Nigerian Ropes Plc.	-0.119088	The firm's intercept is -0.119088 relative to Seven-Up Plc.'s intercept
48	Northern Nig. Flour Mills Plc.	-0.033556	The firm's intercept is -0.033556 relative to Seven-Up Plc.'s intercept
49	Oando Plc.	-0.163042	The firm's intercept is -0.163042 relative to Seven-Up Plc.'s intercept
50	Okomu Palm Oil Plc.	0.112698	The firm's intercept is 0.112698 relative to Seven-Up Plc.'s intercept
51	Omatek Venture Nig. Plc.	0.104087	The firm's intercept is 0.104087 relative to Seven-Up Plc.'s intercept
52	Paints & coating Manufacturers Plc.	0.126877	The firm's intercept is 0.126877 relative to Seven-Up Plc.'s intercept
53	Pharma Deko Nigeria Plc.	0.20815	The firm's intercept is 0.20815 relative to Seven-Up Plc.'s intercept
54	Portland Paint Nigeria Plc.	0.052129	The firm's intercept is 0.052129 relative to Seven-Up Plc.'s intercept
55	Premier Paints Plc.	0.002403	The firm's intercept is 0.002403 relative to Seven-Up Plc.'s intercept
56	Presco Nigeria Plc.	0.082532	The firm's intercept is 0.082532 relative to

57	PZ Industries Nigeria Plc.	-0.035008	Seven-Up Plc.'s intercept The firm's intercept is - 0.035008 relative to Seven-Up Plc.'s intercept
58	Studio Press Nigeria Plc.	-0.026166	The firm's intercept is - 0.026166 relative to Seven-Up Plc.'s intercept
59	Thomas Wyatt Nig. Plc.	0.173884	The firm's intercept is 0.173884 relative to Seven-Up Plc.'s intercept
60	Tripple Gee & Company Plc.	0.079940	The firm's intercept is 0.07994 relative to Seven-Up Plc.'s intercept
61	Unilever Nigeria Plc.	0.034661	The firm's intercept is 0.034661 relative to Seven-Up Plc.'s intercept
62	Union Disco Salt Plc.	-0.053751	The firm's intercept is - 0.053751 relative to Seven-Up Plc.'s intercept
63	University Press Nigeria Plc.	0.148077	The firm's intercept is 0.148077 relative to Seven-Up Plc.'s intercept
64	UAC Nigeria Plc.	0.460507	The firm's intercept is 0.460507 relative to Seven-Up Plc.'s intercept
65	Vita-Foam Nigeria Plc.	0.026124	The firm's intercept is 0.026124 relative to Seven-Up Plc.'s intercept
66	Vono Products Plc.	0.090092	The firm's intercept is 0.090092 relative to Seven-Up Plc.'s intercept

Model 2 (ROE) Dummy Variables interpretation

S/N	Firms' Dummies	Coefficient	Interpretation of dummies coefficients
1	Seven-Up Nigeria Plc.	-3.222910	The model's constant coefficient -3.222910 is the intercept of Seven-Up Plc. that was omitted from dummies
2	Academic Press Nigeria Plc.	0.248685	The firm's intercept is 0.248685 relative to Seven-Up Plc.'s Intercept
3	AG Leventis Nigeria Plc.	0.170320	The firm's intercept is 0.170320 relative to Seven-Up Plc.'s Intercept
4	Aluminium ext. Industries Nig. Plc.	0.215809	The firm's intercept is 0.215809 relative to Seven-Up Plc.'s intercept
5	Ashaka Cement Nig. Plc.	0.085566	The firm's intercept is 0.085566 relative to Seven-Up Plc.'s intercept
6	Austin Laz & Company Nig. Plc.	0.422665	The firm's intercept is 0.422665 relative to Seven-Up Plc.'s intercept
7	Avon Crowncaps & Container Nig. Plc.	-0.076616	The firm's intercept is -0.076616 relative to Seven-Up Plc.'s intercept
8	Berger Paints Nig. Plc.	0.528475	The firm's intercept is 0.528475 relative to Seven-Up Plc.'s intercept
9	Beta Glass Plc.	0.073887	The firm's intercept is 0.073887 relative to Seven-Up Plc.'s intercept
10	BOC Gases Nigeria Plc.	0.637855	The firm's intercept is 0.637855 relative to Seven-Up Plc.'s intercept
11	Cadbury Nigeria Plc.	0.131747	

			The firm's intercept is 0.131747 relative to Seven-Up plc.'s intercept
12	Chemical and Allied Product Nig. Plc.	1.154208	The firm's intercept is 1.154208 relative to Seven-Up Plc.'s intercept
13	Capital Oil Plc.	0.064997	The firm's intercept is 0.064997 relative to Seven-Up Plc.'s intercept
14	CCNN Plc.	0.220027	The firm's intercept is 0.220027 relative to Seven-Up Plc.'s intercept
15	Champion Breweries Plc.	0.201330	The firm's intercept is 0.201330 relative to Seven-UP Plc.'s intercept
16	Chellarams Nigeria Plc.	-0.646441	The firm's intercept is -0.646441 relative to Seven-Up Plc.'s intercept
17	Conoil Nigeria Plc.	-0.374205	The firm's intercept is -0.374205 relative to Seven-Up plc.'s intercept
18	Cutix Nig. Plc.	0.434081	The firm's intercept is 0.434081 relative to Seven-Up Plc.'s intercept
19	Dangote Cement Plc.	-0.098381	The firm's intercept is -0.098381 relative to Seven-Up Plc.'s intercept
20	Dangote Flour Mill Nig. Plc.	-0.533855	The firm's intercept is -0.533855 relative to Seven-Up Plc.'s intercept
21	Dangote Sugar Refinery Nig. Plc.	-0.194526	The firm's intercept is -0.194526 relative to Seven-Up Plc.'s intercept
22	DN Meyer Nigeria Plc.	0.431230	The firm's intercept is 0.431230 relative to

			Seven-Up Plc.'s intercept
23	Eternal Oil Plc.	-0.434489	The firm's intercept is -0.434489 relative to Seven-Up Plc.'s intercept
24	Evans Medical Nig. Plc.	0.414643	The firm's intercept is 0.414643 relative to Seven-Up Plc.'s intercept
25	Fidson Health Care Nigeria	0.437598	The firm's intercept is 0.437598 relative to Seven-Up Plc.'s intercept
26	First Aluminium Nigeria Plc.	-0.117202	The firm's intercept is -0.117202 relative to Seven-Up Plc.'s intercept
27	Flour Mills Nigeria Plc.	-0.452953	The firm's intercept is -0.452953 relative to Seven-Up plc.'s intercept
28	Forte Oil Plc.	-0.795969	The firm's intercept is -0.795969 relative to Seven-Up Plc.'s intercept
29	FTN Cocoa Processors Plc.	0.515472	The firm's intercept is 0.515472 relative to Seven-Up Plc.'s intercept
30	GlaxoSmithKline Consumer Nig. Plc.	0.209875	The firm's intercept is 0.209875 relative to Seven-Up Plc.'s intercept
31	Guinness Nigeria Plc.	0.074400	The firm's intercept is 0.074400 relative to Seven-Up Plc.'s intercept
32	Honeywell Flour Mill Plc.	-0.127469	The firm's intercept is -0.127469 relative to Seven-Up Plc.'s intercept
33	International Breweries Plc.	0.057809	The firm's intercept is 0.057809 relative to Seven-Up Plc.'s intercept

34	Lafarge Nigeria Plc.	-0.138075	The firm's intercept is -0.138075 relative to Seven-Up Plc.'s intercept
35	Livestock Feed Nigeria Plc.	0.096232	The firm's intercept is 0.096232 relative to Seven-Up Plc.'s intercept
36	Longman (Learn Africa) Nigeria Plc.	0.707135	The firm's intercept is 0.707135 relative to Seven-Up Plc.'s intercept
37	May and Baker Nigeria Plc.	0.217857	The firm's intercept is 0.217857 relative to Seven-Up Plc.'s intercept
38	McNichols Consolidated Plc.	-0.454807	The firm's intercept is -0.454807 relative to Seven-Up Plc.'s intercept
39	Morrison Industries Plc.	0.894016	The firm's intercept is 0.894016 relative to Seven-Up Plc.'s intercept
40	MRS Oil Nigeria Plc.	-0.388733	The firm's intercept is -0.388733 relative to Seven-Up Plc.'s intercept
41	NASCON Allied Plc.	0.316286	The firm's intercept is 0.316286 relative to Seven-Up Plc.'s intercept
42	Neimeth Int'nal Pharmaceutical Plc.	0.605318	The firm's intercept is 0.605318 relative to Seven-Up Plc.'s intercept
43	Nestle Nigeria Plc.	0.250054	The firm's intercept is 0.250054 relative to Seven-Up Plc.'s intercept
44	Nigerian Breweries Plc.	0.028804	The firm's intercept is 0.028804 relative to Seven-Up Plc.'s intercept
45	Nigerian Enamelware Plc.	0.162603	The firm's intercept is 0.162603 relative to

			Seven-Up Plc.'s intercept
46	Nigerian Germany Chemical plc.	0.302493	The firm's intercept is 0.302493 relative to Seven-Up Plc.'s intercept
47	Nigerian Ropes Plc.	-0.165918	The firm's intercept is -0.165918 relative to Seven-Up Plc.'s intercept
48	Northern Nig. Flour Mills Plc.	-0.249499	The firm's intercept is -0.249499 relative to Seven-Up Plc.'s intercept
49	Oando Plc.	-1.436960	The firm's intercept is -1.436960 relative to Seven-Up Plc.'s intercept
50	Okomu Palm Oil Plc.	0.399716	The firm's intercept is 0.399716 relative to Seven-Up Plc.'s intercept
51	Omatek Venture Nig. Plc.	0.679908	The firm's intercept is 0.679908 relative to Seven-Up Plc.'s intercept
52	Paints & coating Manufacturers Plc.	0.470866	The firm's intercept is 0.470866 relative to Seven-Up Plc.'s intercept
53	Pharma Deko Nigeria Plc.	1.010075	The firm's intercept is 1.010075 relative to Seven-Up Plc.'s intercept
54	Portland Paint Nigeria Plc.	0.434048	The firm's intercept is 0.434048 relative to Seven-Up Plc.'s intercept
55	Premier Paints Plc.	-3.010052	The firm's intercept is -3.010052 relative to Seven-Up Plc.'s intercept
56	Presco Nigeria Plc.	0.312840	The firm's intercept is 0.312840 relative to Seven-Up Plc.'s intercept

57	PZ Industries Nigeria Plc.	-0.215413	The firm's intercept is -0.215413 relative to Seven-Up Plc.'s intercept
58	Studio Press Nigeria Plc.	-0.258791	The firm's intercept is -0.258791 relative to Seven-Up Plc.'s intercept
59	Thomas Wyatt Nig. Plc.	0.736704	The firm's intercept is 0.736704 relative to Seven-Up Plc.'s intercept
60	Tripple Gee & Company Plc.	0.387241	The firm's intercept is 0.387241 relative to seven-Up Plc.'s intercept
61	Unilever Nigeria Plc.	0.275132	The firm's intercept is 0.275132 relative to Seven-Up Plc.'s intercept
62	Union Disco Salt Plc.	3.109630	The firm's intercept is 3.109630 relative to Seven-Up Plc.'s intercept
63	University Press Nigeria Plc.	0.602982	The firm's intercept is 0.602982 relative to Seven-Up Plc.'s intercept
64	UAC Nigeria Plc.	2.324440	The firm's intercept is 2.324440 relative to Seven-Up Plc.'s intercept
65	Vita-Foam Nigeria Plc.	0.179675	The firm's intercept is 0.179675 relative to Seven-Up Plc.'s intercept
66	Vono Products Plc.	0.747501	The firm's intercept is 0.747501 relative to Seven-Up Plc.'s intercept

Appendix B: Outcomes of FE regression equation estimation

Outcome of fixed effect model without dummy variables

Dependent Variable: ROA
 Method: Panel Least Squares
 Date: 12/28/16 Time: 12:53
 Sample: 2011 2015
 Periods included: 5
 Cross-sections included: 66
 Total panel (balanced) observations: 330

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.656921	0.515748	-1.273726	0.2039
CR	0.001862	0.003438	0.541402	0.5887
CG	7.08E-06	2.97E-06	2.386460	0.0177
ATOV	0.012227	0.012096	1.010842	0.3131
ITOV	-1.13E-05	0.000169	-0.066973	0.9467
TDTA	0.028091	0.012663	2.218433	0.0274
LDTE	0.001617	0.001342	1.205271	0.2292
TOTR	-0.132259	0.053734	-2.461376	0.0145
FS	0.030710	0.022693	1.353249	0.1772
SGR	-3.10E-07	0.000144	-0.002147	0.9983

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.741530	Mean dependent var	0.036994
Adjusted R-squared	0.666523	S.D. dependent var	0.127516
S.E. of regression	0.073637	Akaike info criterion	-2.182620
Sum squared resid	1.382716	Schwarz criterion	-1.319190
Log likelihood	435.1324	Hannan-Quinn criter.	-1.838211
F-statistic	9.886143	Durbin-Watson stat	2.369265
Prob(F-statistic)	0.000000		

Dependent Variable: ROE
 Method: Panel Least Squares
 Date: 12/28/16 Time: 12:54
 Sample: 2011 2015
 Periods included: 5
 Cross-sections included: 66

Total panel (balanced) observations: 330

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-3.043942	3.323391	-0.915914	0.3606
CR	0.009007	0.022156	0.406507	0.6847
CG	4.18E-05	1.91E-05	2.188598	0.0295
ATOV	0.081266	0.077945	1.042607	0.2981
ITOV	-0.000263	0.001089	-0.241230	0.8096
TDTA	0.006471	0.081596	0.079309	0.9368
LDTE	0.154515	0.008646	17.87146	0.0000
TOTR	-1.046613	0.346252	-3.022693	0.0028
FS	0.141304	0.146232	0.966302	0.3348
SGR	-0.000710	0.000931	-0.762768	0.4463

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.661128	Mean dependent var	0.036642
Adjusted R-squared	0.562788	S.D. dependent var	0.717620
S.E. of regression	0.474505	Akaike info criterion	1.543626
Sum squared resid	57.41447	Schwarz criterion	2.407056
Log likelihood	-179.6983	Hannan-Quinn criter.	1.888036
F-statistic	6.722916	Durbin-Watson stat	2.073057
Prob(F-statistic)	0.000000		

Outcome of fixed effect model with dummy variables

Dependent Variable: ROA

Method: Panel Least Squares

Date: 12/28/16 Time: 12:29

Sample: 2011 2015

Periods included: 5

Cross-sections included: 66

Total panel (balanced) observations: 330

$$\begin{aligned}
 \text{ROA} = & C(1) + C(2)*\text{CR} + C(3)*\text{CG} + C(4)*\text{ATOV} + C(5)*\text{ITOV} + C(6)* \\
 & \text{TDTA} + C(7) \\
 & * \text{LDTE} + C(8)*\text{TOTR} + C(9)*\text{FS} + C(10)*\text{SGR} + C(11)*\text{D2} + C(12) \\
 &) * \text{D3} + C(13) \\
 & * \text{D4} + C(14)*\text{D5} + C(15)*\text{D6} + C(16)*\text{D7} + C(17)*\text{D8} + C(18)*\text{D9} \\
 & + C(19)*\text{D10} \\
 & + C(20)*\text{D11} + C(21)*\text{D12} + C(22)*\text{D13} + C(23)*\text{D14} + C(24)*\text{D1} \\
 & 5 + C(25) \\
 & * \text{D16} + C(26)*\text{D17} + C(27)*\text{D18} + C(28)*\text{D19} + C(29)*\text{D20} + C(3) \\
 & 0) * \text{D21}
 \end{aligned}$$

$$\begin{aligned}
&+C(31)*D22+C(32)*D23+C(33)*D24+C(34)*D25+C(35)*D26+C(36) \\
&*D27+C(37)*D28+C(38)*D29+C(39)*D30+C(40)*D31+C(41)*D32 \\
&+C(42)*D33+C(43)*D34+C(44)*D35+C(45)*D36+C(46)*D37+C(47) \\
&*D38+C(48)*D39+C(49)*D40+C(50)*D41+C(51)*D42+C(52)*D43 \\
&+C(53)*D44+C(54)*D45+C(55)*D46+C(56)*D47+C(57)*D48+C(58) \\
&*D49+C(59)*D50+C(60)*D51+C(61)*D52+C(62)*D53+C(63)*D54 \\
&+C(64)*D55+C(65)*D56+C(66)*D57+C(67)*D58+C(68)*D59+C(69) \\
&*D60+C(70)*D61+C(71)*D62+C(72)*D63+C(73)*D64+C(74)*D65 \\
&+C(75)*D66
\end{aligned}$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.700418	0.571516	-1.225544	0.2215
C(2)	0.001862	0.003438	0.541402	0.5887
C(3)	7.08E-06	2.97E-06	2.386460	0.0177
C(4)	0.012227	0.012096	1.010842	0.3131
C(5)	-1.13E-05	0.000169	-0.066973	0.9467
C(6)	0.028091	0.012663	2.218433	0.0274
C(7)	0.001617	0.001342	1.205271	0.2292
C(8)	-0.132259	0.053734	-2.461376	0.0145
C(9)	0.030710	0.022693	1.353249	0.1772
C(10)	-3.10E-07	0.000144	-0.002147	0.9983
C(11)	0.062616	0.093839	0.667272	0.5052
C(12)	0.047244	0.067027	0.704849	0.4815
C(13)	0.081668	0.098314	0.830680	0.4069
C(14)	0.029192	0.055105	0.529756	0.5967
C(15)	0.068082	0.121382	0.560892	0.5754
C(16)	-0.034743	0.068905	-0.504210	0.6145
C(17)	0.124135	0.085377	1.453969	0.1472
C(18)	0.044049	0.061137	0.720497	0.4719
C(19)	0.157593	0.089421	1.762365	0.0792
C(20)	0.048874	0.050167	0.974216	0.3309
C(21)	0.442222	0.076712	5.764681	0.0000
C(22)	-0.043343	0.100927	-0.429450	0.6680
C(23)	0.092004	0.059496	1.546391	0.1233
C(24)	-0.076902	0.087344	-0.880445	0.3794
C(25)	-0.087176	0.056326	-1.547704	0.1229
C(26)	-0.098491	0.048719	-2.021606	0.0443
C(27)	0.130709	0.097729	1.337464	0.1823

C(28)	0.110687	0.058357	1.896715	0.0590
C(29)	-0.125763	0.051874	-2.424381	0.0160
C(30)	0.026216	0.048200	0.543904	0.5870
C(31)	0.071840	0.097733	0.735066	0.4630
C(32)	-0.082667	0.058144	-1.421752	0.1563
C(33)	0.028979	0.083338	0.347736	0.7283
C(34)	0.061921	0.065340	0.947671	0.3442
C(35)	-0.047042	0.069868	-0.673298	0.5014
C(36)	-0.080392	0.052096	-1.543149	0.1240
C(37)	-0.171827	0.048052	-3.575822	0.0004
C(38)	0.067049	0.121331	0.552614	0.5810
C(39)	0.064260	0.051562	1.246266	0.2138
C(40)	0.045534	0.048308	0.942579	0.3468
C(41)	-0.019795	0.049754	-0.397853	0.6911
C(42)	0.032322	0.058608	0.551485	0.5818
C(43)	0.018013	0.048343	0.372605	0.7098
C(44)	0.025380	0.079037	0.321121	0.7484
C(45)	0.140705	0.085506	1.645562	0.1011
C(46)	0.026514	0.071873	0.368895	0.7125
C(47)	-0.063974	0.062143	-1.029467	0.3042
C(48)	0.063481	0.129763	0.489204	0.6251
C(49)	-0.090919	0.047506	-1.913823	0.0568
C(50)	0.170144	0.064247	2.648270	0.0086
C(51)	0.054373	0.090338	0.601888	0.5478
C(52)	0.119505	0.048061	2.486522	0.0135
C(53)	0.045699	0.055114	0.829178	0.4078
C(54)	0.040251	0.091546	0.439683	0.6605
C(55)	0.081031	0.083410	0.971486	0.3322
C(56)	-0.119088	0.121915	-0.976816	0.3296
C(57)	-0.033556	0.074601	-0.449804	0.6532
C(58)	-0.163042	0.062769	-2.597482	0.0099
C(59)	0.112698	0.064153	1.756713	0.0802
C(60)	0.104087	0.105988	0.982072	0.3270
C(61)	0.126877	0.087891	1.443574	0.1501
C(62)	0.208150	0.098888	2.104906	0.0363
C(63)	0.052129	0.085638	0.608712	0.5433
C(64)	0.002403	0.136289	0.017635	0.9859
C(65)	0.082532	0.065061	1.268536	0.2058
C(66)	-0.035008	0.047495	-0.737089	0.4617
C(67)	-0.026166	0.074758	-0.350008	0.7266
C(68)	0.173884	0.149149	1.165845	0.2448
C(69)	0.079940	0.113086	0.706900	0.4803
C(70)	0.034661	0.046941	0.738389	0.4610
C(71)	-0.053751	0.566038	-0.094960	0.9244
C(72)	0.148077	0.090351	1.638916	0.1025
C(73)	0.460507	0.114540	4.020505	0.0001

C(74)	0.026124	0.059364	0.440058	0.6603
C(75)	0.090092	0.113601	0.793056	0.4285
R-squared	0.741530	Mean dependent var	0.036994	
Adjusted R-squared	0.666523	S.D. dependent var	0.127516	
S.E. of regression	0.073637	Akaike info criterion	-2.182620	
Sum squared resid	1.382716	Schwarz criterion	-1.319190	
Log likelihood	435.1324	Hannan-Quinn criter.	-1.838211	
F-statistic	9.886143	Durbin-Watson stat	2.369265	
Prob(F-statistic)	0.000000			

Dependent Variable: ROE

Method: Panel Least Squares

Date: 12/28/16 Time: 12:31

Sample: 2011 2015

Periods included: 5

Cross-sections included: 66

Total panel (balanced) observations: 330

$$\begin{aligned}
 \text{ROE} = & C(1) + C(2)*\text{CR} + C(3)*\text{CG} + C(4)*\text{ATOV} + C(5)*\text{ITOV} + C(6)* \\
 & \text{TDTA} + C(7) \\
 & * \text{LDTE} + C(8)*\text{TOTR} + C(9)*\text{FS} + C(10)*\text{SGR} + C(11)*\text{D2} + C(12) \\
 &) * \text{D3} + C(13) \\
 & * \text{D4} + C(14)*\text{D5} + C(15)*\text{D6} + C(16)*\text{D7} + C(17)*\text{D8} + C(18)*\text{D9} \\
 & + C(19)*\text{D10} \\
 & + C(20)*\text{D11} + C(21)*\text{D12} + C(22)*\text{D13} + C(23)*\text{D14} + C(24)*\text{D1} \\
 & 5 + C(25) \\
 & * \text{D16} + C(26)*\text{D17} + C(27)*\text{D18} + C(28)*\text{D19} + C(29)*\text{D20} + C(3) \\
 & 0) * \text{D21} \\
 & + C(31)*\text{D22} + C(32)*\text{D23} + C(33)*\text{D24} + C(34)*\text{D25} + C(35)*\text{D2} \\
 & 6 + C(36) \\
 & * \text{D27} + C(37)*\text{D28} + C(38)*\text{D29} + C(39)*\text{D30} + C(40)*\text{D31} + C(4) \\
 & 1) * \text{D32} \\
 & + C(42)*\text{D33} + C(43)*\text{D34} + C(44)*\text{D35} + C(45)*\text{D36} + C(46)*\text{D3} \\
 & 7 + C(47) \\
 & * \text{D38} + C(48)*\text{D39} + C(49)*\text{D40} + C(50)*\text{D41} + C(51)*\text{D42} + C(5) \\
 & 2) * \text{D43} \\
 & + C(53)*\text{D44} + C(54)*\text{D45} + C(55)*\text{D46} + C(56)*\text{D47} + C(57)*\text{D4} \\
 & 8 + C(58)
 \end{aligned}$$

$$\begin{aligned}
& *D49+C(59)*D50+C(60)*D51+C(61)*D52+C(62)*D53+C(63)*D54 \\
& +C(64)*D55+C(65)*D56+C(66)*D57+C(67)*D58+C(68)*D59+C(69) \\
& *D60+C(70)*D61+C(71)*D62+C(72)*D63+C(73)*D64+C(74)*D65 \\
& +C(75)*D66
\end{aligned}$$

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-3.222910	3.682756	-0.875135	0.3823
C(2)	0.009007	0.022156	0.406507	0.6847
C(3)	4.18E-05	1.91E-05	2.188598	0.0295
C(4)	0.081266	0.077945	1.042607	0.2981
C(5)	-0.000263	0.001089	-0.241230	0.8096
C(6)	0.006471	0.081596	0.079309	0.9368
C(7)	0.154515	0.008646	17.87146	0.0000
C(8)	-1.046613	0.346252	-3.022693	0.0028
C(9)	0.141304	0.146232	0.966302	0.3348
C(10)	-0.000710	0.000931	-0.762768	0.4463
C(11)	0.248685	0.604682	0.411265	0.6812
C(12)	0.170320	0.431908	0.394343	0.6937
C(13)	0.215809	0.633521	0.340649	0.7336
C(14)	0.085566	0.355085	0.240974	0.8098
C(15)	0.422665	0.782164	0.540380	0.5894
C(16)	-0.076616	0.444015	-0.172552	0.8631
C(17)	0.528475	0.550154	0.960594	0.3377
C(18)	0.073887	0.393958	0.187550	0.8514
C(19)	0.637855	0.576216	1.106973	0.2693
C(20)	0.131747	0.323268	0.407548	0.6839
C(21)	1.154208	0.494321	2.334935	0.0203
C(22)	0.064997	0.650354	0.099940	0.9205
C(23)	0.220027	0.383381	0.573914	0.5665
C(24)	0.201330	0.562831	0.357710	0.7209
C(25)	-0.646441	0.362956	-1.781045	0.0761
C(26)	-0.374205	0.313938	-1.191970	0.2344
C(27)	0.434081	0.629750	0.689291	0.4913
C(28)	-0.098381	0.376045	-0.261620	0.7938
C(29)	-0.533855	0.334269	-1.597084	0.1115
C(30)	-0.194526	0.310591	-0.626310	0.5317
C(31)	0.431230	0.629774	0.684738	0.4941
C(32)	-0.434489	0.374672	-1.159650	0.2473
C(33)	0.414643	0.537014	0.772127	0.4408
C(34)	0.437598	0.421039	1.039329	0.2996
C(35)	-0.117202	0.450220	-0.260321	0.7948
C(36)	-0.452953	0.335699	-1.349286	0.1784
C(37)	-0.795969	0.309642	-2.570608	0.0107

C(38)	0.515472	0.781836	0.659310	0.5103
C(39)	0.209875	0.332255	0.631669	0.5282
C(40)	0.074400	0.311289	0.239006	0.8113
C(41)	-0.127469	0.320607	-0.397587	0.6913
C(42)	0.057809	0.377662	0.153071	0.8785
C(43)	-0.138075	0.311512	-0.443240	0.6580
C(44)	0.096232	0.509299	0.188951	0.8503
C(45)	0.707135	0.550986	1.283400	0.2005
C(46)	0.217857	0.463140	0.470391	0.6385
C(47)	-0.454807	0.400438	-1.135772	0.2571
C(48)	0.894016	0.836170	1.069180	0.2860
C(49)	-0.388733	0.306124	-1.269857	0.2053
C(50)	0.316286	0.413997	0.763982	0.4456
C(51)	0.605318	0.582122	1.039847	0.2994
C(52)	0.250054	0.309699	0.807410	0.4202
C(53)	0.028804	0.355143	0.081106	0.9354
C(54)	0.162603	0.589907	0.275642	0.7830
C(55)	0.302493	0.537478	0.562800	0.5741
C(56)	-0.165918	0.785599	-0.211200	0.8329
C(57)	-0.249499	0.480718	-0.519014	0.6042
C(58)	-1.436960	0.404475	-3.552653	0.0005
C(59)	0.399716	0.413391	0.966919	0.3345
C(60)	0.679908	0.682966	0.995522	0.3204
C(61)	0.470866	0.566355	0.831396	0.4065
C(62)	1.010075	0.637218	1.585132	0.1142
C(63)	0.434048	0.551835	0.786554	0.4323
C(64)	-3.010052	0.878224	-3.427432	0.0007
C(65)	0.312840	0.419242	0.746203	0.4562
C(66)	-0.215413	0.306052	-0.703846	0.4822
C(67)	-0.258791	0.481729	-0.537213	0.5916
C(68)	0.736704	0.961089	0.766531	0.4441
C(69)	0.387241	0.728706	0.531409	0.5956
C(70)	0.275132	0.302483	0.909580	0.3639
C(71)	3.109630	3.647453	0.852548	0.3947
C(72)	0.602982	0.582206	1.035684	0.3013
C(73)	2.324440	0.738074	3.149332	0.0018
C(74)	0.179675	0.382531	0.469701	0.6390
C(75)	0.747501	0.732024	1.021143	0.3082

R-squared	0.661128	Mean dependent var	0.036642
Adjusted R-squared	0.562788	S.D. dependent var	0.717620
S.E. of regression	0.474505	Akaike info criterion	1.543626
Sum squared resid	57.41447	Schwarz criterion	2.407056
Log likelihood	-179.6983	Hannan-Quinn criter.	1.888036
F-statistic	6.722916	Durbin-Watson stat	2.073057
Prob(F-statistic)	0.000000		

