

TESTING FOR RATIONAL BUBBLES ON THE NIGERIAN STOCK EXCHANGE

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ABSTRACT

The Nigerian Stock Exchange (NSE) has experienced considerable growth over the past two decades. This growth has been accompanied by spectacular increases and decreases in prices, implying substantial volatility. Such behaviour has been characterized as bubbles. It has become important to study the existence of bubbles, from both the perspectives of policy makers and investors. This study conducts an empirical investigation of the presence of bubbles in Nigeria's stock market. We employed data for 78 firms that had data on stock prices and dividends over the period 1990 to 2016. The results of both Engle-Granger and Johansen cointegration tests showed that a long-run relationship exists between the share price index and dividends of selected companies on the stock exchange. Based on the dividend valuation model, it can be said that the market values (MV) of these companies have not deviated from their intrinsic values (IV) over the study period. This result implies that there is no evidence that bubbles exist on the Nigerian Stock Exchange. It further implies that companies seeking to raise external funding can do so from the stock market, as there is some stability in the behavior of the stock market. For regulators,

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1. Introduction

The Nigerian Stock Exchange (NSE) has experienced considerable growth over the past two decades. The rapid growth of the Stock Exchange has been accompanied by increased volatility over time. Between January 5, 2000 and January 3, 2006, market capitalization grew by 327.3%, as it increased to N2,544.96 billion. The Stock Exchange grew further to N10,283.79 billion by January 2, 2008. However, there was a considerable drop following the global financial crisis as the NSE capitalization fell to N6,936.76 billion on January 2, 2009, and dropped further to as low as N4,992.19 billion on January 4, 2010. The market then experienced growth in subsequent years and capitalization reached a peak of N14, 211.51 billion on July 9, 2014.

Such volatility experienced on the NSE, featuring spectacular increases in prices followed by spectacular collapses in prices, has been observed across different markets. Such behaviour have been characterized as bubbles since the 17th century (Bailey, 2005). Popular historical examples of bubbles or extreme asset price fluctuations include the tulipmania bubble (1636-1637), the Mississippi and South Sea bubbles (1719-1720), the Wall Street crash (1929), the stock market crash (1987), and the dotcom bubble (1999-2000) (Bailey, 2005).

Bubbles have become a common feature of asset markets and they have always existed in the business world (Evans, 1991; Driffill & Sola, 1998; and Costa et al., 2017). Bubbles have been pronounced in emerging markets since the 1990s, owing to factors such as financial liberalization and capital inflows (Tran, 2016). These developments have been accompanied by emerging markets having higher returns than developed markets, indicating the possibility of the presence of bubbles (Tran, 2016). Increased financialisation, financial globalization and integration of markets across territorial borders means that asset markets are now very important to all aspects of national and global economies. This was evident in the global financial crisis of 2007-2008, where fragilities in financial markets spread across all sectors and many continents, resulting in economic recession, the scale of which had not been seen since the Great Depression of the 1930s.

It has become important to study the existence of bubbles, from both the perspectives of policy makers and investors (Tran, 2016; Balcilar et al., 2016). For policy makers, the effectiveness of monetary policy will be affected when bubbles are present. Bubbles by their nature, imply a deviation of the market from fundamentals. Thus, monetary policy when conducted only using information on market fundamentals, when bubbles exist, will not be optimal (Tran, 2016). In such cases where bubbles exist therefore, policy makers need to adequately detect and account for them in formulating policy. For investors looking to buy assets, they need to consider the asset prices in relation to their fundamental values and their objectives for investing, whether for short-term or long-term.

This study conducts an empirical investigation of the presence of bubbles in the Nigerian stock market using data over the period 1990 to 2016. As shown in the first paragraph, the NSE has exhibited considerable growth and volatility in the past few years. While this would suggest the presence of bubbles, conclusions can only be drawn following

appropriate testing. The Nigerian case is particularly interesting for study. While the NSE is the second most capitalized stock exchange on the African continent, more attention has been focused on the Johannesburg Stock Exchange (JSE) with little international studies existing for the NSE. However, with the Nigerian and South African economies alternating as the largest economies in Africa, more attention needs to be focused on Nigeria's stock markets. Thus, this study deviates from existing studies examining bubbles on the JSE to examine bubbles on the NSE. Against this background, this paper is organized into six sections. The second section conducts a review of relevant literature while the third section provides the model for testing for bubbles. Section four presents the econometric methodology while the empirical results are presented in section five. The sixth section presents the conclusions and recommendations.

2. Literature Review

A bubble can be said to be deviations of the price of an asset from market fundamentals. This implies that the price of an asset does not depend exclusively on information about current and future returns from the asset, but extraneous events also determine asset prices (Blanchard and Watson, 1982). In other words, a bubble is a deviation between the intrinsic value (IV) and market value (MV) of an asset (Evans, 1991; Costa, Silva, Almeida and de Veiga, 2017). The intrinsic value of an asset, following from dividend valuation model, is a function of the present discounted value of future expected dividends (Campbell & Shiller, 1987; Campbell, Lo and McKinlay, 1997). The intrinsic value of an asset depends on market fundamentals such as profit, dividends, financial structure and management quality (Costa et al., 2017). The market value of the asset is the actual price at which it is traded on the markets. Thus, understanding bubbles involves examining if, what, and at what time deviations occur between intrinsic values and market values. The market value represents a value/data that reflects average expectation between buyers and sellers (Coslor, 2016). Bubbles occur and are sustained due to the fact that investors and speculators realise that despite the fact that prices are overvalued, they are still willing to buy additional assets even at higher prices relative to fundamentals because they believe that others will pay even higher prices. Thus, there is the expectation of making excess profits arising from higher positive excess returns, even as the risk of the collapse of the bubble heightens (Jirasakuldech, Emekter and Rao, 2008; Balcilar, Gupta, Jooste and Wohar, 2016).

Considerable research has been conducted on investigating the existence of bubbles, especially in advanced markets. Various methodologies have been adopted by different authors to examine bubbles. These include variance bounds tests (Shiller, 1981), specification tests (West, 1987), cointegration tests (Diba and Grossman, 1988), duration dependence tests (McQueen and Thorley, 1994), periodically collapsing bubble model (van Norden, 1996; Taylor and Peel, 1998), sup ADF test (Phillips, Wu and Yu, 2011).

Chen, Hsu and Xie (2016) investigated collapsing bubbles in four international stock markets. The study made use of the momentum threshold (MTAR) unit root test of Enders and Granger (1998) and Enders and Siklos (2001) to examine whether periodically collapsing bubbles exist in the stock markets of US, Belgium, Denmark and Finland. Using monthly data ranging broadly over the period 1965 to 2012, the results showed that

bubbles are present in the stock markets. However, evidence for periodically collapsing bubbles were not found for three of the markets, with evidence for the Denmark market.

Costa et al. (2017) studied whether bubbles exist on Brazil's stock market. The authors employed data from the first semester of 1990 to the first semester of 2010, using data for 27 companies which had consistent data on dividends paid to investors with no gaps from the Sao Paulo Stock Exchange (BOVESPA). The empirical results showed existence of bubbles in 20 of the 27 stocks. 6 of the 7 stocks with no evidence of bubbles were for financial institutions.

Jirasakuldech et al. (2008) examined the existence of bubbles on Thailand's stock market. The authors made use of monthly data over the period June 1975 to June 2006 for the Stock Exchange of Thailand (SET) index. Econometric estimations were conducted using both cointegration tests and the duration dependence test. The cointegration tests showed the existence of bubbles on Thailand's stock exchange. These results were confirmed by the duration dependence tests which also indicated the presence of bubbles. However, further analysis conducted by splitting the sample into pre and post 1997 Asian financial crisis showed that while bubbles existed in the pre-financial crisis period, they did not exist in the post-crisis period.

Tran (2016) explored the existence of bubbles on the stock markets of Asian and Latin American countries. The author made use of monthly data over the period from 1990 to 2009 for 12 Asian and 7 Latin American markets. The Asian markets were Hong Kong, Singapore, Taiwan, Thailand, Malaysia, India, Pakistan, Indonesia, Philippines, South Korea, China, and Sri Lanka. The Latin American markets were Argentina, Brazil, Chile, Colombia, Mexico, Peru, and Venezuela. The empirical tests were conducted using conventional cointegration tests and non-cointegration tests of Taylor and Peel (1998). The results of standard cointegration tests showed that bubbles do not exist in any of the markets in Asia and Latin America. However, in order to detect periodically collapsing bubbles, the author also made use of the tests of Taylor and Peel. The results of this test showed the existence of bubbles in all the markets, with the exception of Hong Kong and Indonesia.

Ye, Chang, Hung and Lu (2011) conducted an investigation of the existence of bubbles in the stock markets of the G-7 countries. The authors used monthly data over the period January 2000 to June 2009. The stock market indexes examined were S&P 500 index (USA), TSX Composite index (Canada), CAC 40 index (France), DAX 30 index (Germany), FTSE100 index (UK), TOPIX 1000 index (Japan), and the MIB 30 index (Italy). The authors made use of the Fourier unit root test of Enders and Lee (2004, 2009) and Breitung's (2001) nonparametric rank test for cointegration. The results of unit root tests showed that the variables were non-stationary in only Germany, Japan and USA. Thus, the nonparametric rank test for cointegration was only conducted for these countries. The results showed that bubbles did not exist in these countries.

Cunado, Gil-Alana and de Gracia (2012) tested for the presence of bubbles in the Nasdaq stock market. Making use of daily, weekly and monthly data over the period June 1, 1994 to November 17, 2003, the authors employed fractional integration and non-linear models of Enders and Granger (1998) and Enders and Siklos (2001) to allow for

asymmetric adjustment process of stock prices to fundamentals. In addition, structural break tests were used to divide the sample into two subsamples. The empirical results showed evidence of bubbles using daily and monthly data for all samples. However, the results for weekly data were mixed, as bubbles were only found to exist in the second subsample.

Anderson, Brooks and Katsaris (2010) explored presence of bubbles in the US market. The authors made use of data over the period January 1973 to June 2004 for the broad S&P 500 index and its 10 Global Industry Classification Standard (GICS) indices. The authors employed the regime-switching method of van Norden and Schaller (1993). The empirical results showed the presence of bubbles in the broad S&P index. For the sectoral indices, the results were mixed. Bubbles were found to exist in 4 sectors: Financials, General Industrials, Information Technology, and Non-Cyclical Services. Periodically, partially collapsing bubbles were found to exist in 3 sectors: Cyclical Services, Basic Industries, and Utilities. No evidence of bubble-like behavior was found in 3 sectors: Cyclical Consumer Goods, Non-Cyclical Consumer Goods and Resources.

Chiang, Tsai and Lee (2011) conducted an empirical investigation of the presence of bubbles in the stock prices of construction companies in Taiwan. The study made use of data from the first quarter of 2001 to the third quarter of 2008 and constructed variables bubble indicator and investor sentiment. The empirical results showed that bubbles in the stocks of construction companies in Taiwan were related to investor sentiment. Specifically, the results showed that sentiment of foreign investors was the highest factor causing bubbles. This was followed by Trusts; then Retail investors; and then Dealers. Some studies have been conducted for African countries.

Balcilar et al. (2016) using the Markov-switching bubble model of van Norden and Schaller (1993) examined the existence of bubbles in the South African stock market. The authors made use of data over the period January 1954 to April 2015. The empirical models showed the existence of periodically collapsing bubbles on South Africa's stock market. The authors proceeded to make use of other models to examine bubbles. These were the Akgiray and Booth (1988) normal-mixture model, the Cutler, Poterba and Summers (1991) fads model, and the Schwert (1989) volatility regime model. Further tests showed that the van Norden and Schaller (1993) bubble model outperformed the other models, suggesting that in South Africa, bubbles periodically appear and burst.

Almudhaf (2016) conducted a study to identify bubbles in emerging and frontier African stock markets. The author made use of data for eight African stock markets – Botswana, Egypt, Ghana, Kenya, Mauritius, Morocco, Nigeria and Tunisia. Using the bubble detection model of Phillips, Shi and Yu (2015), the author made use of monthly data ranging broadly over the period 1990 to 2015. The empirical results showed the existence of bubbles in the stock markets of Botswana, Egypt, Ghana, Kenya, Nigeria and Tunisia. Additional analysis sought to date-stamp the origination and collapse of each bubble in these markets. The results showed two bubbles in Botswana, five bubbles in Egypt, two bubbles in Ghana, two bubbles in Kenya, four bubbles in Nigeria and two bubbles in Tunisia.

3. Model and Methodology

3.1 The Dividend Valuation Model for Testing for Bubbles

The dividend valuation model, or dividend discount model, as presented by Campbell et al. (1997) provides a testing framework for bubbles in stock prices. The dividend discount model is presented as:

$$P_t = \frac{1}{1+r} E_t(P_{t+1} + D_{t+1}) \quad (1)$$

where P_t is the stock price at time t , D_{t+1} is the dividend paid in period $t+1$, r is the discount rate which is assumed to be constant ($0 < (1+r)^{-1} < 1$)¹.

Equation (1) shows that the actual price of a stock is equal to the present value of the expected future price at which the asset will be sold plus the dividend the investor expects to receive at time $t+1$.

If the transversality condition holds, that is, $(\lim_{n \rightarrow \infty} (1 + \frac{1}{r})^n E_t P_{t+n} = 0)$, then equation (1) leads to an only solution:

$$P_t = F_t = \sum_{j=1}^{\infty} \frac{1}{(1+r)^j} E_t D_{t+j} \quad (2)$$

Equations (1) and (2) lead to the relation:

$$P_t - \frac{1}{r} D_t = \frac{1+r}{r} \sum_{j=1}^{\infty} \frac{1}{(1+r)^j} E_t \Delta D_{t+j} \quad (3)$$

The implication of equation (3) is that the series of prices (P_t) and dividends (D_t) will be cointegrated if they are generated by an I(1) process.

However, if the transversality condition does not hold, there will be an infinite number of solutions for equation (1), given by:

$$P_t = F_t + B_t \quad (4)$$

$$\text{where } B_t = E_t \left[\frac{B_{t+1}}{1+r_{t+1}} \right] \quad (5)$$

The term B_t is called a rational bubble, because it is consistent with rational expectations and the time path of expected returns.

¹ This study makes use of the All Share Index of the NSE to capture prices

If bubbles exist, then $B_t \neq 0$, and B_t will be added to equation (3). However, since B_t is generally not stationary, its addition implies that cointegration no longer holds between P_t and D_t . Following from this, cointegration tests can be conducted to test for rational bubbles (Diba and Grossman, 1988). If cointegration is found to hold, then bubbles are not present; while if P_t and D_t are not cointegrated, then this is evidence of the presence of bubbles.

3.2 Econometric Methodology

This study follows Diba and Grossman (1988) in using unit root and cointegration methods to test for bubbles on Nigeria's stock markets. We make use of the Johansen – Juselius (Johansen, 1988; Johansen and Juselius, 1992) multivariate cointegration vector autoregression (VAR) model to test for the existence of a long-run stable relationship between the intrinsic value and market value of stock prices in Nigeria. This involves testing for cointegration between prices and dividends, as expounded in the previous section.

The Johansen – Juselius cointegration test is based on the VAR model:

$$\Delta X_t = \mu + \Gamma_1 \Delta X_{t-1} \dots + \Gamma_{k-1} \Delta X_{t-k-1} + \Pi X_{t-k} + \varepsilon_t \quad (6)$$

where X_t is a vector of nonstationary variables, $\Gamma_1 = -I + \Pi_1 + \dots + \Pi_k$ and $\Pi = I - \Pi_1 - \dots - \Pi_k$.

If the rank of Π or the number of cointegrating vectors (r) is zero, then the variables in vector X_t are not cointegrated.

Two statistics are employed by the Johansen – Juselius test to determine the number of cointegrating vectors. These are the trace test (λ_{trace}) and the maximum eigenvalue test (λ_{max}). The λ_{trace} statistic tests the null hypothesis that $r=0$, that is no cointegration, against the alternative hypothesis of $r>0$, or at most r cointegrating vectors:

$$\lambda_{trace}(r) = -T \sum_{i=r+1}^p \ln(1 - \hat{\lambda}_i) \quad (7)$$

The λ_{max} statistic tests the null hypothesis that the number of cointegrating vectors is r , against the alternative hypothesis that there are $r+1$ cointegrating vectors:

$$\lambda_{max}(r, r+1) = -T \ln(1 - \hat{\lambda}_{r+1}) \quad (8)$$

4. Empirical Results

The data set consists of Share Price Index and dividends of selected companies on the NSE. Owing to data availability, annual data were used over the period 1990 to 2016. Companies were selected based on their listing status over the study period and dividend

payments for at least 8 years in the period covered. Thus, we arrived at 78 firms which data were used in the analysis.²

Descriptive statistics are presented in Table 1. The average value of the All Share Index was 149,769.59. The agricultural sector had the largest value of the All Share Index of 155,597.38 while the information and communication sector had the lowest average value of the index at 11,538.04. The figures for standard deviation reveal large volatility in the share index for all companies. Descriptive statistics are presented for dividends in the lower part of the table. For all firms, average dividends were N593,317.20. Interestingly, highest average dividends were for the oil and gas sector while the lowest average dividends were for alternative securities market. Similar to the case for the All Share Index, volatility is high for dividends as well, as shown by the figures for standard deviation.

Table 1: Descriptive Statistics

Variable	Mean	Min	Max	Std. Dev	No of Obs.
Share index – All	149769.59	1965.37	53334.64	11340.16	1198
Share index – Agriculture	155597.38	1965.37	50037.18	11607.12	47
Share index – Alternative securities market	20154.37	2709.15	53334.64	14002.02	34
Share index – Conglomerates	14035.24	1965.37	53334.64	11563.88	98
Share index – Constructions/Real estates	13903.95	1965.37	43869.65	10349.78	68
Share index – Consumer goods	13972.15	1965.37	53334.64	10685.63	330
Share index – Health care	13846.01	1965.37	43869.65	9529.54	107
Share index – Industrial goods	13729.56	1965.37	50037.18	10241.9	204
Share index – Information and communication	11538.04	1965.37	50037.18	11699.22	32
Share index – Natural resources	14753.63	1965.37	53334.64	13037.99	41
Share index – Oil and gas	17429.00	1965.37	53334.64	13585.72	136
Share index – Services	17000.97	1965.37	53334.64	11501.96	101
Dividend – All	593317.2	179	37266774	2335511	1198
Dividend – Agriculture	197204	2000	1430865	306779.1	47
Dividend – Alternative securities market	3410.24	179	11676	2873.65	34
Dividend – Conglomerates	322514.8	402	3362000	704742	98
Dividend – Constructions/Real estates	162239.7	500	2400000	351126.2	68
Dividend – Consumer goods	1440869	336	37266774	4201395	330
Dividend – Health care	80111.93	599	1243712	194676.1	107
Dividend – Industrial goods	168007.1	600	3601920	521983.2	204
Dividend – Information and communication	12866.19	360	54445	13497.51	32
Dividend – Natural resources	36161.75	960	141523	37633.73	41
Dividend – Oil and gas	989110.2	6543	7469479	1168087	136
Dividend – Services	39853.21	700	385725	69612.21	101

The results of the cointegration tests are presented in Table 2. The estimation proceeds by taking the average values of both prices (ASI) and dividends for each year, across all

² The list of companies is presented in the appendix

firms, thereby giving 27 annual observations. The variables are converted into log before estimation. The results of the Johansen cointegration tests show that cointegration exists between the share price index and dividends of selected companies on the stock exchange. Thus, a stable long run relationship can be said to exist between share prices and dividends. Based on dividend valuation model, this implies that the market values (MV) of these companies have not deviated from their intrinsic values (IV) over the study period. Thus, we can say that there is no evidence that bubbles exist on the Nigerian Stock Exchange.

Our finding that no bubbles were found to exist on the Nigerian Stock Exchange are in consonance with the results of Ye et al. (2011) who found no evidence of bubbles on the stock markets of G7 countries. However, our results are not in agreement with the results of some studies conducted for African countries. The study by Balcilar et al. (2016) found that bubbles exist on the South African stock market. Also, the study by Almudhaf (2016) found the existence of bubbles on Nigeria's stock market. However, their study made use of monthly data while our study used annual data. In addition, the paper by Almudhaf (2016) used the Phillips et al. (2015) methodology for testing for bubbles. These differences in data and methodology are likely to account for the differences in the results.

Table 2: Johansen Co-integration Test

Null Hypothesis	Trace statistics	Maximum-Eigenvalue Statistics
$H_0: r = 0$	17.574**	15.486**
$H_0: r \leq 1$	2.087	2.087

Notes: ** denotes statistical significance at 5%. The trace test and max-eigenvalue test results indicate 1 cointegrating equation at the 0.05 level respectively.

5. Conclusions and Recommendations

This study conducted an empirical investigation of the presence of bubbles in Nigeria's stock market. While the NSE is the second most capitalized stock exchange on the African continent, more attention has been focused on the Johannesburg Stock Exchange (JSE) with little international studies existing for the NSE.

We employed data for 78 firms that had data on stock prices and dividends over the period 1990 to 2016. The results of Johansen cointegration tests showed that cointegration exists between the share price index and dividends of selected companies on the stock exchange. Thus, a stable long run relationship can be said to exist between share prices and dividends. Based on the dividend valuation model, it can be said that the market values (MV) of these companies have not deviated from their intrinsic values (IV) over the study period. This result implies that there is no evidence that bubbles exist on the Nigerian Stock Exchange.

Our results have some implications for policy. Our finding that bubbles do not exist in Nigeria's stock markets implies that economic agents are completely rational and forward looking, as the market price is equal to the intrinsic price. The fact that we did not find evidence of bubbles implies that the stock market in Nigeria does not deviate from fundamentals. Hence, investors are not likely to suffer from the negative consequences that follow from bubbles. In addition, this result means that companies

seeking to raise external funding can do so from the stock market, as there is some stability in the behavior of the market. For regulators, they can continue to work hard to monitor the stock market and institute policies to try to avoid the occurrence of bubbles. This will ensure prevention of the adverse effects of bubbles on the economy.

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Appendix: List of Companies used in the Analysis

S/N	Company	Sector
1	Afprint Nigeria PLC	Agriculture
2	Grommac Industries PLC	Agriculture
3	Presco PLC	Agriculture
4	The Okomu Oil Palm PLC	Agriculture
5	Adswitch PLC	Alternative securities market
6	Smart products Nigeria PLC (Smurfit print Nigeria PLC)	Alternative securities market
7	A.G. Leventis (NIG) PLC	Conglomerates
8	CFAO (NIG) PLC	Conglomerates
9	Chellarams PLC	Conglomerates
10	John Holt PLC	Conglomerates
11	SCOA (NIG) PLC	Conglomerates
12	UACN PLC	Conglomerates
13	Cappa and D'Alberto PLC	Construction/Real estate
14	G. Cappa PLC	Construction/Real estate
15	Julius Berger (NIG) PLC	Construction/Real estate

16	Roads (NIG) PLC	Construction/Real estate
17	UACN property development CO. PLC	Construction/Real estate
18	7-UP Bottling Company	Consumer goods
19	Beta (Delta) Glass CO. PLC	Consumer goods
20	Cadbury Nigeria PLC	Consumer goods
21	DN Tyre & Rubber PLC	Consumer goods
22	Enpee IND. PLC	Consumer goods
23	Flour mills of Nigeria PLC	Consumer goods
24	Guinness Nigeria PLC	Consumer goods
25	Incar Nigeria PLC	Consumer goods
26	Nestle Nigeria PLC	Consumer goods
27	Nigerian Bottling Company PLC	Consumer goods
28	Nigerian Breweries PLC	Consumer goods
29	Nigerian Enamelware PLC	Consumer goods
30	Northern NIG Flour mills PLC	Consumer goods
31	PS Mandries & CO. PLC	Consumer goods
32	PZ Cussons Nigeria PLC	Consumer goods
33	Unilever Nigeria PLC	Consumer goods
34	United Nigeria Textiles PLC	Consumer goods
35	Vitafoam (NIG) PLC	Consumer goods
36	Vono Products PLC	Consumer goods
37	Ekocorp PLC	Health care
38	Evans Medical PLC	Health care
39	Glaxo Smithkline (GLAXO) consumer Nigeria PLC	Health care
40	May & Baker Nigeria PLC	Health care
41	Morison Industries PLC	Health care
42	Neimeth International pharmaceutical PLC	Health care
43	Nigeria-German Chemicals PLC	Health care
44	Pharma-Deko PLC	Health care

45	Ashaka cement PLC	Industrial goods
46	Avon Crowncaps & containers (NIG) PLC	Industrial goods
47	Berger paints PLC	Industrial goods
48	Cement CO. of Northern (NIG) PLC	Industrial goods
49	Chemical & allied products (CAP) PLC	Industrial goods
50	Cutix PLC	Industrial goods
51	D.N. Meyer PLC	Industrial goods
52	First Aluminium Nigeria PLC	Industrial goods
53	Greif Niger PLC	Industrial goods
54	Lafarge Wapco PLC	Industrial goods
55	Nampak Nigeria PLC	Industrial goods
56	Nigerian Ropes PLC	Industrial goods
57	Nigerian Wire IND. PLC	Industrial goods
58	Poly products (NIG) PLC	Industrial goods
59	NCR (Nigeria) PLC	Information and communication
60	Tripple Gee & Company PLC	Information and communication
61	Wiggins Teape Nigeria PLC	Information and communication
62	Aluminium Manufacturing Company of Nigeria (ALUMACO) PLC	Natural resources
63	B.O.C. Gases PLC	Natural resources
64	Nigeria Yeast & Alcohol (MAN.) (NYAMCO) PLC	Natural resources
65	Agip Nigeria PLC	Oil and gas
66	Conoil PLC	Oil and gas
67	Forte Oil PLC	Oil and gas
68	Mobil Oil Nigeria PLC	Oil and gas
69	MRS Oil Nigeria PLC	Oil and gas
70	OANDO PLC	Oil and gas
71	Total Nigeria PLC	Oil and gas

72	Academy Press PLC	Services
73	Interlinked Technologies PLC	Services
74	Intra Motors PLC	Services
75	Learn Africa PLC	Services
76	RT Briscoe Nigeria PLC	Services
77	Trans-Nationwide Express PLC	Services
78	University Press PLC	Services