

CAPITAL MARKET DEVELOPMENT AND INVESTMENT EFFICIENCY IN NIGERIA

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Abstract

This paper examines whether financial integration and capital market development has improved the efficiency with which investment funds are allocated to competing uses. The question is addressed using annual firm level data for manufacturing firms in Nigeria for 856 firm year. The study used an event study methodology to measure whether, and to what extent, investment funds are being allocated to firms with higher marginal return to capital around the period of financial integration. It also assess whether the investment-financial integration relationship depends on economic, financial and political factors.

The result shows that investment was slowed down in high net worth growing firms and ramped up in the low net worth declining firms in the pre and post financial integration periods in Nigeria. However, the effect is more pronounced in the post financial integration period. This is a possible reason for slow growth in Nigeria. The elasticity estimates of firm investments to Tobin's Q and Sales relative to capital are positive for all years except for 1988 and 1991, which are periods of financial repression in Nigeria. The elasticities are generally small. The correlation coefficients between investment elasticities from Tobin's Q and Sales to capital ratio with capital market capitalisation are positive. This study finds that the mechanism by which the financial market improves investment efficiency in Nigeria is through the capital market. This provides evidence that stock market prices in Nigeria are not economic signals, but they are actually useful guides to investment.

JEL classification: E22; G00; G18; O16.

Keywords: Capital Market Development, Financial Integration, Investment Efficiency, Tobin's Q.

1. INTRODUCTION

Considerable theoretical disputes and policy debate over the link between financial integration and economic growth have produced a large em-

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pirical literature. Obstfeld (1994), Devereux and Smith (1994) and Acemoglu and Zilibotti (1997) show that financial integration, that is openness and access to foreign financial market, facilitates risk-sharing, by inducing a portfolio shift from safe, low return investments, to high return investments, thereby enhancing productivity growth, capital allocation and economic growth. Klein and Olivie (2000) and Levine (2001) also show that through competition and cross border establishment of financial services, financial integration may enhance the functioning of the domestic financial market and ultimately result in economic growth.

On the other hand, Eichengreen (2001) states that in the presence of trade distortions, financial integration retards growth by inducing capital inflows to sectors in which the country has comparative advantage. Boyd and Smith (1992) shows that financial integration may induce a capital outflow from countries with weak financial and legal systems.

The Nigerian financial system was repressed for more than two decades after independence and this retarded its development by constraining its ability to mobilise savings and stimulate investment and growth. Financial sector reforms in Nigeria started in 1987 with the reform of the banking system. The reforms include interest and exchange rates deregulation and strengthening of the regulatory and supervisory structure. This was followed by stock market reforms in 1989. The reforms involved the guided liberalization of the stock market which only allows 100% foreign participation in specific sectors other than banking, insurance, petroleum prospecting and mining, while government still retains 60% equity. Following the deregulation of the capital market in 1993, the federal government in 1995 internationalised the Nigerian capital market by abrogating the laws that constrained foreign participations in the market. In 1995, the restrictions to cross border transaction were completely removed and the Nigerian financial system was completely liberalized.

Some studies have tried to establish the link between economic growth and financial deepening in Africa (Ogun, 1986; Ndebbio, 2004), stock market development and growth in Nigeria (Osinubi and Amaghionyeodiwe, 2003) and adequacy of timing and sequencing of financial sector reforms in Nigeria (Ikhide and Alawode, 2001). With the exception of Misati (2007), most studies on investment efficiency and financial development have concentrated more on developed countries. These studies did not address the issue of whether financial integration has enhanced capital market development and improve the efficiency with which investment funds are allocated to competing uses for Nigeria.

This study distinguishes itself because of several reasons. First, the study

attempts to isolate the response of firm level investment to capital market development and financial integration in Nigeria. The study uses firm level panel data to examine whether financial integration and capital market development has improved the efficiency with which investment funds are allocated. The question is addressed using firm level annual data for 856 manufacturing firms in Nigeria.

Second, the study employs firm manufacturing investment, Tobin's Q and sales relative to capital ratio to obtain the elasticities of efficiency of investment allocation. The study also whether, and to what extent, investment funds are being allocated to firms with higher marginal return to capital. Some economists have argued that financial market and associated institutions are expected to improve the process of capital allocation and contribute to economic growth. The Q theory states that all fluctuations in investment are related to Tobin's Q and an efficient secondary market will help investors to distinguish good investment from bad ones through the mechanism of Tobin's Q.²

Third, the study uses firm level data from Nigerian. This is because international differences in data quality and reporting standards can affect comparability of data. This study goes beyond the 'black box' approach by recognizing the heterogeneity of firms' investment behaviour. Differences in mean investment and sales relative to capital between firms in growing industries and firms in declining industries are tested.

Finally, the study also analyzes the link between investment efficiency and capital market development before and after financial integration (FI) in Nigeria. to obtain the within-country changes in investment efficiency over time. The study also examines whether the investment-FI relationship depends on economic, financial and political factors.

The study finds three interesting results. First, there is evidence that investment was slowed down in high net worth growing firms and ramped up in the low net worth declining firms in the pre and post financial integration periods in Nigeria.

Second, the elasticity estimates of firm investments to Tobin's Q and Sales relative to capital are positive for all years except for 1988 and 1991, which are periods of financial repression in Nigeria.

Third, the correlation between the elasticities and the size of the capital market is positive. The correlation coefficient shows that the mechanism by

² According to q theory, 'the rate of investment-the speed at which investors wish to increase the capital stock - should be related-if to anything, to q, the value of capital relative to its replacement cost' (Tobin, 1969).

which financial market improve investment efficiency in Nigeria is through the capital market. This provides evidence that stock market prices in Nigeria are not economic sideshows, but they are actually useful guides to investment.

The remainder of the paper is organized as follows. Section 2 discusses the evolution, operations and growth of the Nigerian capital market and a review of capital market reforms in Nigeria. This provides a background for understanding the Nigerian capital market between 1960 and 2005. A review of selected literature is presented in section 3. Section 4 presents the theoretical framework and methodology. The penultimate section discusses the results and section 6 provides a conclusion and suggests some policy implications.

2. STUDY BACKGROUND

2.1 Structure, Trend and Growth of the Nigerian Capital Market

The Lagos Stock Exchange was established in 1960 and commenced operations.

The Abuja Stock Exchange was established in 1998. It was later converted into a commodity exchange on 9th August, 2001.

The total number of listed securities (comprising of government stock, industrial loans and equities) increased from 9 in 1961 to 277 in 2004, with an average annual growth rate of 17% for the entire period (Ariyo and Adelegan, 2005).

The current operational highlight of the Nigerian stock market is presented in Table 1. The value of shares traded was 225.82 billion naira (US\$1.737 billion),³ the value of new issues approved is 227.38 billion naira (US\$1.749 billion) in year 2004 and market capitalization in 2004 was 2,112 billion naira (US\$16,246 billion).

Table 1: Stylized Fact of Operational Statistics of the Nigerian Stock Market

Statistics	1996	1997	1998	1999	2000	2003	2004	AGR (1996 2004)%
Market capitalization (billions of naira)	285.6b	292.0b	263.3b	299.9b	478.6b	1,359b	2,112b	51

³ The exchange rate is USD\$1 = 130 naira.

Market capitalization/ GDP	10.43%	9.95%	9.49%	9.39%	9.77%	19.52%	25.55%	21
Value traded (billions of naira)	7.1b	11.1b	13.6b	14.1b	28.2b	120.70b	225.82b	100
New issues/GDP	0.08%	0.03%	0.06%	0.12%	0.09%	3%	4%	85 (1.05)*
Listed securities (number)	276	264	264	269	261	265	277	–

Source: Nigerian Stock Exchange: *“The Nigerian Stock Exchange Fact book”*, various issues. NSE, Nigerian Stock Exchange: Annual Reports & Accounts, various issues, NSE, Oludoyi (2000), Central Bank of Nigeria (CBN) Annual Report and Statements of Accounts, 2004.

Note: Exchange rate is \$1 = 130 naira. 1 naira = 100 kobo, N = naira, b = billion, m = million, AGR (1996-2000) = average growth rate from 1996 to 2004 measured in percentages,* = average New issues/GDP.

Table 2 presents the operational performance of NSE in 2004. The operational performance of NSE is low when compared with South and North African Stock Markets in 2004. For example, table 2 shows that the volume of shares as a percentage of GDP in South Africa and Morocco is 111 and 8.26 times that of Nigeria respectively. The respective market capitalization in these two countries is also 40.82 and 2.01 times that of Nigeria. NSE has continued to undertake policies to reduce information asymmetry and transaction costs to facilitate the use of the market by the private sector to raise funds. For example on April 27, 1999, NSE transited from the Call-over trading system to the automated trading system (ATS). Since then the Stockbrokers have been trading online in real time from the exchange floors in Lagos, Abuja and Kano as well as remote trading outside the floor of the stock exchange.

Table 2: Comparative Data on Stock Markets in Africa, 2004

Countries	Value (million USD)	Capitalisation (million USD)	Turnover Ratio (%)	GDP (million USD)	Volume in % of GDP	No. of listed Coys
Nigeria	84	6,559	1.4	43,540	1.26	277
South Africa	9,326	267,745	44.8	104,242	50.75	426
Tunisia	8	2,404	7.2	21,024	1.51	46
Zimbabwe	209	4,975	1.2	8,304	26.38	-
Egypt	417	27,073	1.6	89,854	4.1	-
Ghana	2	1,426	0.2	6,160	0.16	25
Kenya	27	4,178	0.7	12,330	0.37	51
Morocco	694	13,152	6.5	36,093	2.82	53
Mauritius	99.1	1,955	6.2	4,533	2.49	40

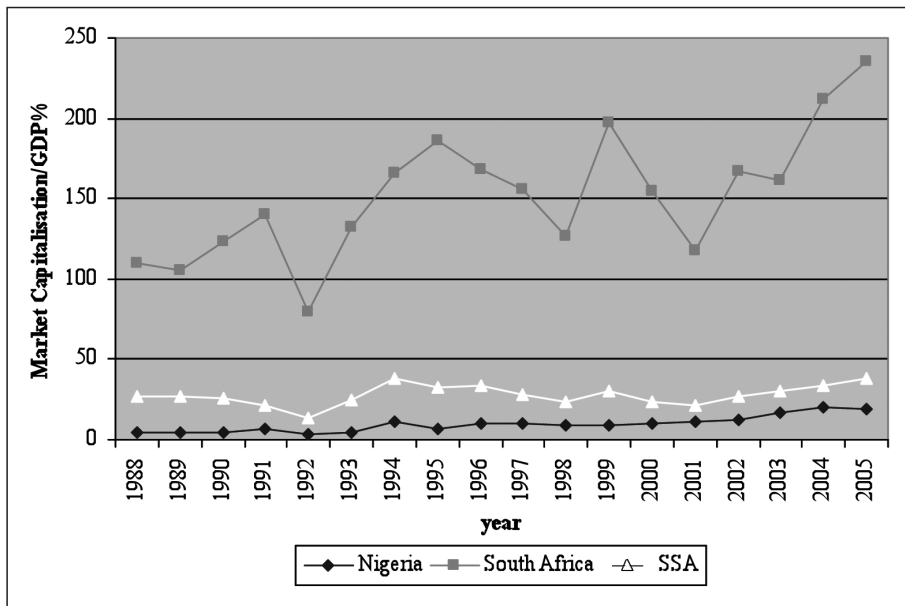
Source: NSE: *The Nigerian Stock Exchange Fact books*, various issues, NSE, Standard and Poor's (2004).

Figure 1 below shows the market capitalisation as a percentage of GDP for Nigeria, South Africa and other sub-Saharan African countries from 1988 to 2005.

The average market capitalisation to GDP for Nigeria is 9.69%, while that of Africa and South Africa are 27.68% and 152.04% respectively.

This shows that the size of the capital market relative to GDP in Nigeria is small compared with the average for Africa and South Africa capital markets.

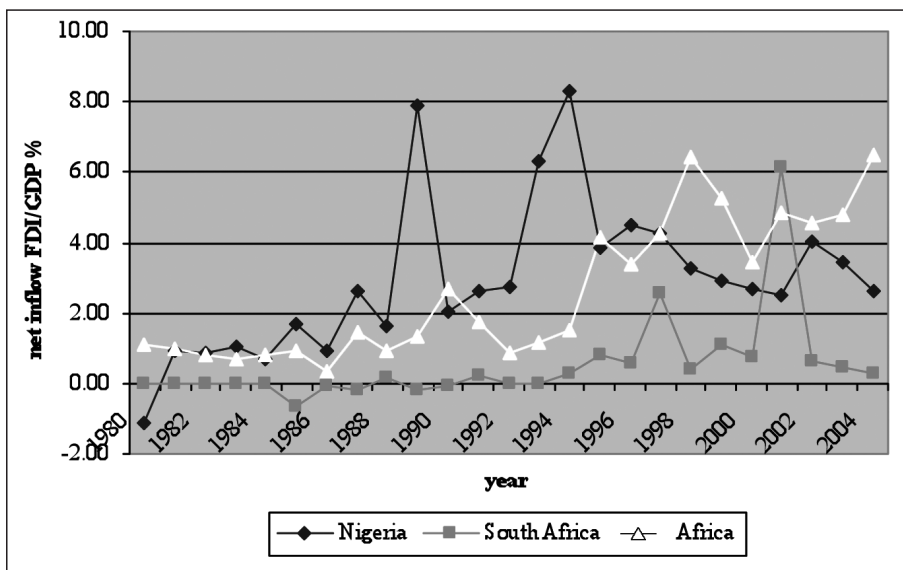
Figure 1: Market Capitalisation as a percentage of GDP for Nigeria and Sub-Saharan Africa (1988-2005)



2.2 Foreign Direct Investment to Nigeria and Africa 1980-2005

Figure 2 shows the net inflow of foreign direct investment (FDI) to Nigeria, South Africa and Africa from 1980 to 2004, with Nigeria having higher FDI net inflow to GDP than South Africa and the mean for Africa. Has financial integration improved the efficiency with which investment funds are allocated to competing uses in Nigeria? This study attempts to provide an answer to this question.

Figure 2: Foreign Direct Investment (net inflow % of GDP) for Nigeria and Africa (1980-2004)



3. STOCK MARKET AND DEVELOPMENT

Several economists have suggested that financial development is associated with economic growth through better capital allocation. They include Bagehot (1873), Goldsmith (1969), Mckinnon (1973), Shaw (1973), Cho (1988) and Greenwood and Jovanovic (1990) and Wurgler (2000). At the country level, King and Levine (1993), Levine (1998), Levine and Zervous (1998) found that financial development drives growth.

Lynch (1995) and Raja and Applegate (2002) found a positive relationship between stock market indicators and mobility of investment funds to projects with higher than average past profit. Henry (2000) also found that stock market matters for investment. Wurgler (2000) found that countries with a developed financial sector increase investment more in their growing sectors and decrease investment more in their low net worth declining sectors. Using a panel of 12 developing countries, Garlindo *et al.* (2003) find that financial reform leads to an increase in the efficiency with which investment funds are allocated.

There are few empirical studies in Africa on the link between investment efficiency and financial development around liberalization. Agarwal (2001) study the link between stock market development and growth using data on 9 African countries between 1992 and 1997. The results suggest a positive relationship between several indicators of the stock market performance and economic growth. Ndikumana (2000) focused on the financial determinants of domestic investment in sub-Saharan Africa from 1970 to 1995 and found a positive relationship between financial development and investment in sub-Saharan Africa.

Osinubi and Amaghionyeodiwe (2003) using a set of data from Nigeria, did not find any significant relationship between measures of capital market development and economic growth between 1980 and 2000. Ndebbio (2004) analysed the link between financial deepening, economic growth and development in sub-Saharan African countries and he concludes that the growth rate of per capita income, real and nominal money balances and the degree of financial intermediation does not positively affect per capita growth of output. Misati (2007) in a cross-country study of the link between stock markets and investment efficiency in African economies finds that investment efficiency matters for only North and Southern Africa. However, the results regarding sub-Saharan Africa do not conform to a priori expectation. The inconclusive findings could be due to the incremental capital-output ratio (ICOR) used as a measure of investment efficiency.

This study improves on the existing studies resorting to the Q theory of investment and employing a better measures of investment efficiency. In particular, manufacturing investment to capital ratio, Tobin's Q and Sales to Output ratio are employed to estimate investment efficiency. This study also overcomes the problem of potential influence in differences in accounting practices and heterogeneity of countries and firms by using a country study on Nigeria.

4. THEORETICAL FRAMEWORK AND METHODOLOGY

4.1 Theoretical Framework and Model Specifications

The study attempts to analyse whether the Nigerian capital market has been succeeding in directing capital towards investments with higher marginal returns since financial integration in. The monetary transmission mechanism remains an enduring area of interest in monetary macroeconomics. Macroeconomics have traditionally emphasised how the interest rate chan-

nel affects investment spending by establishing a benchmark rate of return for the marginal efficiency of investment.

However, this traditional channel has been replaced increasingly by Q-theory of investment introduced and discussed in Keynes (1936), Brainard and Tobin (1968, 1977) and Tobin (1969) and extended to models of investment assuming convex costs of adjusting the capital stock (Hayashi, 1982). Their approach emphasises equity prices and shifts attention away from the bond and money markets towards equity markets. In place of interest rates, equity prices become the channel whereby monetary policy affects investment spending (Blanchard, 1981; Palley, 2001). The interest rate on money is exogenously fixed by law or convention, while the rate of return on securities is endogenous and market-determined. The study uses fixed investment in manufacturing firms to capital stock as a measure of investment and Tobin's Q and Sales to capital ratio as measures of firm growth.

The following specification is estimated for each year and for the pre and post financial integration periods, that is, 1988 to 1994 and 1995 to 2000:

$$\frac{INV_{it}}{K_{it}} = a + bQ_{it} + \mu_{it} \quad (1)$$

where INV_{it} is gross investment expenditures on plant, machinery and equipment, K_{it} is the beginning of period capital stock, measured as equals net replacement value of plant and equipment, plus the value of investment in shares of other companies, land, buildings and properties, intangibles, plus the value of inventories, Q_{it} is beginning of period Tobin's Q divided by capital stock, and μ_{it} is an error term. To avoid heteroskedasticity, the variables are scaled by the capital stock K_{it} .

Tobin's Q is defined as:

$$Q_{it} = \frac{V_{it} + B_{it}}{K_{it}} \quad (1)$$

where V_{it} is the market value of equity. This measured as the value of common stock and the preferred stock. The value of common stock is the average price over the last fiscal quarter of the previous year multiplied by the number of shares outstanding at the end of the previous fiscal year. The market value of preferred stock is preferred dividends divided by the preferred stock yield. B_{it} is the book value of short-term and long-term debt. To avoid heteroskedasticity, the variables are scaled by the capital stock (K_{it}).

The marginal returns by sales to capital ratio are also estimated. The sales to capital ratio is appropriate if the production function is Cobb-Douglas in capital, labour and material. The constant of proportionality is equal to the product between the elasticity of output with respect to capital and the inverse of one plus the mark-up prices over marginal costs (Abel and Blanchard, 1986; Gilchrist and Himmelberg, 1998). The Tobin's Q in equation 1 is substituted by sales relative to capital:

$$\frac{INV_{it}}{K_{it}} = a + \frac{bSales_{it}}{K_{it}} + \mu_{it} \quad (3)$$

$Sales_{it}$ is sales of firm i at time t divided by capital stock.

The study adopt an event study methodology to analyse the financial sector development for the pre and post financial integration period. The measures used are market capitalisation to GDP ratio, M2 to GDP ratio and credit to the private sector to GDP ratio. Financial integration (FI) is a dummy that equals 1(0) when at least five of the following requirements are met (not met): deregulation of interest rate, removal of entry barriers, reduction in reserve requirements, elimination of credit controls, privatisation, adoption of prudential regulation (Laeven, 2000). In 1995, these conditions were met in Nigeria. The sample was broken into two to examine the pre and post FI years. The pre-FI years are before 1995 and the post FI are from 1995.. Other factors that influence the efficiency of investment are economic and political variables. These are measured by the growth rate of GDP and political factors. The data was also partitioned into two periods namely; military and civilian rules; to analyse the effects of political factor. The period of military rules was 1984 to 1998 and the period of civilian (democratic) rule was 1999 to 2000.

The study employs the OLS procedure to estimate the logarithmic form of the variables in equations 1 and 3 and obtain the elasticity of fixed manufacturing firms' investment to Tobin's Q and Sales to capital ratio. To test for the differences in investment, Tobin's Q and Sales to capital ratio of high net worth growing firms and low net worth firms before and after financial integration, the study used market to book value (MBV) to partition the firm years into two. MBV assumes the value 1 for firm year when Tobin's Q is at least 1, and 0 otherwise. Firm year with MBV of 1 is regarded as high net worth growing firm year and MBV of 0 is regarded as low net worth declining firm year.

4.2 Nature and Sources of Data

The study sample comprises 85 out of the 102 manufacturing companies

quoted on the Nigerian Stock Exchange (NSE) between 1984 and 2000. This accounts for 83 percent of the relevant population of firms according to NSE's classification⁴. The choice of firms was informed by availability of relevant information in the financial statements of each firm in the sample. Data used in this study are mainly from secondary sources, which include the Nigerian Stock Exchange fact books, annual reports of companies; Nigerian Stock Exchange daily official lists for the first and the last day of trading in each of the years covered in the study. Nigerian Stock Exchange is a reliable source of data of quoted companies because the companies are mandatorily required to submit their financial reports to the Nigerian Stock Exchange quarterly and biannually. Company annual reports are also reliable because they are statutorily required to be audited by recognised auditing firms before publications.

Data on Tobin's Q are computed from the annual report of firms in Nigeria. and market value of shares was obtained from NSE daily official list. Sales and capital are also obtained from annual reports. Market capitalization and number of listed firms in Nigeria are obtained from annual reports and NSE fact books. M2, credit to private sector, GDP and GDP growth rates are obtained from the International finance Statistics (IFS). Data on market capitalisation on South Africa and other African countries and data on foreign direct investment net inflow to GDP was obtained from the World Bank World development Indicators.

1984 was chosen as base year because it was the year in which stock market indexing was first introduced in Nigeria. The period covered, 1984 to 2000, also witnessed some significant economic policy changes in Nigeria's corporate history. This resulted in a panel data with 1200 firm year observations in all. The study deleted any firm that have missing or inconsistent data to obtain a clean sample and that resulted in 1113 observations. Introduction of lag values and dropping of outliers resulted in a usable sample size of 855 firm-years containing data from 1988 to 2000. The firms in the data base are typically large, and their stock is publicly traded.

The data set has a few distinctive advantages. First, there is a breakdown of investment expenditure between several asset types, which makes it pos-

⁴ They are automobile and tyre, breweries, building materials, chemical and paints, conglomerates, computer and office equipment, engineering technology, food, beverage and tobacco, footwear, healthcare, industrial/domestic products, packaging, publishing and textiles, excluding companies in banking, commercial services, construction, insurance, investment companies, machinery (marketing) and petroleum (marketing) which are not involved in manufacturing and therefore have limited investment in plant and machinery and productive equipments.

sible for the study to carry out an explicit aggregation of capital goods. Second, unlike most western countries, mergers and acquisitions are infrequent in Nigeria during the sample period, so there is very little attrition in our data set. Third, the virtual lack of mergers and acquisitions also means that almost all the firms remain in the sample at the same margin-through accumulation, not through acquisitions.

5. EMPIRICAL RESULTS

5.1. Effect of Financial Integration on Financial Development

Table 3 presents the growth and changing structure of the Nigerian financial sector from 1986 to 2006. Financial reforms have led to dramatic growth in the financial market in Nigeria and the capital market in particular. The credit market in Nigeria was 4 times the size of stock market before financial integration. After financial integrations, the structure changed and the credit market is now 2 times the size of the capital market. Market capitalisation to GDP averaged 6.97% before 1995. Between 1995 and 2006, it increased to 17%. The average growth rate of market capitalisation to GDP before 1995 was -1.84%. Between 1995 and 2006, market capitalisation grew by an average of 17.99% in Nigeria. The capital market and banking reforms⁵ have led to an explosive expansion of the Nigerian capital securities market and growth of the banking sector.

There was a modest increase in the average growth rate of M2 relative to GDP from -2.01% pre 1995 to 3.24% between 1995 and 2006. Credit to the private sector relative to GDP reduced from 23.38% before 1995 to 21.94% between 1995 and 2006.

5.2 The Effects of Financial Integration on Investment Efficiency

Table 4 presents the descriptive statistics of manufacturing firm level investment from 1980 to 2000. Average investment before financial integration (for year -3 to -1) was 5.5% and for the period after financial integration (+1 to +3) is 5.6%. The change in investment is marginal.

⁵ As part of the recent banking reforms, capital base of Nigerian banks was increased from 2 billion to 25 billion in July, 2005. This resulted into a lot of mergers, which brought the number of banks from 89 to 25. it also led to increase in the activities of the stock market especially new issues and offer for subscription.

Table 3: Financial Sector Development in Nigeria

Year	M2GDP %	M2growth %	Credit/ GPD %	Credit growth %	Market cap/GDP %	capgrow %	GDPgr %	Listed- securities Number
1986	33.40		32.00		9.29			186
1987	23.45	-29.79	22.20	-30.64	7.62	-17.98		185
1988	32.31	37.78	25.96	16.98	6.90	-9.45	0.98	188
1989	26.54	-17.86	19.21	-26.00	5.72	-17.10	4.03	198
1990	26.44	-0.36	16.85	-12.29	6.28	9.79	3.39	217
1991	19.29	-27.04	13.10	-22.23	7.14	13.69	5.77	239
1992	22.08	14.45	28.41	116.77	5.69	-20.31	1.94	251
1993	24.40	10.51	26.93	-5.20	6.82	19.86	2.31	272
1994	23.48	-3.79	25.72	-4.49	7.28	6.74	6.69	276
1995	28.29	20.51	28.68	11.52	9.20	26.37	2.58	276
1996	29.18	3.12	27.47	-4.22	10.43	13.37	3.43	276
1997	16.12	-44.76	15.67	-42.96	9.95	-4.60	16.16	264
1998	13.11	-18.63	12.95	-17.37	9.49	-4.62	4.79	264
1999	14.62	11.47	15.20	17.44	9.39	-1.05	4.10	268
2000	18.24	24.79	20.15	32.49	9.77	4.05	-1.98	260
2001	21.07	15.51	24.62	22.24	12.07	23.54	1.25	261
2002	20.80	-1.29	18.69	-24.08	14.14	17.15	5.00	248
2003	27.05	30.05	24.32	30.09	19.52	38.05	-2.34	265
2004	28.55	5.54	26.68	9.70	25.55	30.89	1.17	277
2005	27.61	-3.30	26.93	0.95	28.51	11.58	2.35	277
2006	26.46	-4.14			45.95	61.18	1.94	260
av1986-1994	25.71	-2.01	23.38	4.11	6.97	-1.84	3.45	
av1995-2006	22.59	3.24	21.94	3.25	17.00	17.99	2.70	
av1986-1998	24.47	-4.65	22.70	-1.68	7.83	1.31	4.28	
av1999-2000	24.26	9.59	23.57	11.90	22.22	26.63	1.63	
av1986-2000	23.93	1.14	22.59	3.61	12.70	10.06	3.19	

M2 is defined as the sum of M1 plus quasi money.

Credit is the credit to the private sector.

Source: IMF, International Financial Statistics; Nigerian Stock Exchange Fact Books, various issues.

Table 4: Summary and t- Statistics of Firm Investment, Tobin's Q and Sales

Year	Variable	No.	Invest.			Tobin's Q			Sales		
			Mean	SD	t-stat	Mean	SD	t-stat	Mean	SD	t-stat
1988			4.4	0.053		0.72	0.481		1.401	1.053	
1989			5.65	0.092		816	0.972		1.707	1.84	
1990			4.4	0.566		0.847	0.579		1.44	0.905	
1991			4.2	0.055		0.902	0.644		1.61	1.029	
1992			4.9	0.078		0.903	0.67		1.551	0.896	
1993			5.6	0.077		0.989	0.763		1.849	1.317	
1994			6	0.078		1.072	0.849		1.859	1.14	
1995			5.7	0.068		0.895	0.702		1.669	1.065	
1996			4.9	0.055		1.358	1.048		1.596	1.017	
1997			6.2	0.076		1.563	1.371		1.52	1.247	
1998			5.4	0.079		1.936	2.092		1.39	1.164	
1999			4.9	0.069		1.639	1.313		1.321	0.815	
2000			5.5	0.071		1.51	1.149		1.367	0.959	
1992-1994	-3 to -1		5.5	0.077		0.99	0.765		1.755	1.135	
1995-1997	+1 to +3		5.6	0.067		1.284	1.118		1.592	1.114	
1992-1997	-3 to +3		6	0.072		1.147	0.98		1.668	1.126	
1988-1994	-6 to -1		5.04	0.003	-0.82	0.897	0.0355	-7.83*	1.636	0.059	2.06**
1988-2000	-6 to +6	855	5.43	0.0706		1.496	0.0671		1.476	0.051	
1988-1998	Military	716	5.25	0.0708	0.067	1.127	1.127	-4.23*	1.596	1.177	2.40**
1999-2000	Civilian	139	5.2	0.0695		1.577	1.234		1.343	0.884	

Source: Annual reports and accounts; Nigerian Stock Exchange Fact Books, various issues.

*, ** and *** represents significance at 1%, 5% and 10% levels of significance respectively.

The average investment for the entire period was 5.4%. The level of investment was similar during the military rule (1988 to 1998) and civilian era (1999 to 2000). The Tobin's Q and sales relative to capital for the pre financial integration (FI) period (year -3 to -1) are 0.99 and 1.75 respectively. For the post FI period, the average Tobin's Q and sales relative to capital are 1.28 and 1.59 respectively.

The pre FI and post FI mean of investment are not statistically different

from one another. The mean of investment during the military and civilian rules are also not statistically different from each other. However, mean Tobin's Q and sales relative to capital ratio are significantly different for the pre and post FI as well as for the military and civilian rule periods.

Considering the fact that the mean level of manufacturing fixed investment does not vary much according to the degree of FI, the results in table 4 imply that there is underinvestment in the high net worth (growing) firms and overinvestment in the low net worth (declining) firms or both. Table 5 provides further information on the level of fixed manufacturing investment of high net worth firms and low net worth firms in Nigeria.

Table 5 shows the mean and the t-test results of fixed manufacturing investment, Tobin's Q and sales relative to capital of high net worth (growing) firm years and low net worth (declining) firm years in Nigeria from 1988 to 2000.

Investment is not significantly different for the high net worth and low net worth firm years before and after FI, except for 1998. However, the mean fixed manufacturing investment by high net worth growing firms and low net worth firms are significantly different during the entire period (1988-2000). Tobin's Q and sales relative to capital ratios are statistically different for the high net worth growing and low net worth declining firm years before and after FI.

The mean manufacturing investment before FI was 6.4% for high net worth growing firm years and 4.8% for low net worth declining firm years. After financial integration, the mean manufacturing investment is 6% for the high net worth growing firm years and 5.3% for the low net worth declining firm years.

The mean manufacturing investment for the 3 years before and after FI (-3 to +3) was 6.2% and 5.1% for high net worth growing firm years and for low net worth declining firm years respectively. The results in table 5 indicates that the FI is associated both with reducing investment in high net worth growing firms and increasing investment in low net worth declining firms.

Table 6 reports the elasticity estimates of firm investment to Tobin's Q and Sales from 1988 to 2000 using an event study methodology. The elasticities are positive for all years except for 1988 and 1991 which are periods of financial repression in Nigeria. The average elasticity preceding the liberalization of the financial market was 0.003 and the average after was 0.004. The highest estimate was in 1998. The least estimate of -0.007 was recorded in 1988. This was a year after the initiation of the banking reform, but before the commencement of the gradual capital market reforms.

Table 5: Summary and t- Statistics of Firm Investment, Tobin's Q and Sales for Growing and Declining Firms

Year	Variable	No.	Investment			Tobin's Q			Sales		
			Growing Firms	Declining Firms		Growing Firms	Declining Firms		Growing Firms	Declining Firms	
			Mean	Mean	t-stat	Mean	Mean	t-stat	Mean	Mean	t-stat
1988		57	3.68	4.55	0.44	1.56	0.56	-8.74	1.97	1.29	-1.82
1989		58	6.20	5.50	-0.28	1.69	0.48	-5.09	1.90	1.63	-0.50
1990		59	3.70	4.70	0.61	1.56	0.54	-10.91	2.21	1.10	-5.25
1991		60	3.70	4.50	0.53	1.60	0.52	-10.39	2.34	1.22	-4.70
1992		61	3.50	5.60	1.01	1.67	0.53	-10.50	2.11	1.28	-3.74
1993		62	6.20	5.30	-0.42	1.81	0.54	-10.41	2.44	1.52	-2.78
1994		65	7.70	4.80	-1.43	1.91	0.51	-11.21	2.43	1.48	-3.59
1995		68	6.70	5.10	-0.92	1.63	0.50	-10.00	2.02	1.48	-2.05
1996		72	5.40	4.70	-0.77	2.00	0.55	-8.00	1.77	1.38	-1.63
1997		76	7.20	4.90	-1.31	2.38	0.56	-7.68	1.70	1.30	-1.42
1998		78	7.00	2.40	-2.55	2.56	0.75	-3.98	1.77	0.68	-4.34
1999		72	5.70	2.50	-1.68	1.94	0.68	-3.75	1.49	0.78	-3.39
2000		67	5.30	5.90	0.31	1.96	0.69	-4.87	1.62	0.89	-3.16
1992-1994	-3 to -1	216	6.40	4.80	-1.72	2.07	0.53	-13.88	1.78	1.39	-2.71
1995-1997	+1 to +3	188	6.00	5.30	-0.06	1.81	0.53	-18.65	2.34	1.43	-5.75
1992-1997	-3 to +3	404	6.20	5.10	-1.61	1.97	0.53	-21.24	2.01	1.41	-5.50
1988-2000	-6 to +6	855	5.80	4.80	-2.23	1.98	0.55	-22.67	1.88	1.28	-7.93
No.			855	388	467						

The R^2 are very close to zero (not reported) and the elasticities are small. This suggests that investment was slowed down in high net worth firms (the growing firms) and ramped up in the low net worth declining firms in the pre and post financial integration periods in Nigeria. The ranges of the estimates are not wide. From the estimate in table 6, it is economically important to note that a shock that causes Tobin's Q or sales to increase by 10% will result in increase in investment by about 0.02%.

Table 7 present the correlation coefficients between the elasticities of investment efficiency and the general level of financial development.

Table 6: Estimates of Elasticity of Investment to Tobin's Q and Sales for 855 Firm-Year Study from 1988-2000

Variable		Inver(Q)	Inver(Sales)
Year			
1988		-0.007	-0.003
1989		0.001	0.007
1990		0.039	0.021
1991		-0.006	0.002
1992		0.014	0.001
1993		0.018	0.006
1994		0.007	0.009
1995		0.008	0.015
1996		0.02	0.004
1997		0.02	0.014
1998		0.042	0.03
1999		0.002	0.012
2000		0.031	0.013
1992-1994	-3 to -1	0.003	0.003
1995-1997	+1 to +3	0.004	0.006
1992-1997	-3 to +3	0.004	0.004
1988-2000	-6 to +6	0.0015	0.002

Source: Estimates of the elasticity of Investment to Tobin's Q and Sales are obtained from regression equation 1.

Table 7: Correlation Coefficients of Elasticity of Efficiency and Financial Development

	TobinQ EF	Sales EF	M2/GDP	Credit/GDP	Mcap/GDP	GDPGR
Tobin's EF	1					
Sales EF	0.757	1				
M2/GDP	-0.324	-0.514	1			
Credit/GDP	-0.213	-0.34	0.706	1		
Mcap/GDP	0.309	0.393	-0.385	-0.25	1	
GDPGR	0.044	0.204	-0.225	-0.601	0.1	1

Source: Computed using data in Table 4.

The correlation between Tobin's Q and Sales to capital ratio is positive and very high. This shows why the two measures provide similar elasticities. The correlation coefficients between elasticities of investment efficiency and M2 to GDP and credit to GDP are negative. The correlation coefficient between elasticities of investment efficiency and GDP growth rate is positive.

The correlation between the elasticities and the size of the capital market is positive. The correlation coefficients between investment elasticities from Tobin's Q and Sales to capital ratio with capital market capitalisation are 0.309 and 0.393 respectively. This is one of the key results of the study. The correlation coefficient shows that the mechanism by which financial market improve investment efficiency in Nigeria is through the capital market. The Q theory outlined earlier point to the fact that Tobin's Q provides the channel whereby the financial market facilitates the identification of good investments as well as the incentive to finance them through the stock prices. This is in line with theoretical predictions. This provides evidence that stock market prices in Nigeria are not economic sideshows, but they are actually useful guides to investments.

6. CONCLUSIONS

This study examines the link between financial integration and capital market development in Nigeria. The study find that financial integration is associated with reduced investment in high net worth growing firms and increasing investments in low net worth declining firms. However, the study finds a positive correlation between investment efficiency and capital market development and the growth rate of GDP in Nigeria. Better capital allocation of investment fund to high net worth growing firms will propel growth in Nigeria.

Future research should consider further testing for the possible differences between investment efficiency and capital market development for the two time periods and also testing differences between the two types of firms considered overtime.

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Résumé

Cet article analyse si l'intégration financière et le développement du marché des capitaux a amélioré l'efficacité avec laquelle les fonds d'investissements sont alloués pour des utilisations efficaces. La question est adressée en employant les données annuelles de 856 entreprises manufacturières au Nigeria.

Cette étude a utilisé une méthodologie d'étude de cas pour évaluer si, et dans quelle mesure, les fonds d'investissements sont alloués aux entreprises avec un rendement marginal des capitaux plus élevé autour de la période de l'intégration financière. En outre, il analyse si la relation investissement-intégration financière dépend des facteurs économiques, financiers et politiques.

Le résultat montre que l'investissement a ralenti pour les entreprises en croissance à valeur nette élevée et il a accéléré pour les entreprises en déclin à faible valeur nette avant et après la période de l'intégration financière au Nigeria. Il s'agit d'une des raisons possibles de la croissance lente au Nigeria. Les estimations de l'élasticité des investissements des entreprises selon le modèle «Tobin's Q and Sales» relatif au capital sont positives pour toutes les années sauf pour 1988 et 1991, qui représentent des périodes de régression financière au Nigeria. Les élasticités sont généralement de petite taille. Les coefficients de corrélation entre les élasticités d'investissement du modèle «Tobin's Q and Sales» relatif au capital et la capitalisation du marché des capitaux sont positifs. Cette étude relève que le marché financier développe l'efficacité d'investissement au Nigeria à travers le marché des capitaux. Cela témoigne que les marchés boursiers au Nigeria ne sont pas des attractions économiques, mais ils sont en fait des guides utiles à l'investissement.