

The Effect of Selected Factors on the Development of Nairobi Securities Exchange

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Abstract

This study aimed to find out the effect of selected factors on the development of the Nairobi Securities Exchange. The general objective of this study was to determine the effect of selected factors on the development of the NSE. The specific objectives were to determine the effect of market information; market efficiency; market transparency; market openness; transaction processing system and operating/transaction cost; legal and regulatory framework on the development of the NSE. Both primary and secondary data collection methods were used. A structured data collection questionnaire was used to collect data on market infrastructure factors. The population of study was the Nairobi Securities Exchange. Secondary data was collected on market capitalization from 2006 to 2015 which was used as the indicator of NSE development. This study used a descriptive research design to describe the empirical data. A regression model was used for data analysis and hypothesis tested with a 0.05 significance level. The regression results of the study indicated that the predictor variables in the regression model explained 80.19% of the variation in development of the NSE; where a unit increase in market information leads to a 0.382 increase in NSE development, a unit increase in Market efficiency leads to a 0.097 increase in NSE development, a unit increase in Market transparency leads to a 0.348 increase in NSE development, a unit increase in Market openness leads to a 0.368 increase in NSE development, a unit increase in Transaction processing system and Operating/transaction cost leads to a 0.507 increase in NSE development and a unit increase in Legal and regulatory framework leads to a 0.226 increase in NSE development. Given the effect of the predictor variables on NSE development, the government should improve the market infrastructure which is the center on which financial market revolves. This can be done through initiation of policies that foster growth and development as countries liberalize their financial systems and further enhance domestic resource mobilization, public education awareness programmes, elimination of excessive barriers to the market and putting in place tax regimes and incentives geared towards stimulating companies to be listed in the stock market. Public education awareness programme. This study is of great importance to researchers and academics, government policymakers, regulators and investors and the results should lead to the creation of an enabling environment, development of good regulatory framework and thus faster development of the securities market.

Keywords: Market Information Efficiency, Transparency, Openness, NSE Development,

1.1 Background of the Study

The financial market handles the exchange of assets and is made up by several separate markets for various types of asset classes. Capital markets provide trading services for long-term securities such as shares and bonds with a maturity of more than one year. Other markets include money markets for shorter-term bonds; currency markets for foreign exchange; commodities markets where anything from metals to grain is traded; mortgage markets for property debt; and derivatives markets with products based on the underlying assets of all previously mentioned markets and more (Saunders, 2004).

Financial markets play a fundamental role in the economic development of a country by facilitating the flow of funds from savers to investors and thus mobilizing domestic savings and efficiently channelling them into productive investments. Financial intermediation between borrowers and savers can be done through equity financing which is only possible through the development of capital markets which deal with securities and are associated with financial resource mobilization on a long term basis. The securities market forms a significant component

A well-functioning capital market facilitates the allocation of capital to productive use in companies by encouraging the placement of shares and bonds in the primary market. It gives investors an efficient means of buying or selling assets in a liquid secondary market, and it requires companies to provide accurate information to investors to facilitate them to make sound investment decisions and by doing so promotes good corporate governance. A typical capital market comprises of the following institutions: Banks, insurance companies, mutual funds, mortgage funds, finance companies and stock markets. A stock market is a financial institution where securities are bought and sold (Fauziah Wan Yusoff, 2015).

Capital markets are expected to accelerate economic growth by boosting domestic savings and increasing

the quantity and quality of investment. Thus a well-organized capital market is crucial for mobilizing both domestic and international capital and for serving as a medium for transferring part of the business ownership of foreign corporations to the citizens. Central to the efficient functioning of a capital market is the development of the securities market. In particular, capital markets encourage economic growth by providing an avenue for growing companies to access capitals at lower cost (Chepkoiwo, 2011).

The securities market is one of the most important sources for companies to raise funds as it enables businesses to be publicly traded thus raise additional capital in a public market. An attractive feature of investing in stocks is the liquidity an exchange provides enables investors to quickly buy and sell securities. An economy where the stock market is on the rise is considered to be an up-and-coming economy as the stock market is often considered to be the primary indicator of a country's economic strength and development. Exchanges also act as the clearinghouse for each transaction, meaning that they collect and deliver the shares, and guarantee payment to the seller of a security. This eliminates the risk to an individual buyer or seller that the counterparty could default on the transaction (Caster, 2014)

Kenya's capital market has come a long way since the country's independence in 1963. The capital market now comprise of; the trading debt and equity over the Nairobi Securities Exchange (NSE); debt capital markets (bonds); development financial institutions (DFI's) and pension funds. (Chepkoiwo, 2011). The NSE was incorporated under Companies act of Kenya 1991 as a company limited by guarantee and without a share capital (NSE, 2016). In Kenya, the capital market has not played its role in capital mobilization, though if properly organized it could be a source of much needed capital necessary for, economic growth (Wagacha 2001). Additional supply of capital is urgently required to maintain the momentum of the growth in GDP.

NSE is today poised to play an important role in the Kenyan economy: It facilitates the mobilization of capital for development and provides savers in Kenya with an alternative saving tool, it can also be used by the government and local authorities as an alternative source of funds to increasing taxes in order to finance development projects and is used as an instrument of privatization and also as an avenue of liberalization of sectors previously dominated by the government (Chepkoiwo, 2011). However, as an emerging capital market, NSE has faced challenges to its development and growth. This study therefore looked at the effect of selected factors on the development of the NSE and to makes the necessary recommendations.

1.2 Statement of the Problem

The securities market plays a vital role in economic prosperity by fostering capital formation they help in efficient allocation of credit in the economy. The benefits of well-developed markets are numerous; facilitating higher savings rate of the working population, offering of variety of securities to as many people as possible, flow of foreign direct investment into long established or recently introduced companies, they facilitate the flow of resources to the most productive investment opportunities, redistribution of wealth in the economy and improved corporate governance through increased transparency, increase the level and sophistication of financial intermediation in an economy while offering to the investing public a variety of financial products and promote economic growth through increased access to savings and risk diversification (Sejjaaka, 2011).

Despite the apparent advantages of a well-developed securities market, the growth of the securities exchange in Kenya has been relatively slow, and has especially received a poor response from private companies wishing to raise capital (Wagacha, 2001). In Kenya, like in most developing economies, the capital market has not played its role in capital mobilization, though if properly organized it could be a source of much needed capital necessary for, economic growth (Chepkoiwo, 2011).

The government of Kenya, in realizing the importance of the securities market, instituted various measures including automation, removal of capital gains tax and establishment of a regulatory body called Capital Market Authority (CMA) in the late 1980s, despite all these apparent benefits and measures instituted by the government at different times, performance indicators show that the NSE hasn't yet performed to its full potential compared to other securities markets. These include: low turnover ratio, low market capitalization to GDP ratio and low value of stock (Angko, 2013).

Most studies on the development of Nairobi Securities Exchange including Basweti (2002), Chepkoiwo (2011), Aduda, Masila & Onsongo, (2012), have often focused on the macroeconomic factors and no study has devoted much attention to market infrastructure factors. The need for a quicker development of a well-organized and functioning capital market is extremely important, and in light of this knowledge gap, a better understanding of the effects of selected factors on the development of Nairobi Securities Exchange was of vital importance.

1.3 Objective of the Study

1.3.1 General Objective/Hypothesis of the study

The general objective of the study was to determine the effect of selected factors on the development of Nairobi Securities

H₀-the selected factors do not have significantly effect on the development of Nairobi Securities Exchange

2.0 Literature Review

2.1 Theoretical Framework

2.1.1 The Efficient Market Hypothesis

Through provision of market liquidity which enables implementation of long term projects with long term returns, securities markets promote a country's economic growth. Efficient markets avail resources to investors and facilitate inflow of capital into the domestic economy. Though debt and equity markets are not thriving, the credit market has played a significant role in financing investment while deposits form a significant proportion of the financial asset basket (Ngugi et al 2009).

The Efficient Market Hypothesis (EMH) is a theory developed by Eugene Fama which states that asset prices fully reflect all available information. Since stocks always trade at their fair value, it is impossible for investors to outperform the overall market through expert stock selection or market timing, and that the only way an investor can possibly obtain higher returns is by chance or by purchasing riskier investments. There are three variant forms of market efficiency; weak, semi-strong and strong. Weak EMH states that prices on traded assets reflect all past publicly available information. In a Semi-Strong EMH prices reflect all publicly available information and that prices instantly reflect new public information. Strong EMH states that prices instantly reflect every hidden information (Burton, 1996).

According to the EMH therefore all stocks are perfectly priced and all market participants possess this knowledge equally. This theory is important to this study since the confidence investors have on the efficiency of the market may have an effect on them investing in it and thus its development.

2.1.2 The Agency Theory

Agency theory is a management and economic theory that attempts to explain relationships and self-interest in business organisations. Agency theory originates from the problems of risk sharing between principal and agents. It describes the relationship between principals and agents and delegation of control. It explains how best to organise relationships in which one party (principal) determines the work and which another party (in this case the agent) performs or makes decisions on behalf of the principal (Schroeder et al., 2011).

The value of institutions to shareholders results from their regulation of transactions and agency costs. Governance indicators reflect the ability of institutions to effectively minimize these costs, which are ultimately born by shareholders. These indicators compose measures of the stability of governments, the proper regulation of markets, and the degree of corruption; all of which shape the ability of institutions to govern the financial markets. Better governance environments can increase returns to shareholders by reducing both transaction costs and agency costs (Hooper et al, 2005).

Principal-agent relationships are characterized by uncertainty and risk. The openness and integrity of financial disclosures is vital to the operation of the securities market in determining a company's share-price and its underlying market valuation. In a principal-agent relationship, there are bound to be conflicts for example between corporate managers, stockholders, and creditors; and thus the analysis of these conflicts and their resolutions increases the understanding of the survival of many contractual practices. The agency theory provides a useful tool for detailed analysis of the determinants of the complex contractual arrangement found in most of the modern corporations, for instance in the case of investors investing in securities markets through brokerage firms and thus this theory is important to this study (Smith & Jensen, 2000).

2.2 The Nairobi Securities Exchange (NSE)

The Nairobi Securities Exchange was established in the 1920's by the British as an informal market for Europeans only. It was incorporated to a company in 1954, with Africans being allowed to join and trade in the market in 1963 and operated through the telephone with a weekly meeting at the Stanley. At the dawn of independence, stock market activity slowed down due to uncertainty about the future Kenya after independence but after three years of stability and economic growth, confidence in the market was rekindled and the exchange handled a number of highly over-subscribed public issues only affected by the oil crisis of 1972, which introduced inflationary pressures on the economy which depressed share prices and when a 35% capital gains tax was introduced in 1975 (suspended since 1985) inflicted further losses to the exchange. The bourse lost its regional character following the nationalizations, exchange controls and other inter-territorial restrictions introduced in neighbouring Tanzania and Uganda (The NSE Market Fact File, 2016).

The Nairobi Securities Exchange has played an increasingly important role in the Kenyan economy, especially in the privatization of state-owned enterprises. Public enterprises have been successfully privatized through the NSE where the government has raised billions of shillings. The first privatization exercise was the sale of 20% government stake in Kenya Commercial Bank. Kenya airways followed in 1996. To encourage FDIs, the government introduced several incentives for capital markets growth including tax free Venture Capital Funds, removal of capital gains tax on insurance companies' investments, allowance of beneficial ownership by foreigners in local stockbrokers and fund managers (Bitok et al., 2015).

The Nairobi Securities Exchange (NSE) demutualisation in 2014 marked the beginning of a period of rapid innovation in East Africa's capital markets. The NSE and the CMA took a series of steps to support long-term growth in the exchange as part of the Capital Markets Master Plan (2014-23). Among the initiatives rolled out were new products to boost liquidity and help attract more domestic retail investors, given that only 4% of the population currently participates in the local market. These included exchange-traded funds (ETFs) launched in the first quarter of 2016, derivatives market, new securities settlement platform that features functionalities such as same-day trading, settlement services for government securities, and securities lending and borrowing to facilitate short-selling and other investment strategies. The government also sought to encourage activity on the capital markets in other ways, including rolling back a capital gain tax (CGT) which was reintroduced at 5% on equities and bonds in 2015, reduced to 0.3% withholding tax (The NSE Market Fact File 2016).

The dependable variable of interest was Nairobi Securities Exchange development. Indicators of market development include stock market size as represented by market capitalization and the number of listed companies, stock market liquidity, stock market performance/volatility, stock market concentration and stock market linkage to real sector performance. Other proxies of market development are market traded value, and market turnover. Market capitalization was used as a proxy for development rather than constructing a composite index of market development because market capitalization is a good proxy for such general development and it is less arbitrary than any other index. Secondly, the most traded security at the NSE is shares so market capitalisation is the best proxy. In addition, Demircug-Kunt and Levine (1996b) have shown that different individual measures and indexes of stock market development are highly correlated (Job, 2014).

2.3. Macroeconomic and Fiscal Environment

The macroeconomic environment should be conducive to the supply of good quality securities and sufficient demand for them. The demand for and supply of securities is crucially linked to the state of the macroeconomy. The macroeconomic factors include; inflation, interest rate; foreign exchange rates; government expenditure. If the macroeconomy is conducive to profitable business operation, a sufficient number of sound businesses can develop to a stage where access to securities markets is useful for their continued growth. This means that if there are not sufficient profitable businesses with good prospects for the future, there is little reason to have a securities market. (Osei, 1998).

Macroeconomic environment was the moderating variable for this study. Moderating variable is a variable that changes (increases or decreases) the otherwise established effect of the independent variable upon the dependent variable. Therefore, for purposes of this study, macroeconomic and fiscal environment are factors that affect the development of the NSE but they are not being studied, and as such are the moderating variables.

2.3.1 Interest Rate

An increase in the interest rate results in falling stock prices due to the fact that high interest rate increases the opportunity cost of holding money, causing substitution of stocks for interest bearing securities hence falling stock prices. Interest rate is one of the important macroeconomic variables and is directly related to economic growth. From the point of view of a borrower, interest rate is the cost of borrowing money while from a lender's point of view; interest rate is the gain from lending money. The interest rate is expected to be negatively associated to stock returns (Talla, 2013).

2.3.2 Foreign Capital Investment

Foreign capital inflows can make significant contributions to the host country's economic growth and development by lessening and cushion shocks resulting from low domestic saving and investment. FDI can have a positive impact on growth by engaging domestic capital accumulation. Strong domestic investment performance is a sign of high returns to capital, which in turn will attract more foreign capital. FDI also has potential to enhance growth of domestic firms through complementarily in production and productivity spillovers. Private capital flows as percent of GDP are used to measure foreign direct investment (Ezeji, Chijindu & Uzoamaka, 2015).

Yartey (2008) shows the influence of private capital flows as a determinant of stock market development. He highlights the impact of foreign investors and how they have become major participants in emerging stock markets in the last few decades. Foreign investment has been noted to be associated with institutional and regulatory reform, while also providing for strict disclosure requirements and fair trading practices. Overall, this increase in both informational and operational efficiency will boost confidence in the local markets, which in turn will result in an increase in the number of investors (Irungu, 2015).

2.3.3 Consumer Price Index (CPI)

Consumer price index is used as a proxy for inflation. Inflation refers to a rise in the general level of prices which reduces the real value of money, thereby reducing the expected cash inflow from an asset, exceptions being inflation-indexed securities. Investors who own securities are exposed to changes in inflation, since their payment at the end of period depends on inflation during the holding period. Thus, inflation is expected to affect negatively the stock prices. Along with full employment, maintaining low inflation is the main economic policy

task in most countries (Benaković & Posedel, 2010).

2.3.4 Banking Sector Development (BSD)

Banking sector is key player in the economic development process. Major players in the sector are commercial banks, Non-Financial Banking Institutions (NFBIs), the retirement benefits institutions, and the development finance institutions. To strengthen the financial sector, the government pledges to reform the sector and play only regulatory role. These reforms are aimed at making credit and other financial services affordable and encourage savings in order to provide a basis for economic growth and eradication of poverty (Aduda, Masila & Onsongo, 2012).

Securities markets and banks may be complements or substitutes as they both intermediate savings towards investment. In light of its complementary role, an efficient banking system would help to facilitate the transaction procedures by improving the clearing and settlement process, thus reducing transactions costs and the time frame to settle. However, if the banking system had to be underdeveloped, sluggish trading activity may be experienced in the market. As such, investors who wish to diversify their funds in an effort to obtain a lower-risk portfolio may spread their savings between the banking sector and the stock market (Irungu, 2015).

2.3.5 Tax Policy

In an imperfect financial market, one of the factors that influence firms' choice of financing is the taxation of income. If the fiscal policies are not favourable, the market will be drastically affected. Different rates influence how investors will invest their funds (Wagacha, 2004). Specifically, with respect to emerging capital markets, there seems to be clear causality from fiscal policy to capital market behaviour. However, it has been argued that the impact of taxation on the capital market depends on the stage of market development (Brean, 1996).

Differences in effective tax rates on income from different financial instruments can influence how investors make their financial and investment decisions (Osei, 1998). He argues that differences also determine whether an individual should invest in securities or whether a corporate body should raise funds through equity or debt instruments. Therefore, high tax rates may discourage investors from investing in financial instruments. Taxation and other government fees raise the new issue barriers by increasing the transaction costs for new listings in the stock market in South Africa. In addition, discriminatory tax policies, including personal income taxes, tax on dividends, tax on firm profits as well as on different financial assets, render inefficient the mobilization of domestic savings through the capital market (Chepkoiwo, 2011).

3.0 Research Methodology

3.1 Research Design

A descriptive research design was used in finding out the effects of selected factors on the development of Nairobi Securities Exchange. Descriptive research design is a statistical method that quantitatively synthesizes the empirical evidence of a specific field of research. Flick (2009) notes that descriptive research design has become widely accepted in the field of finance and economics since it is proving to be very useful in policy evaluations. The main reason for the use of a descriptive survey design is the aim to provide as much information on the entire population under study in relation to the effect of selected market infrastructure factors on the development of NSE. It was relevant for this study as raw data was used as collected from brokerage

3.2 Target Population

The target population for this study was the NSE as it is the ideal market for carrying out this study due to availability, accessibility, and reliability of the data and it plays an important role in economic development. In studying the NSE, the study population was brokerage firms licensed by the Capital Market Authority

3.3 Data Collection Methods and Instruments

Data collection is the process of gathering and measuring information in order to be able to answer questions that prompted the undertaking of the research (Flick, 2009). The study utilized both primary and secondary data to find out the factors that affect the development of the NSE. Secondary data refers to the information that has been collected by other individuals (Cooper and Schindler, 2006). Self-administered structured questionnaire consisting of closed-ended questions were designed, and administered at one point and given to the respondents from the brokerage firms targeting two questionnaires per brokerage firm. The respondents were the investment managers and the risk managers. Secondary data was obtained from Nairobi Securities Exchange and Central Bank of Kenya. For the purpose of this study, the secondary data was obtained for a period of 10 years, spanning between years 2006 – 2015.

3.4 Data Analysis

The study used a multiple regression model to test the hypotheses of the combined effect of the six independent variables on the dependent variable. The hypothesis was tested on a 0.05 significance level. Studies by Yartey (2008) and Lazaridis and Troforidis (2006) have used regression analysis while studying relationships among

variables. The regression model below was used to determine the impact of each variable in the development of the NSE.

$$y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + e$$

Where:

y = Nairobi Securities Exchange development

β_0 = Constant Term, β_i = Beta coefficients X1= Market Information X2= Market Efficiency

X3= Market Transparency X4= Market Openness

X5= Transaction Processing System and Operating/ Transaction Cost

X6= Legal and Regulatory Framework

e=Standard error

3.5 Market Capitalization Ratio

The dependable variable of interest was Nairobi securities exchange development which was measured using market capitalization as a proportion of GDP. This measure equals the value of listed shares divided by GDP. The assumption behind this measure is that the overall market size is positively correlated with the ability to mobilize capital and diversify risk on an economy wide basis. Market capitalization (also known as market value) is the share price times the number of shares outstanding (including their several classes) for listed domestic companies, was the dependent variable of the study. The table below shows the market capitalization ratio for 2006 to 2015 with descriptive statistics;

3.6 Results and Discussion

3.6.1 Descriptive Statistics Summary

3.6.1.1 Market Information

The result in table 1 of the study indicated that market information affects the development of Nairobi Securities Exchange by 3.8 or 76%. 86% agreed that unsuspecting investors can be harmed by those with access to information not available to the public at large with 80% agreeing that the managers of a firm and financial market professionals know more about that firm's market prospects and investment opportunities than do outsiders as they often have access to information that is not widely available.

66% of the respondents agreed that investor access to information pertaining to their prospective investments is more limited than that of professional intermediaries and 88% were of the opinion that disclosure will facilitate increased investors' confidence in the stock markets.

Respondents agree that listed companies trading in NSE are subjected to additional disclosure requirements imposed as listing rules with an agreement rate of 88%. The study also revealed that information asymmetries are the basic justification for the large number of regulations at the NSE at 72% and the respondents agreed that there are still some barriers to the dissemination of information in the NSE at 58% agreement rate. The overall response was as shown in the figure below;

Table 1: Market Information Effect on Development of NSE

Market Information	PERCENTAGES		
	Mean	Mean (%)	STD DEV
Unsuspecting Investors Can be Harmed	4.3	86	0.8061
Managers Know More of Financial Market	4	80	0.9996
Financial market professionals often have access to information that is not widely available.	3.5	70	1.1206
Investor Access to information pertaining to their prospective investments is more limited than that of professional intermediaries	3.3	66	1.0879
Disclosure will facilitate increased investors' confidence in the stock markets	4.4	88	0.697
Listed companies trading in NSE are subjected to additional disclosure requirements imposed as listing rules	4.4	88	0.697
Information asymmetries are the basic justification for the large number of regulations at the NSE	3.6	72	0.9173
There are many barriers to the dissemination of information in the NSE	2.9	58	1.2585
	3.8	76	0.948

Source: Research Data 2018

3.6.1.2 Market Efficiency

The result in table 2 of the study indicated that market efficiency affects the development of Nairobi Securities Exchange by 67.8%. According to the study, 54.7% agreed that prices of securities listed at the NSE do not reflect all available information but only some and 88.2% of the respondents agreed that public disclosure of relevant information about securities is important for pricing efficiency and market confidence. The results of the study indicate a 69.4% agreement that there are some information asymmetries in the NSE with 58.8% underpricing of securities by investment banks in Kenya. The overall response was as shown in the figure below;

Table 2: Market Efficiency Effect on Development of NSE

Market efficiency	PERCENTAGES		
	Mean	Mean (%)	STD DEV
Prices of securities listed at the NSE reflect all available information	2.7	54.7	1.1094
Public disclosure of relevant information about securities is important for pricing efficiency and market confidence.	4.4	88.2	0.7014
There are information asymmetries in the NSE	3.5	69.4	0.9919
There is underpricing of securities by investment banks in Kenya	2.9	58.8	1.2046
	3.4	67.8	1

Source: Research Data 2018

3.6.1.3 Market Transparency

The result in table 3 of the study indicated that market transparency affects the development of Nairobi Securities Exchange by 75.9%. According to the study, 67.6% of transactions are not made known to the public as 60.7% of trading is conducted privately outside the NSE. 84.7% of respondents agreed that emerging markets are likely to be less transparent than developed market. The degree of market transparency and competitive was said to affect by 85.9% the investors' ability to gain information and develop performance expectations since transparency in dealings enhance the market confidence by 89.4%.

The study also supported at 74.1% the argument that fragmented or privately conducted trading with limited disclosure leads to relatively expensive search costs and there is a risk of the transaction going out of line with prevailing prices and that Transparency of trading and other procedures allows efficient price setting and confidence in the fairness of the market by 84.2%.

The study results reveal that opaque trading procedures engender suspicion of market manipulation and may reduce the rate of investment by 77.1%. Respondents also agree that dealings done through brokers can enhance limited disclosure of some vital information and that 60% of market intermediaries in Kenya lead to market manipulation. The overall response was as shown in the figure below;

Table 3: Market Transparency Effect on Development of NSE

Market transparency	PERCENTAGES		
	Mean	Mean (%)	STD DEV
Every transaction isn't made known to the public at the NSE	3.4	67.6	1.4145
Some trading is conducted privately outside the NSE	3	60	1.1807
Emerging markets are less transparent than developed market	4.2	84.7	0.8549
Transparency in dealings enhance the market confidence	4.5	89.4	0.7876
Degree of market transparency affects investors' ability to gain information and develop performance expectations.	4.3	85.9	0.719
Transparency of trading and other procedures allows efficient price setting and confidence in the fairness of the market.	4.2	84.2	0.82
Fragmented or privately conducted trading with limited disclosure leads to relatively expensive search costs and there is a risk of the transaction going out of line with prevailing prices.	3.7	74.1	1.0879
Market intermediaries in Kenya cause market manipulation.	3	60	1.3027
Opaque trading procedures engender suspicion of market manipulation and may reduce the rate of investment.	3.9	77.1	0.8575
	3.8	75.9	1

Source: Research Data 2018

3.6.1.4 Market Openness

The results presented in table 4 indicate that market openness affects the development of Nairobi Securities Exchange by 59.6%. According to the study, 32.1% of NSE is not open to all investors, local and foreign and respondents agreed at 58.8% that there are restrictions on foreign ownership at the NSE. Respondents agreed that

excessive barriers to foreign investors at 69.4% including the 68.1% of the Kenyan 25% rule, hamper the development of NSE. The overall response was as shown in the figure below;

Table 4: Market Openness Effect on Development of NSE

Market openness	PERCENTAGES		
	Mean	Mean (%)	STD DEV
NSE is not open to all investors, local and foreign	1.6	32.1	1.088
There are restrictions on foreign ownership at the NSE	2.9	58.8	1.4778
There are excessive barriers to foreign investors at the NSE	3.5	69.4	1.2848
Restrictions on foreign investors constrain the performance of the capital market.	3.5	69.4	1.261
The Kenyan 25% rule affects the development of the NSE	3.4	68.1	1.2664
	3	59.6	1.3

Source: Research Data 2018

3.6.1.5 Transaction Processing System and Operating/Transaction Cost

The result of the study indicated that transaction processing system and operating/transaction cost affects the development of Nairobi Securities Exchange by 68.6%. The results indicated that the clearance and settlement system used at the NSE is fast and effective at 59.4%, with 41.2% of transactions being processed on time and this has led to increased turnover at the NSE. The processing system guarantee that the prices obtained by buyers and sellers are 63.5% good. 90% of investors' usually aim at minimizing cost to increase their returns and thus unreasonably high costs of transactions affect market development by 77%. It is 68.2% cheaper to raise capital through private placement than through public issue though the cost of going public as percentage of capital raised decreases as more capital is raised by 78.2%. Respondents agreed that for individuals buying and selling shares on the stock exchange, the main cost is brokerage commissions. The overall response was as shown in the figure below;

Table 5: Transaction Processing System and Operating/Transaction Effect on Development of NSE

Transaction processing system and Operating/transaction cost	PERCENTAGES		
	Mean	Mean (%)	STD DEV
Transactions take too long to be processed at the NSE	2.9	58.8	1.1791
The CDS at the NSE is ineffective	2	40.6	0.904
The processing system affects the prices obtained by buyers and sellers	3.2	63.5	1.167
Lengthy transactions affect the turnover of the market	3.6	72.4	1.0735
Investors aim at minimizing cost to increase their returns	4.5	90	0.6629
Unreasonably high costs of transactions affect market development	3.8	77	1.2278
The cost of going public as percentage of capital raised decreases as more capital is raised.	3.9	78.2	1.1011
It is cheaper to raise capital through private placement than through public issue.	3.4	68.2	1.282
	3.4	68.6	1.1

Source: Research Data 2018

3.6.1.6 Legal and Regulatory Framework

The study indicated that legal and regulatory environment plays an important role in the development of the securities markets and affects the development of the NSE by 73.8%. 58.2% of respondents believe that legal and regulatory framework could be an impediment to NSE development thus favourable legal environment facilitates stock market development by 81.8% hence the law and enforcement mechanisms that protect creditors and minority investors the NSE.

The study indicated that laws and regulations at the NSE are 56.5% prohibitive in nature. Regulatory bodies enact policies that affect the development of the stock Market by 75.9% but 60% of the times use a heavy-handed type of control. 80% of study results indicate that CMA is a catalyst in development rather than a traditional regulator of NSE with 84.7% agreeing that proactive, creative and supportive regulations assist in the creation of a more vibrant and forward looking capital market environment. The overall response was as shown in the figure below;

Table 6: Legal and Regulatory Framework Effect on Development of NSE

Legal and regulatory framework	PERCENTAGES		
	Mean	Mean (%)	STD DEV
Legal environment is an impediment to financial system development.	2.9	58.2	0.9475
A favorable legal environment facilitates stock market development	4.1	81.8	0.7535
There are law and enforcement mechanisms that protect investors at the NSE	4.4	87.6	0.6038
There are regulations that protect creditors and minority investors at the NSE	4	79.4	1.0294
Laws and regulations at the NSE are prohibitive in nature	2.8	56.5	0.9991
Regulatory bodies enact policies that affect the development of the stock Market.	3.8	75.9	0.9464
Regulatory authorities for the NSE use a heavy-handed type of control	3	60	0.9535
Proactive, creative and supportive regulations assist in the creation of a more vibrant and forward looking capital market environment.	4.2	84.7	0.9553
CMA is a catalyst in development rather than a traditional regulator of NSE	4	80	0.8876
	3.7	73.8	0.9

3.6.1.7 Market Capitalization Ratio

The dependable variable of interest was Nairobi securities exchange development which was measured using market capitalization as a proportion of GDP. This measure equals the value of listed shares divided by GDP. The assumption behind this measure is that the overall market size is positively correlated with the ability to mobilize capital and diversify risk on an economy wide basis. Market capitalization (also known as market value) is the share price times the number of shares outstanding (including their several classes) for listed domestic companies, was the dependent variable of the study. The table below shows the market capitalization ratio for 2006 to 2015 with descriptive statistics;

Table 7: Market Capitalization Ratio

Year	Stock Market capitalization (KShs Bns)	GDP (kshs Bns)	Stock Market Capitalization, Percentage of GDP
2006	791.58	1,622.57	48.79%
2007	851.13	1,833.51	46.42%
2008	853.88	2,111.17	40.45%
2009	834.17	2,365.45	35.26%
2010	1,166.99	2,553.73	45.70%
2011	868.24	3,048.87	28.48%
2012	1,272.00	4,261.37	29.85%
2013	1,920.72	4,745.14	40.48%
2014	2,300.05	5,402.41	42.57%
2015	2,049.54	6,260.65	32.74%
Mean	1,290.83	3,420.49	39.07%
Standard Deviation	550.20	1546.74	6.78%

Source: Research Data 2018

The above table shows that the Nairobi securities exchange has been performing well some years and other years dismally. One of the contributing factors for its performance are the independent variables for this study which were market information, market efficiency, market transparency, market openness, transaction processing system and operating processing cost and legal and regulatory framework. From the data collected, the highest market capitalization ratio was in 2006 at 48.79% with the lowest being in 2011 at 28.48%. The mean was 39.07% indicating that the market has been having an average performance; with a low standard deviation at 6.78%, the range of performance hasn't been fluctuating a lot. The figure below shows a graphical representation of Kenya's monthly Capitalization levels for the period under study;

3.6.2 Correlation Analysis

The table below displays the value of the correlation coefficient and the significance value for each pair of variables used in the Paired Samples T Test procedure.

Table 8: Correlation Analysis

		Market Information	Market Efficiency	Market Transparency	Market Openness	TPS and Operating/ Transaction Cost	Legal and Regulatory Framework
Market Information	Pearson Correlation	1	0.239**	0.0389**	0.429**	0.136**	0.528**
	Sig (2 tailed)	-	0.001	0.002	0.001	0.049	0.045
	N	34	34	34	34	34	34
Market Efficiency	Pearson Correlation	0.239**	1	0.495**	0.370**	0.815**	0.612**
	Sig (2 tailed)	0.001	-	0.001	0	0.021	0.002
	N	34	34	34	34	34	34
Market Transparency	Pearson Correlation	0.0389**	0.495**	1	0.648**	0.635**	0.095**
	Sig (2 tailed)	0.002	0.001	-	0.002	0.001	0.0341
	N	34	34	34	34	34	34
Market Openness	Pearson Correlation	0.429**	0.370**	0.648**	1	0.348**	0.536**
	Sig (2 tailed)	0.001	0	0.002	-	0.002	0.001
	N	34	34	34	34	34	34
TPS and Operating/ Transaction Cost	Pearson Correlation	0.136**	0.815**	0.635**	0.348**	1	0.476**
	Sig (2 tailed)	0.049	0.021	0.001	0.002	-	0
	N	34	34	34	34	34	34
Legal and Regulatory Framework	Pearson Correlation	0.528**	0.612**	0.095**	0.536**	0.476**	1
	Sig (2 tailed)	0.045	0.002	0.0341	0.001	0	-
	N	34	34	34	34	34	34

* **Correlation is significant at the 0.05 level (2-tailed). Source: Research Data 2018

The results suggest a strong correlation between TPS and operating/ Transaction cost and market efficiency with a rho of 0.815 and a p value of 0.021. The results also suggest that the relationship between market information and legal and regulatory framework (rho = 0.528, p = 0.045) is statistically significant. Legal and regulatory framework and TPS and Operating/Transaction cost had a Rho of 0.476 and a p value of 0.000 therefore denoting statistical significance. Similarly, the legal and regulatory framework and market efficiency posted a rho of 0.612 with a p value of 0.000 therefore providing a statistical significance. Market transparency and TPS operating/ transaction cost had a rho of 0.635, p=0.001 further pointing to a statistical significance. On the same note, the market efficiency and market transparency correlated at rho=0.495 and p=0.001; this therefore is statistically significant. Market information and market efficiency had a Rho of 0.239 and a p value of 0.001, market information and market transparency had a Rho of 0.0389 and a p value of 0.002. Market openness and market efficiency correlated at Rho=0.370 and p=0.000 implying statistical significance. Finally, the legal and regulatory framework market transparency were at a correlation of rho=0.095 and p= 0.0341 revealing statistical significance.

Thus generally, the above table shows that there is a very positive correlation between legal and regulatory framework, market efficiency, market transparency, TPS operating/transaction cost market openness and market information at 95% which are statistically significant at confidence level.

3.6.2 Multiple Regression Analysis

3.6.2.1 Regression Analysis

A multiple regression analysis was conducted to find out the effect of market information, market efficiency, market openness, market transparency, transaction processing system and transaction/operating cost and legal and regulatory framework on the development of NSE as a proxy for market infrastructure factors. Model summary table below shows the coefficient of determination (R^2) which explains the percentage of the variation in the development of NSE.

Table 9: Model Summary

Model	R	R square	Adjusted R square	Standard Error
1	0.8955 ^b	0.8019	0.64306	0.4452

b. Dependent variable: Development of the NSE

From the results of the table above, the regression model containing market information, market efficiency, market transparency, market openness, transaction processing system and operating/transaction cost and legal and regulatory framework as the predictor variables explains 80.19% of the variation in development of the NSE while the remainder (19.81%) can be explained by other factors not included in this model. R is the correlation coefficient which shows the relationship between the study variables, from the findings shown in the table above there was a strong positive relationship between the study variables as shown by 0.8955.

The table below displays ANOVA results that test the significance of the R^2 for the model:

Table 10: ANOVA

	<i>Ds</i>	<i>SS</i>	<i>MS</i>	<i>F</i>	<i>Significance F</i>
Regression	6	9963.12	1660.52	56.0036	0.017 ^a
Residual	3	88.9507	29.6502		
Total	9	10052.1			

- a. Predictors (Constant), Market information,
 b. Dependent variable: Development of the NSE

The ANOVA test was used to determine the impact independent variables have on the dependent variable in a regression analysis. ANOVA provides a statistical test of whether or not the means of several groups are equal. ANOVAs are useful in comparing (testing) three or more means (groups or variables) for statistical significance.

The significance value is 0.017 is less than 0.05 thus the model is statistically significant in predicting how market information, market efficiency, market transparency, market openness, transaction processing system and operating/transaction cost and legal and regulatory framework influences development of the Nairobi Securities Exchange. An F statistic of 56.004 with a p value less than the conventional 5% indicates that the overall model was significant at 95% confidence level.

Table of coefficients below presents the unstandardized and standardized coefficients of the model, the t-statistic for each coefficient and the associated p-values. The predictor variables had significant positive relationship with development of the NSE.

Table 11: Regression coefficients results

	<i>Unstandardized Coefficients</i>		<i>Standardized Coefficients</i>			
	<i>B</i>	<i>Std Error</i>	<i>Beta</i>	<i>t Stat</i>	<i>P-value</i>	
1 (constant)		0.252	0.013	0	0	
Market information		0.382	0.1645	0.264	1.02097	0.03824
Market efficiency		0.0966	0.1448	0.0751	0.1148	0.01159
Market transparency		0.3483	0.1326	0.3129	2.0986	0.01267
Market openness		0.3684	0.1241	0.3287	0.5517	0.00619
TPS and Operating/transaction cost		0.5074	0.1949	0.4765	0.5512	0.00199
Legal and regulatory framework		0.2266	0.1187	0.1908	1.4029	0.02552

The findings confirm that there is a statistically significant influence of Market information, Market efficiency, Market transparency, Market openness, Transaction processing system and Operating/transaction cost and Legal and regulatory framework on the development of the NSE. This implies that a unit increase in the predictor variables leads to a significant increase on the development of the NSE as demonstrated in the equation below:

$$Y = 0.252 + 0.382X_1 + 0.097X_2 + 0.348X_3 + 0.368X_4 + 0.507X_5 + 0.226X_6$$

From the significance column of the provided table, at 5% level of significance, it was observed that Market information, Market efficiency, Market transparency, Market openness, Transaction processing system and Operating/transaction cost and Legal and regulatory framework are the main variables that explain the development of the NSE. From the above regression equation, a unit increase in market information leads to a 0.382 increase in NSE development, a unit increase in Market efficiency leads to a 0.097 increase in NSE development, a unit increase in Market transparency leads to a 0.348 increase in NSE development, a unit increase in Market openness leads to a 0.368 increase in NSE development, a unit increase in Transaction processing system and Operating/transaction cost leads to a 0.507 increase in NSE development and a unit increase in Legal and regulatory framework leads to a 0.226 increase in NSE development.

3.6.2.2 Hypothesis Testing

H₀₁: Market information does not significantly affect the development of Nairobi Securities Exchange

This null hypothesis was tested at 5% significant level and rejected since the p-value was less than 5% with t=1.02097 as shown in table 4.7.3 above. This implies that market information does significantly affect NSE development. The results are similar to Osei (1998) who analysed the factors affecting the development of an emerging capital market with a specific focus on the Ghana stock market with a focus on institutional factors. The study found that the most significant factors impinging on the development of the Ghana stock market is lack of national awareness and lack of knowledge about stock markets. Kimura and Amoro (1999) in their study on impediments to the growth of Nairobi Stock Exchange found that there was a poor degree of correlation between economic growth and growth of the stock exchange with the major factor being general lack of awareness and information on the role, functions and operations of the stock exchange.

H₀₂: Market efficiency does not significantly affect the development of Nairobi Securities Exchange

The second null was tested at 5% significant level and rejected since as indicated in table 4.7.3 above the p-value

was less than 5% with $t=0.1148$. This implies that market efficiency does significantly affect NSE development. According to Demirguc-Kant and Levine (1996), they observed that economies with strong information and unrestricted international capital flow tend to have more liquid markets. Developing markets are characterized as having a low level of liquidity, high information asymmetry and thin trading because of their weak institutional infrastructure.

H₀₃: Market transparency does not significantly affect the development of Nairobi Securities Exchange

The third null hypothesis was tested at 5% significant level and rejected at 5% since the p-value was less than 5% with $t=2.0986$ as shown in table 4.7.3 above. This implies that market transparency does significantly affect the development of NSE. These results are in line with Sejjaka (2011) in challenges to the growth of capital markets in underdeveloped economies, the case for Uganda, who concluded that there is a need to improve levels of disclosure by firms because these firms occupy an important place in the business space. As firms' disclosure improves, so will their readiness to go IPO and firms need to legitimize their business so as to increase their acceptability as investment vehicles for mobilising private savings.

H₀₄: Market openness does not significantly affect the development of Nairobi Securities Exchange

This null hypothesis was tested at 5% significant level and rejected since the p-value was less than 5% with $t=0.5517$ as shown in table 4.7.3 above. This implies that market openness does significantly affect development of NSE. Similarly, Bruner et al (2003) in the study on investing in emerging markets to ascertain the extent of market openness in those countries. Using regression analysis, they found that the level of openness contributes to stock market development

And in their review only 18 out of 33 listed as emerging markets are 100% open to foreign investment and the remaining 15 markets are either closed to foreign investment or having varying restrictions on foreign ownership. El-Wassal (2005) also investigated the relationship between stock market growth foreign portfolio investment in 40 emerging markets between 1980 and 2000 and the results showed that economic foreign portfolio investments were one of the leading factors of the emerging stock markets growth.

H₀₅: Transaction processing system and operating/ transaction cost does not significantly affect the development of Nairobi Securities Exchange

This null hypothesis was tested at 5% significant level and rejected at 5% since the p-value was less than 5% with $t=0.5512$ as indicated in table 4.7.3 above. This implies that transaction processing system and cost does significantly affect NSE development. This result is in line with Osei (1998) who found out that transaction costs are a hindrance to stock market development.

H₀₆: Legal and regulatory framework does not significantly affect the development of Nairobi Securities Exchange

This null hypothesis was also tested at 5% significant level and rejected at 5% since from the table 4.7.3 above the p-value was less than 5% with $t=1.4029$. This implies that the legal and regulatory framework does significantly affect NSE development. The results are in line with the study done by Pagano (1993) in financial markets and growth, which shows that regulatory and institutional factors may influence the efficient functioning of stock markets. For example, mandatory disclosure of reliable information and regulations that instill investor's confidence. Yartey and Adjasi (2007) in their study on macroeconomic and institutional determinants of stock market development in Africa found that a percentage point increase in the quality of legal and political institutions tends to increase stock market development in Africa. Yartey (2008) on examining the macroeconomic and institutional determinants of stock market development, provides evidence that institutional factors such as law and order, political risk, and bureaucracy quality are important determinants of stock market development.

3.7 Conclusion

Theoretically, a growing literature argues that securities market development boost economic growth. Greenwood and Smith (1997) show that large stock markets can decrease the cost of mobilizing savings thus facilitate investment in most productive technologies; because in principle a well-developed securities market should increase savings and efficiently allocate capital to productive investments which leads to an increase in the rate of economic growth. The NSE has experienced growth over the previous years; however, the rate of growth has been dismal. Enhancing NSE growth and performance poses greatest challenges and key factors that impinge on the development of NSE include the market infrastructure factors.

In analysing the collected data, the results revealed that there is a relationship between Nairobi Securities Exchange development and market information, market efficiency, market openness, market transparency, transaction processing system and transaction/operating cost and legal and regulatory framework. We can therefore say that Nairobi securities Exchange development is positively correlated to market information, market efficiency, market openness, market transparency, transaction processing system and transaction/operating cost and legal and regulatory framework. The results of this study suggest that the Capital Market Authority, Nairobi securities Exchange and other participants should play a more positive role in order to

foster securities market development.

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