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Macro-Economic, Corporate Governance Factors and the Financial Performance of Listed Firms on Nairobi Securities Exchange

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Abstract

The main goal of many listed firms at NSE is to grow and sustain growth in financial performance. Internal factors and external factors are viewed as critical drivers for the financial performance of listed firms on NSE. This paper focuses on investigating the influence of macro-economics and corporate governance factors on the financial performance of listed firms at NSE. The review of earlier studies in this field has shown lack of consensus on the effect of corporate governance and macro-economic factors on the financial performance of listed firms at NSE, thus the need for this study. The population of this study comprised of all the sixty-three (63) listed firms at NSE in Kenya and licensed by the Central Bank of Kenya (CBK) as at December 2017. The study used Panel data covering a period of seven (7) years from 2011 to 2017. The data was collected from, KNBS, CBK published financial annual supervisory reports, and published annual financial reports for the fifty-five (55) firms which were consistently listed at NSE and whose data was available. The study used correlation and multiple linear regression to analyze the data. The study established that the macro-economic and corporate governance factors accounted for 99.5% of the financial performance of listed firms in Kenya (R^2 = 0.995). Additionally, the study established that the macro-economic factors had a negative significant

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influence on the financial performance of listed firms at NSE, which is specified by a strong statistically significant negative relationship ($r = -0.495$, $p < 0.05$). Comparatively, the findings of the study revealed that corporate governance factors had a significant positive influence on the financial performance of listed firms at NSE (specified by $r = 0.551$, $p < 0.05$). In conclusion, macro-economic and corporate governance factors have a statistically significant influence on the financial performance of listed firms at NSE. The study recommends further research on other macro-economic and corporate governance factors not included in the study to determine their influence on the financial performance of listed firms at NSE. Some of the macro-economic factors of interest for future research include but not limited to the level of unemployment in the economy, the level of stock market, and money supply. On the other hand, corporate governance factors include the board composition in terms of age, ethnicity, race, profession, experience, frequency of holding board meetings, and number of board committee.

Keywords: Macro-Economic, Corporate Governance, Financial Performance

Introduction

Globally, securities markets have been the yard sticks for measuring nations' fiscal health as the markets show the general treads in the domestic economies. These markets also act as intermediaries for large and small investors seeking to profit by investing their savings. According to Stock Trading Infocentre (2018), securities markets play an important role by providing specialized financial services ranging from mobilizing large amount of funds for investment, creating diverse investment opportunities for investors, creating a platform for profit sharing, and enabling governments to raise capital for development projects. Securities markets have also acted as a catalyst for improved corporate governance due to stringent regulatory requirements for firms to be listed.

Since the performance of securities market can be regarded as the sum total performance of all the firms listed in that market as is measured using stock indexes (Hosseini, 2011; Okonkwo, 2014), it is therefore important to know the factors that influence the financial performance of the firms listed in the market. In spite of the role played by securities market in the stability of the Kenyan economy, little is known on how both macro-economic (external) and corporate governance (internal) factors influence the financial performance of listed firms on the Nairobi Securities Exchange (NSE). Profit is the essential pre-requisite for the survival, growth, and competitiveness of the listed firms. Nonetheless, investments by business firms are exposed to both firm and industry specific factors which may influence their financial performance (Murungi, 2014). The macro-economic factors affect the

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economy as a whole, rather than individual sectors (Murungi, 2014). In contrast, corporate governance factors like board size and board composition are specific and unique for each firm.

Earlier studies have either focused on how macro-economic or corporate governance factors are related to financial performance. Mutugi (2012) examined the effect of exchange rate, lending interest rates, inflation rate, and GDP growth rate on the financial performance of life assurance firms. Wabita (2013) examined how growth, leverage, liquidity, and amount of tangible assets of the firm affect its financial performance. Opanga (2013) studied how board size, number of resolutions, number of committees, and the frequency of holding meetings relate to the return on assets (ROA) of registered insurance firms. Murungi (2014) investigated the relationship between interest rate, inflation rate, exchange rate, money supply, GDP, claim ratio, expense ratio, size of the asset, and ROA of insurance firms in Kenya. Mwangi and Murigu (2015) investigated the determinants of financial performance in general insurance firms in Kenya. Kemuma (2015) evaluated the impact of foreign exchange rate volatility on ROA. Kibet (2016) examined the relationship between Macro-economic factors and the financial performance of agribusiness firms listed at the NSE.

Most of the existing studies in Kenya have generally used Return on Assets (ROA) or Return on Equity (ROE) to measure performance (Illo, 2012; Opanga, 2013; Wanyama & Olwenyi, 2013; Murungi, 2014; Mwangi & Murigu, 2015) with few using other performance parameters like stock market returns (Olweny & Omondi, 2011), share prices (Muchiri, 2012), and annual profits (Osoro & Ogeto, 2012). This study is however different in that it examined how factors of both macro-economic and corporate governance influenced the financial performance of listed firms on NSE as measured by Return on Assets (ROA).

Statement of the Problem

Globally, the financial performance of securities markets has been used to gauge the nations' fiscal health. In Africa, the stock markets have been under-developed and therefore face a number of challenges including inefficiencies and lack of real-time market information, manual trading and undeveloped settlement infrastructure, fragmented financial services sector, high transaction costs among others as observed in a presentation by Benimadhu (2013). The adoption of technology on the NSE platform has however facilitated internet trading, improved integrity, and greater access to reliable first-hand information about the securities market trading in Kenya.

The Kenyan government on the other hand has been keen in enhancing trading at NSE by promoting fairness and ensuring that investors on NSE are protected from unethical activities like development of pyramid schemes, late-

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day trading, trading based on false information or insider information, and pump-and-dump of shares among other illegal activities. The government has also put in place structures to protect minority shareholders from exploitation (Mocha, 2014). It has been able to achieve this through the establishment of Capital Market Authority (CMA) using Act of Parliament, Cap 485 A, under The National Treasury and Planning which came into being in 1989. On its website, www.cma.or.ke, CMA is a regulating body charged with the following responsibilities: *Licensing and supervising all the capital market intermediaries, Ensuring proper conduct of all licensed persons and market institutions, Regulating the issuance of the capital market products (bonds, shares etc.), Promoting market development through research on new products and institutions, Promoting investor education and public awareness, Protecting investors' interest and guiding on the composition corporate Boards.* Nairobi Security Exchange performance-based research is therefore very important in assisting the government set policies and investors in making informed decisions. Available studies on the security markets financial performance as influenced by macro-economic and corporate governance factors have in contrary produced conflicting findings that makes it difficult for users to make informed decisions.

For instance, Illo (2012) found that interest rates influenced financial performance positively but Osoro and Ogeto (2012) found a negative relationship. Muchiri (2012) found a positive relationship between inflation and financial performance, while Issahaku et al. (2013) found a negative relationship. Rao (2016) found a positive relationship between exchange rate and financial performance, while Olweny (2011) found a negative relationship. Gul et al. (2011) found a positive relationship between GDP and financial performance, while Osoro and Ogeto (2012) found no relationship. Nthama (2010) and Yasser et al. (2011) found a positive relationship between board size and financial performance, while Wanyama (2013) found a negative relationship. Firm financial performance as earlier studies confirm is influenced by both internal and external factors but many earlier research work have studied these factors separately, perhaps, leading to these notable inconsistencies in the findings. This study, therefore, sought to establish whether the macro-economic factors and corporate governance factors jointly influence the financial performance of listed firms on NSE as measured using return on assets (ROA).

Objective of the Study

The main objective of this study is to determine the joint influence of macro-economic and corporate governance factors on the financial performance of listed firms on NSE.

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Research Hypothesis

Ho. Macro-economic and corporate governance factors have no joint significant influence on the financial performance of listed firms on NSE.

Significance of the Study

Earlier studies have focused on either the relationship between macro-economic factors and financial performance or between corporate governance factors and financial performance. With the new perspective of combining these factors to assess their influence on the financial performance of listed firms in Kenya, the findings of this study will play a key role in opening a new angle in making informed decisions concerning investments in NSE. The corporate directors and executives of the listed firms can make use of the findings of this study to strengthen their competitive edge in the market. NSE will use the findings in setting and reviewing requirements for the current and future listing of firms in the market while CMA can be used in regulating and monitoring the performance of listed firms. The government through the relevant agencies will also use the findings in planning and policy development to bring about equity and fairness in the market.

Consequently, the owners and managers of these firms have a major interest in the better performance of their organizations. They will make use of the findings of this study in understanding how these factors influence their performance and, therefore, make right decisions to take advantage of positive and mitigate negative effects. Investors and policy holders are more concerned about the current and future returns of their investments and therefore will need the data in deciding how and where to secure their investments. Finally, the research findings and recommendations will enrich the available literature on developing countries like Kenya.

Literature Review

This study developed its argument from three theories, namely; Random Walk Hypothesis, Agency theory, and Stakeholders theory.

The Macro-economic Factors

This study adopted the four macro-economic factors used in the Kenya Economic Outlook 2016 report by Deloitte, which are Gross domestic product, interest rate, inflation, and exchange rate where their data is readily available. Hence, the researcher believes they carry more weight in influencing the financial performance of firms listed on Kenyan stock market, while all other factors are kept constant. Gross Domestic Product (GDP) is a measure of the country's overall economic performance. According to Singh (1993), GDP is the total market value of the goods or services produced by the economy of a

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country as well as the total income earned by the people living in that country. A rise in GDP would be an indicator of improved financial performance leading to improved market conditions while a decline in GDP portrays worsening economic conditions that may lead to poor financial performance. This study measured GDP as the annual percentage growth rate as provided by Kenya National Bureau of Statistics (KNBS).

Interest rate is the price a borrower pays for the use of money they borrow from a lender/financial institutions or fee paid on borrowed assets (Crowley, 2007; Ng'etich, 2011). While interest rates represent an income to the lender, it is a cost to the borrower. Interest rate influences the overall level of economic activity, flow of goods and services, and financial assets within the economy (Saunders, 1999). Thus, this means that high lending rates may result into depressed demand for credit especially for businesses. Government activities and policies like the level of borrowing and control of inflation rates would have a direct impact on the level of interest rates in the economy. This study employed commercial bank average lending rates as provided by CBK.

Inflation is the persistent increase in general price levels in an economy over time (Jhingan, 2002). According to Akers (2013), inflation rate measures changes in the average price level based on a price index. The most commonly known index is the Consumer Price Index (CPI). CPI measures the average retail prices that consumers pay for goods and services. Low or medium-level inflation has a positive effect on the business sector in that it acts as an incentive to production. However, high inflation rate may reduce the amount of disposable income for households and businesses which may lead to decreased economic activities. Annual average CPI was used for this study.

The exchange rate is the value of two currencies relative to each other. In the Kenyan market, these rates reflects the average buying and selling rates of the major participants in the foreign exchange market at the open of trade every day. They are thus good indicators for any interested party on the value of the shilling on any particular day. Martin and Mauer (2003) indicates that exposure of foreign exchange risk to a firm can affect its valuation and profitability. Listed firms conducting businesses in foreign countries should consider the application of suitable hedging strategies like swaps and options to ease the adverse effects of currency movements (EIOPA, 2015; Mbogo, 2015). This study used US Dollar- Kenya shilling mean exchange rate for each year.

Macro-economic factors affecting an economy are however many and not limited to the four factors considered in this study. As observed by Zarnowitz (1992), how the economy moves over time depends on its structures, institutions, and policies, all of which are subject to large historical changes. The area of macro-economic is wide and cannot be exhaustively

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covered in this study. Some other major macro-economic factors not studied and held constant as per this study are hereby highlighted.

Unemployment rate is that fraction of the workforce that is jobless. For a person to be considered unemployed, the person must want to work and be actively looking for that job of interest. Unemployment rate is equal to the number of unemployed people divided by the workforce. The workforce is the total number of those who are employed and those who are unemployed. The unemployment rate is the best indicator of how well the economy is doing relative to its productive potential. Indeed, Congressional Research Service (CRS) report (2016) refers to unemployment rate as a vital measure of economic performance. Unemployment rate keeps on changing given the existing economic conditions. For a healthy economy, there should be some level of unemployment where firms can draw workforce as and when required. This ensured the firm has the right caliber of staff and at a considerable cost.

Another economic indicator is the level of stock markets. According to Arestis (2001), various stock market development indicators have been found to explain part of the variations in economic growth rates across countries, in some cases exceeding the banking sector. The level of stock markets is measured using indexes which investors use to track the performance of the stock market. In Kenyan securities market, a 20 share index and all share index are among the indexes used to assess the performance of NSE (Osoro, 2013). The NSE 20 share index is a price weight index calculated as a mean of the shares of 20 public listed firms. The 20 firms are selected based on a weighted market performance during the period under review to represent the entire stock market. Due to the shortcoming of the Nairobi 20 share index, NSE introduced Nairobi All Share Index (NASI) in February 2008 to complement NSE 20 share index (Osoro, 2013). A high value index is an indicator of a bullish market which means that investors expect economic growth to be rapid, profits to be high and unemployment rate to be low, while low value indicates a gloomy future economic performance.

Money supply according to Lumen (2022) is the total value of monetary assets available in an economy at a specific time. Money supply usually includes currency in circulation and demand deposits. The government will regulate the level of money supply in the economy through sound monetary policy that may involve regulating banks reserve deposits, controlling interest rates, level of government internal borrowing, printing money among other means in order to ensure money supply is consistent with growth and price objectives (Prableen, 2021). The Central Bank of Kenya on its website, www.centralbank.go.ke, records and publishes money supply data on a monthly basis under monetary and finance statistics. This data is very important to both public and private sector because changes in the money

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supply is bound to affect the price level, inflation, exchange rate, and the business cycle.

In light of the fact that it may not be practically possible to exhaustively study all the macro-economic factors in one study, this study focuses on four main macro-economic factors as derived from Kenya Economic Outlook 2016 report by Deloitte. The data on these factors was also found to be readily available and the researcher believes they carry more weight in influencing the financial performance of Kenyan market. However, further studies were recommended to assess how other macro-economic factors not considered in this study affect financial performance in Kenya.

Corporate Governance Factors

Corporate governance is a framework of rules, relationships, systems, and processes within and by which authority is exercised and controlled within corporations and includes mechanisms by which the firms and those who control them are held accountable (Council, 2007). Okiro (2015) observed that sound corporate governance mechanisms helps in giving assurance to investors that, beyond receiving adequate returns, they have higher chances of getting back their investments. The researcher also concluded that the adoption of corporate principles safeguards against corruption and mismanagement, promotes transparency in economic life, and attracts more investment.

Corporate governance should go beyond the economic agenda of the firm but also incorporate social and environmental considerations in strategy formulation (Lekone, 2014). The Capital Markets Act (2002), Cap. 485A, states that one of the principles of good corporate governance practices is that every public listed company should be headed by an effective board that offers strategic guidance, leads and controls the company, and is accountable to the shareholders. A corporate board is made up of individuals who are elected or appointed by shareholders and given powers, duties, and responsibilities to act on their behalf to steer the firm forward both economically and socially. Kakanda, Salim and Chandren (2017) observed that a good corporate governance is vital in obtaining market confidence for long-term international investment.

The biggest question today is whether there is an optimal board size. Some earlier studies have found a negative relationship between board size and firm's performance implying that as the number of board members increase, its effectiveness diminishes (Yermack, 1996; Guest, 2009; Mak & Kusnadi, 2005). Coles et al. (2008) concluded that an optimal board size will depend on the size or complexity of the firm. Board size in this study is the total number of sitting board members appointed or nominated from within or

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outside the firm. The data was sourced from listed firms' published annual reports.

Appointment of board of directors should consider people with different professional backgrounds, levels of independence, age, gender, and ethnicity (Walt & Ingley, 2003). An independent director plays a critical role by providing expertise and in monitoring and oversight role (Zahra & Pearce, 1989; Markarian & Parbonetti, 2007). Board independence in this study was measured by the percentage of independent directors in the board as indicated in firms' published annual reports.

Gender diversity has also attracted the attention of many countries prompting numerous legislations to ensure inclusion of women in management of organizations. Article 27 of the Constitution of Kenya (2010), Equality and freedom from discrimination, clause 8, provides that not more than two-thirds of the members of elective or appointive bodies shall be of the same gender. This provision which falls under basic human rights is aimed at facilitating gender mainstreaming in national development. This study will assess applicability of this constitutional requirement in appointment of board members of listed firms on NSE and whether women in the board have an impact in the financial performance of these firms. Gender diversity in this study was measured by the percentage of women in the board. The data was sourced from firms' published annual reports.

Firm size, according to Murungi (2014), may influence financial performance. Large firms are able to utilize economies of scale making them more competitive over small firms. They also enjoy goodwill from customers which they have gained over time. Earlier studies have not been able to clearly link size of the firm to board size as observed by Eisenberg (1998) that factors that determine the choice of board size in small firms may differ from those that is influencing board size in large firms. Since some of the listed firms in NSE are young and small while others are mature and large, size of the firm as measured by total assets was also considered in this study. The data was sourced from firms' published annual reports.

This study focused on four (4) main elements of corporate governance which are board size, board independence, gender diversity, and firm size. The factors were arrived at through purposeful sampling where the researcher considered them as having more weight in influencing financial performance. Their data was also easily available in the annual financial reports presented by the firms. There are however other elements of corporate governance which were held constant as per this study. Thus, this included the board composition in terms of age, ethnicity, race, profession, experience, frequency of holding board meetings, and number of board committee. Further studies were also recommended.

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Financial Performance Factors

Kibet (2016) opines that firm's financial performance is determined by profitability, growth of dividend over time, market share, size, return on equity, turnover in sales and asset base, and growth. However, the primary objective of shareholders in a business is wealth maximization. Shareholders are concerned with current and future earnings, dividend policy, and relative risk of their investments which are all driven by financial performance. Their concerns are therefore whether they are making profits, whether their continued existence is guaranteed, and whether their business is growing. Many studies in Kenya like Wachudi and Mboya (2012), Wanyama and Olwenyi (2013), Wetukha (2013), and Ongore et al. (2015) focusing on related topics in Kenya have used Return on Assets (ROA) to measure financial performance. Since ROA has been generally used and accepted as a good measure of financial performance, this study also adopted it in measuring financial performance.

Return on Assets (ROA) is a good indicator of organization's profitability in relation to the assets that have been applied to generate that profit. In this case, ROA is arrived at by dividing net income by average total assets. Return on Assets show how efficient the organization is in utilizing its invested assets profitably. Unlike other variables, ROA takes into consideration the organization debt. Net income used in calculating ROA is the balance of sales after taking care of cost of sales, selling costs, administrative and operating expenses, depreciation, interest, taxes among other expenses. An organization with a higher ROA is considered more efficient because it is able to generate more income from fewer investments (Marshall Hargrave, 2021). Using ROA to compare all the firms in the NSE also has its own shortfall because all the firms do not require the same application of assets. Some organizations like those in manufacturing industry are capital intensive as compared to service industry like banking sector. However, in general, ROA is a good variable in the assessment of organizations' performance.

Nairobi Securities Exchange

In Africa, securities markets dates as far back as 19th Century with South African Johannesburg Stock Exchange Limited being the oldest existing stocks market. Nairobi Securities Exchange Limited (NSE) in Kenya was established in 1954 as Nairobi Stock Exchange. NSE is tasked with overseeing the listing, delisting, and regulation of trading of financial securities in Kenya (Barasa, 2014). According to NSE website, www.nse.co.ke, there are sixty-three (63) firms listed under thirteen sectors of the Kenyan economy as of 31st December 2017, with automobiles and accessories, investment services, telecommunication and technology, real estate investment trust and exchange

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traded fund sectors each having a single listed firm under them while construction and allied, energy and petroleum and investment sectors each having five firms each. Insurance sector and Agricultural sector have six firms each listed under them. Manufacturing and allied sector has eight firms, eleven firms in banking sector, and commercial and services sector being the highly listed with twelve firms. NSE is regulated by Capital Market Authority of Kenya.

Research Methodology

The study utilized causal research design aimed at determining the influence of selected macro-economic factors and corporate governance factors on the financial performance of listed firms in Kenya. The research design was adopted because this research postulate that changes in the selected independent variable (macro-economic factors and corporate governance variables) were responsible for the observed changes in the dependent variable (financial performance) as measured using ROA. This is with all other variables held constant.

The population of the study was sixty-three (63) firms listed under the 13 sectors of the Kenyan economy at the NSE as of 31st December, 2017. However, the following 7 listed firms had insufficient data of interest because they were listed at NSE after 2011: Atlas Development and Support Services, Deacons (East Africa), Kurwitu Ventures, Nairobi Securities Exchange Ltd, Flame Tree Group Holdings Ltd, Stanlib Fahari I-REIT, and New Gold Issuer (RP) Ltd. The sort data for the seven years of study was therefore not available to support their study. Umeme Ltd on the other hand was also excluded from the study because its financial reports, unlike the other listed firms, were presented in Ugandan shillings and is therefore not comparable. This left a balance of fifty-five (55) listed firms to be studied. Target population for this study is therefore made up of the fifty-five (55) listed firms that were consistently listed for a period of seven (7) years from 2011 to 2017, and data was available and comparable thus increasing the validity of the results.

Since the larger the sample size, the more accurate the results are likely to be (Kothari, 2008), this study adopted census survey by focusing on the all the fifty-five (55) firms that were consistently listed at NSE for the entire seven (7) year period of the study from 2011 to 2017. The research used secondary data where data on macro-economic, corporate governance and financial performance factors were collected. Data on both corporate governance and financial performance was collected from the published annual reports obtained from the firms' websites, NSE handbooks or CMA website, while data on macro-economic factors were obtained from CBK and KNBS databases.

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The data was first tabulated in excel sheet. Descriptive statistics were conducted to get the basic characteristics of the data in terms of mean, minimum, maximum, standard deviation, and probability distribution and were presented in tables and graphs. Multiple regression analysis was used to test the hypotheses of the study at significant level of a= 0.05. Statistical Package for Social Sciences (SPSS) software version 26 was used for statistical analysis based on the research objectives. The following regression equations were used to address the research objective:

$$Y=\beta_0 + \beta_1 INT + \beta_2 INF + \beta_3 EXR + \beta_4 GDP + \varepsilon \text{----------} 1$$

Where: Y = Financial performance (ROA), β_0 = Constant level of performance

β_1-β_4 = Coefficients of the explanatory variables for Macro-economic factors

INT = Annual average lending interest rate, *INF* = Inflation rate

EXR = Annual exchange rate, *GDP* = Gross domestic product growth

ε = Error term

$$Y=\beta_0 + \beta_1 BDS + \beta_2 GED + \beta_3 BDI + \beta_4 FMS + \varepsilon \text{----------} 2$$

Where: Y = Financial performance (ROA), β_0 = Constant level of performance

β_1-β_4 = Coefficients of the explanatory variables for corporate governance

BDS = Board size, *GED* = Gender diversity, *BDI* = Board independence

FMS = Firm size, ε = Error term

$$Y=\beta_0 + \beta_1 INT + \beta_2 INF + \beta_3 EXR + \beta_4 GDP + \beta_5 BDS + \beta_6 GED + \beta_7 BDI + \beta_8 FMS + \varepsilon \text{----------} 3$$

Where: Y = Financial performance (ROA), β_0 = Constant level of performance

β_1-β_8 = Coefficients of the explanatory variables for macro-economic and corporate governance, *INT* = Annual average lending interest rate

INF = Inflation rate, *EXR* = Annual exchange rate

GDP = Gross domestic product growth, *BDS* = Board size, *GED* =Gender diversity

BDI = Board independence, *FMS* = Firm size, ε = Error term

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Results and Discussion

Descriptive Statistics

Macro-economic Factors

The following macro-economic factors were considered in the study: Inflation rate, interest rate, GDP, and exchange rate. Table 1 shows the overall descriptive statistical results of the respective macro-economic factors for the 55 listed firms at NSE, Kenya, as at 31st December 2017 from 2011.

Table 1. Macro-economic Factors Overall Descriptive Statistics Results as at 31st December 2017

	N	Min	Max	Mean	Std. E	Std. D
Exchange rate	55	84.520	103.250	92.939	2.956	7.820
Gross Domestic Product	55	0.030	0.050	0.037	0.004	0.010
Inflation rate	55	5.700	14.000	8.129	1.082	2.863
Interest rate	55	13.670	19.650	16.419	0.703	1.860

Based on the descriptive results of the study on Table 1, the average value of exchange rate is 92.94 with minimum and maximum exchange rates being 84.52 and 103.25 respectively. The average value of GDP is 0.037 with minimum and maximum GDP being 0.03 and 0.05 respectively. The average inflation rate is 8.129 with minimum and maximum inflation rates being 5.7 and 14.00 respectively. The annual average commercial banks' lending interest rate is 16.419 with minimum and maximum interest rates being 13.67 and 19.65 respectively. Table 2 shows macro-economic factors year by year mean of the 55 listed firms at NSE, Kenya, as at 31st December 2017.

Table 2. Macro-economics Factors Year by Year Mean as at 31st December 2017

Year\Variable	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Inflation rate	14.0	9.40	5.70	6.90	6.60	6.30	8.00
Interest rate	15.05	19.65	17.31	16.51	16.1	16.58	13.67
GDP	41.95	50.33	55.1	61.45	64	70.88	74.94
Exchange rate	88.87	84.52	86.13	87.92	98.6	101.2	103.25

Source: CBK annual supervisory reports, 2011-2017

The results in Table 2 indicate the average mean per year for the selected macro-economic factors (Inflation rate, Interest rate, GDP and Exchange rate) from the year 2011 to 2017.

Corporate Governance Factors

The following corporate governance factors were considered in the study: Board independence, Board size, Firm size in Ksh trillions, and Gender diversity. Table 3 shows corporate governance factors overall descriptive statistics results for 55 listed firms at NSE, Kenya, from 2011 to 2017.

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Table 3. Corporate Governance Factors Overall Descriptive Statistics Results

	N	Min	Max	Mean	Std. D
Board Independence	55	0.280	0.320	0.303	0.013
Board Size	55	0.030	0.310	0.243	0.096
Firm Size in Ksh trillion	55	0.020	0.060	0.036	0.015
Gender diversity	55	0.150	0.170	0.157	0.010

The descriptive results on Table 3 show the average board independence as 0.303 with minimum and maximum board independence being 0.28 and 0.32 respectively. The average value of board size is 0.243 with minimum and maximum board size being 0.03 and 0.31 respectively. The average firm size was 0.036 with minimum and maximum firm size being 0.02 and 0.06 correspondingly. The average gender diversity is 0.157 with minimum and maximum gender diversity being 0.15 and 0.17 respectively. Table 4 shows corporate governance factors year by year mean for 55 listed firms at NSE, Kenya, as at 31st December 2017.

Table 4. Corporate Governance Factors Year by Year Mean as at 31st December 2017

Year\Variable	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Board Independence (BDI)	0.32	0.28	0.30	0.31	0.31	0.30	0.30
Board Size (BDS)	8.15	8.53	8.60	8.58	8.62	8.40	8.22
Firm Size (FMS) in Ksh Trillion	0.02	0.02	0.04	0.05	0.06	0.03	0.03
Gender diversity (GED)	0.15	0.15	0.15	0.15	0.16	0.17	0.17

The results in Table 4 show the average mean per year for selected corporate governance factors (Board independence, board size, firm size and gender diversity) from the year 2011 to 2017.

Financial Performance

The study used ROA to measure the financial performance of listed firms at NSE. Descriptive statistics results for financial performance (ROA) of fifty-five (55) listed firms at NSE, Kenya, as at 31st December 2017 from 2011 were presented.

Financial Performance Specific Factor

Table 5. Financial Performance.

	N	Min	Max	Mean	Std. D
Financial Performance	55	0.06	0.26	0.14	0.07

The descriptive results on Table 5 indicate that the average financial performance of the listed firms is 0.14 with minimum and maximum financial performance being 0.06 and 0.26 respectively. This suggests that the average

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performance in financial terms of listed firms is 14%. Table 6 shows financial performance (ROA) year by year mean results for 55 listed firms at NSE, Kenya, as at 31st December 2017 from 2011.

Table 6. Financial Performance Year by Year Mean as at 31st December 2017

Year\Variable	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**
Financial performance	0.06	0.08	0.18	0.26	0.16	0.11	0.10

Source: CBK annual supervisory reports, 2011-2017

The results in Table 6 designate the average mean of financial performance (ROA) per year from the year 2011 to 2017.

Inferential Statistics

The study used inferential statistics (Pearson correlation and multiple linear regression) to analyze the research objectives.

Correlation Matrix

The main objective of the study was to determine the effect of macro-economic and corporate governance factors on the financial performance of listed firms at NSE. The study used Pearson Correlation analysis to establish the kind of relationship that exists between the variables (macro-economic factors, corporate governance factors and financial performance) of listed firms at NSE. Table 7 shows the Pearson correlation analysis of the relationship between corporate governance factors, macro-economic factors, and financial performance of listed firms at NSE.

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Table 7. Correlation Matrix

		Board Independence	Board Size	Firm Size	Gender diversity	Gross Domestic Product	Inflation rate	Interest rate	Exchange rate	Macroeconomics	Corporate governance	Financial performance
Board Independence	Pearson Correlation	1	-.147	.339	-.060	-.479	.299	-.669	.159	.135	-.234	.208
	Sig. (2-tailed)		.753	.457	.898	.277	.515	.100	.734	.773	.614	.654
	N	7	7	7	7	7	7	7	7	7	7	7
Board Size	Pearson Correlation	-.147	1	-.578	-.118	.212	.141	.012	-.288	-.290	-.117	.005
	Sig. (2-tailed)	.753		.174	.802	.648	.763	.979	.531	.528	.803	.992
	N	7	7	7	7	7	7	7	7	7	7	7
Firm Size	Pearson Correlation	.339	-.578	1	.017	-.447	-.640	-.093	.178	-.098	.360	.791*
	Sig. (2-tailed)	.457	.174		.972	.315	.122	.843	.703	.834	.427	.034
	N	7	7	7	7	7	7	7	7	7	7	7
Gender diversity	Pearson Correlation	-.060	-.118	.017	1	-.658	-.333	-.512	.774	.893**	-.671	-.249
	Sig. (2-tailed)	.898	.802	.972		.108	.465	.240	.121	.007	.099	.590
	N	7	7	7	7	7	7	7	7	7	7	7

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Gross Domestic Product	Pearson Correlation	-.479	.212	-.447	-.658	1	.218	.648	-.774	-.669	.263	-.249
	Sig. (2-tailed)	.277	.648	.315	.108		.639	.116	.121	.100	.568	.590
	N	7	7	7	7	7	7	7	7	7	7	7
Inflation rate	Pearson Correlation	.299	.141	-.640	-.333	.218	1	-.180	-.276	.059	-.193	-.640
	Sig. (2-tailed)	.515	.763	.122	.465	.639		.699	.549	.900	.678	.122
	N	7	7	7	7	7	7	7	7	7	7	7
Interest rate	Pearson Correlation	-.669	.012	-.093	-.512	.648	-.180	1	-.649	-.592	.754	.080
	Sig. (2-tailed)	.100	.979	.843	.240	.116	.699		.115	.162	.050	.864
	N	7	7	7	7	7	7	7	7	7	7	7
Exchange rate	Pearson Correlation	.159	-.288	.178	.963**	-.774*	-.276	-.649	1	.723	-.668	-.183
	Sig. (2-tailed)	.734	.531	.703	.001	.041	.549	.115		.121	.101	.695
	N	7	7	7	7	7	7	7	7	7	7	7
Financial performance	Pearson Correlation	.208	.005	.791*	-.249	-.249	-.640	.080	-.183	-.495	.551	1
	Sig. (2-tailed)	.654	.992	.034	.590	.590	.122	.864	.695	.259	.199	
	N	7	7	7	7	7	7	7	7	7	7	7

* Correlation is significant at the 0.05 level (2-tailed)

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Based on the results in Table 7, the study revealed that there was a statistically significant negative relationship ($r = - 0.791$, $p < 0.05$) between firm size and the financial performance of listed firms at NSE. This result confirms the influence of firm size on financial performance of listed firms on NSE. This echoes the study carried out by Omar (2015) on the relationship between firm size and financial performance of microfinance banks in Kenya where the findings of the study established that firm size significantly affect financial performance of microfinance banks in Kenya. Consequently, board independence, board size, gender diversity, gross domestic product, inflation rate, annual average lending interest rate, and annual exchange rate did have significant influence ($r = - 0.208$, $p > 0.05$, $r = - 0.005$, $p > 0.05$, $r = - 0.249$, $p > 0.05$, $r = - 0.248$, $p > 0.05$, $r = - 0.640$, $p > 0.05$, $r = - 0.080$, $p > 0.05$ and $r = - 0.183$, $p > 0.05$ respectively) on the financial performance of listed firms on NSE.

Based on the results in Table 7, the study revealed that there was a statistically significant negative relationship ($r = - 0.495$, $p < 0.05$) between macro-economic factors and financial performance of listed firms at NSE. This result confirms the influence of macro-economic factors on financial performance of listed firms on NSE. The result echoes the study carried out by Kimeu (2017) on the effect macro-economic factors on financial performance of commercial banks in Kenya where the findings of the study established that macro-economic factors significantly affect banks' financial performance in developing economies. In terms of corporate governance, the results in Table 7 revealed a statistically significant positive relationship ($r = 0.551$, $p < 0.05$) between corporate governance and financial performance of listed firms at NSE. Consequently, this confirms the influence of corporate governance on the financial performance of listed firms on NSE.

Regression Analysis

The study used multiple linear regression analysis to determine the influence of macro-economic and corporate governance factors on financial performance of listed firms at NSE.

Influence of the Macro-economic Factors on Financial Performance of Listed Firms on NSE

The first objective of the study was to determine the influence of the macro-economic factors on financial performance of listed firms at NSE. The selected macro-economic factors considered in the study include: Gross Domestic Product, inflation rate, interest rate, and exchange rate. The study used multiple linear regressions to determine the effect of macro-economic factors on financial performance of listed firms at NSE, Kenya. The multiple linear regression results are shown in Table 8 to Table 10.

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Table 8. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.997a	0.993	0.980	0.00975

a. Dependent Variable: Financial performance.
b. Predictors: (Constant), Exchange rate, Gross Domestic Product, Interest rate and Inflation rate.

Table 9. ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.029	4	0.007	75.219	0.013
	Residual	0.000	2	0.000		
	Total	0.029	6			

a. Dependent Variable: Financial performance.
b. Predictors: (Constant), Exchange rate, Gross Domestic Product, Interest rate and Inflation rate.

Table 10. Coefficients

	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
Model	B	Std. Error	Beta	t	Sig.	Lower Bound	Upper Bound
1 (Constant)	1.893	0.133		14.183	0.005	1.319	2.467
Gross Domestic Product	-5.890	0.705	-0.809	-8.356	0.014	-8.923	-2.857
Inflation rate	-0.022	0.002	-0.909	-13.017	0.006	-0.029	-0.015
Interest rate	-0.016	0.003	-0.426	-4.600	0.044	-0.031	-0.001
Exchange rate - Kes/US Dollar	-0.012	0.001	-1.336	-13.106	0.006	-0.016	-0.008

a. Dependent Variable: Financial performance.
b. Predictors: (Constant), Exchange rate, Gross Domestic Product, Interest rate and Inflation rate.

The results of the study in Table 8, macro-economic factors (GDP, inflation rate, interest rate and exchange rate), accounted for 99.3% of the financial performance of listed firms at NSE ($R^2 = 0.993$).

Based on the ANOVA results of the study in Table 9, the significance value was 0.013 with an F value of 75.219. Thus, this shows that there is a statistical significant relationship between macro-economic factors and the financial performance of listed firms at NSE because the significance value of 0.013 is less than 0.05. Hence, the null hypothesis (Ho1) which states that there is no significant relationship between macro-economic factors and the financial performance of listed firms at NSE was rejected and an alternative hypothesis which states that there is a significant influence of macro-economic factors on the financial performance of listed firms at NSE was accepted. This is because the results from Table 10 indicate that the level of significance was 0.013 with an F value of 75.219 which is less than 0.05 (0.013, $p<0.05$), i.e., the significant level of the study. This confirms the significant influence of macro-economic factors on the financial performance of listed firms at NSE.

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The results of the study conform to the findings of the study carried out by Masoumi, Azar, RezaPour and Mehrara (2019) on economic and non-economic determinants of Iranian pharmaceutical firms' financial performance where they found out that economic (Macro-economic factors) determinants significantly influence the financial performance of Iranian pharmaceutical firms.

Grounded on the regression coefficients results of the study in Table 10, the unstandardized beta coefficients indicate that annual exchange rate (β = -0.012, $p < 0.05$) and interest rate (β = -0.016, $p < 0.05$) were the robust macro-economic predictors of the financial performance of listed firms at NSE when compared to GDP (β = -5.890, $p < 0.05$) and annual average lending rate (β = -0.016, $p < 0.05$) which was the least predictors of the financial performance of listed firms at NSE. Therefore, the multiple linear regression results indicate that macro-economic factors have a statistical significant influence on the financial performance of listed firms at NSE.

Guided by equation 1 and values in Table 10, the following multiple regression model was specified.

$$Y = 1.893 - 0.016 X_1 - 0.022 X_2 - 0.012 X_3 - 5.890 X_4 + \varepsilon$$

When there is a unit increase in interest rate, financial performance of listed firms at NSE will decrease by 0.016 units; when there is a unit increase in inflation rate, financial performance of listed firms at NSE will decrease by 0.022 units; when there is a unit increase in exchange rate, financial performance of listed firms at NSE will decrease by 0.012 units; and when there is a unit decrease in GDP, financial performance of listed firms at NSE will decrease by 5.890 units.

Influence of the Corporate Governance Factors on the Financial Performance of Listed Firms at NSE

The second objective of the study was to determine the influence of the corporate governance factors on the financial performance of listed firms at NSE. The corporate governance factors considered in the study include; Board independence, Board size, Firm size in Ksh trillion, and Gender diversity. The study used multiple linear regression to determine the influence of corporate governance on the financial performance of listed firms at NSE. Table 11 to Table 13 shows the result of multiple linear regression for the influence of corporate governance on the financial performance of listed firms at NSE.

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Table 11. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.997a	0.995	0.985	0.0086

a. Dependent Variable: Financial performance
b. Predictors: (Constant), Board Size, Board Independence, Gender diversity and Firm Size.

Table 12. ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	0.029	4	0.007	96.747	0.010
	Residual	0.000	2	0.000		
	Total	0.029	6			

a. Dependent Variable: Financial performance.
b. Predictors: (Constant), Board Size, Board Independence, Gender diversity and Firm Size.

Table 13. Coefficients

	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
Model	B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound
1 (Constant)	0.245	0.110		2.217	0.015	-0.230	0.719
Board Independence (BDI)	-0.661	0.299	-0.120	-2.210	0.158	-1.947	0.626
Board Size (BDS)	0.485	0.045	0.670	10.672	0.009	0.289	0.680
Firm Size (FMS)	5.598	0.300	1.222	18.658	0.003	4.307	6.889
Gender diversity (GED)	-1.441	0.373	-0.198	-3.862	0.061	-3.047	0.164

a. Dependent Variable: Financial performance.
b. Predictors: (Constant), Board Size, Board Independence, Gender diversity and Firm Size.

Based on the results of the study in Table 11, board independence, board size, firm size in Ksh trillion, and gender diversity accounted for 99.5% of the financial performance of listed firms at NSE ($R^2 = 0.995$). Grounded on ANOVA results in Table 12, the level of significance was 0.010 with an F value of 96.747 which indicate a statistically significant influence of corporate governance factors on the financial performance of listed firms at NSE because the P value of 0.010 is less than 0.05 (0.010 $p < 0.05$). Hence, the null hypothesis (Ho2) which states that there is no significant relationship between corporate governance variables and the financial performance of listed firms on NSE was rejected and an alternative hypothesis which states that there is significant influence of corporate governance variables on the financial performance of listed firms on NSE was accepted. This is because the results from Table 12 show that the level of significance was 0.010 which is less than 0.05 (0.010 $p < 0.05$), i.e., the significant level of the study. This confirms the significant influence of corporate governance on financial performance of listed firms at NSE. The results of the study conform to the study carried out

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by Karanja (2017) on the effect of corporate governance on financial performance of Commercial Banks listed at the Nairobi Securities Exchange (NSE). Here, the results of the study established a significant effect of corporate governance on financial performance of Commercial Banks.

The unstandardized beta coefficients in Table 13 indicate that board size ($\beta = 0.485$, $p < 0.05$) and firm size ($\beta = 5.598$, $p < 0.05$) were the robust predictors of the financial performance of listed firms at NSE. Gender diversity ($\beta = -1.441$, $p > 0.05$) and board independence ($\beta = -0.661$, $p < 0.05$) were the least predictors of the financial performance of listed firms at NSE. Therefore, the multiple regression results in Table 13 discretely indicate that BDS and FMS have a statistical positive significant influence on financial performance of listed firms at NSE.

Guided by equation 2 and the results in Table 13, the following multiple regression model was specified.

$$Y = 0.245 + 0.485 X_1 - 1.441 X_2 - 0.661 X_3 + 5.598 X_4 + \varepsilon$$

When there is a unit increase in board size, financial performance of listed firms at NSE will increase by 0.485 units; when there is a unit decrease in gender diversity, financial performance of listed firms at NSE will decrease by 1.441 units; when there is a unit decrease in board independence, financial performance of listed firms at NSE will decrease by 0.661 units; and when there is a unit increase in firm size, financial performance of listed firms at NSE will increase by 5.598 units.

Joint Influence of Macro-economic Factors and Corporate Governance Variables on the Financial Performance of Listed Firms on NSE

The third objective of the study was to determine the joint influence of macro-economic and corporate governance factors on the financial performance of listed firms at NSE. The study used multiple linear regressions to determine the joint macro-economic factors and corporate governance variables on the financial performance of listed firms at NSE. The results are shown in Table 14 to Table 16.

Table 14. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.945[a]	0.892	0.355	0.22097

a. Dependent Variable: Financial performance (ROA).
b. Predictors: (Constant), Exchange rate, Gross domestic product, Interest rate, Inflation rate, Board size Board independence, Gender diversity and Firm size.

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Table 15. ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	21.657	5	2.707	19.297	0.000
	Residual	36.334	2	.140		
	Total	57.991	7			

a. Dependent Variable: Financial performance (ROA).
b. Predictors: (Constant), Exchange rate, Gross domestic product, Interest rate, Inflation rate, Board size Board independence, Gender diversity and Firm size.

Table 16. Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients			95.0% Confidence Interval for B	
	B	Std. Error	Beta	T	Sig.	Lower Bound	Upper Bound
1 (Constant)	2.437	0.123		19.742	0.000	2.194	2.680
Interest rate	0.049	0.024	0.109	2.043	0.042	0.002	0.095
Inflation rate	-0.068	0.027	-0.149	-2.554	0.011	0.016	0.121
Exchange rate - Kes/US Dollar	-0.117	0.027	-0.260	-4.314	0.000	0.064	0.170
Gross domestic product	0.090	0.029	0.193	3.102	0.002	0.033	0.147
Board size	0.033	0.028	0.077	1.183	0.238	-0.022	0.087
Gender diversity	0.031	0.029	0.064	1.042	0.298	-0.027	0.089
Board independence	-0.002	0.031	-0.004	-.065	0.949	-0.063	0.059
Firm size	0.024	0.030	0.051	.786	0.432	-0.036	0.083

a. Dependent Variable: Financial performance (ROA).
b. Predictors: (Constant), Exchange rate, Gross domestic product, Interest rate, Inflation rate, Board size Board independence, Gender diversity and Firm size.

Based on the results of the study in Table 14, joint macro-economics and corporate governance factors accounted for 89.2% of the financial performance of listed firms at NSE ($R^2 = 0.892$). The ANOVA results of the study in Table 15 indicate the level of significance was 0.000 with an F value of 19.297 which shows a statistical significant influence of joint macro-economic and corporate governance factors on financial performance of listed firms at NSE because the P value which is 0.000 is less than 0.05. Hence, the null hypothesis which states that there is no significant joint influence of corporate governance and macro-economic factors on financial performance of listed firms at NSE was rejected and an alternative hypothesis which states that there is significant joint influence of macro-economic and corporate governance variables on financial performance of listed firms at NSE was accepted. This is because the results in Table 15 indicate that the level of significance of 0.000 is less than 0.05 (0.049 p <0.05), i.e., the significant level of the study. This indicates the joint influence of macro-economic and

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corporate governance variables on financial performance of listed firms at NSE in Kenya. The results of the study conform to the study carried out by Chalwa (2019) which shows that the determinants of financial performance, which include corporate governance and macro-economic factors, significantly influence the financial performance of listed firms.

Guided by equation 3 and the results in Table 16, the following multiple regression model was specified.

$$Y = 2.437 + 0.049 X_1 - 0.068 X_2 - 0.117 X_3 + 0.090 X_4 + 0.033 X_5 + 0.031 X_6 - 0.002 X_7 + 0.024 X_8 + \varepsilon$$

When there is a unit increase in interest rate, financial performance of listed firms at NSE will decrease by 0.049 units; when there is a unit increase in inflation rate, financial performance of listed firms at NSE will decrease by 0.068 units; when there is a unit increase in exchange rate, financial performance of listed firms at NSE will decrease by 0.117 units; and when there is a unit increase in GDP, financial performance of listed firms at NSE will increase by 0.09 units. When there is a unit increase in board size, financial performance of listed firms at NSE will increase by 0.033 units; when there is a unit increase in gender diversity, financial performance of listed firms at NSE will increase by 0.031 units; when there is a unit decrease in board independence, financial performance of listed firms at NSE will decrease by 0.002 units; and when there is a unit increase in firm size, financial performance of listed firms at NSE will increase by 0.024 units.

Conclusion

The main objective of this study was to determine the joint effect of macro-economic and corporate governance factors on financial performance of listed firms in Kenya. The correlation and regression results show a strong statistically significant joint influence of macro-economic and corporate governance factors on financial performance of listed firms on NSE specified by ANOVA results with a significant level of 0.000, $P < 0.05$ and an F value of 19.297. Macro-economic and corporate governance factors were thus found to have a joint significant influence on financial performance of listed firms on NSE. The results of the study conform to the study carried out by Chalwa (2019) where the researcher found that the determinants of financial performance, which include corporate governance and macro-economic factors, significantly influence the financial performance of listed firms.

Recommendations

As indicated from the findings of the study, macro-economic and corporate governance factors jointly and significantly influence the financial performance of listed firms at NSE. It is therefore necessary that the government of Kenya, with aid of CBK and public financial institutions,

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should come up with suitable policies that protect the firms at NSE from the negative effects of macro-economic factors in order to guide and support their financial performance. On the other hand, owners and managers of firms have a responsibility of addressing the influence of corporate governance factors by choosing the right mix for their firms in order to enhance the overall financial performance and ensure fairness by and for all actors in the market. Kenyan Capital Market Authority should also play a pivotal role in ensuring the right legislations and governance structures are put in place and applied by owners and managers of these firms. The number of women in boards is still below the constitutional threshold and therefore women should be encouraged to fairly compete for the board positions in order to bring in diversity thereby improving performance.

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