CENTRAL BANK RATE CHANGES ANNOUNCEMENT EFFECT ON STOCK RETURNS OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE, KENYA

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ABSTRACT

The study aimed to investigate the relationship between central bank announcements of changes in rates and stock market returns of selected firms listed at the Nairobi Securities Exchange. The specific objectives were to; establish the effect of upward announcement of the central bank rates and downward announcement of central bank rate on stock returns of firms listed at the NSE. The study was guided by various theories to explain the relationship between the changes in the central bank rate announcements and the stock market returns including the Interest rate theory and Liquidity preference theory. Stratified sampling technique was adopted for the selection of the respondents from a population of firms listed at Nairobi Securities Exchange. The collected data was analyzed using econometric views software (EVIEWS). The study findings established that upward revision Central Bank Rate has negative effect on stock market performance with a P-value of -0.002. The findings show that fixed central bank rate have zero significant impact on stock returns with a P-value of 0.000. Also, the findings show the down revision of the CBK rate positive impacted the stock return with a P-value of 0.001. The study concludes that upward revision of central bank rate negatively impacted the stock returns of firms listed at NSE. The fixed central bank rate has zero significant impact on stock returns. Fixed rates provide greater certainty for firms listed at NSE in Kenya. The study concludes that down revision of the CBK rate impacted the stock return. The study recommends that the Central Bank of Kenya and the Monetary Policy Committee should maintain the CBR at reasonable levels. Minimal volatility on the CBR should be maintained so as to reduce the volatility of the stock market performance. Nairobi Securities Exchange regulators should encourage market activities and policies which will improve the market's efficiency, so that the changes in CBR may have minimal or no effect on stock returns of listed companies within the market.

Keywords: Central Bank Rate Revision and Stock Market Returns

INTRODUCTION

Central bank rate announcements can have an impact on the stock market via the preannouncement effect, the announcement effect, or the storm. If there is an announcement impact, changes in stock prices should be statistically significant when market players integrate interest rate announcements into their pricing model. Central banks influence the rate of expansion of the money supply, the level of interest rates, security prices, credit availability, and liquidity creation from commercial banks by employing the Central Bank rate. These factors, in turn, can cause monetary imbalances or shocks in the economy through impacting investment, consumption, imports, exports, government spending, total output, income, and price levels (Obura & Anyango, 2016).

World over, stock markets are a critical component of financial growth and development. Theoretical and empirical evidence available shows that stock markets are a crucial part of growth of the economy and development. Scholars such as Levine and Zervos (1998), King and Wadhwani (1990), Grossman (1976) have all found evidence of the critical importance of stock markets in economic growth. Summarized, stock markets enhance economic growth through: new investment channels, promoting liquidity in the market and providing avenues for securities valuation and management.

In Sub-Saharan Africa, Treasury Bills commonly compete with stocks as an investment vehicle and investors are likely to reallocate more of their funds to the treasury Bills and less to stocks following a rise in the treasury bills rate. This is because Treasury Bills are reasonably safe because they are guaranteed by the government. Furthermore, enterprises registered on a stock exchange in countries such as Egypt and Tunisia have the option of acquiring long-term funding by issuing new shares (equity financing) or receiving loans from commercial banks (debt financing). Firms listed on the Rwandan stock exchange, on the other hand, frequently attempt to reduce the cost of funding while increasing the value of current shareholders. As a result, lower lending rates may push enterprises to use more bank loans and issue fewer extra shares in order to reduce the cost of capital while minimizing the risk of diluting existing shares. Lower lending rates are thus predicted to result in higher stock market returns (Kganyago & Gumbo, 2015). High lending rates, on the other hand, may encourage corporations to issue more shares in order to generate investment funds, which may drive down share values and contribute to a decrease in stock market returns. Rising lending rates may also result in higher interest costs, as well as lower cash flows and stock market gains.

In Kenya, stock market results provide useful clues about the economy's future situation, including economic and financial status (Hamrita & Trifi, 2011). Stock market returns, in particular, affect the allocation of resources across sectors of the economy, and their behavior also gives information about market expectations and risk attitudes of market investors. Stock indices are used by macroeconomists, financial analysts, and other financial market participants to assess economic patterns. Stock markets characterize and compare returns on individual assets.

As documented in Bernanke and Kuttner (2005) and Dominguez (2006), Central banks often make announcements and they are legally required to do so in some cases especially announcements by the Central bank regarding its policy intentions. The lowest cost of capital or the charges that are applied on the loans that are extended by the central bank of a country or the federal bank is referred to as the central bank rate. Rudebusch and Williams (2008) established that to regulate the liquidity or the supply of money, CBR is adopted for control and regulation. The central bank sets the CBR in order to regulate the disposable income among the households and the other agents in the economy including the different consumers which also affects the stock market returns in the market. In Geraats (2002), since the CBR serves as a peg for the different transactions in the economy, the capability of the investors at the capital market to forecast the CBR is critical.

The argument by Wynne (2013) notes that the financial assets may be unsettled by policy statements if they are not easy to comprehend while Bulir et al., (2013) found that throughout the business cycle the communication of the central bank and its clarity varies. It is not easy to understand the

longer statements that are coupled with announcements of policy nowadays where the more monetary policy that is not conventional is adopted (Hernandez-Murrillo and Shell, 2014). This may lead to more volatility in the market hence making it hard for the policy makers or central bankers to be able to assess the influence of their policy decisions in the economy.

According to the World Bank, world economic growth is expected to decelerate from 3.1% in 2022 to 2.8% in 2023. Locally, the Kenyan economy continued to depict signs of recovery amidst various domestic and global shocks. Economic growth expanded by 5.3% in the first quarter of 2023, buoyed by improved performance in the agricultural sector as favorable weather conditions accelerated a reversal in contractions experienced by the sector over the last two years. The World Bank estimates that the economy will expand by 5% in 2023. Inflation remained elevated and above the Central Bank of Kenya's target range averaging 8.51% for the six months ended 30 June 2023, compared to 6.18% recorded over a similar period in 2022. The inflation was mainly driven by an upsurge in food and fuel prices, especially in the first quarter of the year. In late June, the Central Bank's Monetary Policy Committee raised the base lending rate from 9.5% to 10.50% to address the runaway inflation. The Kenyan Shilling continued to weaken against the US dollar to trade at an average of Kshs. 133/- in the first half of the year 2023 as demand for the dollar surged against a lower supply (NSE, 2023).

Founded in 1920's Nairobi Securities Exchange is an informal market for the trading or exchange of stocks and securities (NSE, 2017). It evolved into a voluntary members' organization in the 1950's where trading was dominated and restricted to elite Africans, Asians and the Europeans. The NSE has consequently evolved over the years, overcoming market confidence challenges in the 1970's and transformation in the 1990's among top stock markets in in terms of performance in the African continent. The NSE has previously been lauded for innovation, automation of trading, electronic clearance and implementation of information management systems which has enhanced trading at the bourse (NSE, 2017).

The NSE has two major markets: the equities and the bonds market. The equities market deals with the trading of shares and equities of companies. Common stock and ordinary shares are traded in the equities markets of the NSE. Equities are listed in the NSE based on 11 counters or segments: automobiles and accessories, agricultural, commercial and services, banking, investments services, energy and petroleum, technology, market segment, construction and allied, insurance, telecommunication and manufacturing. The NSE has a total of 63 companies listed therein. The trading of bonds and bills is undertaken in the bonds market. Corporate bonds, treasury bonds and treasury bills are traded in this market segment. In addition, commercial papers are also traded. Nevertheless, treasury bills and bonds dominate this market segment (NSE, 2017). There are three major stock market indices that monitor and track the movement of prices in the NSE: the NSE 20 Share Index, the NSE All Share Index, and Financial Times Stock Exchange (FTSE) NSE index Series.

Stock prices of firms listed at the NSE have often reacted to variation in rates of interest due to the activities of the Central Bank of Kenya (CBK) monetary policy. For instance, Mwega (2014) documented the transmission mechanisms from changes in the bank rate to various economic

outcomes and established that bank rate shock affected the NSE stock price index. Ouma and Muriu (2014) opine that the long run returns in the NSE are not influenced significantly by the rates of interests. Kirui, Wawire and Onono (2014) and Elly and Oriwo (2012) advanced that there is an inverse association with the stock market returns at the NSE hence the need to control the levels of changes in interest rates in the country by government regulators.

There is a myriad of challenges that face the stock market in Kenya with the revitalization efforts being met with barriers such as the reduced investor confidence, the inadequate competitive pressure in the domestic market, lack of awareness among the local households, vulnerability to the shocks and the capital market liquidity levels especially when they are low.

There are many efforts and strategies that have been put in place to revitalize the stock market. In Kenya there are various challenges which are facing the stock market which range from reduced numbers of investors, the lack of awareness among the public members, the vulnerability of the stock market to the different shocks, inadequate competitive pressure in the local market and reduced capital market liquidity. One of the largest stock markets in the African continent is the Nairobi Securities Exchange (NSE) and it cannot be overlooked though at time it might appear to be narrow, thin or shallow when compared to the international standards (Nyasha and Odhiambo, 2014).

Statement of the Problem

Stock returns represent a critical motivator for existing and prospective investors in securities. Empirical studies have reviewed association existing between CBR and stock markets returns globally, regionally and in Kenya but have not arrived at a conclusion as some studies point to a positive relationship while other studies point to a negative relationship. Still, the extent of significance varies as some studies adopt linear regression models while other studies are event studies (Rachael & Moses, 2017). The absence of a consensus in the empirical studies necessitates the need to understand the actual response of stock market returns to Central bank rate change announcements. This is one among many motivations of conducting the current study in order to understand the relationship or the influence of the central bank rate announcements on the stock market returns in Kenya specifically among the firms listed in the Nairobi securities exchange.

The role of stock market in economic development in Kenya cannot be ignored by all standards; this is regardless of its size and nature of operation in relation to the international standards. The change in the Central Bank Rates by the monetary policy committees sends shock waves and ripple effects across the economy (Zaitun, Munene & Wanjau, 2023). This is because it not only leads to a change in the commercial banks' lending rates but also changes in the interest rates in the market. When change in the cost of capital is affected this means that the same will be reflected in different aspects and sectors of the economy. These effects are not only felt by the stock market or the listed companies but by all organizations in an economy. Therefore, the different players in the market establish strategies and measures which would enable them to take a safe position in case the CBR put in place is meant to contract the economy or is not favorable. Some of the measures that are

taken by both the listed firms and those not listed includes maintaining a certain fraction or ratio of liquidity and creation of a buffer for the organization.

Despite all these measures and strategies that are put in place to keep the organizations safe and to increase the stock market returns, there is still a chance that changes in the central bank rate significantly influence stock market returns of the firms listed at the Nairobi Securities Exchange (Kibet, 2021). Therefore, the current study is an investigation of the relationship between the central bank rates and the stock market returns of firms listed at the Nairobi Securities Exchange in Kenya. It means that the researcher investigates the influence of the CBR change announcement on the firms that are listed at the Nairobi Securities Exchange.

In order for central bank to steer expectations the policy communication has been used for long as a crucial tool, (Lamla & Vinogradov, 2019). Ehrmann and Fratzscher (2007) posit that recent trend towards the independence of central banks around the globe is explained as CBK creates transparency since it is increasingly understood that transparency enhances policy effectiveness. Accordingly, central banks continue to put emphasis on their communication with the public. One such communication is on change in CBR which is expected to influence monetary policy. Geraats (2002) explain that Central banks use CBR to control the disposable income for the different consumers in the market. In Dominguez (2006), it is illustrated that the central bank stabilizes interest rates in order to regulate the cost of living and inflation.

General economic theory as explained in Gu, Zhu and Wang (2021) posits that when interest rates have been adjusted upwards by the central bank it leads to the tightening of the monetary policy. This leads to limiting investor expectations since the cost of production for the firm will be increased hence the prospects of the organization in regards to the profitability therein will diminish. Consequently, this brings a reduction in the stock market returns, even though a number of central banks in the word have declared that they do not have a target to influence or affect the stock market. Schmeling and Wagner (2019) emphasize that the Central bank has become a crucial part of the monetary policy specifically the communication aspect. Therefore, the financial press has a concern and an interest in the CBK communications because it is followed by the market players. Empirically, several scholars have reviewed the relationship between CBR change announcement and stock market returns with diverse findings ranging from significant to non-significant relationships as well as positive to negative relationships depending on country setting and market contexts.

In China, Gu, Zhu and Wang (2021) established that stock market returns are inversely affected by the average interest rates but these effects might be positive which are highly abnormal at market high points. Cieslak and Schrimpf (2019) decomposed monetary and non-monetary news and established that monetary news gains importance. Schmeling and Wagner (2019) established that Central bank or the tone of central bank has a significant influence on changes in the equity returns such as the stock prices which means that an increase in the returns takes place where there is a more positive or promising tone by the CBK while a reduction in the rates of interest takes place when there is a relatively inverse tone by central bank.

Goukasian and Whitney (2006) examined the reactions of the stock market to the variations in the federal reserve and established that there was abnormal return that was statistically significant to the index in the market that is broad market, this was considered post-the announcements. Pakistan, Hammoudeh and Choi (2006) examined how monetary policy affects stock performance of quoted companies and constant increase in the prices of stock as a reaction to the easing in the monetary policy that is exogenous.

In Kenya, the Central Bank of Kenya is mandated with the duty to ensure that it maintains a favorable inflation rate and a sound market based-financial system which is established by variation of the monetary policy through the central bank rate (Ondieki & Jagongo, 2013). CBK uses the CBR as a signal of the monetary policy stance (Mwega, 2014). A review of the CBR by the CBK therefore affects the entire Kenyan economy which includes the expenditure by the consumers, the interest rates-bonds, the stock returns and also the stock prices (Mwasya, 2016). The CBR rate in Kenya has declined from 20 percent in 2000 to the current year's 7 percent.

In the recent past, the rate has been maintained at 7 percent. Mbatha (2017) established that interest rates significantly and negatively influence NSE Share index and consequently the stock market returns. Mwasya (2016) explored the link between the CBR and performance of the stock market and established that the changes in the CBR had an inverse relationship to the stock market performance. However, Asiligwa (2014) examined how the CBR affected listed banks share returns and documented that central bank rate influenced the returns of Kenyan quoted commercial banks positively. The absence of unanimity in the foregoing research works on the exact corellation between CBR change announcements and stock market returns necessitates the need to understand the actual response of stock market returns to CBR change announcements in Kenya. The effect of CBR change announcements on stock market returns at NSE has not been conclusively explored in the existing literature and hence this study.

Objectives of the Study

The study was guided by the following objectives

i. To establish the effect of upward revision of the central bank rate on stock market returns of firms listed at the Nairobi Securities Exchange, Kenya.
ii. To determine the effect of downward revision of the central bank rate on stock market returns of firms listed at the Nairobi Securities Exchange, Kenya.

LITERATURE REVIEW

Theoretical Framework

Interest Rate Theory

Theory of interest rate which underpinned the study was introduced by John Maynard Keynes in 1936 (Keynes, 1936). The loanable funds theory suggests that interest rates are determined by the supply and demand for loanable funds in the financial market. The supply of funds comes from savers and investors, while the demand is from borrowers. When demand for loans is high, interest rates tend to rise, and when demand is low, interest rates tend to fall. The liquidity preference theory

emphasizes that interest rates are a function of the demand for money relative to the supply of money. People hold money for transactional, precautionary, and speculative purposes. The interest rate is the cost of giving up liquidity. Higher interest rates compensate for the loss of liquidity, reducing the demand for money.

The expectations theory suggests that long-term interest rates are an average of current and future short-term interest rates, incorporating market expectations of future interest rate movements (Chiu, Davoodalhosseini, Jiang & Zhu, 2023). If investors expect rates to rise, long-term rates will be higher than current short-term rates, and vice versa. Central banks play a critical role in influencing interest rates through monetary policy tools. The central bank rate, often referred to as the policy rate, is set by the central bank's monetary policy committee. This rate directly affects the money supply, borrowing costs, and, subsequently, overall economic activity.

Central banks use the policy rate to signal their stance on monetary policy. When the central bank raises interest rates, it aims to curb inflation and slow down economic growth. Conversely, lowering interest rates stimulates borrowing, spending, and investment to boost economic activity. Changes in the central bank rate directly impact short-term market interest rates. Banks adjust their prime lending rates based on changes in the central bank rate. This influences the overall cost of borrowing for businesses and individuals. Central bank rate changes influence the yield curve, altering the relationship between short-term and long-term interest rates (Colciago, Samarina & de Haan, 2019). For instance, raising the policy rate can flatten the yield curve, affecting investment decisions and economic expectations. Central banks use interest rates to control inflation. Higher interest rates can reduce spending, slow down demand, and moderate inflationary pressures. Lower interest rates can stimulate spending and investment to combat deflationary threats.

Interest rate theories have been applied in several event studies including Mutinda (2014), Maina (2014) and Kibobo (2017). Since central bank rate change influences prevailing bank interest rates, the interest rate theories do support the event study on interest rates behavior especially on the MPC decisions and motives for revising the CBR rates upwards, downwards or otherwise maintaining the levels.

Liquidity Preference Theory

In the Liquidity Preference Theory, Keynes (1936) explained how individuals hold money for various purposes, including transactions, precautionary savings, and speculative motives. He argued that people's preference for liquidity, or the desire to hold cash or liquid assets rather than non-liquid ones, plays a critical role in determining the demand for money and, consequently, interest rates.
Keynes proposed three motives for holding money: Transaction Motive: The need for money to conduct everyday transactions for goods and services. Precautionary Motive: The desire to hold money for unforeseen future expenses or emergencies. Speculative Motive: The decision to hold money rather than other assets (bonds or securities) based on expectations of future interest rate movements (Bibow, 2013).

The Liquidity Preference Theory posits that interest rates are determined by the supply and demand for money. When people hold more money for precautionary or speculative reasons, they are willing to forgo interest earnings, resulting in higher interest rates to incentivize them to hold bonds or other interest-bearing assets (Lavoie & Reissl, 2019). Conversely, when money demand for liquidity is lower, interest rates decrease to encourage investment and spending.

This theory challenged classical economic thought, which typically assumed that interest rates were solely determined by the supply and demand for loanable funds. Keynes argued that the demand for money and liquidity preference were equally important factors in shaping interest rates and monetary policy.

Empirical Review

Upward Revision of Rates and Stock market returns

The upward revision of CBK rates often influences the investors reactions. In China, Gu, Zhu and Wang (2021) sought to find out whether the central bank should adopt the variations in monetary policy to regulate the stock market or not. Using macroeconomic variables including interest rate and the stock market returns, and while using a novel Bayesian time-varying regression model, the study determined that the impact of change in interest rate on stock returns varied over time, and that was so while controlling various macro-economic variables. The study therefore suggests that policymakers may need to pay more attention when increasing the marketization of interest rates and putting in place the preventive role of not only timely but also strategic adjustment of interest rates. In this study, the empirical results show that on average, the stock market returns in China are significantly negatively correlated with interest rates, following a time-varying dynamic pattern. This shows that the central bank in China certainly plays a role in managing the stock market through interest rate policies. The study was done in China while the current study was done in Kenya.

In United Kingdom, Cieslak and Schrimpf (2019) used data from four different central banks specifically on the communications and announcements made through central bank for both monetary and non-monetary news. The study established significant variations in the news composition based on the channel of communication used by central banks. Monetary news ranked high in policy decision announcements while non-monetary news accounted for more than fifty percent of communications that gave context to policy decisions including press conferences and minutes. The study shows that during a financial crisis, the financial markets' reaction was significantly driven by non-monetary news in the early recovery. Contextually, the study employed four different central banks in United Kingdom while the current study used data from central bank of Kenya.

Schmeling and Wagner (2019) investigated if the changes in the variations of interest rate at central bank influenced stock returns. The researcher had set out to find out the influence of the central bank tone on the assets prices especially during communication matters. It was concluded that when the interest rate is declined then the stock prices increased while the prices decreased when there is

hike in interest rate. It was also found that the bond yields increase was associated with the positive changes in the interest rate, reduced equity volatility, lower credit spread and lower variance risk premia. The results suggested that the changes in the interest rate of the central bank were crucial for the assets prices via risk based channels. The study concentrated on impact change of interest rate of CBK on stock returns while the existing study looked at how upward revision announcement influence the stock returns of firms listed at NSE.

Ricci (2015) investigated the large banks in Europe and their reaction to monetary policy announcements that are non-conventional and those that are conventional while at the same time making an effort to find out the origin of the bank heterogeneity response in the economy. There were two stages that guided the methodology including event study and the OLS to assess the actors of the various responses to several banks. It was established that the interest rates had more influence on the decisions of the banks than the conventional measures. The study was done in Europe while the current study was done in Kenya.

Mayes and Wang (2012) sought to determine the impact of announcement of domiciliary monetary regime rate on the returns of the stock markets of Euro area, Australia, New Zealand and the UK while using event-study methodology to observe the reaction of the stock prices to sudden pronouncements. Since neither Australia nor the New Zealand reached the zero interest rate bound, the study investigated if there was a significant impact from the global financial crisis on the reaction of the stock market that can be uniquely separated from the asymmetric reactions to shocks that characterize the cycle of businesses. The study established that both the UK and Euro countries showed a financial crisis effect but the same was not the case in New Zealand and Australia as the behavior did not change. The study incorporated the conduct of strength checks in addition to surveying other underlying factors, more so the influence of advice deriving out of central banks that readies markets for monetary policy rate variations. The study was done in developed nations in Europeans while the current study was done in Kenya which is a developing country.

Galebotswe and Tlhalefang (2012) explored association between monetary policy shocks and the stocks returns in Botswana. In the study, vector-auto-regression (VAR) was adopted to explore the association. The data that was used for the study was for the period of 17 years that is between 1993-2010 that is quarterly data. The 91-day changes in the Botswana Bank which is the certificate rate was used as a measurement of the monetary policy. The study established that positive interest rate innovations resulted in increases in the aggregate stock returns of Botswana Stock Exchange (BSE) listed companies. Additionally, the study revealed that the negative reactions of non-bank stock returns were offset by increase in returns to bank stocks.

Cobbinah (2011) investigated the association between commercial bank lending rate and Bank of Ghana Base Rate while using secondary data. The study which looked at a ten year period between 2009 to 2011 found that commercial bank lending rate was clearly higher than sum total of both the government policy on inflation and the Bank of Ghana Base rate for the periods 2009, 2010 and 2011 in terms of the fixed percentages at that point. The study established a significantly strong and positive relationship between the Bank of Ghana Base Rate and the commercial bank lending rate.

Hayo, Kutan and Neuenkirch (2010) investigated the impact that the changes in federal funds target rate in addition to the other modes of FOMC pronouncements had on both the Pacific and European equity market returns while employing a GARCH model. The study revealed that for both types of news, there was a significant statistical and economic impact although the effects were not symmetric. Keen to note was that target rate changes resulted into a higher influence and that while a lot of communication variables were statistically significant, pacific markets reacted more strongly to FOMC news than their European markets counterparts which were influenced by a variety of communications.

Bohl, Siklos and Sondermann (2008) analyzed how the unanticipated decisions on the interest rates by the ECB influence the reaction of the European stock market returns. The Heteroscedasticity approach was used while considering the endogeneity between stock market returns and changes in interest rates using identification. The study found that there was an inverse association between European stock markets returns and unexpected ECB decisions; the study relied on the various methods which are used to extract the shocks in the monetary policy. There was an indication that central bank successfully communicates its monetary stance which the market absorbs well.

Ioannidis and Kontonikas (2008) analyzed how monetary policy impacted stock returns in thirteen OECD countries over a period of 30 years between 1972-2002. Monthly stock prices and interest rates were collected from the thirteen countries. While employing the Jarque-Bera test for normality to test for the normality of the stock returns, the study found that shifts in the monetary policy through interest rates significantly affected the stock returns. The conclusion of the study was that European Central Bank uses monetary policy by varying the ECB refinancing rate to control the economy.

Goukasian and Whitney (2006) investigated how the Federal Reserve's monetary policy actions affect the stock market. The data that was used was acquired from the federal funds futures markets which were used to measure the unexpected variations in the federal funds rate and the expected ones. It was established that the assets prices do not reflect immediately the changes that are caused by the full information that has been shared or conveyed. Therefore, the study concluded that the FOMC announcements in relation to the actions of the monetary policy significantly influence the abnormal returns days after the communications or the announcements have been made.

Rigobon and Sack (2004) conducted a study to establish the association between asset prices of the Federal Reserve and the monetary policy changes. The testimonial of the chairman's semi-annual monetary policy by the Chairman and the policy shocks that take place during the meetings of the FOMC and the increase in the variation of the policy shocks. During the FOMC meetings and days when the Chairman read the semi-annual monetary policy briefs to the Congress, the study observed a response on asset prices to the variations in the monetary policy based on increased policy shocks fluctuations. In the study, a decline in stock prices was observed with increases in short term interest rates.

Downward Revision of Rates and Stock Returns

A downward revision of interest rates by a central bank refers to a situation where the bank reduces its policy rates, such as the benchmark interest rate. This is often done to stimulate economic growth, boost investments, encourage borrowing, and control inflation. The relationship between a downward revision of interest rates and stock returns is a fundamental concept in finance and economics. Bernanke and Kuttner (2005) sought to establish if there was any association between the unexpected changes in the federal funds rate target and stock prices through a period of 14 years between 1989 to 2002. The study measured the level of stock prices by adopting CRSP value-weighted index and observed that there was roughly a one percent increase in the stock prices for a typical unanticipated rate cut of twenty-five basis points. It was also noted that for the changes in rates that were anticipated to be more long term or that were in a reverse direction the stock response was a stronger.

Amarasinghe (2015) while studying the relationship between interest rates and stock prices of firms listed at the Colombo stock exchange used seven-year monthly data on all share price index and interest rates between 2007 – 2013. Granger Causality tests and regression analysis were conducted on the data after stationary tests using Augmented Dickey Fuller Tests. The study incorporated the use of granger causality tests and regression analysis and found that there was a negative association between the two variables under study that was significant.

Kitati, Evusa and Maithya (2015) sought to determine the impact of macro-economic variables on stock market prices for firms listed at the Nairobi Securities Exchange in Kenya and adopted the weighted average interest rates data for a five-year period spanning 2008 to 2012. The study applied simple and multivariate regression analysis and found the presence of a negative association between the rate of interest and the stock market prices. The rate of interest impacted not only individual company shares but also the all share index as well as the 20-share index at the NSE.

Magara (2016) studied the impact that the announcement of interest rates adjustment had on stock returns of NSE listed firms. An event study methodology was adopted with a 60-day event window to determine the impact of the CBR change declaration and the study found presence of a positive abnormal return. This meant that investors did not benefit from above normal returns meaning that the market was able to adjust to interest rate changes. The study further revealed that although variability in the stock market return do erratically increase with time, there were more fluctuations in the days before and after adjustments of interest rate.

Mugambi (2016) evaluated whether there existed, and the nature thereof a relationship between changes in interest rates and stock returns in Kenya with a goal of improving the development of policies and investment decision-making. As a representative of interest rates, the study used the Central Bank Rate while examining its influence on the stock market in Kenya. It adopted use of univariate and multivariate time series to come up with stationarity and both the short run and long run relationships respectively. Using VAR model to determine the long and short run dynamics of the variables, the results suggested changing interest rates affected the banking and commercial

sectors whereas the assessment of a long run equilibrium relationship between the two variables, that is, change in CBR and the performance of Kenyan stock market was insignificant.

Mbatha (2017) sought to study how changes in interest rate affected the performance of equity returns at NSE. In this regression study, interest rate changes were the independent variable while stock market returns as measured using NSE share index was the dependent variable. A significant and negative relationship between interest rate changes and NSE Share Index was found. The study looked at changes in interest rate generally while the current study studied on upward revision, downward revision and fixed rates in relationship to stock return.

RESEARCH METHODOLOGY

This study adopted a descriptive research designs which will be employed to grant a clearer understanding and improved insights and to describe the effects of central bank rate change announcements on stock returns better. Mugenda and Mugenda (2003) explained that depending on the sample used, descriptive research delivers statistical inferences to the population. The underlying idea is to determine the anomalous return attributable to the event under study by adjusting for the return that stems from the fluctuations of the price of the market in totality.

The population for this study was 63 listed firms at the NSE as per attached list in appendix I. The Population includes the Nairobi Securities Exchange and the Central Bank of Kenya. The unit of analysis consists of the listed firms' stock market return and the change in Central bank rate that take place every two months. The units of observation were the beginning and end of month CBR rate and the beginning and end of month share indices.

One of the most important considerations in research is the size of the sample as it ensures the accuracy and significance of the results. Twenty companies were picked from the total population of sixty-three companies listed at the NSE. Since the NSE 20-Share Index is a pre-selection of 20 firms representing the fifteen sectors of the Nairobi Securities Exchange and composed of only the actively traded stocks, stratified sampling technique was used in the study.

The data collection instrument used in this study was a data collection sheet. The study collected quantitative data. The data was analyzed quantitatively through descriptive and inferential statistics. The collected data was analyzed through event study methodology. In the study, the daily market returns were calculated. The study used the following model:

$$Rm = \frac{NSE\ 20_{t+1} - NSE\ 20_t}{NSE\ 20_t}$$

Where:

R_m = return on the market index (NSE 20 share index),

$NSE\ 20_t$ = opening value of the market index

$NSE\ 20_{t+1}$ = closing value of the market index

The study then calculated the benchmark-adjusted return for the market *i* on the event day t that were calculated as follows:

$$AR_{m,t} = R_{m,t} - M_{i,t}$$

Where:

$R_{m,t}$ = the return for the market *i* period *t* and

$M_{i,t}$ = the return on a benchmark for the same period.

The average adjusted return (AAR) for the market in period *t* was the mean of the benchmark-adjusted returns. The market cumulative adjusted return (CAAR) was therefore be the sum of the average adjusted returns for each period.

Finally, to test the statistical significance of pre-announcement and post announcement periods for the abnormal returns (AR), average adjusted returns (AAR) and the Cumulative adjusted average return (CAAR), the paired sampled test will be incorporated.

RESULTS AND FINDINGS

Specifically, the section discusses descriptive statistics, trend analysis, correlation analysis, regression analysis and discussion of the findings. Each section is provided in detail to demonstrate its importance to the study. In the seven-year period therefore, there were 42 CBR rate change announcements whose movements was classified into three events as; revised upwards, revised downwards and maintained (no change). Statistics on the mean, standard deviation, minimum, maximum, and coefficient of variation for each variable are clearly illustrated in the section. Table 4.1 presents an overview of the descriptive statistics.

Table 1 Descriptive Statistics on Central Bank Rates

Variable	Observation	Mean	Standard deviation	Minimum	Maximum	Coefficient of variation
Upward revision central bank rate	20	6.2123	1.3452	1.2156	5.4232	0.4168
No change in central bank rate	20	5.5230	1.5324	1.2457	3.681	-0.5421
Downward revision central bank rate	20	4.4642	1.7214	1.6576	3.1454	-0.4233

Source: Field Data (2023)

The results presented in Table 1 show that the highest (maximum) stock returns among the 20 firms listed at NSE between 2015 and 2021 during upward revision central bank rate has been 5.4232%, with the minimum being 1.2156%. The coefficient of variation, a statistical measure of the relative dispersion of data points around the mean, was found to be 0.4168. The coefficient of variation less than 1 implies the values in a statistical data set are close to the mean of the data set (Pélabon, Hilde, Einum & Gamelon, 2020). Thus, the return on investments by the 20 firms listed in the NSE between 2015 and 2021 has been around 6.2123 (mean).

The findings revealed that during no change in central bank rate, stock return among the firms was 3.681 at maximum while 1.2457 at minimum. The coefficient of variation, a statistical measure of the relative dispersion of data points around the mean, was found to be -0.5421. According to CBK (2020), the interest rate on fixed deposit account rose to 6.93% was recorded in May 2020. The findings concur with the findings of a study by Muriuki (2014) who stablished that the two independent variables combined, contributed to approximately seventy percent change in the stock market prices. Further, the study established a positive relationship between interest rates and stock market prices for companies listed at the NSE.

In Table 4.1, the study established downward central bank rate revision resulted to a maximum return stock of 3.1454 while minimum was 1.6576. The mean variation of the stock was 4.4642. The direction and amount of the CBR's fluctuations indicate the Bank's monetary policy stance. This signal is first activated by changes in short-term interest rates. A decline in the CBR indicates monetary policy relaxation and a desire for market interest rates to fall. Lower interest rates stimulate economic activity and, as a result, growth. When interest rates fall, the amount of credit demanded rises. The findings agree with findings of a study by Kitati, Evusa and Maithya (2015) who established that there is presence of a negative association between the rate of interest and the stock market prices among firms listed at the Nairobi Securities Exchange in Kenya for a five-year period spanning 2008 to 2012.

Further, the study aimed to determine the changes in market return and stock return based on the pre-announcement and post-announcement periods related to central bank rate decisions. The Table 2 provides descriptive statistics for the returns, market, expected and abnormal returns in pre-announcement and post- announcement period.

Table 2 Descriptive statistics on pre-announcement and post-announcement period

	PERIOD	Mean	Std. Deviation	t	Sig.
Market return	before	-0.002	0.063	8.409	0.000
	After	0.000	0.031		
Stock return	before	0.018	0.510	0.35	0.931
	After	0.001	0.028		
Expected	before	0.006	0.051	8.409	0.000
	After	0.007	0.026		
Abnormal	Before	0.013	0.506	0.598	0.758
	After	-0.006	0.030		

Source: Field Data (2023)

The results in Table 2 indicate a high score in the mean of market return after post- announcement central bank rate. This is presented by a negative mean of 0.002 in pre- announcement period and a mean of 0.000 in post- announcement. The stock returns had a mean of 0.018 in pre announcement and a mean of 0.001 in post- announcement period. The same case is also presented in the expected returns mean where the returns in pre- announcement period is 0.006 and post- announcement period is 0.007. The mean of the abnormal return in pre- announcement period is 0.013 and the mean in post- announcement period is -0.006. These results show that Abnormal returns show insignificant differences in pre-announcement and in post- announcement period. The findings concur with findings of a study by Kakiya (2007) established that trends in stock returns are

dependent on event announcement. Traded volumes are not significantly affected by announcement. Earnings announcement had a significant effect on stock returns when CAR was evaluated indicating market inefficiency but AR was not significant for individual companies.

Analyzing the impact of central bank rate announcements on stock returns at the Nairobi Securities Exchange (NSE) involves understanding the behavior of stock prices during the pre-announcement and post-announcement periods, particularly in relation to average abnormal returns (AAR). Similar to the pre-announcement and announcement day periods, AAR is calculated for various post-announcement windows to determine the average performance of stocks during these phases.

Average Abnormal Returns

An abnormal return can be either positive or negative. Cumulative Average Abnormal Returns were established to show the cumulative effect. The study calculated cumulative market returns to determine whether they are significantly different from zero. The event period for the study was 31 days, where -15 days covered the pre-announcement period and +15 days covered the post announcement period while 0 represent the event. This is usually done to determine when the information was actually received in the market and whether there were leakages before the actual date on the listing. Leakage of information mostly signifies presence of insider trading (Eleke-Aboagye & Opoku, 2013). The findings were Tabulated in Table 3

Table 3 Average Abnormal Return announcement change

Window period	Abnormal Returns (AR)	Cumulative Abnormal Returns (CAR)	Average Adjusted Returns (AAR)	Cumulative Average Adjusted Returns (CAAR)	t-statistics
-15	-0.00101	-0.03268	-0.02133	-0.40525	-.651
-14	0.00293	-0.03167	-0.02239	-0.38392	-.144
-13	-0.00283	-0.03461	-0.03698	-0.36153	-.333
-12	-0.00133	-0.03177	-0.02334	-0.32454	-.876
-11	-0.00338	-0.03044	-0.02367	-0.30120	-.652
-10	-0.00509	-0.02706	-0.02236	-0.27754	-.026
-9	-0.00135	-0.02197	-0.02295	-0.25518	-.958
-8	-0.00360	-0.02062	-0.02831	-0.23222	1.283
-7	-0.00671	-0.01702	-0.02396	-0.20391	1.422
-6	-0.00402	-0.01031	-0.02258	-0.17995	1.451
-5	-0.00298	-0.00629	-0.02675	-0.15737	1.919

-4	0.00138	-0.00331	-0.02629	-0.13062	1.989
-3	-0.00284	-0.00469	-0.02344	-010433	1.518
-2	-0.00349	-0.00185	-0.02525	-0.08089	2.711
-1	0.00167	0.00164	-0.02806	-0.05563	2.641
0	-0.00003	-0.00003	-0.02757	-0.02757	2.367
1	-0.00030	-0.0034	-0.03757	-0.06514	2.538
2	-0.00043	-0.00077	-0.02281	-0.08795	2.358
3	-0.00506	-0.00583	-0.02650	-0.11445	1.688
4	-0.00022	-0.00560	-0.01935	-0.13380	1.341
5	0.00158	-0.00403	-0.02060	-0.15440	1.274
6	0.00138	-0.00825	-0.01674	-0.20802	1.392
7	-0.00155	-0.00420	-0.01849	-0.19128	1.317
8	-0.00405	-0.00825	-0.01674	-0.22557	1.392
9	0.02245	0.01420	-0.01756	0.22557	1.931
10	-0.02614	-0.01194	-0.01917	-0.24475	1.358
11	-0.00717	-0.01912	-0.02147	-0.26621	1.228
12	-0.00820	-0.02731	-0.01830	-0.28451	1.624
13	-0.00492	-0.03223	-0.02092	-30543	1.895
14	-0.00653	-0.03876	-0.00267	-0.30811	-1.295
15	-0.00009	-0.03885	-0.01973	-0.32784	.515

**Statistically significant at the 5% level

Source: CBK, (2022)

In order to determine the sensitivity of the stock return to central bank rate changes announcement, the researcher calculated the t-statistics for the 15 days before, during change announcement and after change announcement, if the t - value was close to 2 this was an indication that the shares were sensitive to CEO change announcement. From the finding shown in table 4.3, it was found that on 15 date before CEO change announcement the t-statistics was negative an indication that the share price were sensitive to CEO change announcement. Approaching -8 day there was a positive rise. On the event date it was found that the share prices were sensitive to CEO change announcement as shown by t value of 2.367. Stock return on event day adjusted rapidly to incorporate the new information of central bank rate change announcement.

Average abnormal returns represent the extent to which actual returns over 31 day event window different from the expected. Table 4.3 shows that the Abnormal return for the 31 days event window fluctuated between negative and positive for the days studied. 22.58% of all the abnormal returns over the events window were positive. In Table 4.3 a statistically positive AR of 2.711% is observed on day -2, being the second day before the announcement which was statistically significant at the 5% level. These results support empirical studies carried out by Duque and Madeira (2011) Bildik and Gulay (2011) and Sadeghi (2011) who reported positive share returns of firm inclusion in the NSE 20 share index. The results of this study also supported the findings by Selvam et al., (2012) and Maria and Asani (2014) who reported temporally effect on share performance however contrary reported a negative share performance of firms' inclusion in the NSE 20 share index.

The AAR observed on event day 0 of 2.367% which is statistically significant at the 10% level. Combining the AAR on -1 day and 0 day gives a total AAR for the two days of 5.008%) or a positive reaction to the announcement of the central bank rate change. The AAR observed on day +1 and +2 are also positive, 2.538% and 2.358 respectively, but are statistically significant. Five statistically significant AAR were found and recognizable around the central bank rate change announcement at 5% significance level. Two were before the announcement, two after the announcement and the other on announcement day with positive AAR of 2.711%, 2.641%, 2.538%, 2.358% and 2.367% respectively. These finding were consistent with the arguments of Efficient Market Theory as advanced by Harris and Gural (1986) who argued that when firms are included in the index observes a neutral effect on share return. This is as result of that all relevant information is fully and immediately reflected in a security market price thereby assuming that an investor will obtain an equilibrium rate of return.

Share Price Trend Analysis

A share price is essential to the investors and measures how the value of the stocks in the index changes over time. The findings of share price of 20 firms listed at NSE are presented in figure 1.

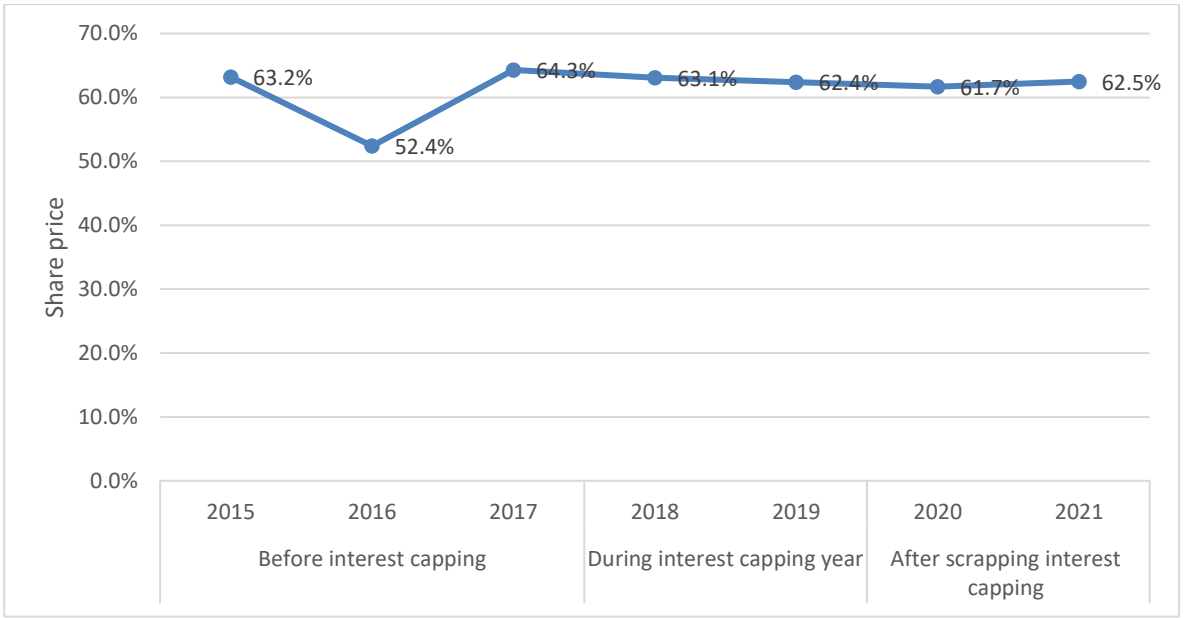

Figure 1 Share Price Trend line from 2015 to 2021 (NSE 2022)
Source: Field Data (2023)

The results presented in Figure 1 show that the share price has fluctuated from time to time. The share price was determined using the share prices of the banks. This imply that share price is significant in measuring the value of stocks in the index changes over time. The investors of the institutions rely much on the share price to examine the market and to compare the returns on the available investments. When a company's stock price rises and it makes a significant net contribution, the share price can rise. The share price reveals a company's level of performance in relation to other businesses offering comparable goods or services.

Inferential Statistics

This section illustrates the fitness of the model used in the study as well as the calculation that derived the alpha and beta coefficients for generation of the abnormal returns. ANOVA (Analysis of Variance) was evaluated how the central bank rate impacts the abnormal returns. ANOVA helps determine whether there are statistically significant differences in abnormal returns among various levels of the central bank rate.

Table 4 Analysis of Variance (ANOVA)

Model	Sum of squares	df	Mean Square	F	Sig.
Regression	1.45	1	.312	12.83	0.002[b]
Residual	100.15	29	1.782		
Total	101.60	30			

Source: Field Data (2023)

ANOVA statistics presented on Table 4 indicate that the overall model was statistically fit. This was supported by an F statistic of 12.83 and probability (p) value of 0.001. Probability value (p) is usually given the value of 0.05; therefore, any value below the same is statistically significant. Therefore, from the results the reported p value 0.001 was less than the conventional probability of 0.05 significance level thus its significance. The ANOVA results imply that the overall model is significant. This study is informed by the study of Ndonga (2014) that established positive mean returns at the NSE and suggested that there is variation of stock market return volatility attributed to changes in central bank return rate. The findings compared with those of Mwangi (2018) who established that positive AR indicates that the stock is performing better than expected. It revealed that the stock has provided returns beyond what is typically associated with its risk level or market conditions. Negative AR infers that the stock is performing worse than expected. It implies that the stock has generated returns lower than what would be expected given its risk level.

Table 5 Regression of Coefficients

Variable	Beta	Std. Error	t	Sig.
(Constant)	0.0062	0.015	0.623	.513
Stock return	0.334	0.246	3.065	.002

Source: Field Data (2023)

$Y=0.007+0.815X$

Y =Expected Return

X= Actual Returns

Table 5 presents results of the alpha and beta constants that were used to derive the abnormal return. The model presented below shows how the abnormal return was calculated. The regression of coefficients results further indicate that the variable market return had a positive and significant relationship with the actual stock return, which is evident from the value 0.001. The conventional value of 0.05 is the scale that determines the significance of an independent variable, thus any value below 0.05 is significant and a value above the same is not significant. Therefore in the results, 0.001 is lower than the conventional value 0.05 thus making the market return variable significant in explaining actual stock return and determining the beta and alpha coefficients. The findings agree with result of a study by Sakwa (2013) who conducted a study on the effect of rights issue announcement on stock returns of companies listed at the Nairobi securities exchange. The study covered a period of ten years from 2003 to 2012. A traditional event study approach was adopted for this study. The mean adjusted returns model as specified in Brown and Warner (1985) was used in this study. This model uses the mean return over the estimation period as the normal return for the security had the event not taken place. A study of 13 out of the 61 companies listed on the NSE that had rights issued during this period was done. A two tailed t-statistic at 95% confidence level was done to test for statistical significance of the mean abnormal returns. The results of the study show that stock returns react positively to rights issue announcements. A positive mean abnormal return was recorded over the event period with the highest abnormal returns being on day t+2. There was a statistical difference between mean abnormal returns observed during the event period and estimation period for eighteen events and no statistical significance for one event.

Conclusion and Recommendations

Conclusion

Based on the findings of the study, the study drew various conclusions. On objective one, the study concluded that upward revision of central bank rate negatively impacted the stock returns of firms listed at NSE. An increase in interest rates would also increase the cost of capital for companies resulting in lower expected future earnings. Stock prices and indices would thus plunge as well.
The study concludes that fixed central bank rate have zero significant impact on stock returns. Fixed rates provide greater certainty for firms listed at NSE in Kenya. Fixed rates also help the government maintain low inflation, which, in the long run, keep interest rates down and stimulates trade and investment.

Also, the study concludes that down revision of the CBK rate impacted the stock return. The changes in rates that were anticipated to be more long term or that were in a reverse direction the stock response was a stronger. The stock market returns erratically increase with time, there were more fluctuations in the days before and after adjustments of interest rate.

Recommendations

Recommendations in the study were based on the findings and conclusion. The recommendations were on policy implications, practice and further research studies;

The study recommends that the firms registered at NSE and the Monetary Policy Committee should maintain the CBR at reasonable levels. Minimal volatility on the CBR should be maintained so as to reduce the volatility of the stock market performance. Increase in CBR will lead to increased interest rates and reduced stock market performance. CBK maintaining low CBR rate will promote the performance of the stock market which will lead to stock market development and economic growth. Notably, stock market plays an important role in economic development and growth by creating liquidity and allocation of resources to deficit sectors of the economy.

Central banks should consider global economic conditions and trade dynamics when determining the appropriate interest rate policy to maintain stability and competitiveness. Policymakers should carefully assess the potential impacts and consider a holistic approach when implementing changes in interest rates. Additionally, monitoring and evaluating the effects of these policy decisions over time is crucial for making necessary adjustments to achieve desired economic outcomes.

The central bank should regulate the country's exchange rate because it has been discovered that the exchange rate has a detrimental impact on share prices. The exchange rate determines the flow of commodities, services, and capital in a country, as well as the balance of payments, inflation, and other macroeconomic variables that influence foreign direct investment inflows.

Nairobi Securities Exchange regulators should encourage market activities and policies which will improve the market's efficiency, so that the changes in CBR may have minimal or no effect on stock returns of listed companies within the market.

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