INFLATION RATES AND SECURITIES MARKET PERFORMANCE OF FIRMS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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ABSTRACT

Currently, securities have become the most important investment instruments in the financial markets that has attracted both local and foreign investors. However, the Nairobi Securities Exchange (NSE) has experienced fluctuation of securities prices because of demand and supply of shares change. These fluctuations could be attributed to the changes in inflation rates that have led to significant effect on securities returns as well as the Corona virus outbreak. Therefore, the research project aspired to ascertain the influence of inflation rates on the securities market returns among NSE listed firms. This study evaluated this effect using four theories including Efficient Market Hypothesis theory and Monetary Inflation theory. A descriptive research design was employed to explain how inflation rates affected securities market performance. Secondary data involving all of the 64 listed companies in NSE was used. The data that

were collected cover a period of ten years from 2012-2021 were based on monthly time series data obtained from the NSE, CBK and KNBS. The findings were analyzed by use of both descriptive and inferential analyses involving correlation and regression analyses. The findings depicted that inflation rate depicted an insignificant influence on securities market returns of NSE listed companies. The findings help in improvement of the existing theoretical and practical mastery of the effects of inflation rates on securities returns. The findings are also beneficial for future investments as this study served as foundation for gauging the prevailing economic conditions in Kenya that affect their investment choices.

Keywords: Inflation rates, economic condition, investment, Securities performance.

INTRODUCTION

Currently, the financial markets have greatly contributed in the financial performance of the global economy. In the recent years, the stock became one of the investment instruments that attracted many investors, both local and foreign, in the financial markets (Koumou, 2020). However, there are fluctuations of securities prices occasionally due to changes in market activities due to the strengths of the market shares' demand and supply.Basically, securities price increases in the market as the demand for a securities become higher hence providing more benefits to investors (Adeyanju, 2022). Conversely, the stockprice decreases as the demand for that stock becomes lower. Due to the increase in movement of the securities prices, investors are attracted by securities with higher prices which reflects better fundamental performance in specific sectors of the issuers concerned (Adeyanju, 2022).

According to Subing and Kusumah (2017), investment in shares results in liquidity benefits in addition to providing an opportunity of beating the market and earnhigher returns. Subsequently, many investors are attracted by the higher rate of return that is generated from an investment by the company (Subing & Kusumah, 2017). Themovements in securities prices are affected by both external and internal factors. Externalvariables including the fluctuating interest, inflation and foreign exchange rates are determining the transaction in the financial markets (Adeyanju, 2022). Hence, investors ought to evaluate factors that could have impacts on the stock price as this will have an ultimate effect on the yield that will be obtained from investment. Also, notably, securities market contributes greatly to improving growth and development of aneconomy by providing companies with facility for raising capital to facilitate expansion and growth (Koumou, 2020). This is enhanced via the sale of shares to the public or the provision of extra shares to shareholders through rights issue, hence, offering businesses with cheaper and competitive sources to raise additional capital (Koumou, 2020). Also, securities have promoted savings and investments for both individual and corporate investors by providing them with an avenue to diversify their portfolio (Subing & Kusumah, 2017). Therefore, these markets have fueled the level of economic growth by diversifying, encouraging and combining savings from various groupings and availing to firms to attain optimal usage. Furthermore, these securities are liquid in nature thus allowing investors to reap capital gains and exchange ownership of securities (Subing & Kusumah, 2017).

Securities performance has been considered the reflector of a country's financial and economic conditions. The securities are important for a country's economic growth in relation to governing, success and proper regulatory framework outlined by the policy- making bodies and politicians. According to Koumou (2020), the securities performance is based on the index which reflects on the investment returns earned over a particular period. The volatility in the securities suggests a level of price variation between prices of shares during a specific period of time (Habib & Islam, 2017). Therefore, a higher rate of volatility implies the spread of the value of security over a larger range of values depicting dramatic change over a short duration which can be in either direction. A lower volatility on the other hand implies that the value of a security does not depict a dramatic change, however, the change in values implies a stable rate throughout a specific time frame (Habib & Islam, 2017).

Mawardi (2018) suggests a wide range of factors that determines the level of the stock return volatility such as money supply, exchange rates, good prices, inflation, oil prices, interest rates, regional securities market indices, trade sector, real activity and political risks(Mawardi, 2018). However, not all of these factors are important in explaining the stock return volatility in emerging or developing markets. Nevertheless, elements such as foreignexchange rates, good prices, inflation rate, interest rates, money supply and political risks may be analyzed to determine the empirical association between these factors and stock returns volatility (Mawardi, 2018). Hence, further research is necessary and that was the objective of this study, to explain how securities prices are influenced specifically by external factors. Specifically, this study evaluated the aftermath of inflationrates on the securities market performances of firms listed in the NSE.

Inflation is the rise in products and services' cost throughout a country's economy (Ulla etal., 2017). CPI is the commonly reported measure of inflation and this reflects on fluctuation in the

normal cost of products and services being consumed (Ulla et al., 2017).Inflation can take two forms including demand pull and cost push inflation. According to Kwofie and Ansah (2018) demand pull inflation involves the general increase in the marketdemand due to rise in prices and partial increase in the output of a given economy. On theother hand, cost push inflation involves the increase in the levels or cost of production thusaffecting firms which in turn charge more prices to consumers (Kwofie & Ansah, 2018). Therefore, a higher inflation rate results in higher prices for consumers which trigger higher interest rates. This results in a negative effect on the real economic activity which in turn results in a positive correlation to market performance (Gu et al., 2021). As a result, according to a study by Gu et al. (2021), the anticipated price level results in a negative and significant influence on securities market index with short-term interest rates serving as a substitute to the International Fisher Effect. The effect of inflation rate on the securitiesmarket performances affects financial assets price which are used in determining the amount of total revenue of a company (Amata, 2017). Hence, this is directly proportional to the company's functionality. Prices of stocks and the eventual returns are adversely affected in a highly inflationary environment. For instance, increase in inflation rates.

Thus, this has an important role in hindering access to funds required to carry outinvestment objectives which results in a negative effect on prosperity and growth of the securities (Amata, 2017). According to Bui (2019), when the rate of inflation is increasing, it negatively affects capital market investors due to increasing costs and earnings for the company. Therefore, when the rise in production costs exceeds the rise in prices enjoyed by the company, then the level of firm's profitability declines. Consequently, for small companies, investors may be reluctant in investing their funds in the organizations thus leading to a decline in stock prices (Bui, 2019).

Empirically, studies on inflation rates and how they affect securities performance and other economic measures have been done. According to a study by Omodero and Mlanga (2019), inflation rate was discovered to have a positively affected securities market returns in Nigeria. The research was according to data collected annually from CBN Statistical Bulletin over 1981-2016 periods. The study employed ADF test and OLS regression model where market capitalization was used to measure securities market performance. According to this research project, an increment in rates of inflation causes an escalation of the securities price thus causing rise in the securities returns. Similarly, the findings by Kwofie and Ansah (2018) showed a positive impact of rates of inflation on securities market performance in Ghana and the ARDL cointegration technique and the error correction parametrization of the ARDL model was employed over a long period of time. This was based on monthly inflation details obtained from Bank of Ghana and every month's securities market returns in GSE all-share index collected between 2000 and 2013 January to December respectively. In addition, the research revealed other factors, for example economic activity level (GDP), money stock, interest rates and financial deregulation had significant influence on securities prices.

The findings of Kwofie and Ansah (2018) depicted similar results despite using different methodological approaches and different dependent variable. John (2019) investigated the effects of inflation rate on market capitalization using ADF test and OLS regression based on yearly time

collection of data. Moreover, Kwofie and Ansah (2018) investigated the effects of inflation rate on securities prices of GSE all-share index using ARDL model. These findings depict a methodological gap which was relevant to the current research. This current research filled this gap by using adescriptive time series correlation study based on monthly data of 2017 to 2021.

Moreover, according to Elmahgop & Sayed (2020), the rate of inflation and securities market performance on the Khartoum Stock Exchange in Sudan both in the short-term and long-term, depicted a negative but significant relationship. The research was based on datacollected every month for over the period between September 2003 and December 2019 where linear ARDL model was applied in examining the aftermath of inflation rate on securities market returns. the findings by Bui (2019) depicted a negatively but significant association between inflation rate and securities prices in Vietnam. Tarza Sokpo et al. (2017) found an insignificant inflation rate effects on securities market performancein Nigeria.

Therefore, as per the studies of Bui (2019), Chaves and Silva (2018), and Tarza Sokpo et al. (2017), there exist a contextual gap as these studies were conducted in different securities market with different prices in their respective countries. This was relevant to the current study which focused in filling this gap by investigating the aftermath of inflation, interest and exchange rates on securities market performance of firms listed in NSE in Kenya

There are 64 firms currently listed at NSE in Kenya and have been grouped into two namelythe major market and the alternate investment market (NSE, 2018). The 64 companies havebeen classified into ten sectors including, telecommunication and technology, energy and petroleum, agriculture, automobiles and accessories, construction and allied, manufacturing and allied, investment, banking, commercial and services, and insurance (NSE,2018). In addition, the NSE has offered the government a platform of increasing its funding for its projects through long-term borrowing which is facilitated by the issue of bonds. Hence, this allows for the trading and industrial improvement of a country. However, the NSE is still at the development stage when compared to other security markets in developed continents such as Europe, Australia, Asia and America.

Statement of the problem

A stronger international effort has been made to liberalize the financial markets, which hasresulted in a closer connection between securities returns and external factors (Kinyua, 2017). The securities market has an impact on economic growth by giving public corporations a policy to increase long-term capital and encourages investments by allowinginvestors to invest their extra money (Koumou, 2020). Investment is thus encouraged by the securities market since it offers extra cash for investment in financial instruments that suit their needs for liquidity and level of risk tolerance. The stocks market serves as a middleman for mobilizing and allocating savingsamong conflicting interests, which is crucial in increasing economic growth. Due to economic expansion, fast development requires extra money to be fulfilled (Amata, 2017).Because share values fluctuate and are impacted by a variety of factors, equity investmentreturns are also subject to fluctuation. Amata (2017) pointed out variables that are either unique to the company or internal, such as the dividend policy, book value, and for each share, or external aspects, such as GDP, interest rate, governmental rules, foreign exchangerate and inflation rate.

The economic aspect of the country is impacted by interest rate changes since they have animpact on corporate expenses (Assefa et al., 2017). The securities prices display the broadsectoral and economic effects brought on by fluctuation in interest rates. On the other hand, the success of firms and businesses has an impact on Kenya's economic growth. The levels of interest rates have been significantly impacted by these shifts in economic growth. As a result, it is difficult for Kenyan policy makers, company owners, and the general public to understand how the values of securities connect to interest rates. The key external variablestrategy that has attracted stakeholders' attention to the economy, however, is the changes ninterest rates, which significantly impacts the decisions taken by economic agents. Nonetheless, a number of factors determine how interest rates change. The primarymacroeconomic factor that influences interest rates is specifically inflation. The consequences of theoretical and empirical studies have shown that interest rates and inflation rates are causally related in two ways (Eldomiaty et al., 2019). According to economic theory, increased interest rates are a result of rising inflation rates.

Assefa et al. (2017) claim that a drop in interest rates results in a rise in the amount of cashinstilled into the economy, which may then be directed into the securities market to assist boost securities prices and demand. However, some empirical research contend that the association between the inflation rate and the price of securities is inverse (Elmahgop & Sayed, 2020). Fisher's earlier predictions, which suggested a growing correlation betweensecurity returns and inflation rates, were in conflict with the findings of Elmahgop and Sayed (2020). Several empirical studies conducted in Kenya have produced results that aresimilar, that is, negative correlation between inflation rate and securities returns (Amata, 2017; Macharia, 2017).

Further, Kenya's economy was greatly affected by the Corona virus 2019 pandemicwhich caused a decline in GDP from 1.4% in 2020 to 5.4% in 2019 (Madai, 2021). The government introduced expansionary fiscal, monetary, and financial policy regulations to help in mitigating the effect of the pandemic on businesses and households. Inflation declines to 5.1% as the aggregate demand decreased. Also, foreign exchange reserves reduced from \$8.96 billion in 2019 to \$7.8 billion in 2020. Moreover, pandemic led to weakening of the local currency by 8.9% as compared to the US dollar. In addition, the NSE share index fell to 20% between 2019 and 2020 (Madai, 2021). Therefore, it is clear that the securities return as well as external factors were adversely affected by the global pandemic. In addition, the empirical literature has depicted varying conclusions based on the country of study, selected variables and the study period. Accordingly, taking a broad view of the findings is difficult as each study is unique. As a result, this study closed this gap by examining inflation rates and securities market performance of firms listed at the Nairobi securities exchange.

Research Hypotheses

H₁: There is significant effect of inflation rates and securities market performance of firms listed at NSE.

Theoretical Review

Efficient Market Hypothesis Theory

Fama came up with this theory in 1970 where they posited that the existing securities prices are completely reflected on the information regarding firm' value. Basing on the EMH theory, the trading value for securities are given at their fair values, hence, in saleagreements, investors cannot purchase undervalued securities or inflates their prices(Fama, 1970). As a result, stock selection or expert market timing cannot result into the overall market outperformance. Therefore, investors can obtain higher returns only by chance or by buying investments which are riskier. EMH theory states that there exist three forms of efficiency namely; weak, semi-strong and strong form efficiencies (Fama, 1970). Weak form of efficiency explains that all historical public information is reflected on the prices of securities such as securities, bonds or property (Fama, 1970). On the other hand, semi-strong efficiencies suggest that all historically available information is reflected on the securities prices such that these prices are adjusted to demonstrate the release of emerging information.

Comparatively, the strong form of efficiency explains that the historical, public and private information are reflected on the prices of securities (Fama, 1970). EMH theory assumes that investors are rational in their dealings, they have homogenous market expectations andthat they can access the available information. According to Singh et al. (2021), the EMHtheory in relation to efficient market constitutes the trading of the shares and securities which are fully reflected in all the available information at a particular point. As a result, the information flow of external factors will have an effect on the execution of trade which is depicted in the securities market index (Singh et al., 2021).

Therefore, EMH theory is suitable to the current study where the available information onshares and securities may be altered by changes in inflation rates. Specifically, the free access to all the available information in relation to thetrading of shares and securities are reflected on securities market index which is the main factor being examined in this study as a proxy of securities market performance. As a result, it was important to examine how the freely available information flow and inflation rates affects the securitiesmarket performance in order to obtain relevant information on changes in securities market index.

Monetary Theory of Inflation

In line with financial specialists, the greatest and impressive components affecting expansion is the fact that cash supply can improve or reduce faster within the country's economy. Additionally, the financial analysts suggest that government expenditure, fiscal policy and taxation are incompetent in managing economical inflation of a country. According to this theory, the objective thinking about the nature of financial records suggests that expansion was constantly a financial motive.

However, any alteration within the total cash in an economy would modify the cost level as it

stated clearly in the concept of amount of cash. Hence, the entire fee level relates with the degree of actual interest, cash speed and cash. This theory suggests that the rate of money increases with the increasing nominal expenditure ratio to that of money supply. Cash speed as suggested by financial analysts cannot be affected by monetary policy, for instance, for long term period, the actual turnover is at last resolved through association of money and productivity ability of the system.

Adjustments of the cash amount in the economy are the main force steering the trade in theextensive rate phase based on the assumptions. With exogenic speed, financial supply discharges the yield of ostensible production compared to final yield, within the short run. In the edge, speed is not exogenic in the short-run and components cannot constantly cruelwhich can be a steady short-run cash and final turnover relationship. Even though, in the long-run, adjustments in speed can be acknowledged and considered as a way of improving the bill's component companies. The theory concluded by suggesting that eventually the resounding rate in cash can strike the fees, however, without affecting growth. Inflation would arise when the money provided exceeds monetary value increment.

RESEARCH METHODOLOGY

Research Design

This research project employed the use of descriptive research design since its aim was to explain the effect of inflation rates on securities market returns over thepast ten years. This design was appropriate as it shows the complexion and fundamental aspects of the variables applied in the research. Specifically, a descriptive time series correlation study was used where monthly market returns represented the dependent variables and the independent variables involved monthly inflation rates, interest and spot exchange rates.

Target population and Sampling Design

All 64 listed firms at the NSE under NASI were the target population for this researchproject over the period from 2012 to 2021. The study employed the use of census as a sampling technique in choosing suitable sample from the target population of NASI companies. Specifically, a sampling frame of 64 listed firms representing all firms listed in the NSE was incorporated in the sample.

Data analysis and Presentation

The Statistical Software, Stata was employed in data analysis and inferential statistical analyses were performed. Inferential analysis was performed basing on correlation and regression analysis. Correlation analysis was conducted to examine the scope at which variables are related and regression analysis was performed to ascertain the cause and impact between the dependent and independent variables.

Empirical model

The following econometric model was employed to establish the consequences of inflation rates on securities market returns based on the collected data:

Model 1: Effect of inflation rates on securities market performance:

 $Y_t = \beta_0 + \beta_1 x_1 + \varepsilon$

Later, for deeper analysis, the study also regressed other variables like exchange rate, interest rates and leverage and firm size. The regression model for all these took the form:

$$Y_{t} = \beta_{0} + \beta_{1}X_{1} + \beta_{2}X_{2} + \beta_{3}X_{3} + \beta_{4}X_{4} + \beta_{5}X_{5} + \varepsilon_{t}$$

Where:

S = Securities market Performance measured by NASI on average annual basis

 X_1 = Inflation rate measured by average annual CPI.

 X_2 = Exchange rate measured by the rate between KSH and USD on averageannual basis.

X3= Represents the interest rates and is measured using the average of the lendingrates of banks on annual basis.

t is index for time, respectively. E represents the error term.

 $\beta 0$ represents the slope of the regression equation

 β 1, β 2, β 3, β 4 and β 5 are the slope coefficients

X4 = Firm size determined by computing natural logarithm of total assets

X5 = Leverage ratio measured by total liabilities divide by total equity.

RESEARCH FINDINGS

Pearson's Correlation Analysis

Pearson's correlation analysis was conducted to evaluate the relationship and strength between inflation rates and security market returns. However other variables were added for deeper analysis and they included interest rate, foreign exchange rate, Firm size and Debt-to-equity *Table 1: Correlation Analysis*

	NSE Share xROA	ALL	Inflation rate	Interest rate	Foreign Exchange	Firm size	Debt ~to~
		Inde			Rate		Equity
NASI	1						
Inflation rate	~.4444**		1				
Interest rate	~.7055**		.6100**	1			
Foreign Exchange rate	.5917**		~.2807**	~.4851**	1		
Firm size	.7999**		~.2720**	~.5046**	.6448**	1	
Debt-to-Equity	~.6538**		.0798	.2794**	~.3965**	~.8863**	1

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

In regard to this study, a Pearson correlation analysis with a 5% threshold level of significance was used to evaluate the findings. The outcome as illustrated in Table 1 suggests that all the variables depicted a statistically significant association with NASI when evaluated at 0.05 significant level. Specifically, the findings suggest that inflation rate depicted a moderate and statistically significant negative association with NASI (r=-0.4444, p<0.05). This suggests that inflation rate has a significant impact on security market returns among the listed firms in NSE.

Moreover, the outcomes reveal that interest rate depicted a strong, statistically significant, and

negative correlation with NASI (rho=-.7055, p<0.05). This indicates that interest ratedepicted a negative association with security market performance among the listed companies in NSE. Furthermore, the findings show that foreign exchange rateshowed an average and statistically significant positive relationship with NASI (rho=.5917, p<0.05). This suggests that foreign exchange rate depicts a positive influence on security market returns among the listed companies in NSE. Additionally, the findings demonstrate a well-founded, significant positive relationsbetween firm size and NASI (rho=.7999, p<0.05). These findings imply that firm sizepositively influences stock market performance among the listed companies in NSE.Furthermore, the findings show that leverage ratio depicted a strong, significant negative impact on NASI (rho=-.6538, p<0.05). These suggest that leverage ratio have a significant negative influence on security market returns among the listed firms in NSE.

Regression Analysis

Table 2 summarizes the regression analysis. This regression analysis examines inflation, interest and exchange rate.

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1233.325	Constant	~656.9128	290.9714	~2.26	0.026	~	~80.50063				
						1233.325					

Regression was done to examine if there exist a significant association between each item of that factors alongside inflation rates and security market performance, a panel linear regression model was specially employed in this research. As a result, the NASI served as thedependent variable and external factors as the independent variables. Therefore, a panel linearregression test was deemed to be suitable model to employ given that the study comprised of longitudinal data from a cross-section study conducted over a 10-yearperiod. Based on this research, the returns of the security market as calculated from the NASI was regressed against independent variables, which included the inflation rates, interest rates, and foreign exchange rate. Table 2 summarizes the outcome. The outcome of the pooled regression clearly demonstrate that the regression model is acceptable for this data set and that the results may be trusted because the Fstatistical probability is less than 5% (F(5, 114)=75.01, p-value=0.000<.05). According to the results, 75.67% of the predictor variables accounted for the variation in security market performance in the model (Adjusted R-squared=0.7567). This onlycovers one factor represented by the interest rate, and one control variable represented by firm size, which were established to be having a significant impact on security market performance.

The outcomes explain how the returns of the security market is significantly influenced by interest rates at high percentages. Specifically, the NSE All Share indexappears to be negatively impacted by interest rates, as shown by the results of OL analysis in Table 4.6 Similarly, inflation rate was found to decrease security market performance, however, this was statistically insignificant. This would suggest that the security market performance of the NSE listed companies is negatively and negligibly impacted by the inflation rate. This adverse effect can imply that the risingrate of inflation sends a bad signal to investors in the financial markets by increasingthe firm's expenses and revenue. As a result, investors might be reluctant to invest instart-ups, which could cause stock prices to decrease.

Conversely, as shown by the OLS outcomes, foreign exchange rate improves security market performance but not significantly. This may suggest that the foreign exchangerate has an insignificant but positive influence on the returns of the security market. Therefore, the results indicate that foreign currency rates boost security market performance among NSE listed companies. The outcome also imply that the model depicted a statistically significant interceptionand was found to negatively influence security market performance. Nevertheless, the outcomes imply that the control variable represented by firm size boosts securitymarket performance. This suggests that firm size and security market performance have a significant positive relationship. On the other hand, as shown by the OLS results, the leverage ratio lowers security market performance but insignificantly. This would suggest that the leverage ratio has a negative and negligible impact on the returns of the security market.

The regression model for this study was as follows:

 $Y_t = -0.752X_1 - 3.984X_2 + 0.168X_3 + 391.964X_4 - 5.343X_5 - 656.91$

According to these findings, the NASI declines by 0.752 for every unit increase in inflation rate. As the inflation rate's p-value is higher than .05, it is technically not statistically distinct from 0. The results also demonstrate that the anticipated NASI declines by 3.984 for every unit increase in

interest rate. This significantly differs from 0 (p-value<0.05). In addition, the NSE All Share index rises by 0.168 for everyunit increase in the foreign exchange rate. This, however, did not differ significantlyfrom 0 (p-value>0.05). Moreover, the NSE All Share Index increased by 391.964 points as a result of a unit increase in firm size. In addition, the NASI fell by 5.345 points as a result of a unit rise in the leverage ratio. This variable does not significantly differ from 0 (p-value>0.05).

Therefore, the below study hypotheses were evaluated to address the defined researchobjectives basing on the findings discussed above. The hypotheses are tested at a 5% significant level and the conclusions are as follows.

H1: There is a significant positive relationship between inflation rates and securities market performance of firms listed at NSE.

Conclusion

The analysis of the research concluded that the chosen external factor, inflation rate, was responsible for 75.2% of the variability in security market results. The study came to the additional conclusion that other variables not studied in this research also played a role in the difference in security market results. The investigation also foundthat inflation rates had a negative impact on securities market returns. This suggests a negative association between the inflation rates and the securities market returns of NSE listed firms. Further, the research has demonstrated an insignificant positive association betweeninflation rates and securities market performance of firms (β =-.7516, p=0.244).

Recommendations

Therefore, the findings suggest that more stock market activity leads to improved performance in areas with a stable external environment. As a result, it is advised that, in order to maintain stability, the external environment be given significant weight and close observation. Moreover, it is advised that appropriate measures, such as policies that are favorable to investors, be set up to support security market activities that boost stock market performance because security market performance is a sign of steady security market for international investors. Additionally, in order to prevent the economy from being suppressed by higher costs of doing business thatreduce earnings and would have been invested in the security market, CBK should develop fiscal and monetary policies to help maintain a steady inflation rates. Therefore, in order to ensure that the Kenyan shilling appreciates in value relative to the major monetary standards, CBK should defined strategies aimed at strengthening the economy and improving security market performance.

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