

THE INFLUENCE OF CAPITAL ADEQUACY RATIO ON THE FINANCIAL PERFORMANCE OF SECOND-TIER COMMERCIAL BANKS IN KENYA

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ABSTRACT: *Performance of most mid-tier commercial banks in Kenya has been fluctuating over the past few years. Meanwhile, some of them continue to post impressive results as majority report losses and others merge in order to remain sustainable. This situation points to financial performance affecting the mid-tier commercial banks in Kenya. The government, through the Central Bank of Kenya, introduced prudential regulations aimed at bringing sanity in the banking industry. This move led to closure of Dubai Bank and Imperial Bank while Chase Bank went under statutory management awaiting new investors. From this, an investigation was done on how Central Bank regulations influenced financial performance of second-tier commercial banks in Kenya. Based on the study, this paper explores how capital adequacy ratio influences financial performance of commercial banks in Kenya. The study was purely quantitative research and, therefore, correlation research design and descriptive research designs were used. The study was conducted in 14 second tier commercial banks in Kenya. It collected financial data from 2013 to 2016, considering that the regulations came into effect in 2013 from CBK and commercial banks websites. The data was sourced from Central Bank of Kenya after getting permission and approval from National Commission for Science, Technology and Innovation (NACOSTI). Data collected was analysed using descriptive and inferential statistics. Multiple Regression Analysis was used to test the study research hypothesis. Findings were presented through tabulations and graphical illustrations. Computed correlation showed that capital adequacy ratio had significant strong positive relationship ($p < 0.05$) with financial performance of mid-tier commercial banks. In conclusion, it was found that capital adequacy ratio is among the main predictors of mid-tier commercial banks' financial performance. It was therefore recommended that CBK needs to regularly monitor commercial banks by ensuring that they publish their quarterly results to the public. The investment regulators in the country such as the Capital Markets Authority (CMA), Kenya Banker Association (KBA) and Central bank of Kenya can use these study findings to understand the bottom line impact of bank regulatory requirements and in understanding banks decision on to its customers.*

Keywords: Influence, Capital Adequacy Ratio, Financial Performance, Commercial Banks, Kenya

INTRODUCTION

Capital adequacy ratio refers to the minimum capital that a commercial bank must have in order to comply with Central Bank of Kenya regulations. It consists of equity capital and declared reserves (Cornett, 2004). The minimum requirement was put in place to ensure that customers are protected when creating financial accounts. The main objective of commercial banks is to maintain higher profitability by maintaining circular and efficient flow of amount of money deposited by the customers and lenders (Ogboi & Unuafé, 2013; Gathigia, 2016). Commercial banks contribute to the economic cycle by keeping the money circulation among households, government and corporate businesses (Mohd & Hanafi, 2008). They lend money to the economic agents through their various products and services by earning interest income on the borrowed money (Maigua & Mouni, 2016). They also design short-term and long-term loans and other products to cater to the need of customers while enhancing returns. Their objective is to attract more customers and build profitable relationships with the new and existing customers (Kikoko, 2011).

Bank regulations are a form of government regulation that subjected the banks to certain requirements, restrictions and guidelines (Naceur & Omran, 2011; Ogboi & Unuafé, 2013). This regulatory structure creates transparency between banking institutions and the corporation with whom they conduct business, among other factors (Thumbi, 2014). Regulations are aimed at ensuring the safe operation of financial institutions set by both state and federal authorities (Tadesse, 2014). Given the inter-connectedness of the banking industry and its reliance on national and global economy, it is important for regulatory agencies to maintain control over standardized practice of these financial institutions (Munene, 2015). These regulations range from credit risk ratio, interest rate, capital adequacy ratio to liquidity ratio.

Adequate capital is required for commercial banks to operate efficiently because it provides protection against failure (Gudmundsson, Ngoka-Kisinguh & Odongo, 2013). The critical question is on how much and what type of capital a bank needs to hold so that it has adequate protection (Kou, 2008). Capital represents the portion of the bank's liabilities which does not have to be repaid and therefore is available as a buffer in case the value of the bank's assets decline (Thumbi, 2014). Banks do not always make profit, so capital is necessary to act as a cushion when banks are impacted by large losses. In the event that a bank's asset value is lower than its total liabilities, the bank becomes insolvent and equity holders are likely to choose to default on the bank's obligations (McAleer, 2009).

Influence of Capital Adequacy Ratio on Financial Performance of Commercial Bank

In a research conducted among international banks, Berger and Bouwman (2013) found a direct association and considerable impact of capital adequacy on international bank profitability. Berger and Bouwman note that while operating at international level, banking regulators demand high level of capital to make sure that the banks are more capable to take extra risks associated with global trading. Similarly, Ogboi and Unuafé (2013), in a study, examined the impact of capital adequacy on banks' financial performance in Nigeria using a time series and cross-sectional data from 2004-2009 obtained from selected banks annual reports and accounts in Nigeria. Data for the study were obtained from the published financial statement of six out of twenty-one banks operating in Nigeria as at December 2009. Panel data model was used to estimate the relationship

that exists among loan loss provisions (LLP), loans and advances (LA), non-performing loans (NPL), capital adequacy (CA) and return on asset (ROA). Results showed that capital adequacy influenced positively on bank's financial performance with the exception of loans and advances that was found to have a negative impact on banks' profitability in the period under study.

Thumbi (2013) has sought to provide a better understanding on factors affecting capital adequacy in the commercial banks in Kenya. A descriptive research design was employed. The target population of interest was all the 43 commercial banks in Kenya. The data was collected from the secondary sources. Data collected was analysed using descriptive statistics, correlations, and linear regression analysis. In addition to the comparative analysis of the capital adequacy, the study presented an analysis of the overall capital adequacy with respect to identified variables. The study established that there was direct relationship between capital adequacy, credit risk, working capital ratios and size of the bank. The study findings indicated that, the capital adequacy of the commercial banks and working capital has positive and strong correlation.

Gudmundsson, Ngoka-Kisinguh and Odongo (2013) have sought to determine the role of capital requirements on bank competition and stability in Kenya for 36 commercial banks in the period 2000-2011. The study employed the Lerner index and the Panzar and Rosse H-statistic to measure competition in Kenya's banking industry. The study approximated the fixed effects of capital requirements on bank competition and stability by using a panel regression model. The log of core capital was positive and significant while squared log of core capital was negative and significant which is an implication that an increase in core capital reduces competition up to a point and then increases competition. Return on equity showed a positive relationship in support of the evidence that capital regulation improves the performance of banks and financial stability.

Ochieng (2014) has evaluated the effect of CBK prudential guidelines and regulations on the financial performance of commercial banks in Kenya. Secondary data was gathered from Bank supervision reports of CBK and published financial statements of commercial banks. Descriptive statistics such as mean and standard deviation were used to analyse the data. A multiple linear regression model and t-statistic was used to determine the relative importance (sensitivity) of each explanatory variable in affecting the performance of banks. The study found out that there is a strong and positive relationship ($r=0.628$) between financial performance of banks and the CBK prudential guidelines and regulations. CBK prudential guidelines accounted for 29.9% of the financial performance of commercial banks in Kenya. The study also concluded that high levels of capital adequacy and high liquidity levels of the bank as well as low inflation rates found have a positive effect on the banks financial performance. The study determined whether the strength of relationship had increased from 2013 to 2016, 4 years after the regulations came into operations.

Reru and Bichanga (2015) have examined effects of capital adequacy regulation on the financial performance. A descriptive survey was adopted and 38 respondents participated in the study. Quantitative data was analysed using descriptive (means and standard deviations) and inferential statistics (regression). Findings showed a strong and positive correlation between capital adequacy and financial performance. This confirmed that these parts of central bank prudential regulations are important. It was clear from the study that prudential regulations set by central bank had

positive contribution to financial performance of commercial banks in Kenya. The study utilised primary data while this research used secondary data from second tier commercial banks in Kenya.

Mwongeli (2016) sought to determine if there was a relationship between regulations and financial performance. Capital adequacy was one of the independent variables while financial performance is the dependent variable. This study was a descriptive design. The population of study was the 43 commercial banks in Kenya and the period of study was between 2010 and 2015. Chi square test of independence was used to analyse the relationship between the two variables. The study found out that most of the banks had complied with the minimum capital requirement and the government must continue to ensure that there is compliance of the stipulated guidelines in order to ensure the stability of the banking sector in Kenya. This will enable Kenya as an economy avoid financial crisis. This research determined whether the period from 2014-2016, regulations have affected financial performance of second tier commercial banks.

Karanja and Nasieku (2016) sought to examine the effect of capital on the financial performance of commercial banks in Kenya. The study adopted a descriptive research design. The target population was the listed commercial banks in Kenya as licensed by the Central Bank of Kenya as of 2014. The study was based on secondary data retrieved from the banks' annual audited financial reports spanning 5 years between 2010 and 2014. The study was based on quantitative data. Pearson's Correlation Coefficient analysis was used to test the strength of the relationship between the dependent and independent variables. Multiple regression analysis was used to test the effect of the capital variables on the financial performance of the commercial banks in Kenya. Study findings showed that the core capital to total risk weighted assets for the Tier I banks decreased from 2010 to 2014 while that of the Tier II banks decreased from 2010 to 2014. Findings also showed that the total capital to total risk weighted assets for the Tier I banks decreased from year 2010 to year 2014 while that of the Tier II banks decreased from year 2010 to year 2014. Findings further showed that Tier I and Tier II banks maintained their core capital to total risk weighted assets ratios and their total capital to total risk weighted assets ratios at a significantly higher level than the set minimum requirement of 8% and 12%, respectively.

Ronoh and Ntoiti (2015) examined the effects of capital structure on financial performance of listed commercial Banks in Kenya, a case study of Kenya Commercial Bank Limited. The study adopted descriptive research design. Overall annual financial reports of 230 branches of Kenya Commercial Bank limited formed the target population. The main source of data for the study was Secondary data. The multiple regression models used considered performance as the dependent variable and was measured in terms of ROA and ROE. Results indicated that deposits, debt and equity was negative and significantly related to financial performance of listed commercial banks in Kenya as measured by return on assets. The regression analysis results indicated that the relationship between Retained Earnings ratio was positive although insignificantly related to financial performance as measured by return on assets. It was therefore concluded that capital structure of listed commercial banks in Kenya is significant and affects financial performance of commercial banks negatively. The above studies confirm that researchers are yet to agree on the degree to which capital adequacy ratio influence financial performance of second tier commercial banks.

Statement of the Problem

The economy of nations is dependent on having an effective and efficient banking system (Yona & Inanga, 2014). Among many sectors in the country, the banking industry is one of the most regulated one (Sentero, 2013). The 1988 Basel Accord, on Bank Capital Standards, was a major milestone in the history of banking regulation, setting capital standards for most significant banks worldwide and has now been adopted by more than 120 countries across the world (Karanja & Nasieku, 2016). The regulations developed through CBK Act and other policies are aimed at ensuring that the banking industry is growing and operating within set limits. The effective prudential regulation and supervision of commercial banks is fundamental to the financial market stability and to an efficient functioning of any economy. The banking sector plays the central role in the payments system and in the mobilization and allocation of saving and this improves the economic situation of majority of population in a country.

However, two commercial banks that had been classified under two tiers (Chase Bank & Imperial Bank) have gone under receivership due to fraudulent activities of substantial magnitude in the year 2015 and 2016, respectively. Moreover, the tight regulations by the Central Bank changes in the operating environment (market) has seen some other second tier banks merging together like Habib, Oriental, UBA Kenya, Victoria and Stanbic Bank. Other commercial banks have reported losses over the past five years. This situation of commercial banks in Kenya suggests that issues relating to financial performance cripple the Kenyan banking industry (Reru & Bichanga, 2015; Onje & Oloko, 2016).

Studies have been conducted to determine the relationship between prudential regulations and financial performance of commercial banks not only in Kenya but other countries as well (Karemera, 2013; Mwongeli, 2016; Karanja & Nasieku, 2016). Notably, most of these studies utilized secondary data (annual bank financial reports for between 1-5 years' period). However, despite relying on secondary data, the performance of commercial banks varies from region to region due to the operating environment and other macro and micro economic factors. With this in mind, there are inadequate researches on extent to which central bank regulations influences financial performance of second tier commercial banks in Kenya. This is because some have found weak or negative relationship (Ochieng, 2014; Odunga *et al.*, 2013) between regulations and financial performance of commercial banks. It was against this backdrop that the study investigated influence of CBK regulations on financial performance of second tier commercial banks in Kenya.

Research Gaps

The literature review has shown that the measurement of bank performance particularly commercial banks is well researched and has received increased attention over the past years not only in Kenya but also all over the world. Despite research studies being conducted, there existed contextual, conceptual, and methodological gaps that have been observed from some studies. Ogboi and Unuafe (2013) study was done using data collected more than 10 years ago (2004-2009) therefore making it impracticable to apply the research findings on the current situation in the banking industry. Moreover, Ogboi and Unuafe (2013) research was conducted in Nigeria thereby limiting the applicability of the research in the Kenyan situation.

Thumbi (2013) looked at factors affecting capital adequacy of commercial banks in Kenya but failed to focus on how the issue of capital adequacy affected the financial performance of second tier commercial banks in Kenya. In addition, a methodological gap was seen from the research where Thumbi used descriptive research design to analyse secondary data that in some cases seems impracticable. Gudmundsson *et al.* (2013) have also looked at the role of capital requirements on commercial banks competition and stability thereby failing to show how the independent predictors influenced financial performance of 36 commercial banks in Kenya.

Ochieng (2014) conducted a research on how prudential guidelines influenced financial performance of commercial banks; the weakness in the study is that the author was not specific on which kind of commercial banks. In addition, Ochieng used CBK supervision reports while this research collected annual audited financial reports that have been submitted by second tier commercial banks to CBK. However, little has been done on the influence of regulations on performance of second commercial banks in Kenya recently thereby necessitating this research.

MATERIALS AND METHODS

The study employed a correlational and descriptive research designs. Correlation research design permitted the researcher to analyse inter-relationship among a large number of variables in a single study and also allowed the researcher to analyse how several variables either in isolation or in combination might affect a particular phenomenon being studied. It aimed at investigating a question without attempting to quantifiably measure variables and looked at potential relationships between variables. Correlation research design was thus employed to study the influence of central bank regulations and financial performance of second tier commercial banks in Kenya. There were 42 commercial banks in Kenya at the time of the study. However, the accessible population for the study comprised 14 second-tier commercial banks. Therefore, census technique was used to select all the 14 listed second-tier commercial banks in Kenya. This in turn increased the precision of any estimation methods be used.

The study utilized secondary data to provide answers to the research questions and test hypothesis. Secondary data was obtained from secondary sources (CBK and tier two commercial bank websites) to maximize on accuracy. Financial statements and reports of commercial banks which were audited were used to ensure that information was accurate as possible. Data collected was in areas of; credit risk ratio, capital adequacy ratio, interest rate and liquidity ratio that were modelled as independent variables while financial performance was modelled as the dependent variable. The collected data was input into Ms Excel data collection instrument. The data was organized and financial ratios computed using Ms Excel program in order to obtain the study variables. The data collected was then analysed using descriptive statistics, namely means and standard deviation, and inferential statistics, namely correlations, as well as multiple regression analysis. Statistical Package for Social Scientists (SPSS) version 21 software package was used to aid in the analyses of the data.

RESULTS

Descriptive Analysis

For this paper, the independent variable for the study values was the capital adequacy ratio from 14 second tier commercial banks annual financial reports. The summary of it is given in Table 1 below.

Table 1: Descriptive Statistics

	N	Min	Max	Mean	Std. D
	Statistic	Statistic	Statistic	Statistic	Statistic
Capital adequacy ratio	14	11.50	38.50	20.4643	7.7092
Valid N	14				

Descriptive statistics on capital adequacy ratio showed that for the four years, the minimum statutory percentage of 10.0% had been attained by all commercial banks as they exceeded capital conservation buffer of 2.5% to have minimum statutory capital adequacy ratio of 12.5%. The maximum attained capital adequacy ratio stood at 40.98% with for the four-year period with an average of 20.5% ratio for the period. This trend is illustrated in Figure 1 below.

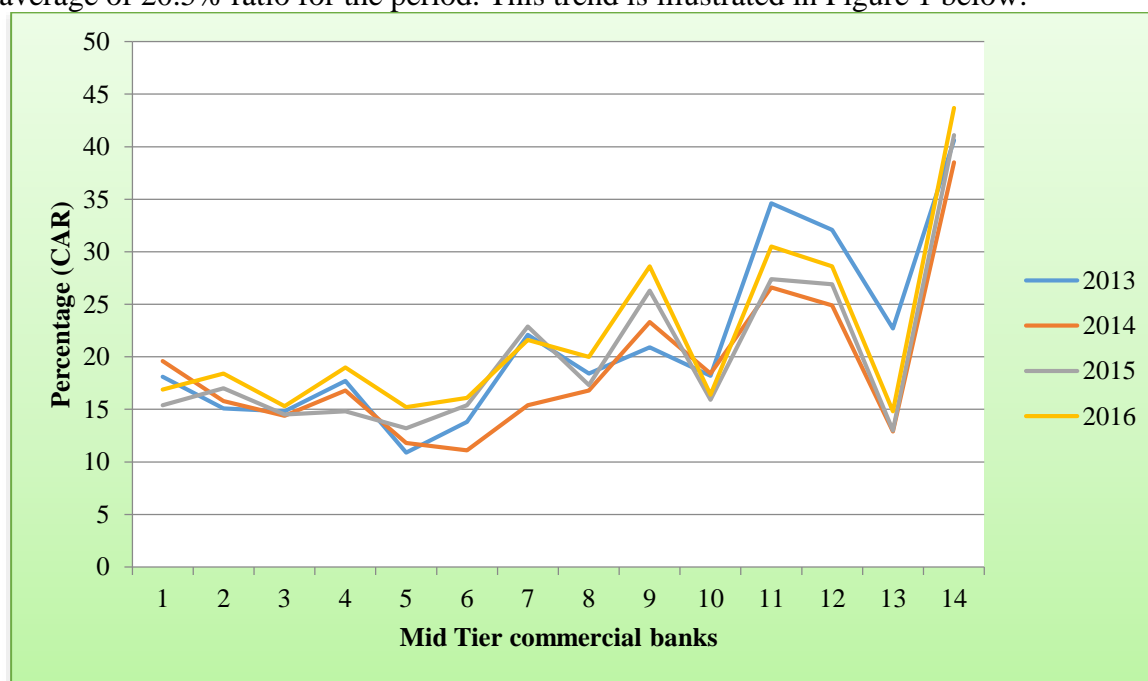


Figure 1: Capital Adequacy Ratio Trend from 2013-2016

Figure 1 shows that capital adequacy ratio was higher in 2013 but has significantly declining from the year 2014 to 2016. This could help explain the turbulence performance of commercial banks leading to mergers (Fina Bank and GTB) and failures (Dubai Bank, Imperial Bank). This is further supported by the standard deviation values of 7.709 in Table 1 above. Moreover, the skewness (0.597) and kurtosis value (1.15) suggests that the values of capital adequacy ratio do not follow a

normal distribution data. Implying that a few of the tier 2 commercial banks are more capitalized than the rest.

Correlation between capital adequacy ratio and Performance of Tier 2 Commercial Banks

Correlations indicate the relationship between the variables but they do not imply causation. A correlation of -1 represents a perfect negative correlation in which variables move in exactly the opposite direction. Consequently, variables move in the same direction when a correlation of 1 is found. CBK regulations had an effect on the dimension of capital adequacy ratio, among other dimensions. The correlation analysis between the dimension of capital adequacy ratio and return on equity was as shown in Table 2 below.

Table 2: Correlation between Capital Adequacy Ratio and Performance

		Capital adequacy ratio
Capital adequacy ratio	Pearson Correlation	1
	Sig. (2-tailed)	
	N	14
ROE	Pearson Correlation	.560*
	Sig. (2-tailed)	.037
	N	14
ROA	Pearson Correlation	.629*
	Sig. (2-tailed)	.016
	N	14

The correlation values are strong ($r=0.560$ for ROE and $r=0.629$ for ROA) for capital adequacy ratio of mid-tier commercial banks. This implies that 2nd tier commercial banks need maintain consistent increase in capital adequacy ratio levels to improve on their financial performance. Furthermore, the research findings showed that there existed a significant and positive relationship ($p<0.01$ and $p<0.05$) between capital adequacy ratio and financial performance of commercial banks based on return on equity and return on assets in Kenya. This also showed that CBK supervision of commercial banks had resulted in increased capital which leads to increase in profitability.

Hypothesis Testing

The study hypothesized that there is a relationship between capital adequacy ratio and financial performance of commercial banks in Kenya. As presented in Table 2, it was established that capital adequacy ratio had a significant relationship ($\beta=0.667$ and $p=0.005$ for ROE, $\beta=0.139$ for ROA and $p=0.001$) with the performance of mid-tier commercial banks at 95% confidence level with ROE and ROA respectively. Based on this finding, the hypothesis for the study was accepted leading to conclusion that there is significant positive relationship between capital adequacy ratio and financial performance of mid-tier commercial banks in Kenya.

DISCUSSION

The research results showed that majority of mid-tier commercial banks had attained the minimum 10% required of capital adequacy as it averaged at 20.46% for the four-year period by ranging

from 11.8%-38.5% percent. There also existed difference between various commercial banks capital adequacy ratios, as more than 8 of them were operating below 20.0% which is higher than the 10.0% and additional 2.5% which acts as a buffer as per IFS (International Financial Standards) regulations. Correlation results computed showed that capital adequacy ratio had significant strong positive relationship with both return on equity ($r=0.560$ and $p=0.037$) and return on assets ($r=0.629$ and $p=0.016$). This relationship was above 0.5 and was considered strong.

Furthermore, the regression beta coefficients were significant ($p<0.05$), leading to acceptance of the hypothesis of the study and subsequent conclusion that there existed a significant and positive relationship between capital adequacy ratio and financial performance of mid-tier commercial banks in Kenya. This implied that these banks had improved on their capital adequacy ratio although it is not yet perfect but improvements can be seen. The findings coincided with those of Berger and Bouwman (2013) who found a direct association and considerable influence of capital adequacy ratio on bank profitability. They further found out that while operating at international level, banking regulators demand high level of capital to make sure that the banks are more capable to take extra risks associated with global trading. This observation shows that CBK continuous regulation of 2nd tier commercial banks to increase their capital adequacy ratio raises commercial banks return on equity and assets.

Implications to Research, Policy and Practice

The research results have both theoretical, practical and policy value. The study benefits various stakeholders such as academicians, regulators, Government of Kenya and commercial banks. The choice of the banking industry was because it has been earmarked as a key pillar to the achievement of Kenya Vision 2030 and makes a significant contribution to the gross domestic product (GDP). At first, it is expected that the study will be of significance to commercial banks management to identify areas to which they have to emphasise in order to ensure they follow CBK prudential regulations for improving their financial performance. The results also may help management of different banks in formulating and designing effective policies that are user friendly for improving their financial performance. The investment regulators in the country such as the Capital Markets Authority (CMA), Kenya Banker Association (KBA) and Central bank of Kenya can use these study findings to understand the bottom line impact of bank regulatory requirements and in understanding banks decision on to its customers.

The research would benefit both current and potential investors in the industry, to make informed investment decisions. It is also expected that the findings of the study will offer basis for other researchers in the area of prudential regulations and financial performance of commercial banks in Kenya and other countries as well. The researchers, students and academicians may use this study as a basis for discussions on implementation of such regulations in the commercial banking industry and financial performance. The study would be a source of reference material for future researchers on other related topics. To reinforce the findings of the study, it would also be important to conduct another study to explore the influence of other regulatory factors, corporate governance, auditing among others on financial performance of tier II commercial banks.

CONCLUSION AND RECOMMENDATIONS

Based on the research findings, it was concluded that majority of commercial studied have attained the minimum capital required to operate by the Central Bank of Kenya. This is because a commercial bank infrastructure is to support business and maintain public confidence based on the adequate capital ratio. The CBK has to protect the commercial banks, their customers, the government and economy through establishing rules to make sure that banks hold enough capital to ensure efficient market and ability to withstand any foreseeable problems.

Findings of the study established that most second tier commercial banks in Kenya have attained the capital adequacy ratio requirement after the regulations came into place. When making comparisons with financial performance indicators (ROE and ROA), it was found that the relationship is moderate, suggesting that the capital held by these second-tier commercial banks need to be improved to improve on financial performance. Furthermore, there exists a significant and positive relationship between capital adequacy and financial performance of mid-tier commercial banks in Kenya. This implies that capital adequacy ratio regulation by Central Bank had improved on mid-tier commercial banks return on asset and equity over the four-year period.

To improve on capital adequacy ratio, CBK should advise mid-tier commercial banks need to seek cheap deposits (from individuals, institutions, international organisations) to increase their operating capital. CBK also needs to increase their supervision role of ensuring that commercial banks core capital is healthy (ability to finance their business without facing cash crisis) to support their business.

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