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# The Relationship between Debt to Equity Ratio and return on Equity of Commercial Banks in Kenya

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**Abstract**
Despite regulations put in place by the Central Bank of Kenya, some banks still become bankrupt. As at 31st December 2020, there were 43 commercial banks in Kenya, out of which two were in receivership while one was under statutory management and 11 were listed in Nairobi securities exchange (Central Bank of Kenya, 2020). The largest bank is Kenya Commercial Bank while the smallest is Spire bank having total assets of 758 billion, and 5 billion respectively (Central Bank of Kenya, 2020). This study sought to examine the relationship between debt to equity ratio and return on equity of commercial banks in Kenya. This research used secondary data from audited financial statements. The target population was all the 43 commercial banks in Kenya. Census of all the 43 commercial banks in Kenya was used for this study whereby data the period 2011-2020 was analyzed. The study revealed a p-value of 0.001 < 0.05 level of significance cut off point which was a strong evidence against null hypothesis (Ho), hence the null hypothesis was rejected. The regression analysis revealed that that 37.8% of variation in return on equity can be explained by debt to equity ratio while the remaining 62.2% is attributed to other factors outside the model. The study further revealed that debt to equity ratio has significant positive relationship with return on equity of commercial banks in Kenya. The study recommends that the central bank of Kenya should formulate and implement policies which ensures that all banks operate within a minimum level of debt to equity ratio.

**Keywords**: Debt to equity ratio, return on equity, commercial banks and financial statements


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# The Relationship between Debt to Equity Ratio and return on Equity of Commercial Banks in Kenya

By

Benjamin Kiprop, Jackson Ongeta Oyaro, and Moses M. Kibirango

## Introduction

The optimum level of debt to equity ratio is a critical component for smooth operation and keeping a high level of return on equity for a business (Yusoff, 2017). According to literature, banking industry plays a major role in most economies by facilitating development through issuing of loans to firms and individuals and accepting deposits from the public (Pradhan & Shrestha, 2009). As such, the commercial banks' level of debt to equity ratio is influenced by the Central Bank of Kenya requirements (Magero, 2013) . How they carry out the roles of financial intermediation is however dependent on return on equity, whereby banks with high return on equity have their operations running smoothly while banks with low return on equity have operational challenges (Zidan, 2020). Therefore, it is important that commercial banks remain profitable at all times.

As at 31st December, 2020, there were 43 commercial banks in Kenya, out of which two were in receivership while one was under statutory management and 11 were listed in Nairobi securities exchange (Central Bank of Kenya, 2019). The return on equity of commercial banking sector attracts attention of the general public and regulatory authorities since it performs a critical role in economic development through their intermediation functions. Despite regulations put in place by the central bank of Kenya to ensure that all banks operate within a given level of solvency; some banks still become bankrupt due to insolvency (Central Bank of Kenya, 2017). This suggests that commercial banks must maintain profitability in order to remain relevant and competitive in the financial market.

Literature shows that some banks have been closed down due to low level of return on equity, while they have optimum level of debt to equity ratio; For example, according to Federal Deposit Insurance Corporation (2020) eight commercial banks in the United States of America were closed down between 2019 and 2020 due to low level of return on equity, yet their level of debt to equity ratio were optimum. According to the Central Bank of Kenya (2016), Chase Bank Limited was put in receivership in 2015 due to low level of return on equity even though they met the minimum level of debt to equity ratio set by the Central Bank of Kenya. There has been scholarly debate on whether there is relationship between debt to equity ratio and return on equity. For example, according to Ngwa (2016), there is a positive relationship between debt to equity ratio and return on equity. On the contrary,Yeo (2016) concluded that there is strong signigificant positive relationship between dent to equity ratio and return on equity. This is an ongoing debate which has not been concluded. Thus, this study therefore sought to re-examine the relationship between debt to equity ratio and return on equity of commercial banks in Kenya.

## Statement of the Problem

The level of debt to equity ratio is used as an indicator of the firms return on equity whereby firms with high level of debt to equity ratio are considered to be highly profitable (Ibendahl, 2016). Despite regulations put in place by Central Bank of Kenya to ensure that all banks operate within a given level of debt to equity ratio; and ability of the banks themselves to



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ensure that there is adequate level of debt to equity ratio, some banks still become bankrupt due to low level of return on equity.

In Bangladesh, 22 commercial banks were closed down in 2015, yet their level of debt to equity ratio was high(Dada & Ghazali, 2016). In Kenya, Imperial Bank Limited was put in receivership in 2015 due to low level of return on equity despite having high level of debt to equity ratio of 87% and 65.8% (Central Bank of Kenya, 2016). Chase bank limited was also put in receivership in 2015 due to low level of return on equity yet its level of debt to equity ratio was at a level of 86.8% (The Central Bank of Kenya, 2016). Based on the above two reports, banks closed down due to low return on equity despite meeting the minimum level of debt to equity ratio set by the Central Bank of Kenya.

According to literature, there are mixed conclusions on whether there is relationship between debt to equity ratio and return on equity. For example, Omari, Warrad and Al Nimer (2015) found a significant and strong positive relationship between debt to equity ratio and return on equity of all sectors in Jordan. On the contrary, (Sakouvogui, 2020) concluded that there is an inverse and highly significant relationship between debt to equity ratio and return on equity of United States of America's commercial and domestic banks from 2005 to 2017. While Dahiyat, (2016) reported that there is no significant relationship between debt to equity ratio and return on equity. Based on the above, there is an existing debate on whether there is relationship between debt to equity ratio and return on equity. Further, the above literature gives mixed conclusions as some show negative relationship, others positive relationship and others no relationship at all. Based on the above, the researcher sought to examine the relationship between debt to equity ratio and return on equity of commercial banks in Kenya.

**The research question**

What is the relationship between debt to equity ratio and return on equity of commercial banks in Kenya?

**Hypothesis**

$H_o$: There is no significant relationship between debt to equity ratio and return on equity

**Theoretical Framework**

**Pecking order theory**

Pecking order theory argues that information asymmetry exists between prospective investors and managers. As a result, the market may undervalue a firm's new shares relative to the actual value if managers' information about their firm's value for shares were revealed to the market. Therefore, managers will prefer financing new investments by retained earnings first, then debt financing and finally equity financing as the last resort. Myers and Majluf (1984) claimed that if the firm finances its new project by issuing new securities, these securities will be underpriced leading to loss of return on equity. Thus, according to the pecking order theory, there is positive a relationship between firm's debt to equity ratio and return on equity.

**Trade off theory**

Trade off theory suggests that for any firm to attain maximum return on equity, it must deliberately balance by swapping debt for equity and equity for debt to reach its optimum. This balancing stem from the benefits of tax shields and the costs of potential bankruptcy and financial distress, where optimum is reached when the benefits of tax shields are offset by the costs related to debt (Myers, 1984). Myers (1984) argued that optimum profitability is


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achieved by balancing debt financing in terms of total debt to total assets ratio and total debt to equity ratio; and benefits such as tax shields; and reduction of agency and debt costs such as direct and indirect bankruptcy costs. Debt financing comes with commitment for future cash outflows due to periodic interest and the principal borrowed, which might encourage the likelihood of firm's financial default and bankruptcy. Thus, according to trade off theory, there is negative relationship exists between debt to equity ratio and return on assets.

**Review of Related Literature**

Ibendahl (2016) in his study found that the level of return on equity is estimated by the connection between profit and share holders' equity. Return on equity influence a firm's capacity to acquire financing and investment capital (Sakouvogui, 2020). Shareholders, debenture holders and long-term creditors are interested in the level of return on equity since it indicates the pattern of financing (Dabo, 2018). Debt to equity ratio compares total liabilities to shareholder's equity and it express how much suppliers, lenders, and other creditors have committed to the company versus what the shareholders have committed (Sari, 2016). According to Sondakh (2016), total debt to equity ratio shows a proportional relationship between debt and equity. Debt to equity ratio can be used to assess a company's ability to repay debts incurred with its own funds. According to Raji (2021), debt to equity ratio describes the ability of the company's own capital to meet its obligations and shows the relationship between total capital and the total amount of debt. A company with a low debt to equity ratio will have a lower risk of loss when economic conditions decline, but when economic conditions improve, the opportunity to earn a profit is low (Endri, 2021). Debt to equity ratio indicates the level of debt as a percentage of shareholders equity (Efendi, Putri, & Dungga, 2019). A high total debt to equity ratio shows that a firm uses debt to finance its growth and if it is too low (closer to zero), it means the business hasn't relied on borrowing to finance operations (Kumara & Samarakoon, 2014). Sari (2016) argued that a lower total debt to equity ratio means that total debt is relatively lower compared to total equity; while a company with high level of total debt to equity ratio may provide higher returns to its shareholders, in line with the risk that is faced by the company compared to other companies with lower debt equity ratio.

On the other hand, return on equity measures how well the management of a firm creates value for its shareholders and is a closely watched financial ratio among equity investors (Ahsan, 2012). Too low level of return on equity exposes shareholders and stake holders to an unforeseen financial risk which may be related with significant personal and financial cost (Muigai, 2016).

**Relationship between total debt to equity ratio and return on equity.**

Literature has shown different results on the relationship between total debt to equity ratio and return on assets where some empirical results have shown a positive relationship; for example, Sari (2016) concluded that there is strong and significant positive relationship between total debt to equity ratio and return on assets in beverage companies listed at the Indonesian stock exchange. Secondary data for a period of 6 years (2003-2008) was collected and analyzed using SPSS version 18 from a population of 12 companies. Likewise, Rehman (2013) conducted a study on relationship between financial leverage and financial performance of listed sugar companies in Pakistan. He measured financial leverage and financial performance by total debt to equity ratio and return on assets respectively. His sample size was 35 listed companies from food producer sector of Karachi Stock Exchange. He used secondary data for the period 2006-2016 published by state bank of Pakistan. The


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results of analysis showed that there is a strong and significant positive relationship between total debt to equity ratio and return on equity. This is in agreement with research by Mihaela and Claudia (2017) who found a strong and positive relationship between total debt to equity ratio and return on equity of technology, health care and telecommunication sectors in the world. The population of the study consisted of the top 100 most profitable companies in the world out of which 59 non-financial ones were selected. Descriptive statistics, regressions and correlations were used to analyze the data.

On the other hand, some scholars have concluded that there is negative relationship between total debt to equity ratio and return on assets; for example the research by Abdur (2015) investigated the relationship between capital structure and firm performance of listed non-financial companies in Bangladesh. Return on assets and return on sales were used to measure firm financial performance, while total debt to total assets ratio and total debt to equity ratio were used to measure capital structure. The population of the study included 106 listed manufacturing companies from Dhaka stock exchange which were selected on an availability basis covering all sectors under judgment sampling method for a duration of four years (2008-2011). Multiple regression models were used to estimate the relationship between capital structure and firm performance.

The findings obtained from regression models show that total debt to total assets ratio and debt equity have negative and significant relationship with return on asset. This is in agreement with the studies by Ahmed (2014) on the effect of liquidity and leverage on financial performance of state corporations in the tourism industry in Kenya. The population of the study consisted of 10 tourism State Corporation in Kenya. The scope of the study was duration of five years (2008-2012) and the findings showed a strong and significant negative relationship between debt to equity ratio and return on equity. Arimi, (2010) examined the relationship between capital structure and financial performance of industrial sector firms listed at the Nairobi Stock Exchange for the period 2004 – 2008. His main objective was to establish the relationship between debt equity ratio (DER) and return on equity (ROE) for Industrial and Allied Sector (IAS) companies listed at the NSE.

The research design was a descriptive survey. The population of the study consisted of all the companies quoted on the NSE under the Industrial and Allied Sector. Secondary data was used for the study and regression analysis to analyze the data. The study found that there is a significant strong negative relationship between total debt to equity ratio and return on equity.

Allozi and Obeidat (2016) examined the relationship between profitability, leverage and stock return of manufacturing companies listed in Amman stock exchange in Jordan. The study sample consisted of 65 manufacturing companies listed in Amman Stock Exchange over the 10- year period (2001-2011). Data were obtained from the published annual reports and the monthly statistical bulletins over the study period of eleven years (2001-2011). Net profit margin, return on assets and return on equity were used to examine profitability while total debt to total assets ratio, debt to equity ratio and interest coverage ratio were used to measure leverage. Statistical analysis undertaken include correlation analysis, multiple regression analysis and descriptive statistics. The results show that debt to equity ratio do not have a significant relationship with return on equity.

Kariuki (2019) studied the effect of leverage on commercial banks performance in Kenya. From a population of 43 banks, a sample of twenty-two banks was selected. The sample included eleven listed banks at the NSE and eleven non listed banks. Data are extracted from the annual report and financial statements of the banks. Debt to equity ratio was used to measure leverage while return on equity ratio was used to measure financial performance. Regression analysis was used to examine the effect of leverage on the financial


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performance of banks in Kenya, and the study covered 2008 to 2012. The research found that there is no significant relationship between debt to equity ratio and return on equity.

The population of the study by Allozi and Obeidat (2016) and Kariuki (2019) consisted of 65 manufacturing companies and 43 commercial banks respectively. Also, the time scope for the studies by the above scholars were eleven years (2001-2011. Contrary to the above literature, the current study used a population of 43 commercial banks in Kenya for a period of ten years (2011-2020).Unlike study by Allozi and Obeidat (2016) which was carried out in Amman Stock Exchange, the researcher conducted the current study in Kenya.

## Methodology

### Data collection and analysis

Secondary data was obtained from the Central Bank of Kenya published reports for 43 commercial banks' audited financial statements and annual reports for a period of ten consecutive years (2011-2020). Audited statement of financial position and the statement of comprehensive income are the two types of statements considered. The collected data was analyzed using the Statistical Package for Social Sciences (SPSS) version 20 software. Return on equity measures the level of profitability by revealing how much profit is generated with the money shareholders have invested (Dabo,2018). Debt to equity ratio was determined by dividing total liabilities of commercial banks in Kenya by their respective shareholder's equity while return on equity was calculate by dividing profit before tax by shareholders' equity of a commercial banks in Kenya.

## Presentation and Discussion of Findings

Linear regression analysis was conducted to assess whether there is a significant relationship between debt to equity ratio and return on equity of commercial banks in Kenya. The regressions findings gave values for R, $R^2$, adjusted R and the standard error. The results are presented in table 1 below.

**Table 1:** *Model summary*

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| 1 | .615[a] | .378 | .341 | 1.71382 |

The results of the regression indicated in table 1 above shows that 37.8% of the variation in return on equity is explained by debt to equity ratio ($R^2$ = .378, F (2,36), P<0.01) while the remaining 62.2% is attributed to other factors outside the model.


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**Table 2:** *Anova table*

| Model | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| 1 | Regression | 60.638 | 2 | 30.319 | 10.322 | .000 |
| | Residual | 99.864 | 43 | 2.937 | | |
| | Total | 160.501 | 43 | | | |

The findings as shown in table 2 above indicated that there was a significant relationship at the p<.001 level F (2, 34) = 10.32, p <0.001. This indicates that the model accounts for more than 10 times variation is attributed to debt to equity ratio when compared to residuals. This suggests that the model is not biased and there was goodness of fit hence the model was fit to predict the relationship between solvency and profitability of commercial banks in Kenya.

**Table 3:** *Coefficients table*

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 52.670 | 11.912 | | 4.421 | .000 |
| | DER | .585 | .136 | .907 | 4.303 | .000 |

The coefficients as shown in table 3 above shows that debt to equity ratio has positive relationship with return on equity. The coefficient of DER (0.585) indicates that for every one unit change in total debt to equity ratio, there is a 0.585 unit change in return on equity. Further, it can be observed that regression coefficient of debt to equity ratio is statistically significant at 5% level of significance (Sig. < 0.05). Therefore, the null hypothesis is rejected.

**Discussion of the findings**

**The relationship between solvency and profitability.**

The research question for this study was: What is the relationship between debt to equity ratio and return on equity of commercial banks in Kenya? The findings of this research shows that debt to equity ratio has significant positive relationship with return on equity. This means when debt to equity ratio increase, return on equity will also increase; and when debt to equity ratio decrease, return on equity will decrease. This finding is in agreement with the findings of Rehman (2013) who concluded that there is strong and significant positive relationship between debt to equity ratio and return on equity of listed sugar companies in Pakistan. However, this result is in contrary with findings of Abdur (2015) who found negative relationship between debt to equity ratio and return on equity of listed non-financial companies in Bangladesh.


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## Conclusion and Recommendations

### Conclusion

The study sought to find the relationship between debt to equity ratio and return on equity of commercial banks in Kenya. The following conclusions were drawn based on the findings of the research. The results of this research showed that debt to equity ratio has a significant positive relationship with return on equity of commercial banks in Kenya. This means that the higher the level of debt to equity ratio, the higher the return on equity and the lower the debt to equity ratio, the lower the return on equity. Based on the above findings, the study concludes that debt to equity ratio plays a direct and significant role in predicting return on equity of commercial banks. Banks must ensure that total debt to total assets ratio is maintained

### Recommendations

From the observation that debt to equity ratio has significant positive relationship with return on equity, this study recommends that the bank managers develop and implement strategies which encourage high level of debt to equity ratio. This can be achieved through increasing the level of liabilities while reducing the level of equity.


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