

# Mediation Effects Of Firm Characteristics On The Relationship Between Corporate Restructuring And Financial Performance Of Commercial Banks In Kenya

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## Abstract

Investigating the effects of firm characteristics is important for improving the efficiency of firms. The study investigated the mediation effects of firm characteristics on the relationship between corporate restructuring and financial performance of 39 commercial banks in Kenya using secondary data from 2009 to 2019. Production theory model with corporate restructuring variables as factor inputs and financial performance measures as factor outputs mediated by firm size were utilized. The study established that firm size had a positive mediating effect on the relationship between corporate restructuring and ROA and a negative effect on ROE. Bank management need to take into consideration firm size for accurate restructuring policy decisions to improve performance. Our study expands the literature on the mediation role played by firm characteristics on the relationship between corporate restructuring and the survival of commercial banks. We propose that similar study be carried out on other sectors of the Kenyan economy.

**Keywords:** Corporate Restructuring, firm characteristics, Performance of Commercial Banks, Kenya.

## Introduction

Commercial banks play an important role in the economy by improving the efficiency of the financial markets. They provide financial inclusion by extending credit; enhancing financial intermediation and employment creation (Kithinji, 2017). Although, commercial banks, have been adhering to the recommendations issued by the regulatory bodies three decades ago pertaining to restructuring, a lot needs to be addressed in relation to competition policy to avoid monopolization in the banking sector. Although commercial banks are guided by the same policy framework, the issue of diverse banks' sizes has affected decisions that are aimed at performance optimization (Gatete, 2015). After the banking sector financial crisis of 2008, commercial embarked on adhering to the restructuring recommendations from the regulatory bodies that proposed

restructuring of distressed banks to improve the stability and efficiency of the banking sector. Globally, commercial banks have different sizes of assets with differing assets quality across the banks ( Regehr & Sengupta, 2016). Therefore, the question arises of whether bank characteristics such as the size have an indirect effect on the relationship between corporate restructuring and financial performance.

The current study deviates from the results of the reviewed studies in that; first, the current study investigates the indirect effect of firm characteristics on the relationship between corporate restructuring and financial performance of commercial banks. Second, most reviewed studies demonstrate a direct relationship of firm characteristics on financial performance of commercial banks (Parvin, 2014; Nyabaga & Wepukhulu, 2020, Masika & Simuyu, 2019; Nisar, Peng, Wang and Ashraf,2018; Hanafi Tumin & Mohd Said, 2010); Aladwan, 2015; Alkarim &Alam,2013) except Kithinji, 2017; olarewanju, 2018; Ngware, oleweny & muturi, 2020). The current study seeks to confirm the findings of (Ielenguia, 2013) and extend the literature on the indirect effect of firm characteristics by investigating the mediating effect of firm characteristics on the relationship between corporate restructuring and financial performance of commercial banks in Kenya. The study uses a sample data of 39 commercial banks in Kenya for a period of 11 years from 2009 to 2019. The study adopted one firm characteristics as suggested by Kisengo, (2014); size of the bank.

The rest of the paper is organized as follows: review of the related literature is provided in section 2, section 3 presents the methodology, results and discussion are presented in section 4 while section 5 provides summary, conclusion and recommendation of the study.

## **2. Literature Review**

Firm characteristics are features unique to firm which influence variations in decision making especially during times of financial distress. Therefore, firms take consideration of firm characteristics such size when undertaking restructuring to enhance financial performance. As a precursor to the continuing debate on the gains and shortcoming of diversifying streams of revenue by banks in South Asia, Nisar, Peng, Wang and Ashraf (2018), observed that the size of banks and age play a bigger role in solidifying the financial performance of smaller and larger banks. This was confirmed by scrutinizing a panel data comprising of 200 commercial banks in South Asia. Restructuring of bank assets by way of increasing the assets may not always lead to improved profitability. Aladwan (2015) studied the impact of bank size on profitability of Jordanian commercial banks using a two sample t-test on the means of ROE for three selected groups. The results of different tests proved that the profitability tended to decrease as the volume of assets increased. On the contrary, a study on the performance and financial ratios of banking institutions that are commercial was conducted in China and Malaysia (Hanafi Tumin and Mohd Said, 2010). The authors argue that the size, age and level of liquidity in banks don't bear any influence that is significant on how banks perform in the two countries. The investigation was founded on panel data and fixed effect model that incorporated a balanced series of yearly data.

The success of a firm does not only depend on size and age of the firm but also on whether the management is able to carry out the operations efficiently and effectively. Using yearly time series data between 2008 and 2012, to determine whether the size of a bank, asset management, risk of giving credit, age and efficiency of operations have an effect on performance measures in (Bangladesh, Alkarim and Alam, 2013) confirmed that the size of the bank, risks from credit and efficiency in operations and how assets are managed do significantly and positively affect how banking firms in Bangladeshi perform. However, in Africa, Olarewaju et al, (2018), studied the impact of operational diversification on banking performance using the pooled, fixed, random effect models and System GMM for the period 2006 to 2015 using 250 commercial banks from 30 nations in the region of SSA. The findings indicated that, deposit, revenue, asset, liability, and deposit inclusive of control variable like bank size, ratios of liquidity, loan- loss ratio, cost –income ratio and lagged return on average assets had a direct significant positive effect on financial performance. Ngware Olweny and Mututri (2020), addressed the question of whether banks size moderate relationship between banks’ portfolio diversification and financial performance of commercial banks in Kenya. By analyzing time series cross- sectional unbalanced secondary panel data of the 43 commercial banks in Kenya for fifteen years ranging from 2003 to 2017, the study revealed bank size had a significant moderating effect on the relationship of banks’ portfolio. Additionally, kithinji, (2017), studied the moderating effect of firm characteristics as denoted by asset size on relationship between bank restructuring and financial performance of commercial banks in Kenya while using all the 44 banks with the aid of hierarchical regression model. The study found out that there exists a significant positive financial performance as a result of the interaction between capital restructuring and firm size. Moreover, Nyabaga and Wepukhulu, (2020), established using correlation and regression analysis to investigate the effect of firm characteristics on financial performance of 11 listed commercial banks in Kenya that capital adequacy and bank size have a significant positive effect on performance. Also, Lelenguiya, (2013), while studying the effects of firm characteristics on financial performance of quoted commercial banks in Kenya, with aid of descriptive research design established that period of operation, asset base, market size and board characteristics improved performance for 11 quoted commercial banks in Kenya. However, it is not always that bank characteristics mediates the relationship between corporate restructuring and financial performance; we therefore hypothesis that:

H01; Firm characteristics have no significant mediating effect on the relationship between corporate restructuring and financial performance of commercial banks in Kenya.

### **3. Methodology**

#### **3.1 Research Design and Sample Size**

The study utilized causal comparative research design. Utilizing causal comparative research design was appropriate as it was employed as ex-post-facto since the alleged cause and effect had already occurred (Richardson, 2018; Frank & Rens, 2017). The target population was 39

commercial banks that met the criteria of completed audited financial reports for the period 2009 to 2019.

### 3.2. Operationalization and Measurement of Variables

The corporate restructuring variables were asset restructuring (AR), debt restructuring (DR), ownership restructuring (OWR) and operational restructuring (OR). Return on assets (ROA) and Return on Equity (ROE) were used as financial performance measures. In addition, firm size (S) was used as the main firm characteristic because it has much explanatory power, and an understanding of its importance can be vital for managers who operate in today's competitive environments (Kioko, 2010). The operationalization and measurement of the variables is presented in Table 1.

**Table 1: Operationalization and Measurement of Variables**

Variable	Indicator(s)	Measurement
Corporate Restructuring	Asset Restructuring (AR)	Non –performing loans to total loans and advances
	Debt restructuring (DR)	Bab debts to total Receivables
	Ownership Restructuring (OWR)	Total number of shares owned by the state to total number of shares.
	Operational Restructuring (OP)	Operating expenses to total assets
Firm Characteristic	Firm Size	Log of Total Assets
	Age of the firm	Number of years
Financial Performance	Return on Assets (ROA)	Net Income to Total Assets
	Return on Equity (ROE)	Net Income to Total Equity

### 3.3 Research Model

The study was modeled on the theory of production that expresses the relationship between the factor inputs and factor outputs in a production function. The choice of Cobb – Douglass production model is due to its ability to accommodate a large number of variables. Secondly, when logs are taken, the model becomes linear. Thirdly, the coefficients in the logarithmic model are interpreted as elasticities. Cobb & Douglass (1979), tested the theory and established the production function in the form of  $P(L, K) = bL^\alpha K^\beta$ . P represents the total production, L is labor input, K is capital input, b is total factor productivity,  $\alpha$  and  $\beta$  are output elasticities of labor and capital respectively. Upon linearization the following model was obtained.

$\log Y = \log b + \alpha \log L + \beta \log K + \varepsilon$ .....1

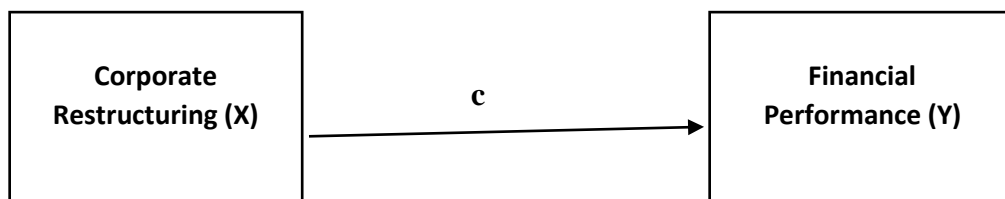
Panel data set for N firms observed for T periods was used. Therefore, the model was further developed to fit in the study as follows;

$y_{it} = \beta_{it} + \beta_1 x_{it} + \varepsilon_{it}$ .....5

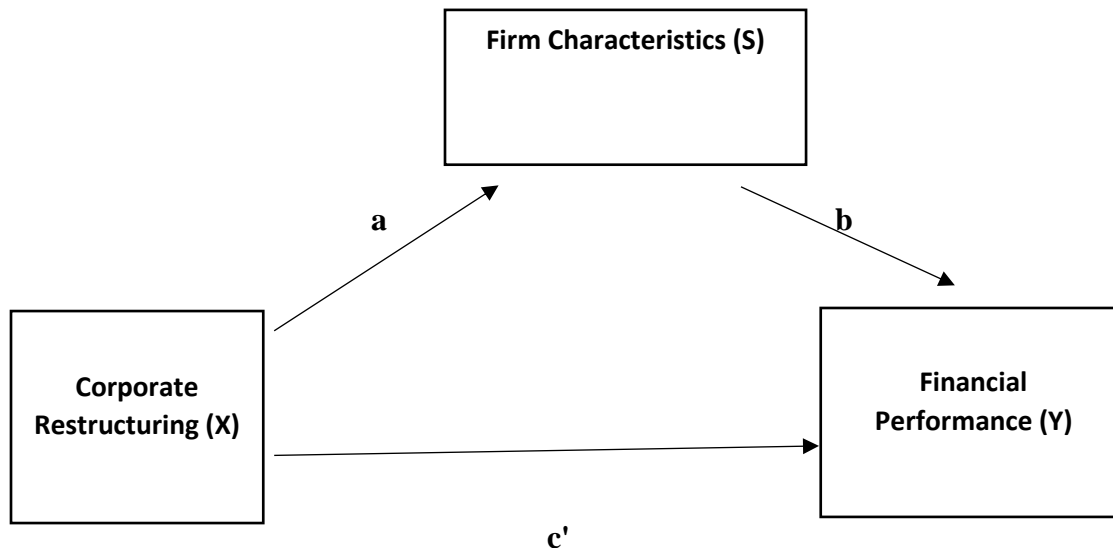
Where,  $y_{it}$  was financial performance of firm i at time t,  $\beta_1$  was the elasticity of independent variables,  $x_{it}$  is vector of the independent variables,  $\varepsilon$  is the error term.

**3.4 Determination of Mediation Effect**

To determine whether firm characteristics had a mediating effect, total effect of causal variable was compared to the dependent variable and the partial mediation effect when a firm characteristic was introduced as a mediating variable. The study adopted the two diagrams to help establish the mediating effect diagrammatically.



**Figure 1: Unmediated Model**



**Figure 2: Mediated Model**

In figure 1 & 2 corporate restructuring is the independent variable while financial performance is the dependent variable,  $c$  is the total effect of corporate restructuring on financial performance,  $c'$

represents the direct effect of corporate restructuring on financial performance,  $b$  is the effect of the mediating variable on financial performance,  $a$  is the effect of corporate restructuring on the mediator. This analysis was to determine the existence of a complete mediation (where variable  $x$  no longer affected  $Y$  after  $S$  has been controlled making the direct effect zero) or partial mediation (where direct effect is different from zero) when a firm characteristic was introduced as a mediator. A variable is a mediator when variations in the independent variable significantly account for variations in the dependent variable (Baron & Kenny, 1986),

Mediation effect is tested using four steps suggested by Baron and Kenny (1986), Judd and Kenny (1981), and James and Brett (1984). In step one, as demonstrated in figure one, the existence of an effect to be mediated is shown where path (c) is estimated using  $y$  as the dependent variable and  $x$  as the independent variable in linear regression equation. In step two, the causal variables should be correlated with the mediating variable; where the mediator is treated as an outcome variable to allow for the estimation path 'a' as shown in figure 2 using a firm characteristic as the dependent variable and  $X$  as an independent variable in the linear regression equation. Step three: the mediator should have an effect on the outcome. As demonstrated in figure 2, path  $b$  is estimated using  $Y$  as the dependent variable and firm characteristic as the independent variable in a linear regression equation while controlling for the causal variable  $X$  since both the mediator and the outcome are caused by the causal variable (James and Brett, 1984). Step four, establishes that the mediator completely mediates the  $X$ - $Y$  relationship, therefore, it is used to estimate path  $c$  as shown in figure 2 while controlling for mediator, i.e the effect of  $X$  on  $Y$  controlling for firm characteristics. However, step one may not be required and step four does not have to be met unless where expectations is for complete mediation (Kenny, Kashy & Bolger, 1998). Therefore, this study adopted Kenny (1998) thus adopting step 2 and 3 as relevant steps in testing the mediation effects.

The mediation effect of the current study adopted Kenny et.al., (1998), therefore, two models were employed as shown in equation 3 and 4.

$$S_{it} = \beta_{0it} + \beta_1 AR_{it} + \beta_2 DR_{it} + \beta_3 OWR_{it} + \beta_4 OP_{it} + \varepsilon_{it} \dots \dots \dots 3$$

$$y_{it} = \beta_{0it} + \beta_1 AR_{it} + \beta_2 DR_{it} + \beta_3 OWR_{it} + \beta_4 OP_{it} + \beta_5 S_{it} + \varepsilon_{it} \dots \dots \dots 4$$

The effect of corporate restructuring on the mediating variable ( $S$ ) was determined using the model as in equation 3. A product of the coefficients (a) from  $\beta_1$  to  $\beta_4$  was obtained. The model in equation 4 was used to establish the effect of mediating variable on financial performance of commercial banks while controlling for all corporate restructuring indicators. A product of the coefficients (b) from  $\beta_1$  to  $\beta_5$  in equation 4 was obtained. Mediation effect of firm size ( $S$ ) was obtained by multiply (a) and (b). A positive mediation effect exist if  $ab$  is greater or less than zero and negative if verse vasa. If  $ab = 0$ , mediation is absent hence firm characteristic ( $S$ ) is not a mediator.

### 3.4.1 Determination of Mediation Effect

To determine whether firm characteristics had a mediating effect, total effect of the independent variable on the dependent variable and the complete mediation effect when a firm characteristic

was introduced as a mediating variable. This study adopted the two diagrams in figure 1 and 2 to help investigate the mediating effect.

## 4. Results

### 4.1 Descriptive Results

The descriptive results are presented in table 2. Firm size had a mean of 4.9% with a deviation of 2.35% and ranged from 2.26% to 7.6% during the study period.

**Table 2: Descriptive Statistics**

Variable	Mean	Maximum	Minimum	Std. Dev.
Firm Size (Z)	0.049	0.076	0.0262	0.0235

### 4.2. Diagnostic Tests

Diagnostic test were carried out to ensure that all the assumptions of regression model were met to avoid biased results. To determine whether there was a problem of multicollinearity, variance inflation factor (VIF) was generated for the variables of the study. The results presented in table 3 suggest that the VIF values for all the study variables was below 10, suggesting that the problem of multicollinearity was absent.

**Table 3: Variance Inflation Factor Test Results**

Variable	Indicator (s)	VIF	1/VIF
Independent	Asset Restructuring	1.000	0.9981
Independent	Debt restructuring	1.000	0.9981
Independent	Ownership restructuring	1.000	0.8997
Independent	Operational restructuring	1.000	0.7834
Mediator	Firm size	1.000	0.8944

### Stationarity Test

Augmented Dickey- Fuller (Dickey & Fuller, 1979) test results in table 3 indicated that data was stationary suggesting absence of unit root. Therefore, the data did not vary with time. This means that the data was good for forecasting.

**Table 4: Augmented Dicker Fuller Test Results**

Variable	Statistics	P-value	Remarks
ROA	-7.4776	0.000	Stationary
ROE	-7.5531	0.000	Stationary
AR	-6.4808	0.000	Stationary
DR	-1.6724	0.000	Stationary
OWR	-7.3053	0.000	Stationary
OP	-60861	0.000	Stationary
S	-2.8701	0.000	Stationary

#### 4. Heteroscedasticity

Heteroscedasticity is referred to as lack of constant error variance (Gujarati, 2003). To detect the presence of heteroscedasticity, Breusch- Pagan (Breusch & Pagan, 1979) test was used. In this study  $\chi^2=67.29$  for ROA and  $68.86$  for ROE. Therefore,  $\text{Prob} > \chi^2=0.0000$ , suggesting absence of heteroscedasticity.

**Table 5: Breusch- Pagan Test Results**

	Chi. Sq. Test Statistic	P- Value
Variables: fitted values of ROA	67.29	0.0000
Variables: fitted values of ROE	68.86	0.0000

#### 5. Normality Test

Shapiro-Wilk (Shapiro and Wilk 1965) test, was used to carry out the normality test. The results in table 6 indicate that Shapiro- Wilk (W) test statistics for all the variables were greater than 0.05 suggesting that the data was normally distributed.

**Table 6. Shapiro –Wilk Test Results**

Variable	Obs	Indicator	Prob.
Independent	429	AR	0.866001
Independent	429	DR	0.88955
Independent	429	OWR	0.88895
Independent	429	OR	0.88861
Mediator	429	S	0.87901
Dependent	429	ROA	0.88894
Dependent	429	ROE	0.76848



## 6. Robustness Check

To determine the reliability and robustness of the study results, it was important to choose the model to apply on the data when ROA and ROE are used as financial performance measures. To determine the best model between fixed effect and random effect, Hausman test was carried out to ensure that the results of the model do not result to biased estimation. The results as shown in table 7 indicate that Prob. > chi2= 0.000; suggesting that the fixed effect model was preferred for both ROA and ROE when used as measures of financial performance.

**Table 7: Hausman Test Results**

Dependent variable	Statistic	d.f	P-Value	Preferred model
ROA	64.86	5	0.000	Fixed effect
ROE	60.76	5	0.000	Fixed effect

### 4.4 Mediation Effect of Firm Size

The results in table 10 indicates that the model for estimation of path 'a' was significant (p-value 0.0214<0.05), therefore a product of the coefficients was obtained which was -0.083. To estimate path 'b', model results in table 10 was used to estimate mediation effect of firm size on the relationship between corporate restructuring and financial performance for each performance measure. When ROA was employed as a measure of financial performance, the results in table 11 indicate that the model was significant (p-value 0.0082 <0.05), hence a product of the coefficients was obtained to estimate path 'b' which was -0.0423. To establish the mediation effect the product of path 'a' and path 'b' was calculated hence product 'ab' was 0.0035. This indicated a positive indirect mediation effect of firm size. This implied that the effect corporate restructuring on ROA would decrease when mediated by firm size. Firm size would improve banks restructuring and as a result ROA decreases. This is attributed to banks advancing loans which may not be repaid as and when they fall due thus reducing interest income which results in decrease in ROA.

Further, the results in table 10 indicate that the model for estimating path 'b' was significant (p-value 0.0082<0.05) when ROE was utilized as measure of financial performance. However, the variables of the coefficients were all statistically insignificant. Therefore, 'ab' was estimated as zero since an insignificant coefficient is statistically zero. This therefore, means that firm size had no mediation effect on the relationship between corporate restructuring and ROE.

**Table 9: Regression results to estimate path 'a'**

(a) Significance of the model	
	S_ log
R <sup>2</sup>	0.0176
Ch <sup>2</sup>	12.29*

$P > \chi^2$	0.0214
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(b) Individual significance variables

	S_Log	
	Coefficient	P-Value
AR_log	-0.075	0.217
DR-log	0.025	0.884
OWR-log	-0.007	0.524
OR-log	-0.083*	0.003

Dependent variables is S\_log, Significance at 5% is denoted by\*

Table 11. Regression results to estimate path 'b' firm size as the mediator

(a) Significance of the model

	ROA-log	ROE-log
$R^2$	0.4639	0.0691
$\chi^2$		76.01*
$p > \chi^2$		0.0000
F Statistic	3.27*	
$p > F$	0.0082	

(b) Individual Significance variables

variable	ROA_log		ROE_log		
	P-Value	Coefficient	P-Value	Coefficient	P-Value
AR_log	0.613	0.063	0.511	-.627	0.162
DR_log	0.872	0.225	0.120	.132	0.110
OWR_log	0.018	-.043*	0.002	.042	0.263
OR_log	0.203	.051*	0.051	.018	0.463
S_log	0.823	0.012*	0.284	.031	0.270

Dependent variables are ROA-log, ROE\_log; Significance at 5% is denoted by\*

## 5. Summary, Conclusion and Recommendations

### 5.1 Summary

The study established that firm size as a firm characteristic had a positive mediation effect on the relationship between corporate restructuring and ROA. The study also established that firm size had no mediation effect on the relationship between corporate restructuring and ROE. The positive mediation effect of firm characteristic on the relationship between corporate restructuring and ROA implied that an increase in firm size decrease the effect of banks corporate restructuring on

ROA. This could be attributed to an increase in non-performing loans advanced to customers hence a reduction in interest income. Further, this could have resulted from an increase in operational costs. The study established firm size had no mediation effect on the relationship between corporate restructuring and ROE. This implied that an increase in firm size increase the effect of corporate restructuring on ROE. This could be associated with management decisions on dividend policy which could affect ROE.

## **5.2 Conclusions and Recommendations**

The study concluded that firm size has a mediating effect on the relationship between corporate restructuring and ROA. Banks' management needs to understand how an increase in firms' size influences banks' restructuring for strategy and policy formulation relating to corporate restructuring to enhance financial performance. The study concluded that firm size has no mediating effect on the relationship between corporate restructuring and ROE. Therefore, policymakers in the financial sector should come up with adequate and accurate internal policies to ensure that internal banking systems facilitate shareholders wealth maximization.

## **5.3 Suggestion for Further Studies.**

The study used data from commercial banks in Kenya; hence a similar study is suggested in other sectors of the economy.

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