The Impact of the 2007/2008 GFC on Investment Ability and Corporate Performance: Evidence from Sub-Sahara Africa

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Abstract
The objective of this study is to test the of the 2007/2008 global financial crisis on investment ability and corporate financial performance. The study measured the impact of the crisis by comparing the investment ability and corporate performance of firms that were financially flexible at the onset of crisis against those that were not. A sample of 86 listed manufacturing firms was drawn from Tanzania, Kenya, South-Africa and Nigeria. The results however, reveals that FF is a value enhancing strategy and that firm's management should consider this strategy when making decisions with regard to finance and investments. This conclusion has been reached after observing firms that were financially flexible prior to the GFC performed better than less financially flexible firms during and after the crisis than their peer firms that were identified as less financially flexible. Our analysis suggests that the advantages of financial flexibility may not be significantly pronounced during the crisis itself as most of the firms may still be struggling to learn and understand the shocks brought by the crisis, but after a short time, financially flexible firms may react by making use of their flexibilities to access credit facilities and/or make use of the available internal funds to cope and perform better than less flexible firms.
The originality of the author's approach is to evaluate the impact of the 2007/2008 GFC on firms listed in the Sub-Sahara Africa.
Keywords: keywords, financial flexibility, global financial crisis, financial performance, investment ability

1. Introduction

Organizations worldwide require investment in capital expenditure in order for them to achieve their business objectives and ultimately, add organizational value and maximize shareholders wealth (Wachanga 2014). Capital expenditure is incurred when a business spends money either to buy fixed assets or add to the value of an existing fixed asset with a useful life extending beyond the taxable year (McConnell and Muscarella, 1985). It refers to the funds spent by a firm to acquire or upgrade physical assets such as plant, property, industrial buildings or equipment. It is generally expected that capital expenditures should create future economic benefits that will span out for a more than one financial year.

Most commonly there are two categories of capital investments. The first one relates to capital expenditure incurred to acquire or construct new physical assets. This category is aimed at expanding the scope of the firm's operations. The second category relates to capital expenditure made to maintain existing physical assets and therefore, maintain the current scope of the firm's operations and most often is referred to as sustaining capital expenditure. Any capital expenditure incurred is expected to generate a feasible and profitable return on investment for investors to consider it a worthwhile expense for a respective firm.

In accounting, any form of capital expenditure incurred is added to an asset account ("capitalized"), thus increasing the value of the respective non-current asset (Akbar, Ali and Saadi, 2008). In financial reporting, capital expenditure is classified as Property, Plant and Equipment.

Financial performance refers to the extent to which financial objectives are attained, or are in the process thereof to be attained, over a stipulated time period. It aims at measuring the results of a firm's activities in monetary terms and analyzing it to provide insights into the performance of a firm as a whole. This measurement can be used to get insights of a firm's overall health over a given period of time and to provide a metric that can be used for comparison purposes with similar firms, industries, sectors and geographies (Wachanga 2014). Financial performance also provides the intelligence that is useful for the management to forecast growth of the firm in the short and long term. Despite the importance embodied in the financial performance of a firm, yet a little has been researched to assess how the 2007/2008 GFC impacted the corporate performance of the firms especially in the Sub-Sahara context. Most of these studies have been done based on the firms in the US, Europe and Asia e.g. (Arslan-Ayaydin et al. 2014; Ferrando et al. 2014; Yung et al. 2015; Bancel & Mittoo 2011, just to mention a few).

This study therefore is structured to investigate and provide empirical results based on the Sub-Sahara Africa. This study aims at testing empirically the value of investment abilities on enhancing firm performance, by paying particular attention on the 2007/2008 GFC period, and specifically on firms operating in the Sub-Sahara Africa. This objective is attained through answering the research questions that:
How did the firm's financial performance respond on the investment levels attained during and after the

2007/2008 GFC?

How did the level of financial flexibility attained before the onset of the crisis impacted the corporate performance of the firms?

To address these research questions, our study starts by measuring the financial flexibility of firms before the onset of the GFC. Then, in an attempt to answer the first question of our study, we aim at finding the evidence on whether the investment levels attained during and after the GFC impacted the financial performance of the firms positively, negatively, or had no impact at all. Lastly, our study addresses the second research question, by presenting a comparison analysis of firms that were financially flexible against those that were not/less financially flexible before the onset of the crisis. The performance comparison is based on the period during and after the crisis.

2. Literature Review

Many firms worldwide require investment in capital expenditure in order for them to achieve their business objectives and ultimately, add to firm's value and maximize shareholders wealth. It is therefore expected that investment in capital expenditure should be followed by a future return and consequently, an increase in the financial performance of the firm.

Capital expenditure is the one of the important asset category that represents the most significant usage of a firm's resources (investments). Hennessy and Whited (2005) find that on average, annual capital expenditures-to-asset ratio is as high as 13% in a sample of U.S. listed companies, and it is 7.5% for a sample of worldwide firms. Lev and Thiagrajan (1993) states that capital investments represent a fundamental signal claimed by analysts to be useful in predicting future profitability and stock returns.

Capital expenditures comprise one of the largest and riskiest accounts in corporate financial statements. An understanding of motivators for capital investment decisions is valuable for investors, regulators, auditors, and the public at large (Pulliam and Solomon, 2002). The current literature has mostly focused on managerial behavior in advanced economies and has reported evidence that shareholder wealth is positively affected when firms make capital spending decisions (Woolridge (1988) and McConnell and Muscarella (1985)).

A review of the literature reveals two contradicting hypotheses. The first supports the financial theory and provides evidence that increased investment in capital expenditure, results in increased financial performance and the reverse holding true. There therefore exists a positive relationship between capital expenditure and financial performance (Lev and Thiagrajan 1993; McConnell and Muscarella, 1985; Woolridge, 1988; Fama and French, 1999; Ching-Hai, Hsiang, Chen and Yen-Sheng, 2006; Brooke, 2014; Wachanga, 2014).

Conversely, several studies document a negative association between capital expenditure and financial performance. Further studies try to explain this perceived deviation from the theory and provide various explanations for the phenomenon. A large number of studies attribute the negative association to the free cash flow theory where managers with empire building tendencies over invest in capital projects regardless of their profitability i.e. negative NPV projects (Abarbanell and Bushee, 1997; Titman, Wei and Xie, 2004; Fairfield, Whisenant and Yohn, 2003; Chen, Yao, Yu, and Zhang, 2008; Cooper, Gulen, and Schill, 2008).

Despite these contradicting effects that capital expenditure has on the performance of firms, research on the effect of capital expenditure on profitability and financial performance in Africa, especially with a link to the 2007/2008 GFC is not comprehensive hence creating a research gap that deserves attention. Li, Donglin (2004) stated that despite the huge amount of capital expenditure by Corporate America each year (e.g., in 2001 the total capital expenditure reached 1.3 trillion dollars), still very few studies had addressed the implications of capital investments on future profitability. Even fewer studies have been conducted in the African arena to identify the relationship between capital expenditure and firm performance.

The existence of a conflict in these literatures regarding the relationship between capital expenditure and financial performance creates a research gap that calls for further study. This research gap is compounded more in the African context where there is lack of comprehensive information about the relationship between capital expenditure and financial performance, especially during and after the period of the 2007/2008 GFC. This study seeks to examine the aforementioned premise within the Sub-Sahara economic landscape and specifically, public firms listed in the stock exchanges of Tanzania, Nigeria, Kenya and South Africa.

The results are expected to assist all firms that invest resources in capital expenditure to understand the relationship between capital investment and its contribution to profitability, especially in periods of financial hardships. The intelligence gained should help guide management to realign its capital expenditure initiatives for improved financial performance.

3. Methodology of the study

Our study used panel data to estimate performance, and compare it between flexible and less flexible firms. Secondary data were used from the OSIRIS database accessed through the Dongbei University of Finance and Economics, and also from the annual financial statements obtained through specific firms' websites. These data

were collected from 86 public firms listed in the stock exchange markets of Tanzania, Kenya, Nigeria and South Africa, for a period from 2004 to 2013.

Performance is a concept used to assess the level at which an organization has succeeded in its line of business. It varies from one organization to the other depending on the nature of activity. Whereas in profit making organizations, profit or sales volume may provide on index of performance, non-profit entities may use number of membership and service to society, example, and scholarships as measures of performance.

The concept of firm performance is a controversial issue in finance largely because of its multidimensional meanings (Tudose 2012). Performance can be explored from two points of view: financial and organizational. A company's performance can be measured based on variables that involve productivity, returns, growth, customer satisfaction etc. Financial performance (reflected in profit maximization, maximizing return on assets and maximizing shareholder return) is based on the firm's efficiency (Nwanyanwu 2015). According to Nwanyanwu, (2015), assessment of financial performance is based on the return on investment, residual income, earnings per share, dividend yield, price/earnings ratio, growth in sales, market capitalization, etc.

The measurement of performance is dependent upon the objectives of the study, information introduced in the measurement system and the instruments employed. The classical indicators used in financial analysis to measure performance have been the financial ratios from balance sheet and income statements using Return on Assets and Return on Equity (e.g., Arslan-Ayaydin et al., 2014; Yung et al., 2015, Ang, Cole, and Lin, 2000), firm's market value and their volatility, using Tobin's q, which mixes market values with accounting values (e.g., Arslan-Ayaydin et al., 2014; Yung et al., 2015and Zhou 2001). Interest coverage ratio (e.g., Saunders, Strock, and Travlos 1990, Cole and Mehran 1998), etc.

As said before, the choice of alternative methods of ascertaining performance may be influenced by the prior set objective of the study. In our case, due to the difficulties experienced in obtaining market data and organizational data from most of our African stock market, our study came up with a decision to measure firm performance using financial indicators only. Specifically, we decided to measure performance based on the return on assets (ROA), interest coverage ratio (ICR) and the Tobin'sq, as our dependent variables. These variables has also been extensively used in other related studies to measure and analyze the performance firms (Claessens et al. 2002; Allayannis et al. 2003; Lemmon & Lins 2003; Arslan-Ayaydin et al. 2014; Yung et al. 2015). The dependent variables are regressed on a number of independent variables including our main variable of interest, FF dummy variable defining the flexibility status of a firm before the onset of the global financial crisis. To control for the important role that a size of a firm play on the performance we follow Arslan-Ayaydin et al., (2014), and include a natural logarithm of total assets (Size), the ratio of capital expenditures to total assets (Investment), the Cash flows position (CFP) and leverage as our control variables in the regression. To control for endogeneity problems, the dependent variable is measured at time t, while the independent variables' values are considered into two different perspectives. Specifically, financial flexibility (FF), and SIZE are considered at the levels they were before the crisis period. The remaining independent variables, namely, therefore presented as follows:

Model:

$$CorpPerformance_{it} = \beta_{0i} + \beta_1 FF_i + \beta_2 SIZE + \beta_3 CFP_{it-1} + Leverage_{it-1} + \beta_5 CAPEX_{it-1} + \mu_i + \mu_t + \varepsilon_{it}$$

Where:

$CorpPerformance_{it}$ - This is our dependent variable. It is measured by ROA, ICR and on the Tobin'sq ratios. The analysis on these variables is done based on three panel periods namely panel A, panel B and panel C. panel A relates to the results based on the analysis of the period before the GFC (2007-2008), panel B presents the results of the crisis period and panel C presents the results of the period after the GFC.

FF is a dummy variable taking the value of 1, for firms that are regarded as financially flexible before the onset of the crisis, and zero otherwise. This variable is computed using the Altman's Z-score index based on the weighted ratios of the Cash and cash equivalents, Earnings before interest and tax (EBIT), Retained earnings, Market to book value of the firm, and the sales. The cut-off points for Z-scores as suggested by Altman, (1968), are: Z-scores below 1.81 is regarded as a distress zone, and that a firm with this score is expected to undergo bankruptcy in the next 2 years. Z-scores between 1.81-2.675 is regarded as a grey zone, that a firm is uncertain of what will happen with regard to the bankruptcy situation in the next 2 years of operation. Z-score above 2.675 is regarded as a safe zone, that no signs of bankruptcy can be projected in the next 2 years.

For the purpose of this study we follow the Altman, (2000) study, putting firms into two groups only, i.e. the financially flexible (FF) firms, and the less financially flexible (LFF) firms. All firms with scores in the safe zone (i.e. above 2.675) are regarded as being qualified for the FF category, while firms with scores in the grey and distress zones (i.e. below 2.675) are regarded as LFF firms.

SIZE of the firm is measured by the natural log of the lagged total assets.

CFP is an abbreviation for cash flow position. This is obtained as an addition of the items of cash and cash equivalents in the balance sheets of the sampled firms.

Leverage is the total debts at time t-1

CAPEX represents the capital expenditure. This is our variable of interest, obtained by adding all the items in the cash flow statement that relates to the purchase, additions and/or extension of the items of fixed assets.

For standardization purposes, all the independent variables are measured as percentages of total assets and hence included in the model as ratios.

4. Empirical results

4.1   descriptive results

The analysis started by first, measuring the financial flexibility of the sampled firms that was attained before the onset of the GFC, so as to be able to assess its impact on the corporate performance during and after the GFC. The findings indicates that among the 86 sampled firms, 45 firms (52.32%) qualified as Financially Flexible (FF), their average Altman's z-scores being 8.027, and the remaining 41 firms (47.68%) were Less Financially Flexible (LFF), with an average z-scores of 1.178. Firms were later on analyzed based on the three phase's period related to the GFC. These were the pre-crisis period (2004-2006), the crisis period (2007-2008), and the post-crisis period (2009-2013). Basing on these phases, the results indicate that among the 45 flexible firms identified earlier, 42 firms were flexible even before the onset of the GFC. This study intended to pay much attention on the trend of these 42 firms that were flexible before the beginning of the GFC, so as to measure how the financial flexibility status helped them cope better with the negative shocks brought by the GFC. The descriptive results for the Altman's z-score analysis are summarized in table 1 below:

Table 1. Descriptive statistics

Variable	Minimum	Maximum	Mean
Altman Z-scores:			
- For FF firms	2.675	13.38	8.027
-For LFF firms	-0.321	2.675	1.178
Cash Ratio	-0.86	0.94	-0.106
RE Ratio	-2.84	1.09	0.261
EBIT Ratio	-0.61	1.84	0.152
MTBV Ratio	-0.10	15.23	1.990
Sales Ratio	0.00	7.56	1.386
Total number of firms = 86; FF firms 42 and LFF firms 44			

Source: SPSS 21 analysis of data

Correlation results

Before we run the regression, a correlation analysis was done to assess the association between the independent variables to the dependent variables, and between the independent variables themselves.

As shown in table 2 below, the correlation coefficients of Capex on all the performance indicators are positive, however, the relationship is very weak and statistically insignificant on the ROA (0.148, P>0.05), ICR at a magnitude of (0.01, P>0.05), and on Tobin'sq at a magnitude of (0.03, P>0.05). This implies that the investments level attained during and after the GFC impacted the profitability of the firms strongly positively. But this impact was not strong on covering the interest expense and influencing the market value of the firms. The likely reason could be that, the level of investments were highly financed by leverage, and therefore an increase in investments went parallel with an increase in the interest expense. As a result, more profitability would be required to cover for the increasing interest expense. Other things being equal, an increase in interest payable will obviously bring down the interest coverage ratio. However, this correlation was also not statistically significant

Table 2. Average annualized correlation coefficients between dependent variables with independent variables, and between independent variables themselves

	FF	Capex	Size	CFP	Leverage	Crisis	FFCrisis	FFpostcrisis
ROA	.410**	.148	-0.02	.202**	0.01	.128**	.216**	.117**
ICR	.327**	0.01	.096**	.188**	-.146**	0.02	.090*	.161**
Tobin'sq	-.116**	0.03	.195**	-.146**	.977**	0.04	-0.01	-0.05
FF	1.00	.073*	-.132**	.271**	-.125**	.131**	.364**	.525**
CapEx	.073*	1.00	0.06	0.05	0.04	.121**	.113**	-.071*
Size	-.132**	0.06	1.00	0.06	.168**	-0.04	-.075*	0.06
CFP	.271**	0.05	0.06	1.00	-.155**	0.00	0.07	.175**
Leverage	-.125**	0.04	.168**	-.155**	1.00	0.03	-0.01	-0.07
Crisis	.131**	.121**	-0.04	0.00	0.03	1.00	.805**	-.331**
FFCrisis	.364**	.113**	-.075*	0.07	-0.01	.805**	1.00	-.267**
FFPostcrisis	.525**	-.071*	0.06	.175**	-0.07	-.331**	-.267**	1.00
** Correlation is significant at the 0.01 level (2-tailed).								
* Correlation is significant at the 0.05 level (2-tailed).								

Source: STATA test results

The predicted variable FF seems to correlate highly positive with the ROA and ICR at the magnitudes of (0.410) and (0.372) respectively. A negative correlation with Tobin'sq is observed at the magnitude of (-0.116). All these relationship are statistically significant at 0.01 significance level. The correlation results for the interaction terms between FF and Crisis variables, and between FF and Post crisis dummy variables indicate positive and significant relationships with the ROA (0.117), and ICR (0.161).

However, the correlation between these interaction terms with the Tobin'sq are negative and statistically insignificant. In general, these results indicate that firms that were financially flexible before the onset of the crisis performed better during the crisis and in the post crisis periods, than firms that were not financially flexible. Hence, in line with our predictions, FF status seems to be an important determinant in financial performance of firms. However, FF has failed to determine the market value of the firm (based on Tobin'sq) because its correlation coefficient during and after the crisis are negative but very weak (-0.01) and (-0.05) a respectively, and however, these coefficients are statistically insignificant $p>0.05$.

For robustness purposes, a further analysis of the correlations between the other independent variables and the dependent variables was also carried out. On average Leverage variable show results that are positively correlate with the ROA (0.01), and on the Tobin'sq at a magnitude of (0.977), while a negative correlation is observed between leverage with the ICR (-0.146). We expected to see financial performance of firms being positively related to the level of previous year's level of leverage. I.e. we expected high previous year's leverage level to result to high current year's investments and performance, however, hence the results meets our expectations.

Size is observed to be negatively correlated with the ROA at a magnitude of (-0.02), and this correlation is significant of $P<0.01$. This suggests that the higher the size the lower the return on assets of the firm. The correlation between size of the firm and the market value of the firm (measured by Tobin'sq) is positive and statistically significant. This suggests that as the firm becomes bigger its market value also increases.

The results on the cash flow position (CFP) shows that, CFP is positively correlated with the ROA, with the ICR ratios. And these correlations are statistically significant. This result may indicate that higher the cash flow position of the previous year, leads to higher the current year's performance. This is consistent with the theory that firms should depend at least partly on internal funds to invest and improve performance. A negative relationship is observed between CFP and Tobin'sq, ($r = -0.146$, $P<0.05$).

The correlations between independent variables themselves also reported in table 2 above are for the sake of understanding their bivariate relationships only. However, these correlations demonstrates no exceptionally high correlations between the variables ($r>0.9$) (Hair et al., 1998). This signifies that multicollinearity wouldn't be a threatening issue in this research work.

Results of the regression models
4.3.1 ROA Results
The results for the Capex variable indicates that there is a positive relationship between a change in the investments and a change in the ROA ratio. A one unit increase in the investments level leads to a 2.24 units increase in the ROA ratio, vice versa also holding true. However, the results further shows that the contribution of Capex in the change of ROA ratio is not significant even at 10% level. This implies that the change in the ROA for the sampled firms, during the sample period was not much impacted by the investments level, there might some other factors that contributed significantly in the observed fluctuations of the ROA. These results are summarized in table 3 below:

Table 3. Regression results for the ROA

Independent variables	Dependent variable - ROA		
	Coefficients	Robust Std. Err	P>t
CapEx	2.240	1.828	0.221
FF	7.445	1.099	0.000
Size	(0.475)	0.181	0.009
CFP	11.186	3.502	0.001
Leverage	(3.794)	0.892	0.000
Crisis	0.943	1.456	0.517
FFCrisis	0.211	1.916	0.912
FFpostcrisis	(1.461)	1.358	0.194
R-squared = 0.1817	F(8, 765) = 21.24	Prob > F = 0.000	

Source: STATA 12, data analysis

Financial flexibility strategy (FF) variable seem to be positively associated with the returns on assets (ROA) ratio. That means the higher the financial flexibility before the onset of the crisis, the higher the performance even during and after the crisis period. The interaction term FFCrisis also indicates a positive relationship with the ROA. This suggests further that firms that were financially flexible before the onset of the crisis performed

better during the crisis than firms which were less financially flexible. The results for the interaction term FFpostcrisis however, displays a negative coefficient of (1.461); although not statistically significant, this result suggests that on average FF firms suffers the impact of the crisis in the period after the GFC. The impact of FF on ROA is highly significant at 0.01 level of significance as presented in table 2. The contribution of FF in the change for the ROA also rank the second behind the CFP; this is indicated in its coefficient of 7.445.

Concomitantly the cash flow position (CFP) ratio on average follows similar trend as shown in the FF variable. The coefficient for this variable is highly positive, suggesting that the higher the lagged CFP, the higher the current year's ROA. The impact of CFP on ROA is highly statistically significant at 0.01 level of significance. The conclusion we can draw here is that the ROA for the firms listed in the African stock markets are highly dependent on the CFP of the previous years. Among the independent variables included in this regression model measuring the ROA, CFP ranks the first in the contribution for change in ROA followed by the FF dummy variable. This finding is consistent with the view of Arslan-Ayaydin et al., (2014) and Yung et al., (2015) that financially flexible firms hold more cash than firms that are less financially flexible.

Interestingly, the results for size are in opposite direction with our expectations. We expected to observe positive relationship between size and performance. However, the regression results indicate that size of the firm, measured by the natural logarithm of the total assets is negatively related with the ROA at a coefficient of (0.475). These results shows that as the size of the firm increases, its ROA decreases. And hence we can therefore conclude that small sized firms performs better than large sized firms. The dependence of ROA on size of the firm is very weak but highly insignificant ($p<0.05$). Some studies such as Barrett, Heaney and McCosker (2005), Yoon (2004), and Risseeuw (1997) caveat that the relationship between financial performance and size is not infinitely linear but there exists an optimal size level above which increased firm size results in deterioration of financial performance. Our finding is in line with the characteristics of the free cash flow theory which is prevalent in mature firms that are prone to over investments due to high levels of excess operating cash flows that surpass available investment opportunities. Titman, Wei and Xie (2004) observed that overinvestment behavior by managers who had empire building incentives resulted in a negative relationship between increase in firm size and financial performance. This was due to the tendency by the empire building enticed managers to invest in negative NPV investments. These managers tend to invest any free firm cash flows on capital expenditures without much regard for maximization of shareholder returns.

In line with our expectations, leverage indicates a negative relationship with the performance. We expected that firms with high lagged leverage are less flexible, and therefore their ability to take advantage of available opportunities is minimized. As a result this may lower the ROA for the current year, especially in times of financial hardships like the 2007-2008 GFC. The results for this variable indicate that leverage is significantly affecting the ROA. The coefficient for this variable is negative and statistically significant. This indicates that firms with lower levels of lagged leverage performed better than firms that were characterized by high lagged leverage ratios.

4.3.2 ICR Results

In our study, we analyze the trend of the interest coverage ratio to assess whether firms' interest coverage ratio improved, worsened or remained stable during the 2007/2008 global financial crisis, as compared to the period before and after the crisis. Due to the uncertainties brought by the GFC, it was expected to see a decline (worsening), in the ratio during the crisis period, although the decline was expected to be much higher for firms that were less financially flexible (LFF) before the onset of the GFC, as compared to those which were financially flexible (FF). The results for this variable are presented in table 4 below.

The results presented in table 4 indicates that t our variable of interest Capex is positively related with the ICR at a magnitude of 4.742, but the impact was not statistically significant, P>0.05. This implies that an increment in the level of investments, led to an increase in the ICR. The possible reason for this could be that, as we have seen previously higher investments were associated with higher levels of leverage, and higher profitability. Higher levels of leverage leads to higher interest expenses, even though the profits are increasing, if such an increase is not much more increasing with the increase in the leverage rate, automatically the impact on the ICR will be low. However, Capex has failed to prove that it is was among the main determinant of the ICR, as its p-value is greater than 0.05 significant level. FF is positively related to the changes in the ICR. The coefficient of the FF dummy variable is positive and statistically significant at 0.01 level of significant. These results suggests that FF strategy has a strong impact on the changes in the ICR

Table 4. Regression results for the ICR

	Dependent variable - ICR		
Independent variables	Coefficients	Robust Std. Err	P>t
CapEx	4.742	11.539	0.681
FF	17.718	6.935	0.011
Size	(1.576)	1.145	0.169
CFP	57.711	22.099	0.009
Leverage	(14.454)	5.627	0.010
Crisis	(0.514)	9.190	0.955
FFCrisis	3.069	12.092	0.800
FFpostcrisis	6.713	7.091	0.344
R-squared = 0.062	F(8, 765) = 6.361	Prob > F = 0.000	

Source: STATA 12, data analysis

Backing up the analysis, African firms appear to use FF as a performance improving strategy as seen in the regression results during and after the financial crisis period of 2007/2008. This is supported by also by the coefficients of the interaction terms (FFCrisis and FFPostcrisis) being positive. Although not statistically significant, the coefficients for this interaction terms suggests that FF performed better by improving their ICR more than LFF during and after the GFC.

By the same talk CFP ratio appears to improve as the ICR improves and vice versa. The coefficient for the CFP is positive and statistically significant at 0.01 level of significant. This result indicate that the position of the internal funds of the firm affects the ICR positively and highly significant. i.e. firms that were characterized by high levels of cash reserves before the onset of the crisis, managed to increase the ICR more than they could the LFF firms.

The level of leverage indicates a negative and significant relationship with the ICR, i.e. when leverage decreases, the interest expenses also decreases, and therefore other things kept constant, the ICR should obviously go down. . On average, leverage went up during the crisis, however the ROA also went up resulting to no significant change in the ICR as presented in table 3. Among the remaining findings, it seems that the crisis, size of the firm and lagged capital expenditure (Capex), do not appear to play a significant role in affecting the performance of firms in and after the crisis period. Specifically, the estimated coefficients on these variables are statistically insignificant, leading to the conclusion that size of the firm and previous year's investments, may not be among the key drivers of performance in the crisis period.

4.3.3 Tobin'sq results

Just like in the previous measures of performance, the results presented in table 5 shows that Capex is positively related with the Tobin'sq but the relation among them is not statistically significant. The results indicate a very weak relationship (at a magnitude of 0.027) between Capex and Tobin'sq, with a p-value of 0.574. This result suggests that the growth opportunities of the sampled firms did not depend much on the investment levels of the respective firms. On average, the findings reported in Table 5 suggest that a firm's choice to establish financial flexibility in the pre-crisis period did not affect its performance (Tobin'sq) during and after the crisis period. However, the crisis period also did not seem to affect the market value of the firm. When we interact the financial flexibility proxies with the crisis and include the underlying interaction terms in the performance equation, the results indicate that the estimated coefficient on the interaction terms is zero and statistically insignificant.

Table 5 Regression results for the Tobin'sq

	Dependent variable - Tobin'sq		
Independent variables	Coefficients	Robust Std. Err	P>t
CapEx	0.027	0.047	0.574
FF	(0.028)	0.028	0.328
Size	0.015	0.005	0.001
CFP	(0.693)	0.091	0.000
Leverage	1.062	0.023	0.000
Crisis	0.051	0.038	0.172
FFCrisis	0.000	0.049	0.987
FFpostcrisis	0.020	0.029	0.488
R-squared = 0.74	F(8, 765) = 274.43	Prob > F = 0.000	

Source: STATA 12, data analysis

These findings reiterate findings of the previous models regarding the crucial role that financial flexibility can play during economic downturns. The results regarding the firm size, CFP and Leverage are mixed. When we use the ROA and the interest coverage ratio (ICR), as the dependent variable the relationship between size and

leverage on performance was negative and significant, while that of CFP on performance was positive. However, the relation becomes positive for leverage and size, and negative for CFP when performance is measured using the firm's ROE and Tobin'sq.

5. Summary and conclusion

Capital expenditure is incurred to acquire economic resources that are utilized to generate firm's revenues. The revenues generated play a significant role in determining the firm's financial performance. It is therefore important that Managers and other stakeholders understand the impact that assets acquisition, addition and expansions process may have on the firm's financial performance before they make decisions. Understanding the aforementioned effect forms the objective of this chapter.

This study was meant to explain the impact of investment ability measured by capital expenditure (Capex) on the performance of firms. Specifically we aimed at examining whether an increase in the investment levels of the firm leads to an increase in the financial performance of the respective firm and vice versa. The study exploited this relationship paying particular attention on the impact of the 2007/2008 GFC. We therefore studied the impact of the investment ability on firm's financial performance during and after the GFC. However, financial flexibility was also considered, by assessing its impact on the firm's performance based on the flexibility acquired before the onset of the crisis.

A multiple linear regression model was used to establish the relationship between capital expenditure and financial performance. The financial performance of the firm was measured using four different indicators namely ROA, ICR and Tobin'sq. The study took cognizance of the fact that capital expenditure was not the sole determinant of financial performance and consequently introduced additional variables that may affect financial performance of the firm. These variables are leverage as measured by the ratio of total lagged debt to total assets, and financial flexibility dummy variable measured by the Altman's Z-score model. Other variables included cash flow position, the crisis dummy variable taking the value of 1 for analysis during the crisis and zero otherwise and size of the firm measured by the natural logarithm of total assets.

Results of the study reveals that on average capital expenditure affected the financial performance positively during and after the crisis period but in varying degrees. However the impact of the capital expenditure on the performance of the firms was not statistically significant all p-values greater than the 0.05 level of significance.

The results however, reveals that FF is a value enhancing strategy and that firm's management should consider this strategy when making decisions with regard to finance and investments. This conclusion has been reached after observing that firms that were financially flexible prior to the GFC performed better than less financially flexible firms during and after the crisis. Our analysis suggests that the advantages of financial flexibility may not be significantly pronounced during the crisis itself as most of the firms may still be struggling to learn and understand the shocks brought by the crisis, but after a short time, financially flexible firms may react by making use of their flexibilities to access credit facilities and/or make use of the available internal funds to cope and perform better than less flexible firms. This was also observed in our findings that LFF firms increased the ROA more during the crisis than FF firms, however their decline was very severe in the period following the GFC (2009 onwards) when FF firms were recovering, maintaining and experiencing a slow growth in their operations. An important observation was also experienced on the sensitivity of performance on internal funds. The results imply that African firms depends much on internal funds to improve performance than on other sources like leverage, however on average small sized firms indicated higher performance than large sized firms.

As argued in the literature, the majority of senior managers around the world consider financial flexibility as one of the most important determinants of their capital structure decisions (Graham & Harvey 2001; Bancel & Mittoo 2004). Financially flexible firms seem to enjoy easier access to external capital markets to meet the financial needs that arise from unanticipated performance shortfalls and/or new growth opportunities, and hence avoid the situations that could force them to poor performance. Moreover this work adds to the literature by documenting an empirical relationship financial flexibility and firms' performance, paying particular attention on the 2007/2008 GFC using data from firms operating in Africa.

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