Financial Flexibility and the Impact of the 2007/2008 Global Financial Crisis: Evidence from African Firms

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Abstract

The objective of this study is to test the financial flexibility of firms in the period before, during and after the 2007/2008 global financial crisis and to understand the impact of this crisis on the financially flexible firms as compared to their peer, less financially flexible firms. Financial flexibility is measured using the Altman Z-score index, using cash and cash equivalents ratio, the retained earnings ratio, the earnings before interest and tax ratio, the market to book value ratio, and the sales ratio. A firm was regarded as being financially flexible if its Altman Z-score is equal or above 2.675, and as less financially flexible otherwise. The sample period is from 2004-2004 divided into 3 phases, i.e. the pre-crisis period (2004-2006), the crisis period (2007/2008), and the post-crisis period (2009-2013). The results show that about 42 firms (48.83%) of all the sampled firms were financially flexible before the onset of the global financial crisis. However during the crisis, 11 firms equal 26.19% of flexible firms lost their flexibility status while five more (12%) became less financially flexible in the period following the crisis. These results, therefore, provides evidence that the global financial crisis had a negative impact on the financial flexibility of firms, causing financially flexible firms to decrease at an average of 38% from 42 in the pre-crisis period to 31 in the post-crisis period. The originality of the author's approach is to evaluate the financial flexibility of firms listed in the Sub-Sahara Africa by applying the Altman z-score measure.
Keywords: keywords, financial flexibility, global financial crisis, Altman's Z-scores

1. Introduction

Financial flexibility is an ability of a firm to respond effectively to unanticipated shocks to its cash flows and its investment opportunities (Franck Bancel & Mittoo, 2011). Financial Managers view financial flexibility as an important aspect in enabling firms to undertake investments in the future when asymmetric information and contradicting problems might otherwise force them to forego profitable growth opportunities (Marchica & Mura, 2010).

The majority of senior corporate managers around the world consider financial flexibility as one of the most important determinants of their financing decisions (Frank Bancel & Mittoo, 2004). However, there is still little empirical evidence specifically from Africa, on how managers perceive financial flexibility while making financing decisions, and whether the financial flexibility is a value enhancing strategy for their firms. This study aims at examining the financial flexibility of industrial firms listed on the sub-Sahara African countries' capital markets, over a period 2004 to 2013, paying particular attention to the 2007-2008 global financial crisis.

Does the extent of financial flexibility differ across firms and countries? In other words, does companies value financial flexibility in capital structure decisions? This proposed provides empirical evidence on financial flexibility and its correlation with the 2007/2008 global financial crisis on industrial firms operating in the Sub-Sahara African countries over a period of ten years, from 2004 to 2013. Specifically, the study answers the following research questions:

1. To what extent were the firms financially flexible before the onset of the 2007/2008 GFC?
2. Was the FF status sustainable during and after the GFC?

2. Literature Review

Many studies have been done in the field of financial flexibility. However, to date, how to measure a firm's financial flexibility is still a challenging puzzle.

Marchica & Mura, (2010) measured financial flexibility using the company's spare debt capacity. The study employed low long-term leverage targets as a proxy for financial flexibility, using the Frank and Goyal's baseline model. A firm was regarded as having a spare debt capacity if its leverage predicted by the model was greater than the actual leverage observed from the company's records, and if the spare debt capacity was observed for three years consecutively, then that firm was regarded as being financially flexible. Ferrando et al., (2014), using firms from the euro and the UK documented that financial flexibility attained through conservative leverage policies is more important for private, small, medium-sized and young firms in countries that have lower access to credit and weaker investor protection.

DeAngelo et al., (2010) argue that firms should optimally maintain low levels of leverage in most periods so as to preserve the option to borrow in times of high capital needs. In their model, firms face volatility in both cash flows and the investment opportunity set, thereby creating the need for financial flexibility to avoid

costly underinvestment. They further state that, because stockpiling cash is itself costly due to tax and agency costs, the optimal fiscal policy should consist of low long-run leverage targets that preserve debt capacity.

Diamond & He, (2010), states that risky short-term debt imposes a larger debt overhang than long-term debt. Almeida et al., (2012) provides evidence that, during the 2008 global financial crisis, firms with a larger current portion of long-term debt cut back their investments more than those with a smaller current portion of long-term debt. It is therefore suggested that, an appropriate financial flexibility measure should also take into consideration the debt overhang of the current portion of the long-term debt.

However, in practice firms can use other different sources to enhance their financial flexibility status, such as holding substantial amounts of cash, and using commercial papers and bank credit lines (Almeida et al., 2012; Sufi, 2009). A study by Bates et al., (2008) reports that corporate cash balances in the U.S. are substantial, and have increased from 10.5% of book assets in 1980 to over 23% in 2006. These secular increases in cash balances are related to changes in firms characteristics normally associated with the motives for holding cash.

Opler et al., (1999), finds that the observed cash balances are positively related flexibility motive for cash holding. Also, cash holdings tend to be higher in firms with poor access to external financing. These findings support the view that managers arrange their liquidity management policies so as to provide the flexibility to respond to unexpected changes in the firm's cash flows or investment opportunity set.

Meier et al., (2013), in their study on financial flexibility and performance during the 2008 financial crisis, measured the financial flexibility by focusing on high cash balances and low debt levels. In their study, firms that hold substantial cash reserves or keep their debts levels below their borrowing capacity, have the flexibility to fund new profitable projects without the need to raise money externally through debts or equity issues respectively. The study finds that the pre-crisis high levels of cash do not seem to have a positive impact on firm value during the crisis, but elevated levels of debt had a negative impact on value, supporting the hypothesis that financial flexibility has value.

Ang & Smedema, (2011), analyzes whether expected changes in financial frictions lead firms to boost their cash holdings. They investigated whether firms arranged their cash holdings to prepare for future recessions, because during recessions, other sources of financial flexibility such as lines of credit, cash flows, asset sales, and debt capacity do dry up. The cumulative evidence finds that cash holdings are negatively related to ex-ante measures of the risk of recession; especially for those firms which are financially constrained or their ex-ante cash positions are poor.

Lins et al., (2010), survey CFOs from 29 public and private firms in different countries, about the aspects of corporate liquidity that cannot be obtained from publicly available data. In their analysis, they find that lines of credit are strongly related to a firm's need for external financing to fund future investment opportunities. They further generalized that, across countries, firms make greater use of lines of credit when external credit markets are poorly developed, hence hedge against the possibility that future financing frictions might cause the firms to bypass profitable projects.

Bates et al.,(2008), analyzed the role of commercial paper (CP) in financing long-term investments. Using a comprehensive sample of CP issuers from 1979 to 2005, they find that, CP borrowing is positively correlated with investment expenditures and negatively correlated with cash holdings. They further argued that firms access the CP market to enhance their financial flexibility when they face increased uncertainty about their cash flow and/or investments.

Despite its useful insights, the analysis in the above discussion can be misleading given that they are based on a univariate setting and consider the cash and leverage positions of firms separately in measuring financial flexibility. Corporate cash and leverage decisions are strongly interrelated in the sense that an adjustment in one policy variable implies that other policy variables must also adjust. As a result, firms may choose to attain financial flexibility by simultaneously maintaining a low leverage and a high cash policy.

Franck Bancel & Mittoo, (2011), realized that, in practice firms can use several different sources to enhance their financial flexibility, and that these choices may differ across companies and situations (motives). These findings driven them to directly ask the managers several questions about different potential sources of both internal and external financing so as to gain some insights into how they achieve financial flexibility.

From the empirical findings, the study then constructed several financial flexibility variables based on the survey data and examined their correlations with the crisis impact to identify an appropriate robust financial flexibility measure. The results show that an index based on the firm's leverage, liquidity, and operating ratios, similar to Altman Z-score, might be a better financial flexibility measure than individual measures, like the use of long-term debt or cash flow levels respectively.

In line with Franck Bancel & Mittoo, (2011), this study measures the financial flexibility of firms by adopting the index model based on firm's leverage, liquidity, and operating ratios using the Altman Z-scores index as the best measure suggested.

Many studies indicate that Financial Flexibility enables firms to respond effectively to unanticipated shocks on cash flows and/or available investment opportunities. However, most of these studies have been done

focusing on the Europe, US, and Asia of which many of their countries are economically developed. (e.g. Arslan-Ayaydin, Florackis, & Ozkan, 2014; Franck Bancel & Mittoo, 2011; Gamba & Triantis, 2008; Graham & Harvey, 2001; Marchica & Mura, 2010; Meier, Bozec, & C, 2013). Myers (1984) argued that "the theories are conditional, not general" they may work better in some conditions than in others. Gamba & Triantis, (2008), also suggested that the value of financial flexibility varies across firms based on the related reversibility of their capital. Arslan-Ayaydin et al., (2014) also concluded that the value of financial flexibility is region or country specific, which may be explained by the fact that different regions often adopt different macroeconomic policies and operate in diverse economic/legal environments. It is therefore, better to study the theories in different economic situations, rather than studying in one situation, then generalize the findings.

There is still less empirical evidence on the financial flexibility status of firms operating in developing countries, specifically Africa, and its value in helping firms cope with financial hardship times like the experienced 2007/2008 global financial crisis. This study therefore, fills this gap.

3. Methodology of the study
3.1 Population and Sample
The sample for this study comprises of 86 industrial firms listed in the capital markets of Tanzania, Kenya, South Africa and Nigeria. This list is a sample of countries that were affected most by the GFC (Arieff et al., 2010). The study excluded financial, and insurance firms as their capital structure are controlled by particular regulations that may make them differ from the capital structure of other companies in the sample. We also excluded companies with fewer than three consecutive years of data since our flexibility depends on a minimum number of three years of observations. Companies with missing values of relevant study variables were also excluded from the sample. The sampled countries also represent some economies which have been growing fast recently, but also hit hard by the recent GFC. The countries are characterized by emerging markets and firms, of which knowledge on the value of financial flexibility may be very significant for their future growth, sustainability and stability in times of financial hardship.

Focusing on the crisis period provides the researcher with stronger tests and clear advantages of financial flexibility. The GFC represents exogenous shocks to firm's firms' viability, profitability, cash flows and expected returns on investment opportunities (Arslan-Ayaydin, et al., 2014). Hence the financially flexible firms were supposed to be less impacted than their peer, less financially flexible firms.

This study employed secondary panel data obtained from the OSIRIS and IEU database available through the Dongbei University of Finance and Economics, and from annual financial statements available in specific firms' websites. The dataset covered a period of ten years from 2004 to 2013.

3.2 Model specification
The major challenge for researchers in this field is how to measure financial flexibility since it is unobservable and difficult to quantify. Some researchers measure FF regarding spare debt capacity, defining it as "untapped borrowing capacity" that allows firms to obtain credit whenever they are in need of. (Denis & Sibilkov, 2010; Marchica & Mura, 2010). Some studies also measure FF in the form of holding high cash balances, (Almeida & Campello, 2007), high lines of credit, (Sufi, 2009), or in the form of a combination of both holding high cash balances and low debt levels, (Meier et al., 2013). However all these choices are likely to vary across firms hence make it difficult to directly quantify the FF.

This study measured the FF of firms using the Altman's Z-score index model as suggested by Franck Bancel & Mittoo, (2011). The Altman Z-score (1968), has also been employed in several studies as a proxy for the firm's financial constraints (e.g. in Cleary, 1999; Denis & Sibilkov, 2010). Frank, Bancel and Mittoo used the model to assess the FF status of firms in France taking into consideration the effects of the GFC, a study very similar to ours. Before suggesting it as a good model for FF measurement, these researchers constructed several FF variables, such as the availability of internal funds, short-term debt and cash ratios, that capture different aspects of the crisis impact. Based on their survey data, they examined the correlations of these variables with the crisis impact to identify an appropriate measure. Their study evidenced that managers use several sources in addition to low leverage and holding of high levels of cash and cash equivalents, to enhance FF. Hence, an index based on working capital, leverage, and operational ratios, similar to the Altman Z-score (1968), might be a better proxy for measuring FF status than the long-term debt and cash holding ratios that have been used in several recent studies. However, they recommended for more empirical research to test this conjecture.

Our study measures the FF status by assessing the extent to which the Global financial crisis led to change in the Altman Z-score for the sampled firms. Firms with Z-scores above 2.675 are regarded financially flexible (FF), while firms with scores below 2.675, are considered to be being less financially flexible (LFF). It was expected to find a decline in the firm's Z-scores during the crisis and after the crisis, relative to the period before the crisis. The possible reason is that most firms were hit hard by the crisis, hence making use of the FF status to survive or invest when opportunity arise. It was further expected that the decline for the Z-score would

be steeper for LFF firms than it could be for the FF firms.

For the purpose of this analysis, we measure and compare the Altman Z-score for a sample of selected industrial listed firms from South Africa, Kenya, Tanzania, and Nigeria, for a period from 2004 to 2013. The total number of years are divided into three phases, being before the onset of the GFC (2004-2006), during the GFC (2006-2007), and after the GFC (2008-2013). We extract yearly financial ratios for firms using data from the OSIRIS database provided by the Dongbei University of Finance and Economics, and from firms' annual financial statements, obtained from individual firm's websites.

For a firm to be included in the sample, it was a must that it should have complete data for the ten years from 2004 to 2013, so as to be able to make a clear follow-up of its trend from phase to phase. Finally, the study obtained and used a sample of 87 industrial listed firms from Nigeria, Tanzania, Kenya and South Africa. The study starts the analysis by measuring the flexibility status of firms using the FF index provided by the model. We then empirically assess the extent to which the GFC impacted the financial flexibility statuses. For each firm the Altman Z-score is computed as follows:

$$Altman \quad Z-score = 1.2 X_1 + 1.4 X_2 + 3.3 X_3 + 0.6 X_4 + 0.999 \quad X_5$$

3.3 Description of the variables of the model

A major challenge in the estimation of the financial flexibility status of companies is the selection of the variables to be used in estimation model. In various models there are still no standard variables for the financial flexibility estimations; however, it mostly depends on the data availability, the nature of the study and the weight attached to the variables by the authors. Basing on similar studies and the situation under investigation (the effects of the GFC), this study adopts the variables as provided by Altman, (1968). These variables have also been suggested and used by Bancel and Mittoo, (2011) in their study on financial flexibility and the impact of the global financial crisis, based on the France publicly listed firms.

The Altman Z-score is computed similarly to 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 two years. Z-scores between 1.81-2.675 is considered to be a gray zone, which a company is uncertain of what will happen in the bankruptcy situation in the next two years of operation. Z-score above 2.675 is considered 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 above 2.675 are regarded as being qualified for the FF category while firms with scores below 2.675 will be regarded as LFF firms. Altman (2000), did three subsequent tests, examining 86 distressed firms from 1969-1975, 110 bankrupt firms from 1976-1995, and 120 firms from 1997-1999, and found that, the Z-score model using a cutoff score of 2.675 was between 82% and 94% accurate. Hence concluding that the Z-score model has retained its reported high accuracy and still robust despite its development over 30 years ago.

For the Altman Z-score to be a good measure for FF, it was expected to observe a decline in the firms' Z-scores during the crisis relative to the pre-crisis period. This decrease was also expected to be more severe on firms with low Z-scores in the pre-crisis period relative to their high Z-score peers.

X1, X2, X3, X4, and X5 are independent variables of the model. X1 stands for cash ratio, obtained by total cash plus cash equivalents minus trade payables divided by total assets. It is used as a proxy for firm's liquidity, indicating a positive relationship with the Z-score. X2 is the retained earnings ratio, obtained by taking the value of the retained earnings divided by total assets. It is used to measures the ability of the firm to reserve earnings in relation to its total assets. The higher the firm's ability to retain earnings the high is its FF. X3 is the profitability ratio, obtained by taking the earnings before interest and taxes divide by total assets. This ratio measures the ability of the firm to make a profit in using the level of assets available. The higher the profitability ratio, the higher the Z-score ratio. X4 represents the market value of the firm (MTBV), measured by taking the book value of total assets minus the book value of equity plus the market value of equity, divided by the book value of total assets. The higher market value of the firm increases the FF status of the firm. X5 is the sales ratio. It is obtained by taking the total sales divided by total assets; specifically, X5 measures the efficient of the firm to generate revenue at a given level of assets.

4. Empirical results

4.1 Descriptive results

The descriptive statistics of the variables used for measuring financial flexibility as indicated in Table 1 bellow show high deviation among the firms reviewed. These reflect the difference in their size of operations, the country of origin, and the industry they are operating. The mean of the Altman Z-scores ratio was 3.306, with a standard deviation of 1.843. The maximum Altman Z-score was 13.38, while the minimum was -0.32. In a

general view, the cash ratio indicates a minimum score of -0.86 and a maximum of 0.94, specifically the highest score being from South African firms. Under the retained earnings ratio (RE), minimum is -2.83, maximum 1.09; earnings before interest and taxes (EBIT) ratio, minimum is -0.61, maximum is 1.84. In the market to book value ratio (MTBV), minimum score is -0.10, maximum is 15.23; while under the sales ratio, minimum score is 0.00 and its corresponding maximum score is 7.56. The highest scores of all the variables (Dependent and independents) are observed from South African firms (Z-score of 13.38), while the lowest scores on average are observed from Kenyan firms, (Z-score of -0.63). These differences in the countries' variable scores appear to be high due to the huge differences in size of the firms, technological advancement of the respective counties and the type of industry the firm operates.

Table 1:   **Descriptive statistics**

Variable	Minimum	Maximum	Mean	Standard Deviation	Skewness	Kurtosis
Altman Z-score	-0.32	13.38	3.306	1.843	1.338	2.849
Cash Ratio	-0.86	0.94	-0.106	0.167	-0.735	3.656
RE Ratio	-2.84	1.09	0.261	0.307	-2.295	17.824
EBIT Ratio	-0.61	1.84	0.152	0.161	3.023	23.457
MTBV Ratio	-0.10	15.23	1.990	1.689	3.351	15.540
Sales Ratio	0.00	7.56	1.386	1.072	2.023	5.656

Source: SPSS 21 analysis of data

4.2 Financial Flexibility and the GFC
The analysis started by first, measuring the financial flexibility of firms in general, by country and specifically in each phase. The findings indicate that among the 86 sampled firms, 45firms (52.32%) qualified as Financially Flexible (FF), and the remaining 41 firms (47.68%) were Less Financially Flexible (LFF). Among the 45 flexible firms, 2 firms (4.44%) are from Nigeria, 4 firms (8.89%) are from Tanzania, 9 firms (20%) are from Kenya, and 30 firms (66.67%) are from South Africa. However, 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). Our results basing on these phases 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 to the trend of these 42 firms that were flexible before the beginning of the GFC. However, during the GFC, 11 firms (26.2%) lost their flexibility status, while 31 firms (73.8%) sustained their flexibility status. During the period classified as "after the GFC" (2009-2013), 5 more firms (11.9%) lost their flexibility status. Hence only 26 firms (61.9%) maintained their flexibility status. The by country results show that, before the onset of the GFC, Flexible firms were 28 (66.67%) from South Africa; 8 (19.05%) from Kenya; 4 (9.52%) from Tanzania; and 2 (4.76%) from Nigeria. About 9 firms (32.1%) from South Africa lost their flexibility status during the GFC, and 3 more firms (10.7%) lost their flexibility status after the GFC, leaving 16 firms (57.14%) sustaining their flexibility status for the whole sample period. From Kenya, 2 firms (25%) lost their flexibility status in the second phase (during the GFC), while 2 more firms (25%) also lost their flexibility status in the period after the GFC; leaving 4 firms (50%), sustain their financial flexibility status in all phases. 4 firms from Tanzania, and 2 firms from Nigeria were flexible during the first phase (before the onset of the GFC), and none of them lost their flexibility status either during or after the GFC. a summary of these results are given in Table 2 below:

Table 2:   **Financially Flexible Firms on country Level**

Country	BEFORE THE GFC	DURING THE GFC		AFTER THE GFC	
	Valid Number	Valid Number	% Drop	Valid Number	Total % Drop
South Africa	28	19	32.14%	16	42.85%
Kenya	8	6	25.00%	4	50.00%
Tanzania	4	4	0.00%	4	0.00%
Nigeria	2	2	0.00%	2	0.00%
IN GENERAL:	42	31	26.19%	26	38.1%

Source: SPSS 21 analysis of data

Second, our study empirically tested the extent to which the GFC has led to the change in the Altman Z-score for the sampled firms. The results indicate that the average Altman's Z-score declined from 3.94 in the pre-crisis period (2006-2007), to 3.34 (15.23%) during the crisis period (2007-2008). The decline was even sharper in the period after the GFC, which the mean value of the Altman's Z-score dropped to 2.91, about a 26.14% drop from 3.94 in the pre-crisis period. We then observed the impact of the GFC on change of the

Altman Z-scores of the financially flexible firms as well as that of less financially flexible firms.

Table 3: **The impact of GFC on average Altman Z-scores**

Altman Z-score (Mean Value)	BEFORE THE GFC	DURING THE GFC		AFTER THE GFC	
	Score	Score	% drop	Score	Total % drop
In general	3.94	3.34	15.23%	2.91	26.14%
In FF Firms	4.85	4.24	12.78%	4.21	13.2%
In LFF firms	1.90	1.81	5.26%	1.77	6.84%
Top decile	11.01	9.66	12.26	9.62	12.55%
Lower decile	0.51	0.36	29.41%	0.34	33.33%

Source: SPSS 21 analysis of data

The results as presented in Table 3 above indicate that Altman Z-score of FF firms declined by 12.78% from 4.85 before the GFC to 4.235 during the GFC. However the drop after the GFC was not big as compared to that observed during the GFC, it only went down further to 4.209 (0.5%). On the other side, the Altman z-score for the less flexible firms declined from 1.903 before the GFC, to 1.805 during the GFC, about 5.15% decline. After the GFC, the average Altman Z-score of LFF firms went more down to 1.77, about 1.84% decline. We then grouped the firms into 10 deciles based on their Altman Z-scores and found that firms with lower Altman Z-score experienced a higher decline in their Altman Z-scores from an average of 0.51 in the pre-crisis period to an average of 0.36 in the crisis period, which is a 29.41% decline. In comparison, the firms in the upper decile exhibit a 12.26% decline in the Altman Z-score, from an average of 11.01 before the crisis, to an average of 9.66 during the crisis.

4.3 The Univariate analysis results

The univariate analysis was done so as to obtain some important ideas regarding the impact of financial flexibility on firm characteristics. This analysis was conducted using Mann-Whitney U, and Wilcoxon W non-parametric tests. These tests were used to compare the selected independent and dependent variables between financially flexible (FF) firms and less financially flexible (LFF) firms. We started by comparing their cash and equivalent cash ratios. FF firms hold significantly higher cash and cash equivalents than LFF firms. The mean value of cash ratio of FF firms is -0.124 compared to -0.825 of LFF firms. The difference in means is significant at 5% level. This finding is consistent with the results of Ferrando et al., (2014), that firms can achieve financial flexibility through conservative leverage policies or by holding large cash balances.

A comparison of the remaining variables in the table also indicates that FF firms have higher retained earnings ratio, earnings before interest and tax ratio, market to book value ratio, sales ratio, and a higher Altman Z-score ratio than their peer LFF firms. The ratios are as indicated in table5.8. However, the Mann-Whitney U test revealed that the differences in values on all the variables between FF firms and LFF firms are statistically significant, all p's<.05.

Table 4 **Univariate Results**

Variable	FF Firms (Mean)	LFF firms (Mean)	Mann-Whitney U	Wilcoxon W	Z	Asymp. Sig. (2tailed)
Cash ratio	-0.124	-0.825	77302.00	196618.00	-3.731	.000
RE ratio	0.335	0.136	46295.00	115673.00	-12.338	.000
EBIT ratio	0.219	0.062	21932.00	91310.00	-19.073	.000
MTBV ratio	2.684	0.123	32253.00	101631.00	-16.213	.000
Sales ratio	1.848	0.779	27080.00	96458.00	-17.647	.000
Altman Z-score	4.444	1.807	0.00	69378.00	-25.150	.000

Source: SPSS 21 analysis of data

5. Summary and conclusion

The analysis of this part is based on measuring the financial flexibility of firms before, during and after the 2007/2008 GFC, and then determining the extent to which this crisis affected the flexibility status of firms that were declared flexible before the onset of the GFC. This analysis is based on correlation and regression test in a panel of 86 firms from 4 counties being, South Africa, Kenya, Tanzania, and Uganda, for ten years from 2004 to 2013. Using the Altman Z-score model, the findings indicate that there was a strong relationship between the dependent variable (the Altman Z-score) and the independent variables, i.e. the Cash ratio, the retained earnings ratio, the earnings before interest and tax ratio, the market to book value ratio, and the sales ratio. Except the cash ratio, the remaining 4 independent variables indicated a positive relationship with the Altman Z-score. The results further indicate that high volumes of sales, high levels of retaining profits, high equity values, and higher

operating profits contributes to a large extent the financial flexibility of the firm. However, their standard of contribution differs from one another. Major contribution in the Altman Z-score is seen in the earnings before interest and tax (EBIT) while less attention is indicated in the correlation between cash ratio and the Altman Z-score.

The main focus of our analysis was to gain some insights into the financial flexibility of firms, and to identify the extent to which these firms sustained their flexibility status during and after the 2007/2008 GFC. The result shows that about 42 (48.84%) firms out of 86 were financially flexible before the onset of the GFC. However, 6 (14.29%) of these firms lost their financial flexibility status during the GFC, while 10 (23.8%) more losing in the post-crisis period. Only 26 firms (61.9%) out of 42 managed to sustain their financial flexibility status throughout to the pre-crisis period. Large firms exhibited higher financial flexibility than small firms. Firms from South Africa indicated high financial flexibility scores. The Altman Z-score for the financially flexible firms were not impacted much as compared to the less flexible firms. The mean value of the Altman Z-score for the flexible firms dropped by 12.26% from 11.01 in the pre-crisis period to 9.66 during the crisis period, while that of the less flexible firms dropped on average by 29.41% from 0.51 before the crisis to 0.36 during the crisis. These results indicate that FF firms were not hit much by the GFC as compared to the LFF firms. The result are in line with the findings by Yung, Li, & Jian, (2015), that, financially flexible firms suffer less from negative shocks and less in operating performance than less financially flexible firms during the global financial crisis. However, Franck Bancel & Mittoo, (2011), also concluded that firms with high financial flexibility had the lower impact of the crisis than firms without financial flexibility.

The evidence supports that firms with the high market to book value (MTBV) ratios, high earnings before interest and tax (EBIT) ratio, and high sales ratio experienced a low impact on their z-scores during and after the GFC. This result is not a surprise since the theory suggests that market frictions such as the asymmetric information caused by the GFC, generally make internal funding less costly than external financing. Firms financing costs would be higher during the GFC, and, therefore, allow the firms with high internal funding ability to prosper than their peers.

Unsurprisingly, the statistical results show that the ratio of cash was heavily concentrated around zero, as it can be seen from the descriptive statistics presented in Table 5.1. For example, the mean value of cash ratio is -0.133, with the minimum being -0.86 and maximum 0.96. This result is common in literature, suggesting that a large set of firms prefer to make use of conservative in enhancing their financial flexibility rather that entertain higher levels of idle cash. This result is common in the literature (Duchin et al., 2010; Meier et al., 2013).

Our results are in line with the findings from other similar studies that, FF of firms declined during the GFC, and that the decline was more severe on firms with low Altman Z-scores in the pre-crisis period in comparison to the firms that had high Altman Z-scores. The same findings have also been presented in the studies by Ang & Smedema, (2011); Arslan-Ayaydin et al., (2014); Franck Bancel & Mittoo, (2011); Meier et al., (2013).

Our findings are expected to help firms in understanding the value of financial flexibility during times of financial difficulties and severe crises, and also policy makers in developing better policies for managing future crises.

However, we recommend further research to be done investigating the investments ability and financial performance financially flexible firms in relation to the less financially flexible firms, during and after the global financial crisis. This will help to researchers and managers and policy makers to gain more insights on the value of financial flexibility.

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