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Effect of Financial Leverage on Value-Added Financial Performance of Kenyan Listed Firms

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Abstract: *Listed firms inthe Nairobi Securities Exchange (NSE) are a major contributor of revenue to Gross Domestic Product (GDP), averagely contributing 18% annually during the period 2003 to 2014. However, value-added financial performance of listed firms generally remains poor evidenced by delisting and suspension of up to 16% of listed firms in the same period. Although empirical evidence links firm financial performance to financial leverage structures, results are unsystematic, indicating lack of effective frameworks for instituting optimal financial leverage decisions. Prior studies focus on either accounting-based or market-based performance measures indicating that the effect offinancial leverage on value-added financial performance has not been analysed. The study therefore purposed to analyse the effect of financial leverage on value-added financial performance of the listed firms. Correlational research design was employed with target population of 64 firms. Purposive sampling technique obtained 456 firm-year observations from 2003 to 2014 for 38 firms. Secondary data collected was analysed using fixed effects multiple regression. Results show that financial leverage has a negative significant effect (β = -0.4502; p = 0.000) on value-added performance implying a unit increase in financial leverage leads to 45.02% reduction in value-added financial performance. The study concludes that increase in financial leverage levels in the average listed firm in the NSE significantly reduces value-added performance.*

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I. Introduction

According to Pandey (2010), financial leverage is the use of the fixed-charges sources of funds such as debt and preference capital along with the owners' equity in the capital structure of firms. The importance of financial leverage decisions can be traced to their intense interrelationships with other financial decisions (Javeed *et al*., 2014), which can affect a firm's returns as well as informing its ability to compete (Ramli and Nartea, 2016). Since the pioneering work of Modigliani and Miller (1958) in their Capital Irrelevancy Theory, the theory of financial leverage and its influence on firms' financial performance has been an issue of great concern in corporate finance. One prominent theory proposed to explain the influence of financial leverage on firm value is Myers and Majluf's (1984) Pecking-order Theory. Proponents of this theory argue that due to different degrees of asymmetry present in the various sources of financing, firms will prefer internal retained earnings before resorting to external financing. Therefore, profitable firms will have low gearing levels because the firms prefer internally generated funds over externally financing. According the proponents of the theory therefore, the use of more debt financing in the capital structure lowers the performance of the firm and value addition in general.

Despite numerous empirical tests examining the interaction between financial leverage and firm financial performance, unanimity is not arrived at. However, plausible relationships are demonstrated. Berger and Bonaccorsi di Patti (2006) using a sample of listed banks in the US, Javeed *et al*. (2014) in an analysis of non-financial listed firms in Pakistan and Akhtar *et al*. (2012) who study fuel and energy sector firms in Pakistan show positive statistically significant effect of financial leverage on firm financial performance. The studies are however sector-based, hence biased. Laurent (2002) and Mule and Mukras (2015) report mixed findings with their studies using accounting-based financial performance measures. Moreover, the use of cross-sectional data by Laurent (2002) indicates spurious results. At the other extreme, Tian and Zeitun (2007) who study firms in Jordan, and Maina and Ishmael (2014) using firms in the NSE show that firms may improve their financial performance by reducing their levels of financial leverage. The drawback of these studies is their focus on either accounting-based or market-based financial performance measures which do not show future value-creation abilities of the firms.

The empirical financial leverage literature reviewed shows the importance of financial leverage in enhancing financial performance for firms. However, the relationship between financial leverage and value-

based financial performance has received little attention. Reviewed studies focus on either accounting-based or market-based performance measures which are becoming less useful in the knowledge-based globalized markets. Additionally, most of the studies use cross-sectional data and sector-based samples. While studies conducted on the NSE attempt to link financial leverage to firm financial performance, no market-wide study has been conducted in the context of value-added financial performance. The effect of financial leverage on value-added financial performance has therefore not been analysed in the context of firms in the NSE. The present study sought to fill this gap by analyzing the effect of financial leverage on value-added financial performance for an emerging market.

II. Material and Methods

The present research adopts the quantitative paradigm, and since the cause and effect relationship between quantitative variables is sought, a correlational research design is adapted. The target population of the study comprised all the 64 firms listed in the Nairobi Securities Exchange (NSE) as at December 2014. These firms are classified into eleven sectors, namely; agricultural, automobiles and accessories, banking, commercial and services, construction and allied, energy and petroleum, insurance, investment, manufacturing and allied, telecommunication and technology and growth and enterprise market segment (NSE, 2014). Public listed companies were selected due to the central role they play in the economy of Kenya and are therefore a representative sample of firms in Kenya. It has been shown that listed firms averagely contributed 24% of revenue to the Gross Domestic Product (GDP) of Kenya in 2013 alone (NSE, 2014). Additionally, the listed firms were selected since their board compositions, financial leverages and financial performance are clearly determined as opposed to smaller unlisted firms. Moreover, since their financial results are statutorily presented, measurement of constructs from thereon is deemed to be more credible.

Purposive sampling technique was used to select a sample of 42 listed firmsthat had consistently been listed in the NSE for the period January 2003 to December 2014. According to Sekaran (2000), purposive sampling is a non-probabilistic sampling design in which the researcher consciously selects participants to be included in a study because they have particular characteristics that are of interest to the researcher. The method was considered suitable since it allowed a longer longitudinal and broader cross-sectional market-wide study using balanced panel data. Cavana *et al.* (2000) opines that balanced panel data is a more sensitive measurement of changes that could occur between two points in time and the results produced are more robust, consistent and stable to make generalizations about the population.

The research used secondary data that was collected from annual financial reports of the listed firms from January 2003 to December 2014. The data collected was on board composition elements of board size, independence and gender-diversity, financial leverage levels and on value-added financial performance. Data on the control variables of firm size, firm age and asset tangibility was also collected. The data was collected from audited published annual financial statements available in the NSE Handbooks sourced from the CMA library. Secondary data from annual financial reports was used because, being statutory documents, the reports facilitate easy comparisons since they are produced on an annual basis by all companies (Branco *et al*. 2011). Furthermore, since they are audited annually, data reliability and validity is enhanced making them more credible sources of data.

The research items in the present study were evaluated in terms of face, criterion, content and construct validity by using expert opinions of four professional financial analysts. The experts opined that the items adequately and sufficiently represented the content for each construct. In line with previous studies (Maina and Ishmael, 2014; Mule and Mukras, 2015), this study uses secondary data from published financial statements. The use of the statements which are prepared according to Generally Accepted Accounting Principles (GAAPs) and which are further audited before publication ensured preliminary reliability of the data. Unit root test using the Augmented Dickey-Fuller (ADF) methodology was further used to test stationarity of the data to ensure reliability.

Before regressing data for analysis purposes, the data was checked to avoid violation of the assumptions of classical linear regression model as asserted by Hair *et al.* (2010). This was to ensure that the data yields best least squares unbiased estimators (BLUE). According to Field (2000), the common tests that should be conducted are; types of variables, normality, homoscedasticity, multicollinearity and serial correlation.Field (2000) observes that for reasonable empirical conclusions from sample data, the independent variable must either be quantitative or categorical and the dependent variable must be continuous, quantitative or unbound. This condition is fulfilled for the present study since financial leverage and value-added performance measures are all quantitative. Similarly, control variables are all quantitative. This means that the type of variables do not violate the requirements of regression analysis in this regard.Specifically, skewness and kurtosis tests and the Jarque-Bera (JB) test of normality were analysed.Multicollinearity was tested in the present study by means of tolerance and variance inflation factor (VIF). Pallant (2007) asserts thatmulticollinearity among explanatory variables is present if VIF and tolerance values of above 10 and below

0.1 respectively are observed. All the VIF values in the present study were found to lie below 10 whereas the tolerance values were all more than 0.1, indicating that there are no issues of multicollinearity among the explanatory variables. The Breusch-Godfrey Serial Correlation Lagrange Multiplier (LM) test was used to test autocorrelation.

According to Pandey (2010), several measures of financial leverage (*FLG*) have been proposed. These include Debt Ratio (total liabilities to total assets), Debt-Equity Ratio (total liabilities to total equity) and Equity Ratio (total equity to total assets). This study uses the Debt Ratio as a measure of financial leverage. Kajananthan (2012) observes that the Debt Ratio is the ratio widely used to measure financial leverage since it is easily understandable. Pandey (2010) asserts that the DR captures the true value of the indebtedness of a firm by comparing the value of total assets financed by total liabilities and, unlike other measures, it is more specific since its value ranges between zero to one.

Firm size (*FSZ*) is used as control variable in this study since is a relevant variable that could confound the relationship between board composition and value-added performance (Ho and Wong, 2001). Moreover, Wahba and Elsayed (2015) indicate that large firms are likely to have more resources that could enhance a firm's ability to determine its board composition elements. Firm size has been related to existence of economies of scale inherent in investments and therefore could influence firm financial performance. Additionally, the size of a firm is related to the risks and costs of bankruptcy. According to Ayot (2011), larger firms are more diversified and are therefore prone to lesser risk of bankruptcy leading to better financial performance. While different measures of firm size have been proposed, the present study uses ratio of sales to total assets to measure firm size because it is simple and easily understandable (Ayot, 2011).

Firm age (*FAGE*) is also used as a control variable since board composition elements are rooted in time (Elsayed and Wahba, 2013). Further, controlling for firm age is important because older firms have financial leverage decisions at the centre stage which may influence firm performance. Firm age can be measured in two ways; number of years since incorporation, or number of years since listing in the securities exchange. In tandem with previous studies (Leting' *et al*., 2012; Chemweno, 2016), firm age is measured by the number of years since incorporation. Asset tangibility (*TANG*) has also been shown to influence both financial leverage and firm performance (Hasan and Butt, 2009). To conform to previous studies that have studies asset tangibility (Haris and Raviv, 1991; Ayot, 2011; Mule and Mukras, 2015), asset tangibility was measured by the ratio of non-current assets to total assets.

Value Added Intellectual Capital Coefficient (VAIC) is used to measure value-added financial performance (*VAP*). Although several measures of value added by the firm that have been developed, Shill (2009) notes that the VAIC model has been widely accepted empirically and in practice since it measures value creation abilities of firms from the stakeholder's point-of-view. Moreover, the instrument has been used in a number of past studies (Ho and Wong, 2001; Shill, 2009; Abidin *et al*., 2009; Al-Musalli and Ismail, 2012; Mahmudi and Nurhayati, 2014). The VAIC model (Pulic, 2000)uses information from financial statements of a firm to calculate the efficiency coefficient on three types of capital; human(*HCE*), structural (*SCE*) and capital employed (*CEE*). Human capital refers to the collective value of the organization's intellectual capital embedded in competencies, knowledge, and skills of its human resource. This capital is the organization's constant renewable source of creativity and innovativeness, which is not reflected in its financial statements (Muhammad and Ismail, 2009). Structural capital includes the competitive intelligence, formulas, information systems, patents, policies and processes arising from the products or systems created by the firm over time. It is the intellectual value that remains with the enterprise when people leave. Capital employed on the other hand can be defined as total capital harnessed in a firm's fixed and current assets.

Panel data estimation methods are employed in this study because the observations have two dimensions; cross-section and time-series. The panel data analysis method has three approaches; pooled model, the fixed effects model and the random effects model. As observed by Hilmer and Hilmer (2014), in the pooled model, the data from the different time periods is lumped into one large cross-section and estimations made using the Ordinary Least Squares (OLS) methodology. However, OLS methodology does not yield the best estimators because it fails to exploit the significant advantages offered by the panel nature of the data (Hilmer and Hilmer, 2014) and therefore, for more plausible results, a choice between the fixed effects and the random effects models is made.The Hausman test was conducted with the null hypothesis being that the errors are not correlated with the regressors (Hsiao, 2005), and the fixed effects model was adapted.

The fixed effects panel data regression model for the effect of financial leverage on value-added financial performance of firms listed in the NSE that was mathematically analysed is:

$$VAIC_{it} = \beta_0 + \beta_1 FLV_{it} + \beta_2 FSIZ_{it} + \beta_3 FAGE_{it} + \beta_4 TANG_{it} + \mu_i + \varepsilon_{it}; \quad \ldots\ldots\ldots \quad (3.2)$$

Where;

FLG_{it}: Firm financial leverage for firm *i* during time *t*;

$FSIZ_{it}$: Firm Size of firm *i* during time *t;*

$FAGE_{it}$: Firm Age of firm *i* during time *t;*

$TANG_{it}$: Asset tangibility of firm *i* during time *t;*
$VAIC_{it}$; Value-added intellectual capital coefficient (VAIC) for firm *i* in time *t.*β_0: The intercept,
β_j: The regression coefficients,
μ_i: The unobservable individual heterogeneity, and;
ε_{it}: The idiosyncratic disturbance term for firm *i* during time *t* assumed to have a mean of zero and constant variance.

III. Result

The initial targeted sample out of a population of 64 listed firms for this study was the 42 firms that had continuously been listed in the NSE for the twelve-year period of January 2003 to December 2014. Out of the 42 firms, complete data was collected from 38 firms. This represents an overall data collection rate of 90%. The remaining 10% represented firms whose data was either completely missing or partially missing, and were therefore dropped from the sample. The 38 firms represented 59% of the listed firms. Rogelberg and Stanton (2007) assert that for studies carried out at the organizational level, the acceptable data collection rate should be over 35%. Therefore, the data collection in the present study met this criterion and hence was suitable in ensuring accuracy and minimization of bias.

Table 1 below shows the descriptive statistics of the study variables of financial leverage, the control variables and Value-Added Intellectual Capital (VAIC). Ratio value obtained for listed firms in the NSE implies that the assets of the listed firms are averagely financed by 60.2% liabilities. The firm with the highest leverage ratio finances its activities with 92.6% liabilities while that with the lowest leverage has a 1.0% liability financing. This mean financial leverage value obtained compares unfavourably with that reported by Ayot (2011) of 46% with a maximum and minimum of 100% and 14.4% respectively. The wide disparity in the minimum value may be attributed to the difference in samples between the two studies with Ayot (2011) studying non-financial listed firms only. Javeed *et al.* (2014) report average financial leverage of 57.9% for firms in Pakistan. Nevertheless, this implies that on average, listed firms in Kenya rely more on borrowed funds to finance their activities which further implies that the firms are exposed to risk.

The mean firm age reported for listed firms in the NSE is 60.136 years with the oldest and youngest firms being 113 and 8 years respectively. The mean firm age value obtained in the present study is consistent with that reported by Leting *et al*. (2012) and Chemweno (2016) of 59 years and 57 years respectively albeit with different samples and panels. Leting *et al*. (2012) assert that firms that are over 50 years have been in existence for long and are therefore stable enough since they have survived the cyclical cycles. The mean value for firm age obtained therefore shows that most firms most firms are stable

Statistic	FLG	FAGE	FSIZ	TANG	HCE	SCE	VAIC
Mean	0.602	60.136	0.499	0.408	2.325	0.495	3.080
Median	0.685	56.500	0.327	0.416	2.170	0.540	2.868
Maximum	0.926	113.000	2.488	.973	5.425	0.820	6.610
Minimum	0.010	8.000	0.020	0.000	0.878	-0.139	1.078
Std. Dev.	0.262	24.223	0.460	0.341	0.947	0.207	1.053
Skewness	-0.300	0.2067	1.371	0.049	0.736	-0.658	0.630
Kurtosis	1.540	2.058	5.136	1.412	2.870	2.578	2.763
Jacque-Bera	47.293	20.106	229.5	48.053	41.5	36.2	31.2
Probability	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Sum	274.5	27422.0	227.4	186.2	1060.2	225.7	1404.5
Sum Sq. Dev.	31.183	266975.6	96.1	53.0	408.3	19.6	504.6
Observations	456	456	456	456	456	456	456

Table 1: Descriptive Statistics on Study Variables

In line with prior studies (Ayot, 2011; Njuguna and Obwogi, 2015), firm size is measured by the ratio of sales to total assets with a value of 1.00 indicating that sales equal total assets. The mean firm size value obtained of 0.499 shows that firms on average have sales that are half their total assets. However, the largest firm has sales equalling to 2.488 times the total assets while the smallest firm has sales equalling to 0.020 of total assets. This value compares unfavourably with the mean value obtained by Ayot (2011) of 1.091 who studied non-financial firms listed in the NSE. This implies that an average listed firm in the NSE is small-sized.

Values obtained for mean, maximum and minimum asset tangibility for the listed firms in the NSE are 0.408, 0.973 and 0.00 respectively. In tandem with prior studies (Haris and Raviv, 1991; Ayot, 2011; Mule and Mukras, 2015) asset tangibility is operationalized as the ratio of non-current assets to total assets. This implies that across the sample of listed firms in the NSE, 40.8% of the assets are non-current and about 59.2% are current. The wide difference between the firms with high tangibility ratios of 97.3% and those with low tangibility ratios of 0.00% indicate that some firms have high levels of non-current assets while others have high

levels of current assets. The mean value for asset tangibility obtained in the current study compares favourably with that reported by Mule and Mukras (2015) of 55.6%, and that of 56% reported by Ayot (2011).

Performance of firms in the present study was measured by Value-Added Intellectual Capital (VAIC) and it sub-components of Capital Employed Efficiency (CEE), Human Capital Efficiency (HCE) and Structural Capital Efficiency (SCE). Mean VAIC across the whole sample of firms listed in the NSE is shown to be 3.080. This implies that every shilling employed by firms listed in the NSE adds a value equivalent to 3.080 shillings in total capital. The value obtained is slightly higher than that reported by Bohdanowicz and Urbanek (2013) for listed firms in Poland of 2.8515 and that of 2.063 by Saleh *et al*. (2009) for listed firms in Malaysia. This shows that effectiveness of intellectual capital of listed firms in Kenya seems to be higher than for both Polish and Malaysian firms.

As asserted by Pulic (2000), human capital efficiency (HCE) refers to the efficiency to which the collective value of the organization's intellectual capital embedded in competencies, knowledge, and skills of its human resource has been used to generate value for the firm. Structural capital efficiency (SCE) indicates how the competitive intelligence, formulas, information systems, patents, policies and processes arising from the products or systems created by the firm over time are generating more value for the firm. Capital employed efficiency (CEE) on the other hand can be defined as efficiency of the total capital harnessed in a firm's fixed and current assets.

The reported CEE across the listed firms of 0.263 is lower than the 0.5342 for Polish listed firms, but higher than the 0.043 for Malaysian listed firms. Similarly, the reported HCE of 2.325 for listed firms in the NSE compares favourably but is higher than that reported by Bohdanowicz and Urbanek (2013) and Saleh *et al*. (2009) of 1.9413 and 2.221 respectively. Moreover, SCE reported for Polish and Malaysian listed firms of 0.3494 and -0.202 is lower than the 0.4950 for listed firms in the NSE. These differences may result from the different sample structures, economic environments and time observations. It generally implies that human capital is more efficient in creating value.

	FLG	FSIZ	FAGE	TANG	VAIC
FLG	1.0000 ------				
FSIZ	-0.0733 (0.0681)	1.0000 -------			
FAGE	0.0783*** (0.0000)	0.2750*** (0.0000)	1.0000 --------		
TANG	-0.4990 (0.0510)	0.6303 (0.0601)	0.0334 (0.0600)	1.0000 -------	
VAIC	-0.2070*** (0.0000)	0.5077*** (0.0011)	0.2717 (0.0610)	-0.3033*** (0.0010)	1.0000 ------

Table 2 below presents results for correlation between VAIC and the independent variables. ***p< .05***

Correlation analysis shows the direction, strength and significance of the relationships among the variables of study (Sekaran, 2000). Table 2 show a weak negative but significant correlation between financial leverage and firm financial performance measured by VAIC (r = 0.2070; p = 0.0000) which implies that a 20.7% increase in financial leverage results in a corresponding increase of 20.7% in value-added financial performance. The results therefore confirm that firms listed in the NSE could differ in value-added performance based on the level of financial leverages in their capital structures.

Table 3 below presents results on the regression between financial leverage and value-added financial performance of the listed firms.

Dependent Variable: VAIC **Included Observations: 456**				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	1.2556	0.3354	3.7435	0.0003
FLG	-0.4502	0.0943	-4.7754	0.0000
FSIZ	-0.0077	0.0107	-0.7234	0.4707
FAGE	0.0038	0.0627	-0.0624	0.9504
TANG	-0.0418	0.0613	0.6822	0.4963
R-Squared	0.2223			
Adj. R-Squared	0.1934			
S.E. of Regression	0.3344			
F-Statistic	7.7134			
Prob (F-Statistic)	0.0000			
Durbin-Watson Stat.	1.8912			

Table 3: Effect of Financial Leverage on Value-added Financial Performance of Kenyan Listed Firms

The panel regression results presented in Table 3 indicate that there is a negative significant relationship between financial leverage and firm financial performance measured by VAIC (β = -0.4502; p = 0.0000) which seems to suggest that a unit increase in financial leverage by a firm listed in the NSE punishes it significantly by reducing value-added performance by 45.02%. Pandey (2010) argues that increased use of financial leverage for low growth firms such as those in the developing countries such as Kenya increases the firms' default risk which scares away potential investors while spooking existing investors causing demand for the firms' stock price to decrease hence reducing value addition. It therefore implies that an average listed firm in the NSE has unfavourable financial leverage level that increases its' risk hence decreasing value.Table 3further shows that the coefficient of determination value (R^2 = 0.2223) implies that financial leverage and the other control variables contribute only 22.23% to VAIC.

IV. Discussion

Financial leverage in the present study was operationalized as the Debt Ratio which is the ratio between total liabilities and total assets. This was necessary since the Debt Ratio captures the true value of the indebtedness of a firm by comparing the value of the total assets financed by total liabilities.Results in this study suggest that a unit increase in financial leverage by a firm listed in the NSE punishes it significantly by reducing value-added performance which is consistent with findings by Tian and Zeitun (2007), Maina and Ishmael (2014) and Mule and Mukras (2015) when measuring firm performance with ROA and Tobin's Q. However, Berger and Bonaccorsi di Patti (2006), Javeed *et al.* (2014) and Akhtar *et al.* (2012) report findings which contrast this study's findings. Findings on the relationship between financial leverage and value-added performance could imply that increased borrowings hasten the separation between shareholders and lenders which may hinder the firms listed in the NSE from generating more profitable projects hence resulting in low value addition among the firms.

The findings in the study robustly support the Pecking Order Theory which asserts that outside investors can rationally discount the firm's stock price when managers issue equity instead of riskless debt. This is because of the perception that a firm only issues equity when in financial trouble. In order to avoid this discount, managers avoid issuance of equity as much as possible which in effect implies that they issue as much debt as possible. The implication of the pecking order approach is that firms do not have a target level of leverage and their actual level of debt essentially responds to the difference between investment and retained earnings. Fama and French (200) observe that a negative relationship between profits and gearing is consistent with the Pecking Order Theory since firms which follow the theory seem to have high levels of debt capital. Kalui (2017) also found the firms listed in the NSE follow the Pecking Order Theory in their capital structures.

V. Conclusion

Based on the analysis in this study, it is concluded that financial leverage has a negative significant effect on firm value-added financial performance as measured VAIC which supports the Pecking Order Theory. The study findings therefore propose that a negative significant effect of financial leverage on value-added financial performance for the firms listed in the NSE is feasible and therefore acceptable. It is therefore recommended that the listed firms in the NSE look more into internal financing rather than external financing in order to generate higher value-added performance. Additionally, the firms should finance their growth and investment opportunities through less risky ways such as retained earnings.

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