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Degree of Leverage and Risk Adjusted Performance of Listed Financial Institutions in Ghana

John Gartchie Gatsi:, Samuel Gameli Gadzo:, Richard Oduro:
[1]*Senior Lecturer: Department of Accounting and Finance; University of Cape Coast; Ghana*
[2]*Lecturer, Department of Business Education, University of Education Winneba, Ghana Email*
[3]*Lecturer: Department of Business Education; University of Education, Winneba, Ghana.*

Abstract: *The Basel accord III stipulates that the performance of banks should be adjusted for risk for a fair measurement. The current study investigated how risk adjusted return on equity of listed financial institutions in Ghana, is influenced by the degree of leverage and used liquidity and size as control variable.*
The causal research design was used to explain the cause - and - effect relationships between degree of operating and financial leverage and profitability variables. The target population for this study was made up of 12 financial institutions as recorded in the Ghana stock exchange fact book (2012) comprising 10 banking and 2 insurance companies. The panel data methodology was used to analyze the outcome of the study.
The analysis revealed that liquidity and degree of leverage has an inverse relationship with the risk adjusted return on equity of the listed financial institutions while operating leverage is positively related to risk adjusted return on equity of the listed financial institutions.
Keywords: *Risk Adjusted return on equity, Operating Leverage, Financial Leverage, Panel Data*

I. Introduction

Degree of leverage can be sub divided into financial and operating leverage. By way of explanation, the degree of operating leverage estimates the extent to which firms of which financial institutions are of no exceptions consider fixed cost as part of their operational cost to determine the level of profit by the institution (Zubairi, 2013). While the degree of financial leverage measures the extent to which debt finance which forms a component of the capital, contribute to the debt obligation of the financial institution. The relevance of the degree of financial leverage is that as it increases, it influences the level of financial risk of the financial institution; hence it makes the requirement of the Basel accord relevant on the issue of adjusting for risk when assessing the performance of financial institutions.

The level of operating leverage of most institutions invariably increases the cost of operation of such institutions; with the implication that, for a company to break-even, decisions regarding operating leverage should not be brushed off. This means that financial institutions which decide to operate with high levels of fixed cost are likely to increase their cost of operations which will eventually be reflected in the interest charged to their clients, all things being equal when the lending rate a financial institution offers to its clients increases, they will explore other sectors in which they can borrow with the minimum cost as possible. This may reduce their client base and cause a significant effect on revenue generation capacity of which return on equity can be used as a proxy.

On the other hand, the degree of financial leverage can affect the level of return on equity from the perspective of the increased demand to settle debt obligations. This is because a financial institution which has a high financial leverage means that it has more debt than equity in its capital structure which further requires that they pay more interest on debt. In this regard one would have noticed that the large debt obligation has negative effects on the ability of the financial institution to generate revenue to increase their return on equity. From the perspective of the free cash flow theory by Dhanasekaran, Kumar, Sandhya and Saravanan (2012), financial institutions with lower levels of financial leverage may not be able to fully benefit from the tax shield or savings from debt because they may have enough cash flow such that they will be ill motivated to borrow.

It is evident from the preceding paragraphs that the degree of financial and operating leverage can impact on the return on equity of the listed financial institutions; however, there are other equally important variables which may affect the return on equity and overall financial performance of the financial institutions. In studying debt structure and financial performance, Naveed et al (2011) proposed that, firm size and liquidity are the major mediating factors such that firm size may possibly influence a financial institutions' risk adjusted return on equity, liquidity and cash gaps. A comparable effect can be envisaged on the net interest income of a financial institution with large size because financial institutions whose sizes are large would have more assets and huge client base which most likely aid them in their revenue generation despite being highly leveraged while those with small size may be found lacking when it comes to generating funds to stabilize their debt obligations.

Unlike the firm size, earlier studies established that, liquidity is a significant variable which affect the operational activities of most firms in Ghana and imply that highly liquid firms can easily convert their current assets into cash in other to defray any debt obligation or fixed cost obligations which may fall due but would not necessarily lead to reduction in the return on equity of those financial institutions. On the other hand a financial institution which is not highly liquid would observe reduction in the return on equity as there may exist some difficulties in accessing funds to settle debts.

Empirical analysis such as Larry, Ofek and Stulz (1995), Mseddi and Abid (2004),Eljelly and Abuzar (2004) and Zubairi (2013), indicates that firm level characteristics such as liquidity and firm risk influence financial institutions' performance as well as financial and operating leverage. These empirical relationships were not established without a theoretical basis. In view of this, apart from the widely acclaimed static- trade off theory, the input and output theory of banking as well as the prospect or expected utility theory of insurance is to be used to analyze the effect of the degree of operating and financial leverage on the performance of financial institutions in Ghana. The issue of degree of operating and financial leverage remains one of the most technical issues in the discipline of finance irrespective of the fact that there have been some studies on it mainly in developed economies. Mseddi and Abid (2004),Eljelly and Abuzar (2004) and Zubairi (2013),explained the performance of institutions with reference to degree of operating leverage as well as the degree of financial leverage and focused on limited additional firm specific factors using input/output theory and expected utility theory relating to the banking and the insurance industries respectively as the theoretical pillars. Their approach has not been explained by any researcher in Ghana interested in this area of studies.

Referring to actual performance, the market performance of the financial institutions in Ghana especially those of banking and the insurance institutions have recorded an average decline over the past decade. The Ghana banking survey (2012) recorded a decline from 24.45% in returns to equity holders in 2003 to 12.12% in 2012 while the National Insurance commission (2012) reported a decline of about 56% in return on asset from 10.54% in 2003 to 5.54% in (2012). From the backdrop of Eljelly and Abuzar (2004) and Zubairi (2013) degree of operating and financial leverage could lead to this situation. The current study investigates the effect of these variables on the financial performance of financial institutions in Ghana.

1.1 Objectives of the Study

The main objective of the study is to examine the effect of degree of operating and financial leverage on the performance of financial institutions in Ghana.

Hypothesis

The following hypotheses guided the study:

1. H_0: The degree of financial leverage has no association with the risk adjusted performance of financial institutions in Ghana

   H_1: The degree of financial leverage has an association with the risk adjusted performance of financial institutions in Ghana
2. H_0: The degree of operating leverage has no association with the risk adjusted performance of financial institutions in Ghana

   H_1: The degree of operating leverage has an association with the risk adjusted performance of financial institutions in Ghana

II. Theoretical review

There are two major explanations for the degree of leverage decision of corporations, the trade-off theory and the pecking-order theory on one hand and the market-timing theory on the other.

2.1 Trade-off theory

In the trade-off theory firms choose the capital structure such that marginal benefits of debt financing, like tax advantages or the ability to finance additional positive- net present value (NPV) projects, and costs of financial distress and bankruptcy costs are balanced, see for example Frank and Goyal (2009) and Fischer, Heinkel and Zechner (1989). In general, tax advantages dominate bankruptcy costs if the leverage ratio is low but bankruptcy costs dominate tax advantages if the leverage ratio is high.

2.2 Pecking order theory

In the pecking-order theory funding costs are mainly driven by asymmetric information. Since retained earnings are not related to asymmetric informational problems a firm prefers this funding source to debt and issuing new equity. Furthermore, asymmetric information tends to make new equity more expensive than debt, see Frank and Goyal (2009). Based on the analogy of the pecking order theory, firms do not have a well-defined target debt to fixed cost ratio and each firm's observed fixed cost ratio simply reflects the firm's cumulative

requirement for external finance over an extended period. From the point of view of outside investors, equity is riskier than debt and therefore demands a higher premium for equity than for debt, hence if the order is to be followed, the degree of operating ratio would increase leading to a fall in the earnings of the non- financial institutions as well as the a reduction in the dividend pay-out ratio of these firms Thus, insiders perceive equity to be a better source of funding than debt, and internal funding is even better.

2.3 Empirical Review

Many papers investigated active capital structure management and try to determine the managers' objectives. The empirical results are mixed and there is no common agreement about the factors that drive the manager's decisions. This result may be due to transaction costs and further market frictions. A dynamic trade-off model for capital structure in presence of adjustment costs is presented by Fischer, Heinkeland Zechner (1989). The implication of this model is that transaction costs may cause substantial deviations of the desired expectations from the observed capital structure. For non-financial firms, Flannery and Rangan (2006) found partial adjustments to some target leverage ratio. On average, about 30% of the gap between the target leverage ratio and the actual leverage ratio is closed each year. This result is consistent with the trade-off theory. Learyand Roberts (2005) also evidence for active capital structure management even though transaction costs mitigate the willingness to adjust its capital structure. Harford, Klasa and Walcott (2009) study large acquisitions and explained that usually, the capital structure of the acquiring corporation changes substantially, but managers actively implement some target leverage ratio close to the leverage ratio that was held before the acquisition.

Bharath, Pasquariello and Wu (2009) show that asymmetric information affects the capital structure by constructing an index that measures information asymmetries between the owner and external investors. This supports the pecking-order theory. Fama and French (2005) study the net equity issuance during 1973 and 2002. They found that firms issue equity more frequently than predicted by the pecking order theory and conclude that the pecking order theory does not hold in reality. Frank and Goyal (2003) also conclude that the pecking order theory is not supported by their comprehensive dataset. Leary and Roberts (2010) found support for the liberalized pecking order theory where the firm's debt capacity depends on firm characteristics. However, Strebulaev (2007) shows that market imperfections combined with a simple model for the capital structure decision, which is consistent with the trade-off theory, may give wrong implications. Infrequent observations like annual reports may cause a substantial bias in the estimated relationship between profits and the capital structure. Due to differences between banks and industrial corporations the capital structure of banks differs substantially from the capital structure of non-financial firms. Banks hold a dynamic loan portfolio with a frequently changing composition and with frequently changing quality. Furthermore, banks do not own the investment project but participate only through interest rate payments if the project succeeds. In contrast, the portfolio of an industrial corporation has more stable characteristics and projects tend to be more homogeneous. This makes the valuation of industrial corporations easier.

Because of the high complexity of bank valuation even for the owners the manager has to be incentivized carefully. The bank manager's interest and the shareholders' interests are aligned by implementing a fairly high leverage ratio, see Flannery (1994). This high leverage ratio forces the bank manager to monitor and manages the loan portfolio very carefully. In addition, it enables the manager to own a relatively large fraction of the bank and further mitigates the conflicts between the manager and the owners. However, high leverage ratios and strong networks in the financial industry make banks vulnerable and imply systemic risk for the economy. Blum (2008) discusses implications of a simple; on-risk based restriction on the leverage ratio in addition to the risk based Basel Approach. Under certain circumstances, this simple instrument ensures honest risk reporting and stabilizes the financial industry. Adrian and Shin (2008) investigate the implication of Basel II. The authors document active capital structure management for banks and found a pro-cyclical leverage ratio. If market prices decrease, Basel II triggers re sales to reduce the risk exposure.

III. Methodology

The causal research design was used to identify the causes and effect relationships between the main variables under study. Based on this explanation, this study can be classified as causal in nature as it sought to explain the cause - and - effect relationships between degree of operating and financial leverage variables and profitability variables. The target population for this study is made up of 12 financial institutions as recorded in the Ghana stock exchange fact book (2012) comprising 10 banking and 2 insurance companies. From this back drop, the census sampling technique was used to select the financial institutions in Ghana from 2003 to 2012 to constitute the sampling frame for the study.

IV. Variables and measurement

This study used four main constructs, namely: Risk adjusted return on equity, degree of operating and financial leverage, firm risk, liquidity and firm size

Risk Adjusted Performance: The return on equity was used to measure this but because the banks' self-reported risk and correct profits for the average minimum regulatory capital according to the Basel Accord. This was 8%*Average Total Risk Charge. It was estimated as 92% * (EBIT/Total equity)

Degree of operational leverage: Zabuiri (2013) opined that, it can be calculated by using the ratio of contribution margin to the net profit made before interest and tax.

Degree of Financial leverage: The ratio of net profit before tax to net profit before interest and tax was used to calculate the degree of financial leverage (DFL) .

Liquidity: Liquidity indicates the company's ability to meet its financial obligations in a timely manner, without affecting normal operation. Liquidity was measured as current asset/ current liability

Firm risk: The current study measures risk as the standard deviation of interest income and premium collected.

Estimation of the Model

The panel regression was used to establish the relationship between the variables explained with the ordinary least square (OLS). The panel data methodology is appropriate because of the cross-sectional and time series nature of the data used in the study. The econometric model used is :

$$\mathbf{RAROE} = \beta_{0i,t} + \beta_1(\mathbf{DOL})\ i,t + \beta_2(\mathbf{DFL})_{i,t} + \beta_3(\mathbf{LIQ})_{i,t} + \beta_4(\mathbf{FR})_{i,t} + \beta_5(\mathbf{FS})_{i,t} + \mathcal{E} \ldots\ldots\ldots\ldots (1)$$

Where;

RAROE= Risk Adjusted return on equity; DOL = Degree of Operating Leverage; DFL = Degree of Financial Leverage; LQ = Liquidity; FS = Firm size and FR = Firm risk

Table 1: Expected Relationship

Variable	Measure	Expected Relationship with Leverage
Firm risk	Standard deviation of turnover	Positive
DOL	%change in EBIT/ % Change in sales	Positive/Negative
DFL	EBIT/EBIT	Positive/Negative
Liquidity	Current Assets/ Current Liabilities	Positive
Firm size	Log total asset	Positive

Authors construct (2013)

V. Results and Discussion

This section presents the descriptive statistics, correlation and the regression analysis for the study. The interpretation and detailed discussion of the empirical findings are also reported in this section. Finally, some explanations, on the basis of economic/financial theory, are given to justify the empirical findings. Table 2, descriptive statistics shows the information at the level of the variables. It is noticeable that degree of financial leverage has a lower mean value and is less volatile as compared to operating leverage. Again the low leverage ratios also vary in the skewness as degree of financial leverage indicated a negative coefficient while degree of operating leverage showed a positive coefficient. The import of this is that the average of the DFL is appropriately measured with the median while that of DOL is the mean.

Table 2: Descriptive Statistics

	FS	LIQ	RAROE	DOL	DFL	FR
Mean	6.97	200.9	14.22	3.18	0.67	19.25
Median	6.94	123.77	13.00	0.88	0.91	15.71
Maximum	10.88	153.61	64.00	53.58	12.34	105.48
Minimum	4.77	48.85	-19.00	-2.98	-20.32	-41.03
Std. Dev.	0.69	169.98	27.23	7.82	3.31	19.16
Skewness	0.52	2.59	0.05	4.85	-3.34	0.86
Kurtosis	8.66	11.84	9.09	29.92	31.11	6.35

Source; Descriptive Statistics, 2013

Again, it is indicative from table 2, that the average for the liquidity of the listed financial institutions is very volatile meaning that, the liquidity cannot be entirely relied upon since it may be more or less than what has been shown in the descriptive studies. That notwithstanding, firm size recorded the least volatility with its mean closer to the maximum score of the listed financial institutions used for the study. It is also relevant to mention that, risk adjusted return on equity of the listed financial institutions is impressive. This is because the maximum value was 64% but the negative value of about -19% has forced the average profitability of the listed financial institutions to be around 14%.

Co Integration Test

Since a linear relationship is supposed to have been established there was the need to test the co integration between the variables to establish whether all the variables are stationary within the period under studies.

Table 3: Kao Residual Co integration Test

	t-Statistic	Prob.
ADF	-3.967383	0.0000
Residual variance	7.547366	
HAC variance	6.851227	

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RESID)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-1.663749	0.190796	-8.720046	0.0000
D(RESID(-1))	0.592690	0.138756	4.271445	0.0000

R-squared	0.283966	Mean dependent var	0.947514
Adjusted R-squared	0.278924	S.D. dependent var	2.870684
S.E. of regression	2.437676	Akaike info criterion	4.633759
Sum squared resid	843.8016	Schwarz criterion	4.675006
Log likelihood	-331.6306	Hannan-Quinn criter.	4.650520
Durbin-Watson stat	1.279409		

Source; Co-integration test, 2013

The ADF test results give a strong evidence to reject the null hypothesis that the estimated residual has a unit root. This implies that the residuals are stationary. It means that the mean and variance of the residuals do not vary with time.

Correlation Matrix

Correlation establishes the relationships that exist between the variables used in the study. From Table 4, degree of financial leverage and the liquidity of the firms show a negative relationship with the risk adjusted return on equity (RAROE) of the firms. Apart from these variables, firm size, firm risk and the degree of operating leverage provided a positive outcome.

Table 4: Correlation matrix

	RAROE	FS	FR	LIQ	DOL	DFL
RAROE	1					
FS	.094*	1				
FR	.044*	.129*	1			
LIQ	-.060*	.063	.083**	1		
DOL	.059**	.002**	-.103	.007**	1	
DFL	-.117**	-.001	-.018**	.086	.036**	1

*. Correlation is significant at the 0.05 level (1-tailed).

Source; Correlation, 2013

These relationships were expected because in the case of firm size and premium growth, the higher they increase the profitability would also increase since they are more or less the basis upon which most insurance companies derive their operating efficiency. With respect to the relationship of degree of operating leverage and firm risk the import of the relationship established is that, firm risk increase in line with an increase in the risk adjusted return on equity of the listed financial institutions in Ghana.

VI. Regression results

From table 5, it can be observed that the estimated value of the R-square means that about 73% of the variation in the risk adjusted return on equity of the listed financial institutions in Ghana were explained. The value of F-statistic which is about 5.91 indicates that the overall model is good. The Durbin-Watson statistic

which is 1.86 also implies that the successive values of estimated remaining are not dependent on each other. The import of this is that, there is an evidence to accept the null hypothesis that there is no autocorrelation problem in the estimated model.

With regards to the significance of individual variables, the empirical result shows that listed financial institutions' RAROE is negative and significantly associated with the degree of financial leverage. The P-value of 0.0137 from Table 5 implies that the null hypothesis is accepted at 1 percent level of significance. A 1% increase in financial leverage leads to about 0.425 % decline in profitability, as the estimated coefficient of the degree of financial leverage is about-0.425.

Table 5: Regression Result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	19.49206	5.481000	3.556296	0.0005
FIRM_SIZE	0.824836	0.740238	3.114284	0.0069
LIQ	-0.010019	0.006896	-2.452919	0.0143
DOL	0.118495	0.072765	2.628459	0.0154
DFL	-0.425521	0.172410	-2.468072	0.0137
Firm risk	0.031756	0.040140	1.791135	0.0401

R-squared	0.736157	Mean dependent var	28.43850
Adjusted R-squared	0.541927	S.D. dependent var	38.24986
S.E. of regression	25.17323	Sum squared resid	98855.88
F-statistic	5.918154	Durbin-Watson stat	1.864909
Prob(F-statistic)	0.000000		

Source: Regression results, 2013

This evidence is consistent with the Pecking Order Theory, which postulates a negative correlation between the profitability and the degree of the financial leverage (Myers (1984) and Myers and Majluf (1984)) But it contrasts the empirical evidence by Zubairi (2010) simply because his study was carried on a middle east country which has a different national culture of patronizing listed financial institutions than Ghana.The estimated model also reveals that there is a statistically significant and negative association between the RAROE of listed financial institutions and financial leverage. On the basis of P-value of 0.0154 we reject the null hypothesis that the degree of operating leverage has no statistical significant association with risk adjusted financial performance. The sign of the coefficient is positive which shows a positive relationship, which is in line with the Static Trade-off Theory that states that more profitable firms have lower expected bankruptcy costs and higher tax benefits Jensen (1986) and Larry et al (1995).

Despite this, financial leverage and profitability had a negative relationship, indicating that listed financial institutions continue to enjoy such small profit margins. And that listed financial institutions using higher proportion of debt in their capital structure were still more profitable than firms using lower proportion of debt due to the tax shield component of debt capital. Again, one significant finding in the regression result is that the profitability is positively and significantly related to the size of the firms. It is conspicuous that the variable with the highest coefficient was that of the size of the firm which recorded a coefficient of 0.82 meaning that, a 1% increase in the premiums of the insurance firms for example leads to almost 82 % growth in the profitability of the firms. Also to be noted is that whenever premiums are collected without adequate claims by clients reflect in the level of risk adjusted return on equity the firms.

Large size companies are usually diversified and therefore less likely to go bankrupt it can be concluded that there firm size is inversely related to bankruptcy and thus directly related to profitability. The significance of the coefficient of the size variable suggests that the firms in listed financial institutions sector increase their profitability by increasing their interest income. Finally, profitability is observed to be negatively associated with liquidity. The estimated magnitude is 0.010 that is statistically significant at 5 percent level of significance.

VII. Conclusions and Policy Implications

The study used sample data of twelve (12) listed financial institutions which covered the period 2003 to 2012. The analysis revealed that financial leverage has a significant negative effect on the risk adjusted return on equity of listed financial institutions. Operating leverage has a positive and statistically significant influence on risk adjusted return on equity; but an increase in the liquidity of insurance firms lead to an increase in firm

profitability. The robustness of these findings were anchored in the result of the ADF unit root test to the residual series derived from the estimated model.

Reference

[1]. Abid, F. &Mseddi, S. (2004). The impact of operating and financial leverages and intrinsic business risk on firm value, International Conference AFFI 2004 at Cergy Ponthoise.

[2]. Abor, J. (2002). Determinants of the capital structure of Ghanaian firms. African Economic Research consortium, Research paper No. 176,Nairobi.

[3]. Ahmadinia, H., Afrasiabishani, J., &Hesami, E. (2012). A comprehensive review on capital structure theories.The Romanian Economic Journal, 45 (2), 3-26.

[4]. Bank of Ghana annual report (2012)

[5]. Basel III on Capital rules: Revised international capital framework 2009.

[6]. Bui, Y.N. (2009).How to write a master's thesis, Sage Publications International, U.K

[7]. Dhanasekaran, M. Kumar, A. M. S, Sandhya, S &Saravanan, R. (2012). Determination of financial capital structure on the insurance sector firms in India. European Journal of Social Sciences,29 (1), 288 – 294.

[8]. Eljelly&Abuzar M. A. (2004), Liquidity-profitability Trade-off: An Empirical Investigation in an Emerging Market (Liquidity Management), International Journal of Commerce and Management, June-2004.

[9]. Flannery, M. J&Kasturi P. R.(2008). What Caused the Bank Capital Build-Up of the 1990s?", Review of Finance 12, 391-429.

[10]. Frank, M. Z.,&Goyal,V. (2009) Capital Structure Decisions: Which Factors are Reliably Important?, Financial Management 38, 1-37.

[11]. Ghana stock exchange report (2012)

[12]. Larry, L., E. Ofek& R. Stulz (1995), Leverage investment and firm growth.Journal of Financial Economics.40 (2), 3-29.

[13]. National Insurance Commission (2011).Annual report Accra: National Insurance Commission

[14]. Naveed, A., Zulfqar, A. &Usman, A. (2011).Determinants of performance: A case of life insurance sector of Pakistan.International Research Journal of Finance and Economics, 61(2),123 – 128.

[15]. Shulman, J. & Cox, R. (1985) An Integrative approach to working capital management. Journal of Cash Management. 4(2). 64-68.

[16]. Zikmund, W. (1997). Business Research Method. London: Cengage Learning.Zubairi, J, H. (2013), Impact of working capital management and capital structure on profitability of automobile firms in Pakistan, retrived from www. ssrn.com on 22nd May 2013