

Effect of Corporate Diversification on Capital Structure! Evidence from Listed Firms in Nairobi Security Exchange

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Abstract:

The purpose of the study was to determine the effect of corporate diversification on capital structure. The study used longitudinal research design. Using a panel data model, the study estimated the effect of product and geographical diversification on the firm capital structure. A sample of 49 firms consistently trading in Nairobi security exchange between 2009 and 2014 was used. Using random and fixed effect, the study found that product diversification has no significant effect on capital structure, while geographic has a significant negative effect on capital structure. This infers that geographically diversified firms are using more but less risky debts than more product-diversified firms

Keywords: *Capital Structure Corporate Diversification, Product Diversification Geographic Diversification*

1.0 Introduction

The choice of financial decisions is the most important decisions of the company; managers choose the capital structure that minimizes the cost of financing and hence maximizes the value of the firm (Ajay and Madhumathi, 2012). Capital structure is essential components that reflect the firm's sustainability potential in the long-run. A number of studies depict capital structure as a dependent variable which is affected by various independent variables, such as profitability, growth opportunities, debt and non-debt tax shield, firm size, tangibility, ownership concentration and many others (DeAngelo & Masulis, 1980; Harris & Raviv, 1991; Jensen & Meckling, 1976; Myers, 1984; Qureshi, 2009; Sheikh & Wang, 2011). Moreover, various researchers conducted on the effect of diversification on capital structure evolved different schools of thought leading to the emergence of theories such as Coinsurance Theory (CT), Transaction Cost Theory (TCT) and Agency Theory (AT).

Corporate diversification helps to reduce earnings volatility because the cash flows across the firm's various markets will be imperfectly correlated, thereby allowing firms to employ more debt in their capital structure and hence enjoy the concomitant cost of capital and tax benefits (Lim et al., 2009; Low & Chen, 2004). According to Lim et al., (2009) operating in multiple markets helps firms to diversify risk and smooth earnings volatility, thereby allowing them to reap the potential benefits of carrying more debt. Accordingly, research in economics and strategy has shown that greater levels of product diversification tend to lead to higher levels of debt (Kochhar & Hitt, 1998; Lowe et al., 1994). In fact, many diversified firms capitalize on their diversified earnings streams and attempt to reap these benefits by adopting more leverage in their capital structure (Low & Chen, 2004).

According to Apostu (2010) through diversification, managers create internal capital markets where resource allocation is more efficient due to a lower level of asymmetric information. This reduces the underinvestment problem and predicts that diversified companies make more positive net present value investments than their segments would make as separate firms. Another potential benefit arising from industrial diversification is greater debt capacity. From a purely financial perspective, it is quite reasonable that diversified cash flows should allow most firms to carry more debt. Furthermore, if the debt has tax or cost of capital benefits, or if most firms simply follow some sort of pecking-order model of capital structure (Myers & Majluf, 1984), then diversification should positively influence debt level.

The effects of both product and international diversification on capital structure choices have been explained mostly through the co-insurance effect, the transaction cost theory and the agency cost theory (Apostu, 2010). Apostu opines that the co-insurance effect suggests that firms can reduce risk by diversifying their activity and, in turn, the reduced risk can increase the debt capacity of the firm. According to the transaction costs theory, the type of diversification adopted by a firm depends on the nature of the unutilized resources that lead firms to diversify. Since the type of assets employed by a firm influences the financial decisions, it is possible to establish a relationship between capital structure and the diversification strategy of a firm, through the transaction costs theory (Apostu, 2010).

Further, according to Apostu (2010), the agency costs theory predicts that debt will be used to reduce the ability of a manager to realize detrimental diversification strategies. In addition to the common theories for product and geographic diversification, the relationship between geographic diversification and leverage can be explained by the existence of risks unique to internationalization and the use of debt as a hedging instrument. However, empirical evidence on international diversification is more equivocal (Low & Chen, 2004). In addition, the relationship between corporate diversification and capital structure becomes more complex when firms' ownership structure is taken into consideration.

Flawed governance mechanisms foster inadequate monitoring and misaligned incentives that result in inappropriate diversification strategies and poor financial performance (Hitt et al., 2006; Hoskisson & Hitt, 1990; Wan et al., 2011). According to agency theory, "diversification is pursued not only because firm resources and external and internal incentives exist, but managers also have personal motives for diversification of firms they manage" (Hoskisson and Hitt, 1990:496). Several theoretical arguments have been provided to explain such managerial actions. For example, managers, relative to shareholders, tend to be over-invested in the firms for which they work. They derive most of their wealth from a single source where their job, income, reputation, and human capital are highly specific to the firm (Wang and Barney, 2006).

Diversification and capital structure are two concepts that have long been controversial since they impact on many other aspects of business and financial management. Based on the above argument, corporate diversification has both benefits and costs. Firms can benefit from diversification through the creation of internal capital markets, higher debt capacity, and economies of scope (Shleifer & Vishny, 1992). The costs of diversification stem mainly from agency problems. Managers may diversify to protect their human capital, to increase their private benefits (Jensen, 1986), or to entrench themselves (Shleifer & Vishny, 1989). Within a diversified firm, managers may have easy access to capital through cross-subsidization (Meyer et al., 1992), which may lead to over-investment (Berger & Ofek, 1995).

Recent literature shows that corporate diversification strategies are associated with significant value loss and that increasing corporate focus is value-enhancing. The evidence in these studies suggests that the costs of diversification outweigh the benefits. Given the extensive evidence that diversification is associated with a reduction in firm value, why do firms remain diversified in Kenya? However, there is no consensus on the direction of this relationship (Martin and Sayrak, 2003; Villalonga, 2003). Previously, empirical financial studies paid little attention to the role of diversification strategy on financial choices (Rocca et al., 2009). Only a few studies have related corporate diversification features to different capital- structure decisions (Taylor and Lowe 1995, Markides and Williamson 1996, Kochhar and Hitt 1998, Chkir and Cosset 2001, Singh et al. 2003, Alonso 2003). The role of diversification strategies in financial choices has received little attention in previous empirical financial studies in developing economies. The study hypothesized that:

H₀₁: There is no significant effect of geographic diversification on firms' capital structure

H₀₂: There is no significant effect of product diversification on firms' capital structure

Theoretical Framework

The pecking order view suggests that firms allow specific hierarchy in financing; firms prefer internal to external financing (Jong, Kabir & Nguyen, 2007). If internal funds are not enough to finance investment opportunities, firms may or may not acquire external financing, and if they do, they will choose among different external finance sources in such a way as to minimize additional costs of asymmetric information. The pecking order theory regards the market-to-book ratio as a measure of investment opportunities (Luigi & Sorin, 2009). A firm issues the safest security first if external finance is required. That is, it issues debt, then possibly hybrid securities such as convertible bonds. And equity only as a last resort (Jong et al., 2007).

The trade-off theory resulted from the formalization of ideas by Kraus & Litzenberger (1973) an extension of the work done by Modigliani & Miller (1963), as well as the work of traditional theorists. This theory assumes that firms trade off benefits and costs of debt and equity financing and find an optimal capital structure after accounting for market imperfections such as taxes, bankruptcy costs and agency costs. A decision maker of a firm thus needs to evaluate the various costs and benefits of alternative leverage plans (Luigi & Sorin, 2009). According to this theory, a firm must decide on a target debt ratio which maximizes its value and then slowly move toward the target ratio. The optimal capital structure is reached when the marginal benefit of each incremental unit of debt (i.e., interest tax shields) is equal to marginal cost of each incremental unit of debt, i.e., financial distress (Naidu, 2011)

Empirical review

Alonso (2003) studied the effect of diversification strategy on the firm capital structure using a panel data analysis for a sample of 480 Spanish manufacturing firms during the period 1991-1994. Using four alternative measures of capital structure and two different proxies of diversification strategies (the Herfindahl and the Entropy index of total product diversification) and after controlling for firm characteristics such as firm size, intangible assets, and firm profitability, he finds no significant relationship between capital structure and the degree of firm diversification.

La Rocca et al. (2009) extended prior analyses on financial policy and diversification by examining the relationship between capital structure and diversification over a period of twenty-seven years. Their sample consisted of a panel made up of 180 Italian firms (76 listed) evaluated in the period from 1980 to 2006. Using a target adjusted model estimated by the Generalized Method of Moments (GMM) approach, they show that total diversification is negatively related to debt ratios. Furthermore, their analysis indicated that the degree of relatedness between business segments is important in the relationship between diversification and capital structure. They find that a related-diversification strategy, which is based on business synergies and resource sharing, has a negative influence on leverage. By contrast, unrelated diversity, which is based on financial synergies, has a positive effect on debt. In addition, they find that the diversification structure significantly influenced the speed at which firms adjusted their leverage ratios.

Qureshi (2012) carried out a study to investigate the nature of relationship existent between diversification, capital structure, and profitability in Pakistan. The study was on a sample of 74 companies listed on the Karachi Stock Exchange from 2000 to 2009. Two dimensions of diversification were considered product and geographic diversification. The results supported the coinsurance and the transaction cost theory; firms have a product, and geographic diversification was found to have a greater amount of debt as compared to the non-diversified firms. Product diversification positively affected profitability, with the diversified firms earning more on average.

Singh et al., (2002) conducted a study on corporate diversification strategies and capital structure. Their objective was to investigate the relation between the two dimensions of corporate scope, geographic and product diversification and their impact on corporate leverage. The sample consisted of all New York Stock Exchange (NYSE), American Express (AMEX) and Nasdaq listed U.S. firms that have annual sales volume higher than US\$100 Million excluding firms offering financial services and regulated utilities. They collected and analysed secondary data for the period 1994-1996, using parametric test statistics and multivariate

regression analysis. Their findings were that; after controlling for geographic diversification, asset turnover, firm size as well as other variables, product diversification I at best unrelated to debt usage and it may be either negatively related to debt usage or related in a non-linear manner in some instances. However, it may help alleviate the negative influence of international diversification on leverage as they established that Multinational Corporations (MNCs) that are product-diversified had lower leverage ratios than domestic firms.

Monteforte & Stagliano (2011) study indicated that product and geographic diversification individually are positively related to capital structure, but the interactive variable between product and geographic diversification had a negative and significant coefficient. The study sought to investigate the interactive effect of product and geographic diversification on capital structure for a panel of medium and large Italian firms. They pointed out that combining business with cash flows that are not perfectly correlated can potentially reduce the volatility of earnings and the costs of financial distress, thus reducing the cost of capital and increasing total stakeholders' value, with an overall impact on debt levels.

Guo (2011) highlights on two common possible reasons for diversification: one reason is that some firms seek to reduce underinvestment problem. Firms with lower capital expenditure ratio are likely to increase their diversification level. Diversification helps firms to have a larger internal capital market such that they are more capable of avoiding external financing which is often more costly; this, in turn, reduces the underinvestment problem. A diversified firm owns a real option in allocating capital across segments and is able to avoid external financing thereby. Secondly, firms diversify to seek growth opportunities to support their future growth thus creating more value for shareholders.

Material and Methods

The study adopted longitudinal research design. The sample consists of annual data for listed firms for the period 2010-2015 which is derived from prowest database maintained by CMA. Firms with missing observation for more than four years are dropped from the sample. The panel data set consists of 31 companies aggregating to 155 observations that include domestic as well as multinational corporations. Firms which operate in the financial sector are not included in this analysis since their balance sheets have a different structure from those of the non-financial firms (Rajan and Zindales, 1995). Data was collected from the annual report and other financial statement using documentary guided.

Measurement of the variables

Leverage (LEVE); is the dependent variable varying across section and time. It was measured as a ratio of the total debt to total equity. This ratio is a measure of the relationship between the capital contributed by creditors and the capital contributed by owners calculated; total debt divided by total equity. A ratio of 1 would indicate that the company funds its projects with an even mix of debt and equity. A ratio of less than 1 would indicate a low amount of debt and a ratio more than 1 would signify high leverage.(Rajendran Madabhushi, 2009).

Independent Variable

Diversification (DIVE); is the independent variable and was measured using the Specialisation Ratio (SR) method; calculated as a ratio of the firm's annual revenue from its largest (core) segment to its total revenue. The higher the ratio computed, the lesser the firm diversification and vice versa. The researcher expected a positive relationship between diversification and leverage

Data analysis

The panel data regression analysis technique is employed to explore the impact of diversification strategy on the leverage decisions of firms after controlling for several control variables. Also comparing multinational and

domestic corporations reveals the difference in the financial behavior of the two groups. In this study, we intend to use fixed effects regression model

Findings and Discussion

Descriptive statistics

Firms with high Product Diversification feature 0.55 average Leverage, against 0.52 for low Product diversified firms. Singh et al. (2003) reported similar results, being product-diversified firms the ones with higher means for the Leverage indicators. Firms with higher Geographic Diversification have, on average, higher Leverage, being opposite results found in Singh, et al. (2003) and Singh and Nejadmalayeri (2004). Those authors reported that on average domestic firms have more Leverage. As noted in Table 1, the maximum level of Leverage is displayed in Panel B and C, corresponding to Firms with low Product Diversification or with high Geographic Diversification.

Table 1 Descriptive statistics

	CS	Prod Div	Geo Div
Mean	0.55	1.23	0.73
Median	0.6	1.12	0.7
Maximum	0.94	1.87	1.88
Minimum	0.02	1	0
Std. Dev	0.26	0.23	0.52

Univariate Results

The purpose of the univariate analysis is to investigate the relationship between the dependent variable and each independent variable separately. This exercise is also useful to select which variables should be incorporated in the regression models. However, we built the model and the explanatory variables to test the hypotheses formulated in section 4 and several control variables based on the literature review.

The magnitude of the correlation among the independent variables is relatively low, being all the coefficients below 0.5, suggesting no significant multicollinearity between these variables, which should be taken into account in the regressions analysis. It should, however, be noted that capital structure exhibits coefficients statistically significant with Product Diversification, Geographic Diversification correlation matrixes. This result highlights the link between resources and the type of firm's diversification (Chatterjee and Wernerfelt, 1991) since the company's strategy dictates the type of assets. The results in Table 2 also show a significant statistical relationship between Geographic Diversification, Product Diversification and capital structure for the three correlation matrixes.

Table 2 Correlation Results

	CS	Prod Div	Geo Div
CS	1		
Prod Div	0.32*	1	
Geo Div	0.111*	0.07	1

* Correlation is significant at the 0.05 level (2-tailed).

Testing Hypothesis

The findings in Table 4.10 revealed that the overall model while controlling for ROA was found to be significant, with at least one estimated coefficient found to be different from 0, $F(4, 104) = 20.39$, $p\text{-value} = 0.0024$. The findings showed that the estimated standard deviation of α_i (σ_u) is 1.0904008, smaller than

Table 4: Selecting between fixed effects model and random effects model

	(b) fixed	(B) random	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
Prod Div	0.390812	0.218242	0.17257	0.246851
Geo Div	-0.42002	-0.51356	0.093542	0.120322
ROA	0.039533	0.016383	0.02315	0.020507
Firm Size	0.44650	0.396964	0.049536	0.067659

Chi2 (4) = 3.93

Prob > chi2 = 0.6868

From the findings presented in Table 4.11, the column labeled (b) represents the fixed effects model estimated coefficients while the one labeled (B) represents the random effects model estimated coefficients. From the Hausman test Table 4.11 which shows a summary of the results, the conclusion is that there is a failure to reject the null hypothesis of “difference in coefficients not systematic” to determinants of CS. This is because the chi-square value of 3.93 was not significant, p-value = 0.6868. Therefore, this implies that CS is analyzed using the random effects model. This means that the most appropriate model is the random effects model while controlling for ROA and firm size in which it has been shown that Geo Div and firm size have significant effects on CS.

Conclusion and recommendation

Our findings suggest that Product Diversification strategies have no impact on the Leverage ratios of the Kenyan companies, contrarian as expected. However, Geographic Diversification had an effect on the capital structure of firms listed in NSE.

The findings suggesting a non-linear relationship of Leverage with Geographic Diversification are consistent with the fact that firms in initial stages of expansion have restrained to equity issues, but in a more mature phase, other sources of financing will be available, replacing Leverage (Singh and Nejadmalayeri, 2004). After controlling the effect of the 2008 Financial Crisis in the models, most of the results previously achieved remained. Considering a Dual Diversification Strategy, Short-term Debt Ratio is negatively affected when a company has simultaneous Product and Geographic Strategies, enhancing the effect of Agency costs of disperse activities on the debt level (Jensen and Meckling, 1976). However, Long-term Debt Ratio is positively affected by a Dual Diversification strategy, as it was found by Singh et al. (2003). Our study makes some contributions to the existing literature that addresses the capital structure study of Kenyan listed companies. Firstly, it brings the issue of the determinants of capital structure for the Kenyan listed companies. Secondly, highlights the impact of Diversification strategies in capital structure, enriching the current literature with some diverging findings from the previous empirical studies. Our findings are relevant to suggest that contrarian to previous studies for American companies (Barton and Gordon, 1988; Kochhar and Hitt, 1998; Singh et al., 2003) Product Diversification strategies have the low explanatory power of Leverage. However, the results are similar to the ones achieves by Menendez-Alonso (2003) for a sample of Spanish companies.

This study presents some limitations. The first one is regarding the small sample size, due to a small number of Kenyan companies and available data, which could affect the statistical inference and consequentially the results. A second limitation is related to the quality of sales segment report for the companies in the analysis. The accuracy of those divulgations, disclosures and the definition of segments, independently of the accounting standard, is a managerial choice, impacting the quality of the report (Aleksanyan and Danbolt, 2015) and consequentially, the Diversification Indexes measure. Another limitation is the possible Reverse Causality

between Leverage and Diversification. The presence of Endogeneity could generate bias in estimates, i.e., reject a hypothesis that is, in fact, true and does not reject a hypothesis that is in fact false

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