THE EFFECT OF CAPITAL STRUCTURE ON EARNINGS PER SHARE OF PUBLICLY TRADED COMPANIES: A REVIEW OF RELATED LITERATURE

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Abstract: The purpose of this article is to conduct a review of related works on the relationship between capital structure and earnings per share of publicly traded companies to determine the nature of the relationship that exists between the two variables. A desk survey was employed to review related works. A summary of the methodology, findings and conclusions are presented to determine the extent to which the main question of the review is answered. The result revealed that there is a dearth of research on the effects of earnings per share on the capital structure of listed companies and vice versa, especially in Europe and America. The review also identified a unidirectional approach to the methodology of the reviewed works. There are divergent findings on the relationship that exists between earnings per share and capital structure which calls for more studies to be conducted to determine the behavior of these variables more clearly.

Keywords: earnings per share (EPS), capital structure, performance.

JEL classification: M41, N20.

1. Background

Over the years, the discussion around earnings per share (EPS) and the capital structure of quoted firms have been an interesting discussion that has been widely debated by scholars and managers saddled with the responsibility of making corporate financial decisions. Capital structure is the way a company balances the financing of its assets by combining equity, debt or hybrid securities. It was defined first by "Modigliani and Miller as the mix between debt and equity" a company utilizes in its operations (Modigliani and Miller, 1958). "A company's capital structure refers to the combination of debt and equity" that it has to fund its assets to increase its overall value (Mand and Singh, 2015). In practice, this combination ranges from simple to very complex and may include various sources.

Traditionally, debt has been preferred over equity since the cost of debt is usually considered lower than the cost of equity. However, it is believed also that debt is useful up to a certain limit after which it becomes too costly to use the debt mix to finance assets. There exists an optimum level of capital structure to a point where an increase in debt will improve profitability. Beyond that, it will reduce the profitability of a firm. As interest is paid out of the profits before tax, it provides a shield against tax burden, thereby improving profits available to equity shareholders. Although leverage does not change the total earnings of the firm, it does maximize the returns available to equity shareholders. On the other hand, excessively electing to use the debt option to finance the assets of a firm increases the financial risk of the firm and makes the cost of debt increasingly more expensive. The optimal capital

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structure is a mix of debt and equity in which the benefit of debt outweighs the cost of debt (Gupta, 2015).

One of the measures of values is Earnings Per Share which is succinctly captured under IAS 33- Earnings Per Share. "According to the International Accounting Standard (IAS) 33: Earnings per share, an entity that trades equity instruments on public markets is required to disclose EPS as part of its financial statements" (IFRS, 2014). EPS is a measure that allocates the earnings of a corporation with each of its ordinary shares (Vaidya, 2014). It measures a corporation's performance in relation to the share capital utilized to create such returns, and hence serves as an indicator of profitability (Koppeschaar, et al., 2013). It is stated that EPS is key in making investment decisions because it can be used to assess risk and corporate performance. As a result, EPS is a measure of shareholder wealth, and as EPS grows, so does the value of the share (Mkhonza, 2012).

One of the earliest works that attempted to examine the nexus between capital structure and a firm's performance was in 1945 by Chudson who explored the possible connection between the capital structure of a firm with its performance. However, since then, the debate as to whether a firm's capital structure influences its performance, especially earnings per share (EPS) has been debated and so far, there seem to be divergent conclusions on this topic. Fatoki and Olweny, (2017) attributed the divergent and inclusive opinions on methodology, choice of variables used, period of study and the data utilized.

Earlier researchers like Durand (1959) and Solomon (1963) concluded that capital structure influences earnings per share. Whereas, Miller and Modigliani (MM theory) (1958) proposed the net operating income approach, concluding that a firm's capital structure is immaterial in a perfect market. It posits the irrelevance of capital structure in a perfect market to its worth. Thus, the way a company is financed does not have any consequence on its earnings per share. Merton and Modigliani's assertions serve as the foundation for modern capital structure thought, as it is often regarded as a purely theoretical finding because it is founded on the assumptions of perfect market scenario that do not exist in the business world. In order words, the theory is based on impractical assumptions. So, the theory is seen by many as a mere academic exercise that does not have application in the real world of business. The Miller and Modigliani proposition was based on very restrictive assumptions that were subsequently modified in 1963 (Nassar, 2016).

Irrespective of the above argument, the discussion around capital structure gained prominence, interest and controversy, since the MM theory asserts that a firm's value does not depend on its capital structure. The hypothesis proposed by MM resonated in corporate finance academia. Subsequently, different theories such as Jensen and Meckling's (1976) agency cost theory was proposed. The agency cost theory discussed the conflict between managers and shareholders on one hand and debtors and shareholders on another hand. Since then, numerous scholars have examined diverse components of capital structure to assess their impact on a firm's performance using various performance proxies such as net profit, return on assets, earnings per share, and return on equity, among others.

The question of whether capital structure affects the earnings per share of a firm, or it is affected by a firm's earnings per share is a crucial one. And more importantly, the question of whether the relationship between capital structure and earnings per share is a two-way relationship is more crucial. On one hand, whether a firm's earnings per share is a key determinant of the capital structure, or the changes in capital structure affect underlying earnings per share remains a very valid question that needs answers.

Another major defect in the available literature is that most studies were conducted using a unidirectional approach in which decisions regarding capital structure influence a firm's EPS without taking into consideration the likelihood of a reverse causal relationship between the variables (Yinusa, et al., 2016). Due to these gaps, it is considered imperative to review the literature on this topic to determine whether researchers have adequately attempted to use

earnings per share as a proxy of financial performance on capital structure from the postulation of a reverse causality hypothesis.

This study adopts a desk survey using related materials from Google Scholar and Scopus. 30 papers were selected for the review based on their relevance. Most previous studies employed ROA and ROE as proxies for firm performance. However, this study seeks to review related literature on the effect of capital structure on EPS, therefore, only studies that captured EPS were selected. The methodology used and a summary of the findings would be presented. Any noted limitations would be presented. Finally, the researcher would decide as to whether the research has answered the identified gap or not.

2. Empirical Review of related literature

Much research has been conducted on the relationship between capital structure and earnings per share. However, it remains to be seen if this relationship is a two-way relationship or not.

2.1. Findings from Europe

In Romania, (Moscu, 2014) analyzed the correlation between capital structure and profitability of 53 companies listed in Romania. He measured profitability by using EPS among other profitability measures. Using multiple regression, the variables demonstrated a strong positive relationship with capital structure.

In another part of Europe, (Vuong, Vu and Mitra, 2017) investigated the impact of capital structure on the financial performance of listed UK firms for the period 2006-2015. The investigation measured data from 739 UK listed companies on London Stock Exchange using four performance variables, namely, "return on equity - ROE, return on assets - ROA, Tobin's Q and earnings per share - EPS as dependent variables". The result showed a negative relationship between capital structure and earnings per share. In another effort, Norvaišienė and Stankevičienė, (2012) investigated the relationship between capital structure and performance of Lithuania's food and beverage companies from 2005-2010. They employed "return on capital (ROC), return on equity (ROE), return on assets (ROA), earnings per share (EPS), operating margin and net profit margin" as indicators of performance. Using correlation coefficients, the result returned a negative relationship between EPS and the other indicators on capital structure. While these results are in agreement with Miller and Modigliani theorem, the authors did not test the reverse causality relationship between the two variables.

2.2. Findings from Asia

Mand and Singh (2015) measured the impact of capital structure on the earnings per share of Indian companies using 15 control variables. Panel data regression was used to establish the connection between the dependent and the independent variables. They found that capital structure has a statistically insignificant relationship with EPS in all sectors except telecommunications. Saleem and Naseem (2013), Utami and Hidayah (2017) also concluded in their research that no relationship exists between the two variables. Similarly, Siddik et al., (2017) measured the relationship between capital structure and performance of banks in Bangladesh using panel data of 22 banks for the period 2005-2014. Using ROE and EPS as proxies for bank performance, the result of the pooled OLS revealed that capital structure inversely affects bank performance of 136 companies listed on the Istanbul Stock Exchange (ISE) using return on assets (ROA), return on equity (ROE) and earnings per share (EPS) as proxies for firm performance and debt ratio (DR) as a proxy for capital structure. Using multivariate regression analysis, the result showed that there is a negative significant relationship between capital structure. These three findings

are consistent with Miller and Modigliani's proposition of 1958. It is unclear from both findings whether the firms were of similar sizes or not. Therefore, it is not clear if smaller-sized or bigger-sized firms would have different results. Again, the two studies only measured the effect of capital structure on EPS. The reverse effect was not considered. This again brings to mind the research gap.

In similar findings from above, Das (2017) investigated the relationship between capital structure and earnings per share of automobile companies in India. He investigated six companies using OLS regression analysis and Time Dummies and OLS regression analysis without using Time Dummies. The result showed capital structure has little or no effect on earnings per share. One major limitation of the research is the sample size which is just six. Whether a valid conclusion can be derived from this small sample remains to be seen. The question of authenticity also arose given the short period covered by the investigation -2012to 2016. Also, Gupta (2015), conducted an empirical study of the relationship between capital structure and profitability of foreign promoters in India. He applied correlation and multiple regression in SPSS and the findings indicated a positive relationship between EPS and profitability. However, further analysis indicated a negative relationship between capital structure and ROA, ROE and EPS. The research measured a one-way relationship between the variables. The reverse causality relationship was not measured. Similarly, in Bangladesh, Hossain, (2019) studied the relationship between capital structure and a firm's financial performance in a developing country. While the result showed a positive relationship between capital structure and equity, that of EPS returned a negative relationship. This finding is in consistent with other researchers, who also found a negative relationship Tifow and Sayilir 2015; Salim and Yadev 2012; Sivathaasan and Rathika 2013; Kalpana 2014; Rahman et al. 2019; San and Heng 2011).

Basit and Hassan (2017) used a survey of 250 enterprises registered on the Karachi Stock Exchange to investigate the impact of capital structure on a firm's performance (KSE). The findings revealed a positive association between EPS, ROE, and ROA using descriptive statistics, person correlation coefficient, and multiple linear regression. Similarly, Mujahid and Akhtar (2014), Chowdhury et al, 2010, Goyal (2013), Chandrakumarmangalam and Govindasamy (2010), Saeedi and Mahmoodi (2011), all found a positive relationship between the two variables.

2.3. Findings from Africa

In contrast to Miller and Modigliani's debt irrelevance theorem of 1958 and modified in 1963, Efuntade et al., (2019) examined how capital structure has affected the earnings per share of listed companies in Nigeria. Using multiple regression analysis (OLS), they tested the relationship between the dependent and independent variables using debt as a proxy for capital structure and EPS as a proxy for performance. They concluded that a well-configured capital structure management plays a key role in a firm's performance. Another research conducted in Ghana by Anafo, Amponteng and Yin, (2015) returned a similar result. Solomon et al. measured the impact of capital structure on the profitability of banks listed on the Ghana Stock Exchange from 2007 to 2013. They used EPS, ROA and ROE as indicators of performance. The statistical tool of analysis was descriptive statistics and multiple regression models. The result revealed a significant relationship between capital structure and earnings per share and other performance ratios such as ROA and ROE. However, not mentioning the causality test is a clear indication that a cause-effect relationship was not tested. Therefore, we cannot establish if capital structure influences EPS or not. Similarly, Akintoye et al. 2019 also found a significant effect between the variables studied.

In a contrasting finding in East Africa, Marobhe and es Salaam-Tanzania (2014) investigated the influence of capital structure on manufacturing firms in East Africa. He applied panel secondary data of 12 manufacturing companies for the period 2005-2012 using multiple

regression. The result showed an insignificant relationship between capital structure and earnings per share.

2.4. Reverse Causality Findings

In a reverse causality analysis, Fatoki and Olweny (2017) researched the effect of earnings per share on the capital structure of 87 companies in Nigeria using a causal research design. The result showed a significant relationship between share price and the capital structure of a firm at all levels. While this research is a significant shift from the norm, it does not test the relationships two-way. Similarly, Chen and Chou (2015), investigated the effects of EPS on capital structure in a rare reverse causality analysis in China. The result showed that EPS fluctuations affect the capital structure in a rather negative way. And that these fluctuations persist for at least a decade.

Author/ Publication year	Region/ Country	Sample Size	Period	Method	Findings
	Europe				
(Moscu, 2014)	Romania	53	Nil	multiple regression	positive Relationship
Vuong, et al. (2017)	United Kingdom	739	2006-2 015	Panel Data	No Relationship
Norvaišienė, R. and Stankevičienė, (2012)	Lithuania	Nil	2005-2 010	multi-correlation	Negative Relationship
	Asia				
Mand and Singh (2015)	India	Nil	2001-2 010	Panel data regression	No Relationship
Saleem & Naseem (2013)	Pakistan	8	2004-2 009	ANOVA; t-test. Correlation analysis	No Relationship
Salim, M., & Yadav, R. (2012)	Malaysia	237	1995-2 011	Panel data regression	negative relationship
Saeedi and Mahmoodi (2011)	Iran	320	2002- 2009	Panel data regression	Significant positive Relationship
Utami, & Hidayah (2017)	Indonesia	Nil	2011-2 016	Multiple correlation regression	No relationship negative impact
Siddik et al. (2017)	Bangladesh	22	2005-2 014	panel data; pooled OLS	Negative Impact
Nassar (2016)	Turkey	136	2005-2 012	multivariate regression analysis	Negative relationship
Sivathaasan and Rathika, (2013)	Sri Lanka	10	2006-2 010	Correlation and regression	Negative relationship
Kalpana (2014)	India	3	2003-2 012	Correlation	Negative correlation
Rahman et al. 2019	Bangladesh	50	2013- 2017	Regression analysis	Significant negative
Das (2017)	India	6	2012-2 016	OLS regression analysis Time Dummies	No effect

Table 1: Review Summary

Gupta (2015)	India	45	2008-2 012	Correlation descriptive statistics multiple regression	Negative relationship
Hossain et al. (2019)	Bangladesh	Nil	2013-2 017	panel data descriptive statistics pooled OLS	negative relationship
Tifow and Sayilir (2015)	Turkey	130	2008-2 013	panel data	negative relationship
Basit, A., & Hassan (2017)	Pakistan	250	2010-2 014	person correlation descriptive statistics linear regression	positive relationship
Chowdhury and Chowdhury (2010).	Bangladesh	77	1994-2 003	fixed effect model; descriptive statistics; time series	Positive relationship
Mujahid and Akhtar (2014)	Pakistan	155	2006-2 011	regression analysis	Positive relationship
Goyal (2013)	India	Nil	2008-2 012	regression analysis	Positive relationship
San and Heng (2011).	Malaysia	49	2005-2 008	Regression Model	Significant relationship
Chen and Chou (2015)	China	Nil	1965-2 012	Regression	Negative Effect
Chandrakumarmang alam & Govindasamy (2010)	India	7	1997-2 007	Regression	significant impact
	Africa				
Efuntade et al. (2019)	Nigeria	6	2010-2 017	multiple regression analysis	Positive Relationship
Anafo et al. (2015)	Ghana	17	2007-2 013	multiple regression descriptive statistics	significant relationship
Marobhe and es Salaam-Tanzania (2014)	East Africa	12	2005-2 012	multiple regression	insignificant relationship
Fatoki and Olweny (2017)	Nigeria	87	1999-2 015	OLS model GMM model	significant relationship
Rufus I. Akintoye et al. (2019)	Nigeria	20	2008-2 014	Descriptive statistics, linear regressions	Negative effect

Source: Own systematization

3. Conclusions

Capital structure and firm performance has been debated over the years. However, the focus has always been on other performance indicators such as, return on assets, return on

equity and other measures of performance. Thus, empirical evidence on EPS is limited which pose a gap that needs to be covered.

Another finding of the research is the unidirectional approach authors typically adopted in their efforts to investigate the relationship between capital structure and earnings per share. Investigations centered almost one hundred percent on the effect of capital structure on earnings per share. A few slim deviations measured the relationship between the two variables. Most of those relationships returned a negative correlation between the variable. Others found a positive relationship between capital structure and earnings per share while a few others found no relationship. However, they did not conduct any causality test. As a result, there were no conclusions on cause-effect relationships between the variables. Also, a few researchers investigated the effect of earnings per share on capital structure. However, no author conducted two-way research to ascertain the effect of the variables on each other. This gap calls for more research to be conducted to enable us to determine the behavior of these variables more clearly.

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Bio-Note

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